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Launch Summary
for
1978-1982



January 1984

Launch Summary

for

1978-1982

H. Kent Hills

January 1984

National Space Science Data Center (NSSDC)/
World Data Center A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

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INTRODUCTION

Purpose

World Data Center A for Rockets and Satellites (WDC-A-R&S) collects and exchanges reports of sounding rocket launches; reports of satellite and space probe launchings; descriptive information on spacecraft experiments; scientific reports on results of experiments that receive a limited distribution; data which support conclusions but which are not included in the published reports; and precise positional observations, orbital elements, and ephemerides that are of great scientific interest and value. Original (raw) or calibrated (reduced or analyzed) data are not normally deposited in the subcenter for rockets and satellites; calibrated data, however, are archived in the National Space Science Data Center and made available through the World Data Center A for Rockets and Satellites. Data related to rocket and satellite launchings are summarized in the *Launch Summary*. This annual report replaces the annual *World Data Center A Rockets and Satellites Catalogue of Data*, last published in 1975.

This document is in accordance with international agreements concerning international exchange of rocket and satellite data adopted by the Committee on Space Research (COSPAR) in May 1962 and published in *COSPAR Information Bulletin*, No. 9, Part I, July 1962. The *COSPAR Guide to Rocket and Satellite Information and Data Exchange* was incorporated in full by the Comité International de Geophysique (CIG) into the overall *Guide to International Data Exchange through the World Data Centers for the Period 1960-Onwards* (published in November 1963). These agreements were modified to include recommendations for improving the exchange of information and data, and a revised *COSPAR Guide to Rocket and Satellite Information and Data Exchange* was adopted by COSPAR in May 1972 and published in *COSPAR Transactions*, No. 8, Part I, December 1972.

The current plans for continued international exchange of solar-terrestrial data through the WDCs were set forth in the *STP Notes*, No. 6, and incorporated with slight modifications in the *Fourth Consolidated Guide to International Data Exchange through the World Data Centres*, published in June 1979 by the International Council of Scientific Unions (ICSU) panel on World Data Centers.

NSSDC Facilities and Services

The National Space Science Data Center (NSSDC) provides facilities for reproduction of data and for onsite data use. Resident and visiting researchers are invited to study data while at the Data Center. The Data Center staff will assist users with additional data searches and with the use of equipment. Advance notice of such a visit enables the staff to provide better services to the data user. In addition to rocket information and satellite data, the Data Center maintains some supporting information and other data that may be related to researchers' needs.

The services provided by NSSDC are available to any individual or organization resident in the United States and to researchers outside the United States through WDC-A-R&S. Normally a charge is made for the requested data to cover the cost of reproduction and the processing of the request. The researcher will be notified of the charge, and payment must be received prior to processing the request. However, as resources permit, the Director of

NSSDC/WDC-A-R&S may waive the charge for modest amounts of data when they are to be used for scientific studies or for specific educational purposes and when they are requested by an individual affiliated with (1) NASA installations, NASA contractors, or NASA grantees; (2) other U.S. Government agencies, their contractors, or their grantees; (3) universities or colleges; (4) State or local governments; or (5) nonprofit organizations.

The Data Center's address for requests follows:

National Space Science Data Center
Code 601.4
Goddard Space Flight Center
Greenbelt, Maryland 20771
Telephone No.: (301) 344-6695
Telex No.: 36975
TWX No.: 7108289716

Researchers who reside outside the U.S. should direct requests to

World Data Center A for Rockets and Satellites
Code 601
Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.
Telephone No.: (301) 344-6695
Telex No: 86975
TWX No.: 7108289716

Organization

This publication is a summary of launchings identified by NSSDC/WDC-A-R&S from launching reports received for the period January 1, 1978, through December 31, 1982. Thus this report updates and supersedes the published launch summaries for 1978, 1979, 1980, and 1981. There are two major sections to this edition: Sounding Rockets, and Artificial Earth Satellites and Space Probes.

The Sounding Rockets section contains a summary list of sounding rocket launchings and a list of the experimenters associated with the launchings and their addresses. There is also an index of launch sites and two tables giving the meanings and the codes used in the launch list for the Experiment Discipline and Instrument categories. A sample rocket launching report form is also included. The Artificial Earth Satellites and Space Probes section includes a summary list of satellite and space probe launchings, and a sample satellite or space probe launching report form. (The satellite and space probe launch list, as well as the sounding rocket launch list and the launch site index in the Sounding Rocket section, were all generated from the NSSDC information system.) There are two appendixes to this document. Appendix 1 is a description of the World Data Centers, including functions and responsibilities. Appendix 2 gives the addresses of the WDC-A Coordination Office and seven subcenters.

NSSDC/WDC-A-R&S welcomes comments regarding errors in this report. Recommendations directed to the appropriate address in reference to the overall contents and organization of this report would also be appreciated.

SOUNDING ROCKETS

List of Launches

The list of sounding rocket launchings was generated using the NSSDC Rocket File. This file is compiled from reports of rocket launchings, national reports to COSPAR, and scientific publications. The Rocket File is used for such lists because it facilitates easy sorting, selecting, updating, and report generation.

The list is a summary of launchings identified between January 1, 1978, and December 31, 1982, regardless of launch date. Information extracted from the file for this time-ordered printout is as follows: date and time of launch (universal time); the agency rocket identification; the sponsoring country or countries; the launch site; experiment disciplines; instruments used for the experiment; the peak altitude achieved by the rocket; and experimenters or institutions involved in the launching. Sponsoring countries provide scientists (experimenters), support personnel (such as launch crews), equipment (rocket vehicles, launch facilities), or funds for the launch.

When the launch site is aboard a ship, the coordinates of the ship location at time of launch are included, if known. Table 1 is a list of the launch sites identified to date. When launch sites have changed names or are in close proximity to one another, only one name is used.

The scientific disciplines with which the experiments are concerned are coded, as well as can be determined, from the information provided in the launch report. The disciplines are divided into 10 general categories, each of which may have up to 13 subcategories (See Table 2).

When possible, the type of instrumentation used on a particular rocket flight was selected from a standard coded list of instruments. In preparing this list, what was measured by the instrument or sensor function was emphasized, and the collimating, concentrating, selecting, comparing, and amplification characteristics were largely ignored. Table 3 shows the codes in use. Additional codes are available for instruments not covered in the list. NSSDC/WDC-A-R&S will assign these as needed.

Some rocket launches are not reported because the launching agencies did not provide the necessary information to WDC-A-R&S. Because the value of this publication increases with the number of flights reported, all agencies with knowledge of rocket launches are encouraged to announce launchings to WDC-A-R&S at the address given on page 2 of this document, preferably by means of the form shown in Figure 1. Copies of this form may be obtained from WDC-A-R&S.

Table 1. Launch Sites

SITE NAME	SITE LOCATION	GEOGRAPHIC		GEOMAGNETIC		ADD FOR UNIVERSAL TIME
		LAT	E LONG	LAT	E LONG	
ABERPORTH	WALES	52.09	355.67	55.64	79.76	-1.0 HR.
AKITA	JAPAN	39.57	140.07	29.47	205.45	-9.0 HR.
AKITA-KEN	SEE AKITA					
AKITA-SHI	SEE AKITA					
ALASKA ROCKET RANGE	SEE FAIRBANKS					
ANDENES	SEE ANDOYA					
ANDOYA	NORWAY	69.30	16.02	67.34	113.94	-1.0 HR.
ANTIGUA	WEST INDIES	17.15	298.22	28.55	7.85	+4.0 HR.
ARECIBO	PUERTO RICO	18.50	293.17	29.99	2.38	+4.0 HR.
ARENOSILLO	SEE EL ARENOSILLO					
ASCENSION ISLAND	EQUATORIAL ATLANTIC	-7.90	345.58	-1.24	53.83	+0.0
ATLANTIC MISSILE RANGE	SEE CAPE CANAVERAL					
BARBADOS	WINDWARD ISLANDS	13.05	300.50	24.38	10.17	+4.0 HR.
BARKING SANDS	SEE KAUAI					
BARREIRA DO INFENNO	SEE NATAL					
BARROW	USA/ALASKA	71.33	203.22	68.54	241.11	+10.0 HR.
BARTER ISLAND	USA/ALASKA	70.12	216.37	69.97	253.17	+10.0 HR.
BERMUDA	N ATLANTIC	32.20	295.55	43.66	5.32	+4.0 HR.
CAMP TORTUGUERA	SEE ARECIBO					
CAMP TUTO	SEE THULE/CAMP TUTO					
CAPE CANAVERAL	USA/FLORIDA	28.45	279.47	39.63	346.72	+5.0 HR.
CAPE KARIKARI	NEW ZEALAND	-34.00	173.50	-38.63	250.28	-12.0 HR.
CAPE KENNEDY	SEE CAPE CANAVERAL					
CAPE PARRY	CANADA/NORTHWEST TERRITORIES	70.17	235.28	73.72	269.94	+8.0 HR.
CARNARVON	AUSTRALIA/WESTERN AUSTRALIA	-24.50	113.40	-35.99	182.70	-8.0 HR.
CASSINO	BRAZIL	-32.20	307.83	-21.14	15.23	+3.0 HR.
CELPA	SEE CHAMICAL					
CELPA ATLANTICO	SEE MAR CHIQUITA					
CENTRE SPATIAL GUYANAIS	SEE KOUROU					
CHAMICAL	ARGENTINA	-30.33	293.68	-18.84	2.45	+4.0 HR.
CHILCA	PERU	-12.50	283.20	-1.11	352.19	+5.0 HR.
CHURCHILL	SEE FORT CHURCHILL					
COLOMB BECHAR	SEE HAMMAGUIR					
CORONIE	SURINAM (DUTCH GUIANA)	5.85	303.70	17.06	13.21	+4.0 HR.
CROATAN (SHIP)	VARIOUS OCEANS AND SEAS					
DEFIANCE (SHIP)	VARIOUS OCEANS AND SEAS					
DUMONT D'URVILLE	ANTARCTICA	-64.67	140.02	-73.80	226.07	-9.0 HR.
EAST QUODDY	CANADA/NEWFOUNDLAND	44.90	296.58	56.33	7.16	+4.0 HR.
EASTERN TEST RANGE	SEE CAPE CANAVERAL					
EGLIN AIR FORCE BASE	USA/FLORIDA	30.38	273.30	41.26	339.58	+6.0 HR.
EL ARENOSILLO	SPAIN	37.10	353.27	41.69	70.98	-1.0 HR.
ESRANGE	SEE KIRUNA					
FAIRBANKS	USA/ALASKA	65.00	212.40	64.79	256.58	+10.0 HR.
FORT CHURCHILL	CANADA/MANITOBA	58.73	266.18	68.67	323.20	+6.0 HR.
FORT GREELY	USA/ALASKA	64.00	214.88	64.38	259.86	+10.0 HR.
FORT SHERMAN	PANAMA	9.33	280.02	20.61	348.42	+5.0 HR.
FORT WAINWRIGHT	SEE FAIRBANKS					
FOX MAIN	CANADA/NORTHWEST TERRITORIES	68.77	278.78	80.23	353.11	+5.0 HR.
GEOPOLE STATION	SEE THULE/CAMP TUTO					
GILLAR	CANADA/MANITOBA	55.92	264.00	65.67	321.87	+6.0 HR.
GREEN RIVER	USA/UTAH	35.93	249.94	47.11	311.34	+7.0 HR.
GUAM	N PACIFIC	13.50	144.67	3.97	212.89	+10.0 HR.
HALL BEACH	SEE FOX MAIN					
HAMMAGUIR	ALGERIA	30.90	356.92	34.91	72.92	+0.0
HEISS ISLAND	FRANZ JOSEF LAND	80.62	58.05	71.31	156.06	-5.0 HR.
HOLLORAN AFB	SEE WHITE SANDS					
HUELVA	SEE EL ARENOSILLO					
ILE DU LEVANT	FRANCE	43.05	06.47	44.87	86.48	+0.0
JOHNSTON ATOLL	SEE JOHNSTON ISLAND					
JOHNSTON ISLAND	EQUATORIAL PACIFIC	16.75	190.48	14.33	256.34	+11.0 HR.
KAGOSHIMA	JAPAN	31.25	131.07	20.38	198.24	-9.0 HR.
KAGOSHIMA SPACE CENTER	SEE KAGOSHIMA					
KAPUSTIN YAR	U.S.S.R.	48.52	45.00	42.75	125.04	-4.0 HR.
KARACHI	SEE SONRIANI					
KARIKARI	SEE CAPE KARIKARI					
KARYSTOS	GREECE	38.02	24.42	36.46	102.12	-2.0 HR.
KAUAI	USA/HAWAIIAN ISLANDS	22.07	200.23	21.50	264.70	+11.0 HR.
KERGUELEN ISLAND	INDIAN OCEAN	-48.83	70.00	-56.79	127.95	-5.0 HR.
KEMEENAW	USA/MICHIGAN	47.43	272.28	58.14	335.71	+6.0 HR.
KHEYSA ISLAND	SEE HEISS ISLAND					
KIRUNA	SWEDEN	67.90	21.10	65.3	115.8	-1.0 HR.
KOROLEV (SHIP)	VARIOUS OCEANS AND SEAS					
KORONI BEACH	GREECE	36.77	21.95	35.75	99.38	-2.0 HR.
KOUROU	FRENCH GUIANA	5.20	307.27	16.00	16.60	+4.0 HR.
KRENKEL OBSERVATORY	SEE HEISS ISLAND					
KRENKEL (SHIP)	VARIOUS OCEANS AND SEAS					
KRONOGARD	SWEDEN	66.22	19.78	69.95	113.95	-1.0 HR.
KWJALEIN	MARSHALL ISLANDS	8.73	167.73	2.33	235.80	-12.0 HR.
LANDES TEST CENTER	SEE TEST CENTER OF LANDES					
LAPAN SPACE CENTER	INDONESIA	-6.27	106.87	-17.74	175.69	-7.0 HR.
LEBA	POLAND	54.47	17.33	53.60	102.24	-1.0 HR.
LENINSK	SEE TYURATAM					
MAR CHIQUITA	ARGENTINA	-37.75	302.58	-26.48	10.21	+4.0 HR.
MAR DEL PLATA	SEE MAR CHIQUITA					
MARAMBIO	SEE VICECOMEDORO MARAMBIO					
RCMURDO	ANTARCTICA	-77.50	165.00	-79.13	291.78	-11.0 HR.
RICHIKAWA	SEE AKITA					
POLODEZHNAJA	ANTARCTICA	-67.67	45.87	-69.76	85.36	-3.0 HR.
NATAL	BRAZIL	-5.87	324.62	3.87	33.70	+3.0 HR.
NORTON SOUND (SHIP)	VARIOUS OCEANS AND SEAS					
NOUADHIBOU	MAURITANIA	20.91	342.99	27.67	56.21	+0.0
NOYKOV (SHIP)	VARIOUS OCEANS AND SEAS					
OBACHI	JAPAN	40.70	141.73	30.60	206.75	-9.0 HR.
OSTROW KHEYSA	SEE HEISS ISLAND					
PACIFIC MISSILE RANGE	SEE POINT ARGUELLO					
PASSAT (SHIP)	VARIOUS OCEANS AND SEAS					
PERDASDEFUGU	SEE SARDINIA					
PLESETSK	U.S.S.R.	65.70	40.35	59.99	129.08	-4.0 HR.

Table 1. Launch Sites (Concluded)

SITE NAME	SITE LOCATION	GEOGRAPHIC		GEOMAGNETIC		ADD FOR UNIVERSAL TIME
		LAT	E LONG	LAT	E LONG	
PLYMOUTH ROCK (SHIP)	VARIOUS OCEANS AND SEAS					
POINT ARGUELLO	USA/CALIFORNIA	34.62	239.42	41.20	301.03	+8.0 HR.
POINT BARROW	SEE BARROW					
POINT MUGU	USA/CALIFORNIA	34.12	240.88	40.96	302.73	+8.0 HR.
POKER FLAT	SEE FAIRBANKS					
PORT-AUX-FRANCAIS	SEE KERGUELEN ISLAND					
PRILIV (SHIP)	VARIOUS OCEANS AND SEAS					
PRIMROSE LAKE	CANADA/SASKATCHEWAN	54.75	249.95	62.50	304.83	+7.0 HR.
PROFESSOR VIZE (SHIP)	VARIOUS OCEANS AND SEAS					
PUNTA LOBOS	PERU	-12.38	283.52	-0.89	352.69	+5.0 HR.
REGGANE	ALGERIA	26.72	0.17	30.26	75.13	+0.0
RESOLUTE BAY	CANADA/NORTHWEST TERRITORIES	74.70	265.10	82.99	289.27	+6.0 HR.
RUSHMORE (SHIP)	VARIOUS OCEANS AND SEAS					
SALTO DI QUIPRA	SEE SARDINIA					
SAN MARCO PLATFORM	INDIAN OCEAN	-2.94	40.20	-6.64	108.30	-3.0 HR.
SAN MARCO RANGE	SEE SAN MARCO PLATFORM					
SAN NICOLAS ISLAND	SEE POINT MUGU					
SARDINIA	SARDINIA	39.56	9.24	40.95	87.95	-1.0 HR.
SHIP A	EQUATORIAL PACIFIC	0.18	192.58	-0.51	267.59	+11.0 HR.
SHIP A.I. NOYKOV	SEE NOYKOV (SHIP)					
SHIP B	N ATLANTIC	62.06	296.08	73.49	8.39	+4.0 HR.
SHIP C	CANADA/NORTHWEST TERRITORIES	74.57	265.52	82.97	290.67	+6.0 HR.
SHIP D	N ATLANTIC	54.00	306.67	64.91	21.98	+4.0 HR.
SHIP E	N ATLANTIC	50.43	304.94	69.42	21.03	+4.0 HR.
SHIP F	N ATLANTIC	49.00	311.60	59.54	27.09	+3.0 HR.
SHIP G	N ATLANTIC	57.80	313.30	68.05	32.74	+3.0 HR.
SHIP H	N ATLANTIC	65.60	302.00	76.72	20.66	+4.0 HR.
SHIRSHOV (SHIP)	VARIOUS OCEANS AND SEAS					
SHOKALSKI (SHIP)	VARIOUS OCEANS AND SEAS					
SITLE STATION	ANTARCTICA	-75.92	276.09	-85.83	300.58	+6.0 HR.
SONDRE STROMFJORD	GREENLAND	67.02	309.60	77.40	34.82	+3.0 HR.
SONMIANI	PAKISTAN	25.20	66.75	16.74	138.75	-5.0 HR.
SOUTH END	CANADA/SASKATCHEWAN	56.32	256.56	65.17	313.05	+6.0 HR.
SOUTH UIST	UNITED KINGDOM	57.37	352.67	61.00	80.17	-1.0 HR.
SRIHARIKOTA	INDIA	13.78	80.25	3.84	150.15	-5.5 HR.
SYOWA BASE	ANTARCTICA	-69.00	39.60	-69.66	77.69	-3.0 HR.
SYOWA BAY	SEE SYOWA BASE					
TARTAGUL	ARGENTINA	-22.77	296.18	-11.31	4.87	+4.0 HR.
TERLS	SEE THUMBA					
TEST CENTER OF LANDES	FRANCE	44.27	3.61	46.61	84.11	-1.0 HR.
THULE/CAMP TUTO	GREENLAND	76.55	291.2	88.05	1.37	+4.0 HR.
THUMBA	INDIA	8.33	76.87	-1.22	146.27	-5.5 HR.
TONOPAH TEST RANGE	USA/NEVADA	38.00	243.50	45.19	304.48	+8.0 HR.
TRIVANDRUM	SEE THUMBA					
TYURATAM	U.S.S.R.	45.63	63.27	37.35	139.39	-5.0 HR.
TYURATAM-BAIKONUR	SEE TYURATAM					
UCHINDURA	SEE KAGOSHIMA					
USHAKOV (SHIP)	VARIOUS OCEANS AND SEAS					
USS PLYMOUTH ROCK	SEE PLYMOUTH ROCK (SHIP)					
VANDENBURG AFB	SEE POINT ARGUELLO					
VEGA BAJA	SEE ARECIBO					
VICECOMEDORO MARAMBIO	ANTARCTICA	-64.27	303.07	-52.95	8.67	-4.0 HR.
VIKTOR BUGAYEV (SHIP)	VARIOUS OCEANS AND SEAS					
VIZE (SHIP)	SEE PROFESSOR VIZE (SHIP)					
VOLGOGRAD	U.S.S.R.	48.68	44.35	43.14	123.82	-4.0 HR.
VOLNA (SHI.)	VARIOUS OCEANS AND SEAS					
WALKER CAY	BAHAMA ISLANDS	27.00	202.00	38.34	349.76	+5.0 HR.
WALLOPS FLIGHT CENTER	SEE WALLOPS ISLAND					
WALLOPS ISLAND	USA/VIRGINIA	37.83	284.52	49.31	352.12	+5.0 HR.
WEST GEIRINISH	SEE SOUTH UIST					
WESTERN TEST RANGE	SEE POINT ARGUELLO					
WHITE SANDS	USA/NEW MEXICO	32.40	253.47	41.19	316.88	+7.0 HR.
WOONERA	AUSTRALIA/SOUTHERN AUSTRALIA	-31.97	136.52	-42.18	209.55	-9.5 HR.
YUMA	USA/ARIZONA	32.87	245.68	40.51	308.23	+7.0 HR.

Table 2. Experiment Discipline Codes

1. Aurora and Airglow
 - 1A atmospheric radiations
 - 1B auroral emissions
 - 1C airglow emissions
 - 1D airglow composition
 - 1X subdiscipline unknown
2. Atmospheric Physics
 - 2A winds and diffusion
 - 2B pressure
 - 2C temperature
 - 2D albedo
 - 2E planetary radiations
 - 2F neutral density
 - 2G neutral composition
 - 2H electromagnetic waves
 - 2I acoustics
 - 2J meteorological applications
 - 2K noctilucent clouds
 - 2L absorption/scattering
 - 2X subdiscipline unknown
3. Ionosphere
 - 3A wave propagation
 - 3B currents and fields
 - 3C ion/electron density
 - 3D ion composition
 - 3E ion/electron temperature
 - 3F ion production/recombination
 - 3G ionospheric motions
 - 3X subdiscipline unknown
4. Energetic Particles
 - 4A galactic or solar cosmic rays
 - 4B precipitating particles
 - 4C trapped radiation
 - 4X subdiscipline unknown
5. Magnetic and Electric Fields
 - 5A electric fields
 - 5B magnetic fields
 - 5C other
 - 5X subdiscipline unknown
6. Solar Physics
 - 6A radio (> 1 mm)
 - 6B infrared (0.8-1000 micrometers)
 - 6C visible (3000-8000 Å)
 - 6D ultraviolet (2000-3000 Å)
 - 6E extreme UV (100-2000 Å)
 - 6F X rays (0.001-100 Å)
 - 6G gamma rays (< 0.0001 Å)
 - 6X subdiscipline unknown
7. Astronomy
 - 7A radio (> 1 mm)
 - 7B infrared (0.8-1000 micrometers)
 - 7C visible (3000-8000 Å)
 - 7D ultraviolet (2000-3000 Å)
 - 7E extreme UV (100-2000 Å)
 - 7F X rays (0.001-100 Å)
 - 7G gamma rays (< 0.0001 Å)
 - 7X subdiscipline unknown
8. Planetology
 - 8A micrometeorites
 - 8B zodiacal light or gegenschein
 - 8C gravity
 - 8D terrain photographs
 - 8X subdiscipline unknown
9. Biology
 - 9X subdiscipline unknown
10. Rocket/Satellite Test and Other
 - 0A performance
 - 0B communication systems
 - 0C experiment/test development
 - 0D engineering experiments
 - 0E other
 - 0X subdiscipline unknown

Table 3. Instrument Codes

ORIGINAL PAGE IS
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AF	accelerometer	BK	photon spectrometer (spectrograph)
AK	air sample	BKCH	Bragg
BD	antenna	BKKB	interferometer (grating spectrometer)
CR	camera	BKPM	optical monochromator
CRKE	image tubes (TV)	BKSF	proportional
CRQH	photography	BKUH	scintillator
CX	chaff, needles, tracked parachute	GO	Pitot tube
DC	chemical releases	RW	pressure
DCLA	ion cloud	SE	propagation
DCOM	neutral cloud	SEBZ	beacon
DCYQ	vapor	SESN	radar
GB	dust	SEZA	vlf/elf emissions
GI	electric field meter (electrometer)	SW	radiometer
GY	energy deposition	SWCH	bolometer
GYZZ	ion chamber	SWHU	fixed frequency
GYPC	nuclear emulsions	SWOG	multichannel
HG	exobiology (extraterrestrial life)	SWOZ	nonscanning
HGCF	biological sample	SWOJ	photometer
HP	falling sphere	SWOJ	photomultiplier
JE	gravity	SWRO	polarimeter
JH	grenade	SWUE	scanning
KD	hygrometer	SWUV	single frequency
LD	ion trap (probe or retarding potential analyzer)	SWWY	swept frequency
LDDI	cold cathode gage	UT	single element counter
LDDQ	Faraday cup (planar trap)	UTCW	Cerenkov
LDIY	capacitance probe	UTCJ	channeltron (electron multiplier)
LDIZ	Gerdien condenser	UTIQ	Geiger tube
LDKF	impedance probe	UTOR	neutron monitor
LDLU	Langmuir probe	UTPC	nuclear emulsions
LDTP	resonance probe	UTQJ	photomultiplier
LDDV	spherical traps	UTSF	proportional
LDDW	suprathermal ion detector	UTUH	scintillator
LG	ionization gauge	UTVP	solid-state detector
LGA5	alphatron	XG	telescope
LGBY	Bayard-Alpert	XGBD	antenna
LGPH	omegatron	XP	thermometer
LGTJ	redhead (magnetron)	XPCA	bead thermistor
LI	ionosondes (pulsed transmitter, receiver)	XX	mydas gyro
LIHU	fixed frequency	ZZ	unknown instrument or instruments
LIDG	multichannel		
LIWY	swept frequency		
MT	magnetometer		
MTBD	antenna		
MTBZ	fluxgate		
MTSH	proton precession		
MTUI	search coil		
MTYQ	vapor		
NP	meteorological rocketsonde		
NR	micrometeorites		
NX	other instrument or instruments		
OH	multielement counter		
OHCV	Cerenkov		
OHCI	channeltron (electron multiplier)		
OHIO	Geiger tube		
OHOR	neutron monitor		
OHPC	nuclear emulsions		
OHCF	proportional		
OHUH	scintillator		
OHVP	solid-state detector		
OHVU	spark chamber		
OO	ozone		
OOAC	absorption		
OOGT	emission		
OOUF	scattering (backscatter or forward scatter)		
OOZU	chemiluminescence		
PX	particle spectrometer (mass spectrometer)		
PXBT	conductance/resistance		
PXCV	double focus		
PXGS	electrostatic analyzer		
PXMR	magnetic		
PXSK	quadrupole radio frequency (massfilter)		
PXST	radio frequency (Bennett tube)		
PXYV	velocity filter (time of flight)		
PXZU	chemiluminescence		

R8105-0401

REPORT OF ROCKET LAUNCHING

WORLD DATA CENTER A
ROCKETS AND SATELLITES, CODE 601
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771 U.S.A.

SPONSORING (FUNDING) COUNTRY/COUNTRIES U.S.		REPORT DATE YEAR 1981 MONTH May DAY 4
LAUNCH SITE COUNTRY WHITE SANDS MISSILE RANGE, NM		AGENCY ROCKET IDENTIFICATION 27.058UH
LAUNCH SITE (SHIP) NAME N/A		ROCKET TYPE Nike Black Brant
LAUNCH SITE LATITUDE 32 ° 25 ' 4 " <input checked="" type="checkbox"/> NORTH <input type="checkbox"/> SOUTH		OTHER ROCKET IDENTIFICATION
LAUNCH SITE LONGITUDE 106 ° 19 ' 15 " <input type="checkbox"/> EAST <input checked="" type="checkbox"/> WEST		
UT LAUNCH DATE AND TIME YEAR 1981 MONTH May DAY 4 HOUR 07 MINUTES 55		
LOCAL ZONE LAUNCH TIME DAY _____ HOUR _____ MINUTES _____		

ROCKET VEHICLE

PROJECT SCIENTIST Dr. John Delvaille	AFFILIATION Smithsonian Astro-physical Observatory	PERFORMANCE <input checked="" type="checkbox"/> SUCCESS <input type="checkbox"/> PARTIAL <input type="checkbox"/> FAILURE	PEAK ALTITUDE KM 294.4 STATUTE MILES 182.5	
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EXPERIMENTS

NUMBER	EXPERIMENTER	EXPERIMENTER AFFILIATION	PERFORMANCE <input checked="" type="checkbox"/> SUCCESS <input type="checkbox"/> PARTIAL <input type="checkbox"/> FAILURE	DISCIPLINE*	INSTRUMENT OR OBSERVING TECHNIQUE*
1	Dr. Delvaille	SAO	<input checked="" type="checkbox"/> SUCCESS <input type="checkbox"/> PARTIAL <input type="checkbox"/> FAILURE	7F	GY; MT
			<input type="checkbox"/> SUCCESS <input type="checkbox"/> PARTIAL <input type="checkbox"/> FAILURE		
			<input type="checkbox"/> SUCCESS <input type="checkbox"/> PARTIAL <input type="checkbox"/> FAILURE		
			<input type="checkbox"/> SUCCESS <input type="checkbox"/> PARTIAL <input type="checkbox"/> FAILURE		

CHECK (✓) IF REQUIRED FOR LAUNCH

<input type="checkbox"/> AIRGLOW/AURORA	<input checked="" type="checkbox"/> NIGHT XXX	<input type="checkbox"/> STRATWARM
<input type="checkbox"/> ECLIPSE	<input type="checkbox"/> NOCTILUCENT CLOUD	<input type="checkbox"/> METEOR SHOWER
<input type="checkbox"/> DAWN/DUSK	<input type="checkbox"/> SUN/MAG QUIET	<input type="checkbox"/> OTHER _____
<input type="checkbox"/> SPORADIC E	<input type="checkbox"/> ARTIFICIAL EVENT	_____
<input type="checkbox"/> SPREAD F	<input type="checkbox"/> SOLAR FLARE	
<input type="checkbox"/> SID, PCA, OR AZA	<input type="checkbox"/> _____ OVERFLY SATELLITE	PREPARED BY <u>J.J. Wolff</u>
<input type="checkbox"/> MAGNETIC STORM	<input type="checkbox"/> ACTIVE SUN	AGENCY <u>NASA/GSFC</u>

REMARKS/RESULTS

The objective of this observation was a study of the spectrum of the diffuse soft X-ray background in the energy range 0.4 to 10 keV. The mission was successful and the payload has been recovered.

*SEE REVERSE SIDE FOR CODES.

8 Figure 1. Sample Report of Rocket Launching

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List of Launches

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
74/02/20 1701	C111-001	ESRO SWEDEN SWITZERLAND	KIRUNA	1B 2A 2C 3C 4E 4B 5A	GI LDLU LDVY NX SWG1 UTCZ UTVP	155	ESA-ESTEC FAHLESON,U.V. KOPP,E.
74/02/20 1807	S10-002	SWEDEN UNITED STATES	KIRUNA	1B 3A 3C 3E 4B 5A	GI LDLU LDVY NX SWG1 UTCZ UTVP	235	FAHLESON,U.V. HOFFMAN,R.A. HOLBACK,R. LUNDIN,R.
74/02/20 1822	C111-002	ESRO SWEDEN SWITZERLAND	KIRUNA	1B 2A 2C 3C 3E 4B 5A	GI LDLU LDVY NX SWG1 UTCZ UTVP	152	ESA-ESTEC FAHLESON,U.V. KOPP,E.
74/02/20 1907	S10-001	SWEDEN UNITED STATES	KIRUNA	1B 3A 3C 3E 4B 5A	GI LDLU LDVY NX SWG1 UTCZ UTVP	235	FAHLESON,U.V. HOFFMAN,R.A. HOLBACK,R. LUNDIN,R.
75/02/25 0135	SL-1301	AUSTRALIA UNITED KINGDOM	WOOMERA	6E	CRGH QKKQ XG	282	FIRTH,J.G. JONES,B.B. LUDBROOK,G.D. SHENTON,D.B.
75/06/24 1118	SL-1105	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	UTSF XG	180	JAMES,A.F. POUNDS,K.A. SMITH,A. WATSON,D.
75/11/21 1637	SO -001	SWEDEN	KIRUNA	0E	NX	131	SWEDISH SPACE CORP.
75/11/24 1515	SL-1112	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	UTSF XG	251	GRIFFITHS,R.E. POUNDS,K.A. ROTHENFLUG,R.
76/01/22 1858	S17-001	SWEDEN	KIRUNA	3C 3E 4B 5A	GI LDLU LDVY UTCZ UTVP	208	INSTITUTE OF TECHNOLOGY KIRUNA GEOPHYSICAL INST UPPSALA IONOSPHERIC OBS
*76/01/30 0107	SL-1302	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	CR QKCH QKPH	278	BOYD,R.L.F. DAY,M. DAY,N. PARKINSON,J.H.
76/02/21 1942	S18-001	FED REP OF GERMANY NORWAY SWEDEN	KIRUNA	2F 2G 3A 3C 3D 3F 4B	LD LDLU LG PKSK SE UTIG UTVP	105	MPI-KERNPHYSIK NORWEGIAN DEFENCE RES UPPSALA IONOSPHERIC OBS
76/03/02 2349	S21-001	SWEDEN UNITED KINGDOM	KIRUNA	3G	DCLA DCOM GI	160	U COLLEGE LONDON UPPSALA IONOSPHERIC OBS
76/03/06 2100	S17-002	SWEDEN	KIRUNA	3C 3E 4B 5A	LDLU LDVY UTCZ UTVP	210	INSTITUTE OF TECHNOLOGY KIRUNA GEOPHYSICAL INST UPPSALA IONOSPHERIC OBS
76/03/23 1920	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	98	CENTRAL AEROLOGICAL OBS
76/03/23 2040	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
*76/05/12 1050	SL-1115	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	UTSF XG	231	BERTHELSDORF,R. EYLES,C.J. HOOVER,R. WILLMORE,A.P.
76/05/18 1701	A03.410-01	UNITED STATES	WHITE SANDS	3C 6D	LD QKPH	190	BEDD,D.E. MCRAIDON,W.J. SWIRBALUS,R.
76/05/27 0030	SL-1271	AUSTRALIA UNITED KINGDOM	WOOMERA	3G 0A 0D	DCYG	254	BEATTIE,B.G.E. HAZELL,F POTTER,E.A. REES,D.
76/06/10 1740	SL-1212	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	QKCH XG	280	BOYD,R.L.F. STARR,J.
76/06/17 0747	SL-1501	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	UTSF XG	256	ZARNECKI,J.C. PROCTER,R. SKINNER,G.K.
*76/07/17 0610	SL-1402	SPAIN UNITED KINGDOM	EL ARENOSILLO	7F	QKCH UTSF XG	256	WILLMORE,A.P. BERTHELSDORF,R. BEUERMANN,K.
76/11/04 0745	SL-1306	AUSTRALIA UNITED KINGDOM	WOOMERA	7F	UTSF XG	191	STAUBERT,R. GILES,B. POUNDS,K.A.
*76/12/02 1440	SL-1114	AUSTRALIA UNITED KINGDOM	WOOMERA	7D 7E	CRGH QKKQ XG	263	WATSON,D. HARDCASTLE,R.A. SHENTON,D.B.

*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
77/01/15 0050	S18-002	FED REP OF GERMANY NORWAY SWEDEN	KIRUNA	2F 2G 3A 3C 3D 3F 4B	LD LDLU LG PKSK SE UTIG UTVP	104	MPI-KERNPHYSIK NORWEGIAN DEFENCE RES UPPSALA IONOSPHERIC OBS
77/01/27 1935	MR-12	U.S.S.R.	HEISS ISLAND	1B 2G 3C 3D 3E	LDLU PKST	157	INST OF APPLIED GEOPHYS POLAR GEOPHYSICAL INSTI
77/02/08 1758	S -022	BELGIUM NORWAY SWEDEN	KIRUNA	3C 3E 4B 5A	GK LDLU LDVY NK UTCZ UTVP	212	INSTITUTE OF TECHNOLOGY KIRUNA GEOPHYSICAL INST UNIVERSITE DE LIEGE UNIVERSITY OF BERGEN UNIVERSITY OF OSLO UNIVERSITY OF STOCKHOLM UPPSALA IONOSPHERIC OBS
77/02/09 1729	MR-12	U.S.S.R.	HEISS ISLAND	1B 2G 3C 3D 3E	LDLU PKST	167	INST OF APPLIED GEOPHYS POLAR GEOPHYSICAL INSTI
77/02/10 0022	S-310JA-02	JAPAN	SYOMA BASE	2G 3D 3E 4B	DCOM LDLU PKST	212	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/02/10 0315	MR-12	U.S.S.R.	HEISS ISLAND	2G 3D 3E 4B	DCOM LDLU PKST UTCZ	152	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/02/13 1219	MR-12	U.S.S.R.	HEISS ISLAND	2A 2C 2G 3C 3D 4B	DCOM LDKF PKST UTCZ	151	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/02/15 1848	S21-002	SWEDEN	KIRUNA	2G	DCLA DCOM	166	U COLLEGE LONDON UPPSALA IONOSPHERIC OBS
77/03/06 2331	MR-12	U.S.S.R.	HEISS ISLAND	2A 2C 2G 3C 3D 4B	DCOM LDKF PKST UTCZ	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/07 1553	MR-12	U.S.S.R.	HEISS ISLAND	2A 2C	DCOM	170	INST OF EXP METEOROLOGY
77/03/13 2131	MR-12	U.S.S.R.	HEISS ISLAND	2G 3D 3E 4B	DCOM LDLU PKST UTCZ	163	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/16 2005	MR-12	U.S.S.R.	HEISS ISLAND	2A 2C 2G 3C 3D 4B	DCOM LDKF PKST UTCZ	160	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/16 2010	MR-12	U.S.S.R.	HEISS ISLAND	2G 3D 3E 4B	DCOM LDLU PKST UTCZ	162	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/28 1906	MR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B	LDKF LDLU PKST UTCZ	155	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/28 2231	MR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B	LDKF LDLU PKST UTCZ	169	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/29 0006	MR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B	LDKF LDLU PKST UTCZ	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/29 0216	MR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B	LDKF LDLU PKST UTCZ	168	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
77/03/29 0337	MR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B	LDKF LDLU PKST UTCZ	165	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
*77/04/28 1225	SL-1115A	AUSTRALIA UNITED KINGDOM	WOODMERA	7F	UTCZ XG	244	BERTHELSDORF, R. EYLES, C. J. WILLMORE, A. P.
77/05/27 1940	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/05/27 2045	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/06/06 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/06/27 1148	P--196H	UNITED KINGDOM	SOUTH UIST	2G 3C	LDLU QKPM	129	DICKINSON, P. H. G.
77/06/27 1206	P--190H	UNITED KINGDOM	SOUTH UIST	2B 3C	LDHQ LDLU SWQI	124	WILLIAMS, E. R.
77/07/01 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	92	CENTRAL AEROLOGICAL OBS
77/07/06 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/07/06 1500	M-100	INDIA	THUMBA	2J	NP	79	CENTRAL AEROLOGICAL OBS
77/07/06 1530	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/07/08 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/07/13 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/07/13 1500	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/07/13 1500	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
77/07/13 2000	HMR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
77/07/15 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/07/15 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (11 00N 66 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/07/20 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/07/20 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/07/20 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/07/20 1800	MHR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
77/07/20 2000	MHR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
*77/07/21 0900	NASA 25.01600	UNITED STATES	WHITE SANDS	70 7C	CRKE SMQJ KG	206	BOHLIN, R. C. STECHE, T. P.
77/07/22 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/07/27 0400	MHR-06	U.S.S.R.	USHAKOV (SHIP) (36 00N 29 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
77/07/27 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/07/27 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/07/27 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/07/27 1900	MHR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
77/07/27 2100	MHR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
77/07/29 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/07/29 1900	MHR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
77/07/29 2000	MHR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
77/08/03 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/08/03 1030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/08/03 1400	M-100	INDIA	THUMBA	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/08/03 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/08/03 2200	MHR-06	U.S.S.R.	USHAKOV (SHIP) (52 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
77/08/05 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/08/05 2100	MHR-06	U.S.S.R.	USHAKOV (SHIP) (52 00N 35 00W)	2J	NP	63	CENTRAL AEROLOGICAL OBS
77/08/10 0700	M-100	INDIA	THUMBA	2J	NP	72	CENTRAL AEROLOGICAL OBS
77/08/10 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/08/10 1030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/08/10 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/08/10 2100	MHR-06	U.S.S.R.	USHAKOV (SHIP) (52 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
77/08/12 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/08/12 2100	MHR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
77/08/15 1115	L-03H-009 -133	JAPAN	KAGOSHIMA	0C 1C 3A 3B 3C 3D 3E 3X 4B 4C 7A 7F	LDKF LDLU LIHU LIWY LIUH PXGS PXSK QKKQ QKPM SEZA SMHU SMQJ	1294	FUKADA, Y. HIRAO, K. ITO, T. IWAMOTO, J. KAMADA, T. KANeko, O. KAWASHIMA, N. KONDO, T. KUBO, H. MA, T. MAKINO, T. MIYATAKE, S. MORIOKA, A. MUKAI, T. MURATA, S. YAKAHARA, M. ONO, T. OYA, M. OYAMA, K. SAGAWA, E. SASAKI, S. SEKIGUCHI, H. SUITZ, T. SUZUKI, K. TAKANO, M. WATANABE, T. YAMAMOTO, H.
77/08/17 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/08/17 1400	M-100	INDIA	THUMBA	2J	NP	69	CENTRAL AEROLOGICAL OBS
77/08/17 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/08/17 1620	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/08/17 2100	MHR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	63	CENTRAL AEROLOGICAL OBS
77/08/19 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/08/19 2100	MHR-06	U.S.S.R.	USHAKOV (SHIP) (52 00N 35 00W)	2J	NP	63	CENTRAL AEROLOGICAL OBS
77/08/23 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/08/24 1400	M-100	INDIA	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
77/08/24 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/08/24 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
77/08/26 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	93	CENTRAL AEROLOGICAL OBS
77/08/26 2100	MNR-06	U.S.S.R.	USHAKOV (SHIP) (52 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
77/09/31 1130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/08/31 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/08/31 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/08/31 1500	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/08/31 2200	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
77/09/03 1000	K-09M-059 S-134	JAPAN	KAGOSHIMA	1C 2F 3C 3E 6E	GYKZ LDF LDLU ODAC SWGJ UTCZ	376	HIGASHINO, I. HIRAO, K. OBAYASHI, T. OSAWA, T. OSHIO, T. OYAMA, K. SUZUKI, K. TAKEYA, K. TOHMATSU, T. WATANABE, N. WATANABE, T. WATANABE, Y.
77/09/07 0200	MNR-06	U.S.S.R.	USHAKOV (SHIP) (36 00N 23 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
77/09/07 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/09/07 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/09/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/09/07 1940	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/09/13 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
77/09/14 1222	K-010-013 S-135	JAPAN	KAGOSHIMA	7D 7E 7F	OMUH UTSF	204	HAYAKAWA, S. INOUE, M. IWANAMI, T. KOYAMA, K. KUNIEDA, H. MATSUOKA, M. NAGASE, F. TANAKA, Y. TSUNEMI, H. YAMASHITA, K.
77/09/14 1400	M-100	INDIA	THUMBA	2J	NP	67	CENTRAL AEROLOGICAL OBS
77/09/14 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/09/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/09/15 0930	S-210-012 S-136	JAPAN	KAGOSHIMA	1C 2F 3C	LDF LDLU ODAC QKPM	114	NAKINO, T. MATSUOKA, M. OBAYASHI, T. SEKIGUCHI, H. TOHMATSU, T. WATANABE, T. WATANABE, Y. YAMAMOTO, H.
77/09/21 0835	S-310-004 S-137	JAPAN	KAGOSHIMA	3A 3C 3E 3X	LDF LDLU LIMU SEZA	188	HASHIMOTO, K. HIRAO, K. KIMURA, I. MAMBO, M. MIYANI, S. NAGANO, J. ODA, M. OYAMA, H. SHIHZU, K. TAKEYA, Y.
77/09/21 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/09/21 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/09/21 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
77/09/22 1400	M-100	INDIA	THUMBA	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/09/28 1400	M-100	INDIA	THUMBA	2J	NP	--	CENTRAL AEROLOGICAL OBS
77/09/28 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	72	CENTRAL AEROLOGICAL OBS
77/09/28 1500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/09/28 1545	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
77/09/29 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/10/04 0220	MR-12	U.S.S.R.	VOLGOGRAD	2G 3D	PXST	170	CENTRAL AEROLOGICAL OBS
77/10/05 0500	M-100	U.S.S.R.	THUMBA	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/10/05 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/10/05 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/10/05 1500	M-100	U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/10/05 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
77/10/05 1700	M-100	U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/10/05 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	94	CENTRAL AEROLOGICAL OBS
77/10/05 2116	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	93	CENTRAL AEROLOGICAL OBS
77/10/08 0200	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
77/10/08 0400	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
77/10/11 1400	M-100	U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/10/12 1230	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/10/12 1345	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS

*IDENTIFILS LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

ORIGINAL PAGE IS
OF POOR QUALITY

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KFT)	EXPERIMENTERS OR INSTITUTIONS
77/10/12 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/10/12 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/10/13 0200	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/10/13 2020	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	94	CENTRAL AEROLOGICAL OBS
77/10/15 0200	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
77/10/15 0400	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	64	CENTRAL AEROLOGICAL OBS
77/10/18 2128	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	93	CENTRAL AEROLOGICAL OBS
77/10/19 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/10/19 1400	M-100	U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/10/19 1500	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/10/19 1645	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	77	CENTRAL AEROLOGICAL OBS
77/10/20 0100	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	66	CENTRAL AEROLOGICAL OBS
77/10/20 0300	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	65	CENTRAL AEROLOGICAL OBS
77/10/21 0849	S19- B	SWEDEN	KIRUNA	0A	**	374	ANDERSON, L.
77/10/21 1140	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/10/21 1240	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/10/22 0300	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
77/10/25 1120	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/10/25 1230	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/10/25 1800	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
77/10/26 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/10/26 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/10/26 1600	M-100	U.S.S.R.	THUMBA	2J	NP	79	CENTRAL AEROLOGICAL OBS
77/10/27 0200	MRR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
77/11/02 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/11/02 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/11/02 1540	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/11/02 1600	M-100	U.S.S.R.	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
77/11/02 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/11/02 1800	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	94	CENTRAL AEROLOGICAL OBS
77/11/05 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (15 00S 95 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/07 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (28 00S 95 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/08 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 101 00E)	2J	NP	75	CENTRAL AEROLOGICAL OBS
77/11/09 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/11/09 1430	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/11/09 1540	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/11/09 1700	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/09 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 108 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/09 1900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/10 1500	M-100	U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/11 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 108 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/13 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00S 95 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/11/15 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (50 00S 95 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
77/11/16 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/11/16 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/11/16 1500	M-100	U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/16 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
77/11/16 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (45 00S 95 00E)	2J	NP	76	CENTRAL AEROLOGICAL OBS
77/11/16 1737	FLIGHT 177 T 1-8729	UNITED STATES	WALLOPS ISLAND	2G	00AC	72	WRIGHT, D. U. JR.
77/11/16 1800	FLIGHT 178 T1-8718	CANADA UNITED STATES	FORT CHURCHILL	2G	00AC	75	WRIGHT, D. U. JR.
77/11/17 1100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00S 180 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/11/21 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 83 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/22 1500	M-100	U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/22 1650	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 77 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/11/23 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (09 00N 180 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/23 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/23 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/23 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/11/23 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 70 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/11/24 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (06 00N 180 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/11/24 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 65 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/11/26 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 180 00E)	2J	NP	74	CENTRAL AEROLOGICAL OBS
77/11/26 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00S 65 00E)	2J	NP	71	CENTRAL AEROLOGICAL OBS
77/11/28 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 06N 180 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/11/28 1500	M-100	U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
77/11/28 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (48 00S 65 00E)	2J	NP	77	CENTRAL AEROLOGICAL OBS
77/11/28 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (48 00S 65 00E)	2J	NP	70	CENTRAL AEROLOGICAL OBS
77/11/29 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (09 00N 179 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/11/29 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (44 00S 66 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
77/11/29 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (44 00S 66 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/30 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS
77/11/30 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/11/30 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/11/30 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/11/30 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00S 66 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/01 0900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	104	CENTRAL AEROLOGICAL OBS
77/12/01 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (35 00S 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/12/02 0200	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	66	CENTRAL AEROLOGICAL OBS
77/12/02 1100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00S 180 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/12/02 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 65 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/12/03 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/06 0005	AMF-N5B-003	CANADA	CAPE PARRY	1B 3C 3G 5A 5B 6B	BD LD MT OH PX QK QKKQ SWGI	300	HARRIS,F.R. HIRAO,K. KOEHLER,J.A. KOEHLER,R.A. LLEWELLYN,E.J. MCEWEN,D.J. MCNAMARA,A.G. SHEPHERD,G.G. WHALEN,B.A.
77/12/07 0200	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	65	CENTRAL AEROLOGICAL OBS
77/12/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/12/07 1500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/12/07 1520	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
77/12/09 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/10 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00S 180 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/12/11 0600	NASA 26.060GG	UNITED STATES	WHITE SANDS	7D 7E	CRKE SWQJ UTCZ	177	SMITH,A.H.
77/12/11 0745	NASA 25.017GG	UNITED STATES	WHITE SANDS	7D 7E	CRKE SWQJ XG	226	STECHEP,T.P.
77/12/11 1630	NASA 18.183GA	UNITED STATES	WHITE SANDS	6C 6D 6E	MT QKPM SWQJ	196	JUENTHER,B.W.
77/12/11 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/12/12 2300	AMF-N5B-004	CANADA	CAPE PARRY	1B 3C 3G 5A 5B 6B	BD LD MT OH PX QK QKKQ SWGI	---	HARRIS,F.R. HIRAO,K. KOEHLER,J.A. KOEHLER,R.A. LLEWELLYN,E.J. MCEWEN,D.J. MCNAMARA,A.G. SHEPHERD,G.G. WHALEN,B.A.
77/12/14 0200	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
77/12/14 0900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/12/14 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00S 180 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
77/12/14 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/12/14 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/12/14 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/12/14 1712	FLIGHT 179 T 1-8730	UNITED STATES	WALLOPS ISLAND	2G	OOAC	56	WRIGHT,D.U.,JR.
77/12/14 1800	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
77/12/15 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/12/15 1656	FLIGHT 180 T 1-8731	UNITED STATES	WALLOPS ISLAND	2G	OOAC	67	WRIGHT,D.U.,JR.
77/12/16 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/16 1800	FLIGHT 181 TH1-8719	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	75	WRIGHT,D.U.,JR.
77/12/18 1100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00S 179 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
77/12/19 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/20 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS

*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
77/12/21 0200	MNR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	66	CENTRAL AEROLOGICAL OBS
77/12/21 0920	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
77/12/21 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
77/12/21 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
77/12/21 1630	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
77/12/21 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/22 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 61 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/12/26 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00S 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
77/12/27 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
77/12/27 0740	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
77/12/27 2117	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/12/27 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/12/28 0300	MNR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
77/12/28 1030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
77/12/28 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
77/12/28 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/12/28 1700	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
77/12/29 1340	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/12/29 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
77/12/29 1620	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
77/12/29 1740	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/01/04 0930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/01/04 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/01/04 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS
78/01/04 1500	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/01/05 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (11 00S 159 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/01/09 2000	NASA 25-029GA	UNITED STATES	WHITE SANDS	1C 1D	QK	262	GENTIEU, E. P.
*78/01/10 0615	NASA 25-012UH	UNITED STATES	WHITE SANDS	7F	SMGJ CRQH UTCZ XG	150	MURRAY, S. S.
78/01/10 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (04 00S 160 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/01/11 1015	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/01/11 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (41 00N 160 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/01/11 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/01/11 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/01/11 1500	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/01/12 0820	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 165 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/01/12 1300	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/01/13 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/01/14 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/01/16 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/01/18 1100	M-100	U.S.S.R.	KOROLEV (SHIP) (10 00N 165 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/01/18 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (04 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/01/18 1255	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
*78/01/18 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/01/18 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/01/18 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/01/18 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/01/18 1708	FLIGHT 182 T 1-8732	UNITED STATES	WALLOPS ISLAND	2G	OOAC	72	WRIGHT, D. U., JR.
*78/01/18 1804	FLIGHT 183 TH1-8720	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	74	WRIGHT, D. U., JR.
78/01/20 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/01/20 1145	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/01/21 0901	A31-603	UNITED STATES	WHITE SANDS	3C	LD	258	COHEN, H. A.
78/01/22 0200	K-09M-062 S-138	JAPAN	KAGOSHIMA	3B 3C 3E 5B 6D	GI LD LDKF LDLU MTHZ QK	369	AOYAMA, I. EJIRI, M. HIRAO, K. KOMNO, T. MORI, M. OBAYASHI, T. OYAMA, K. TOHYAMA, F. WATANABE, Y. YAJIMA, N.
78/01/23 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (19 00N 160 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/01/25 1030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/01/25 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/01/25 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
78/01/25 1500	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS

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78/01/26 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (28 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/01/26 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (28 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/01/27 1100	K-09M-061 S-139	JAPAN	KAGOSHIMA	1C 2G 3A 3E 3X 4X	LDLU LIHU LIWY DHC2 PKMR QKPM SEZA SMWY NP	292	FUJISAWA, Y. KAMADA, T. KANEKO, O. KAWASHIMA, N. KAYA, N. MATSUMOTO, H. OYO, T. SASAKI, S. CENTRAL AEROLOGICAL OBS
78/01/27 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00S 165 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/01/30 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/01/30 2052	NASA 18.2111E NASA 18.2111E	NORWAY UNITED KINGDOM UNITED STATES	ANDOYA	0A 0C 1B 3C 4B 5A 5B	GI LDLU LIWY MT MTBD MTHZ MTUI DHC2 DHVP PKGS KGBD	201	MOLTEY, J. A. KELLEY, M. C. MATTHEWS, D. L. RYCROFT, M. J.
78/01/30 2137	A-GRC -086 T/NL F4C	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	3C 3E 4B 4C 5A 5B	GI LD MTHZ MTUI DHVP PKGS	540	DEHMEL, G. FISCHER, H. GRABOWSKI, R. PEDERSEN, A. RIEDLER, M. W. SPENNER, R. STUEMANN, W. THEILE, B. WILHELM, K.
78/01/30 2210	A-GRC -088 T/NL F2D	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	3C 3E 4B 4C 5A 5B	GI LD MTHZ MTUI DHVP PKGS	541	DEHMEL, G. FISCHER, H. GRABOWSKI, R. PEDERSEN, A. RIEDLER, M. W. SPENNER, R. STUEMANN, W. THEILE, B. WILHELM, K.
78/01/31 1835	NASA 27.029CS	UNITED STATES	WHITE SANDS	6A 6F	CRKE CROH QKCM XG NP	273	DAVIS, J. H.
78/02/01 0200	M-100	U.S.S.R.	KOROLEV (SHIP) (49 00S 163 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/02/01 0200	MHR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
78/02/01 0930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/02/01 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/02/01 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/02/01 1500	M-100	U.S.S.R.	MOLODCHYNAYA	2J	NP	---	CENTRAL AEROLOGICAL OBS
78/02/02 0854	NASA 29.008UE	UNITED STATES	FAIRBANKS	1B	PKGS UTCZ	616	EVANS, J. S. MOORE, T. SCHERR, F. D'VLR
78/02/02 1110	A-OR -90 ORION 1	FED REP OF GERMANY NORWAY	ANDOYA	0A	AF MT	57	D'VLR
78/02/02 1304	P--199H	UNITED KINGDOM	SOUTH UIST	2G 3C	LDLU QKPM	140	DICKINSON, P. H. G.
78/02/02 1333	P--203H	FED REP OF GERMANY UNITED KINGDOM	SOUTH UIST	2B 3C 3D	LDIZ LG PKSK	112	KRANKOWSKY, D. K. H.
78/02/02 1356	P--112H	UNITED KINGDOM	SOUTH UIST	3C 6E	LDIZ LDLQ LDLU NP	135	WILLIAMS, E. R.
78/02/03 0300	MHR-06	U.S.S.R.	USHAKOV (SHIP) (55 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
78/02/03 1000	M-100	U.S.S.R.	KOROLEV (SHIP) (49 00S 177 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/02/03 1430	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
*78/02/04 0820	NASA 26.063UH	UNITED STATES	WHITE SANDS	7F	CR MT UTSF LDLU UTQJ LDHQ LDLU SWGI LDIZ LG PKSK LDLU QKPM VP	29	KRAUSHAAR, W. L.
78/02/06 0020	P--200H	UNITED KINGDOM	SOUTH UIST	1C 3C	LDLU UTQJ	136	DICKINSON, P. H. G.
78/02/06 0100	P--202H	UNITED KINGDOM	SOUTH UIST	2B 3C	LDHQ LDLU SWGI LDIZ LG	125	WILLIAMS, E. R.
78/02/07 0030	P--204H	UNITED KINGDOM	SOUTH UIST	2B 3C 3D	LDIZ LG PKSK LDLU QKPM VP	108	KRANKOWSKY, D. K. H.
78/02/07 0101	P--198H	UNITED KINGDOM	SOUTH UIST	2G 3C	LDLU QKPM VP	139	DICKINSON, P. H. G.
78/02/07 0900	M-100	U.S.S.R.	KOROLEV (SHIP) (10 00S 177 00W)	2J	NP	82	CENTRAL AEROLOGICAL OBS

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78/02/08 0300	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 36 00W)	2J	NP	64	CENTRAL AEROLOGICAL OBS
78/02/08 0423	AGF-6 -006	CANADA	FORT CHURCHILL	3G	SESN	95	FORSYTH,P.A.
78/02/08 1010	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/02/08 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/02/08 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/02/08 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/02/10 0200	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
78/02/10 0530	NASA 21.05605	UNITED STATES	WHITE SANDS	7E	CRKE QKKQ XG	238	DAVIDSEN,A. FASTIE,W.G.
78/02/10 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/02/13 1715	NASA 21.04205	UNITED STATES	WHITE SANDS	6E	CRKE CRQH OK XG	210	BRUECKNER,S.E.
78/02/15 0400	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	69	CENTRAL AEROLOGICAL OBS
78/02/15 0800	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/02/15 0900	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 180 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/02/15 1110	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	64	CENTRAL AEROLOGICAL OBS
78/02/15 1400	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/02/15 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/02/15 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/02/15 1703	FLIGHT 184 T 1-8734	UNITED STATES	WALLOPS ISLAND	2G	OOAC	70	WRIGHT,D.U.,JR.
78/02/15 1803	FLIGHT 185 TH1-9298	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	74	WRIGHT,D.U.,JR.
78/02/17 0300	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	65	CENTRAL AEROLOGICAL OBS
78/02/17 0900	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 170 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/02/17 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/02/19 0920	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 165 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/02/21 1120	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/02/22 0200	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	68	CENTRAL AEROLOGICAL OBS
78/02/22 0900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/02/22 1050	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	69	CENTRAL AEROLOGICAL OBS
78/02/22 1210	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/02/22 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/02/22 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/02/23 0830	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 178 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/02/24 0335	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	64	CENTRAL AEROLOGICAL OBS
78/02/24 0930	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 170 00W)	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/02/24 1030	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/02/24 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/02/26 1100	K -09M-060	JAPAN	KAGOSHIMA	7D 7E 7F	QKSF SWQJ UTSF UTUM	340	HAYAKAWA,S. INOUE,H. ITOH,K. IWAGAMI,H. KOTAMA,K. KUNIEDA,H. MATSUOKA,H. NAGASE,F. TANAKA,Y. TSUNEMI,H. YAMASHITA,K.
78/02/27 0530	AAF-48-035	CANADA	FORT CHURCHILL	1B 3C 3G	LD PX	700	KOEMLER,J.A. MCNAMARA,A.S. WHALEN,B.A.
78/02/27 0532	AKF-6 -014	CANADA	FORT CHURCHILL	1B	UTUM	55	VENKATESAN,D.
78/02/27 0800	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00W)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/02/28 0309	AKF-6 -015	CANADA	FORT CHURCHILL	1B	OHUM	57	VENKATESAN,D.
78/02/28 0811	IC419.008-01	UNITED STATES	FAIRBANKS	1B 3B 5B	BD LD LDIY LQKF LDLU MT DHUM PXGS SWQI CRKE MT QKKQ	460	ULWICK,J.C.
78/02/28 1752	NASA 13.1360A	UNITED STATES	WHITE SANDS	1C	CRKE MT QKKQ	223	CARRUTHERS,G.R.

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78/03/01 0113	FERDINAND-047	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	9A 2F 2G 2J 3A 3C 4B 6F	LDIZ RTHZ DHIG OHUH OHVP PXSK SE	128	FRIEDRICH,H. STADNES,J. THRAVE,E.V. VON ZAHN,U.
78/03/01 0113	FERDINAND-048	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	9A 2F 2G 2J 3A 3C 3D	LDIZ LG RTHZ PXSK SE	109	ARNOLD,F. FRIEDRICH,H. KRANKOWSKY,D.K.H. THRAVE,E.V.
78/03/01 0730	M-100	U.S.S.R.	KOROLEV (SHIP) (10 00N 160 00W)	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/03/01 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/03/01 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/03/01 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/03/01 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/03/01 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
78/03/03 1150	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/03/03 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/03/03 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/03/03 0900	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 160 00W)	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/03/05 1015	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 160 00W)	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/03/07 0700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/03/07 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/03/07 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/03/08 0400	NASA 25.023UH	UNITED STATES	WHITE SANDS	7F	CRKE UTSF XG	190	RAPPAPORT,S.
78/03/08 0740	M-100	U.S.S.R.	KOROLEV (SHIP) (50 00N 160 00W)	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/03/08 0910	M-100	U.S.S.R.	KOROLEV (SHIP) (50 00N 161 00W)	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/03/08 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/03/09 0813	NASA 29.007UE	UNITED STATES	FAIRBANKS	1B 3B 3C	LDLU MT PXGS QK XGBD NP	336	ANDERSON,H.R.
78/03/10 1540	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	68	CENTRAL AEROLOGICAL OBS
78/03/13 0705	NASA 25.031UE	CANADA UNITED STATES	FORT CHURCHILL	1B	LDLU FX QK SMGJ NP	198	SHARP,W.E. MINNINGHAM,J.D. ZIFF,E.C.,JR.
78/03/15 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/03/15 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/03/15 1714	FLIGHT 187 T 1-8735	UNITED STATES	WALL OPS ISLAND	2G	NP OOAC	76	WRIGHT,D.U.,JR.
78/03/15 1900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/03/16 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/03/17 0700	MNR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/03/17 0800	MNR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	64	CENTRAL AEROLOGICAL OBS
78/03/19 0900	MNR-06	U.S.S.R.	VOLNA (SHIP) (16 00N 150 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/03/19 1300	M-100	U.S.S.R.	SHIRSHOV (SHIP) (30 00S 178 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/03/21 0700	MNR-06	U.S.S.R.	VOLNA (SHIP) (24 00N 150 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/03/22 1350	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/03/22 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
78/03/22 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	70	CENTRAL AEROLOGICAL OBS
78/03/22 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/03/22 1600	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/03/22 1801	FLIGHT 186 TH1-9299	CANADA	FORT CHURCHILL	2G	NP OOAC	74	WRIGHT,D.U.,JR.
78/03/22 1835	FLIGHT 188 TH1-9300	UNITED STATES	FORT CHURCHILL	2G	NP OOAC	67	WRIGHT,D.U.,JR.
78/03/24 0800	MNR-06	U.S.S.R.	VOLNA (SHIP) (34 00N 150 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/03/26 0700	MNR-06	U.S.S.R.	VOLNA (SHIP) (40 00N 150 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/03/26 1100	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 179 00E)	2J	NP	92	CENTRAL AEROLOGICAL OBS
78/03/26 1300	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 179 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/03/27 1027	NASA 18.215GM	UNITED STATES	FAIRBANKS	1A 1B	MT OHUH UTIQ XG NP	219	SOLDBERG,R.A. JONES,W.H.
78/03/29 0700	MNR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
78/03/29 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
78/03/29 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
78/03/29 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	92	CENTRAL AEROLOGICAL OBS
78/03/29 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/03/29 1420	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/03/29 1500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/03/29 1650	NASA 18-214GM	UNITED STATES	FAIRBANKS	1A 1B	MT OHM UTIQ KG	231	GOLOBERG, R.A. JONES, W.H.
78/03/30 1300	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/03/30 1400	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/03/31 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
78/03/31 1410	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/03/31 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/04/01 1600	MHR-06	U.S.S.R.	USHAKOV (SHIP) (43 00N 031 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/04/01 1700	MHR-06	U.S.S.R.	USHAKOV (SHIP) (43 00N 031 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
78/04/03 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (02 00N 179 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/04/03 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (02 00N 179 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
*78/04/05 1158	A11-712-03	UNITED STATES	KWAJALEIN	2F	HP	26	PHILBRICK, C.R.
78/04/05 1226	A11-712-04	UNITED STATES	KWAJALEIN	2F	HP	175	PHILBRICK, C.R.
78/04/05 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/04/05 1500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	---	CENTRAL AEROLOGICAL OBS
78/04/05 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/04/06 1100	M-100	U.S.S.R.	KOROLEV (SHIP) (01 00N 170 00W)	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/04/07 1045	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (29 45N 29 43W)	2G 3C 3D 3E	LDKF LDLU PKST	178	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
78/04/07 1100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 165 00W)	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/04/07 1230	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 165 00W)	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/04/07 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/04/07 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/04/09 0450	NASA 27-010AE	CANADA UNITED STATES	FORT CHURCHILL	1B 5A 5B	AF MTBD SWGJ XGBD	247	SIRNSTEIN, W. COHEN, H.A. KELLOGG, P.J. KOONS, H.C. WALIN, S.A. WILHELM, R.
78/04/09 0700	MHR-06	U.S.S.R.	MUSSON (SHIP) (31 00N 030 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
78/04/11 0400	NASA 27-026UH	UNITED STATES	WHITE SANDS	7E 7F	OK KG	303	BOWYER, C.S.
78/04/12 0143	ADD-5A-049	CANADA SWEDEN	FORT CHURCHILL	1B 1C 1D 3G	0Y LD OK	140	EVANS, W.E.J. KOEHLER, J.A. LLEWELLYN, E.J. MCNABARA, A.G. WITT, G.
78/04/12 0700	MHR-06	U.S.S.R.	MUSSON (SHIP) (18 00N 030 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/04/12 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (18 00N 030 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/04/12 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/04/12 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/04/12 1620	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/04/12 1700	FLIGHT 189 T 1-8736	UNITED STATES	WHITE SANDS	2J	OOAC	72	WRIGHT, D.U., JR.
78/04/15 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (05 00N 030 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
*78/04/18 1918	AAF-6 -013	CANADA	FORT CHURCHILL	8A	NR	75	WLOCHOWICZ, R.
78/04/19 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	93	CENTRAL AEROLOGICAL OBS
78/04/19 1035	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (19 59N 29 40W)	2G 3C 3D 3E	LDKF LDLU PKST	161	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
78/04/19 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/04/19 1537	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (19 51N 30 24W)	2G 3C 3D 3E	LDKF LDLU PKST	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
78/04/19 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/04/20 1700	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/04/21 0529	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (20 05N 30 00W)	1C 4B 6D	OOAC SWG1 UTCZ UTIQ	170	INST OF APPLIED GEOPHYS SSCNR
78/04/21 0626	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (20 03N 29 47W)	1C 4B 6D	OOAC SWG1 UTCZ UTIQ	170	INST OF APPLIED GEOPHYS SSCNR

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78/04/21 0752	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (19 59N 29 26W)	1C 4B 6D	OOAC SWG1 UTCZ UTIG	---	INST OF APPLIED GEOPHYS SSCNR
78/04/21 1000	M-100	U.S.S.R.	KOROLEV (SHIP) (35 00N 160 00W)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/04/21 1740	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (20 05N 30 31W)	1C 4B 6D	OOAC SWG1 UTCZ UTIG	170	INST OF APPLIED GEOPHYS SSCNR
78/04/21 1830	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (20 05N 30 31W)	1C 4B 6D	OOAC SWG1 UTCZ UTIG	170	INST OF APPLIED GEOPHYS SSCNR
78/04/22 0835	M-100	U.S.S.R.	KOROLEV (SHIP) (39 00N 160 00W)	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/04/22 1000	M-100	U.S.S.R.	KOROLEV (SHIP) (39 00N 160 00W)	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/04/23 0920	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 165 00W)	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/04/24 0850	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 170 00W)	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/04/25 0850	M-100	U.S.S.R.	KOROLEV (SHIP) (44 00N 170 00W)	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/04/26 0430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/04/26 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/04/26 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/04/26 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (44 00N 170 00W)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/04/27 0900	M-100	U.S.S.R.	KOROLEV (SHIP) (43 00N 177 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/04/28 1900	FLIGHT 190 TH1-9301	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	73	WRIGHT, D. U., JR.
78/05/03 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
78/05/03 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/05/03 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/05/04 0614	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (24 49S 29 36W)	1C 4B 6D	OOAC SWG1 UTCZ UTIG	168	INST OF APPLIED GEOPHYS SSCNR
78/05/04 0705	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (24 49S 29 34W)	1C 4B 6D	OOAC SWG1 UTCZ UTIG	165	INST OF APPLIED GEOPHYS SSCNR
78/05/04 1829	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (24 54S 30 25W)	4B 6D 6E	SWGJ UTCZ UTIG	168	INST OF APPLIED GEOPHYS SSCNR
78/05/05 0630	HR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (24 49S 29 29W)	1C 4C	SWG1 UTCZ UTIG	160	INST OF APPLIED GEOPHYS SSCNR
78/05/06 0700	NASA 13.137UH	UNITED STATES	WHITE SANDS	7F	MT UTSF	200	KRAUSHAAR, W. L.
78/05/10 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	54	CENTRAL AEROLOGICAL OBS
78/05/10 0530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	62	CENTRAL AEROLOGICAL OBS
78/05/10 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/05/10 1417	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/05/10 1500	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/05/12 0501	SL-1305	AUSTRALIA UNITED KINGDOM	WOOMERA	6E	CRGH UTCZ XG	283	GABRIEL, A. H. HARDCASTLE, R. A. STRONG, K.
78/05/15 0905	NASA 25.026DG	UNITED STATES	WHITE SANDS	7E	CRKE GKKQ	211	CARRUTHERS, G. R.
78/05/15 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	75	CENTRAL AEROLOGICAL OBS
78/05/16 1833	M-100B	U.S.S.R.	VOLGOGRAD	2G	OOZU	79	CENTRAL AEROLOGICAL OBS
78/05/16 2030	A04.606-01	UNITED STATES	WHITE SANDS	1C 3C 6E	PXGS GKKQ SWG1	191	HEROUX, L. J. MCMANON, W. J. VAN TASSEL, R. A.
78/05/17 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/05/17 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/05/17 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	77	CENTRAL AEROLOGICAL OBS
78/05/17 1503	T 1-9409	UNITED STATES	WHITE SANDS	2G	OOZU	71	BOLLARMAN, B.
78/05/17 1515	T 1-9410	UNITED STATES	WHITE SANDS	2G	OOZU	71	BOLLARMAN, B.
78/05/17 1702	FLIGHT 191 T 1-8737	UNITED STATES	WHITE SANDS	2G	OOAC	71	WRIGHT, D. U., JR.
78/05/17 1843	T 1-9411	UNITED STATES	WHITE SANDS	2G	OOZU	70	BOLLARMAN, B.
78/05/17 1905	T 1-9412	UNITED STATES	WHITE SANDS	2G	OOZU	67	BOLLARMAN, B.
78/05/17 1948	T 1-9413	UNITED STATES	WHITE SANDS	2G	OOZU	72	BOLLARMAN, B.
78/05/17 2000	T 1-9414	UNITED STATES	WHITE SANDS	2G	OOZU	66	BOLLARMAN, B.
78/05/17 2105	M-100B	U.S.S.R.	VOLGOGRAD	2G	OOZU	81	CENTRAL AEROLOGICAL OBS
78/05/18 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/05/19 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/05/20 0929	A45.709-01	UNITED STATES	WALLOPS ISLAND	2A	DC	53	QUESADA, A. F.
78/05/22 0927	A45.709-02	UNITED STATES	WALLOPS ISLAND	2A	DC	54	QUESADA, A. F.
78/05/23 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/05/23 2018	M-100B	U.S.S.R.	VOLGOGRAD	2G	OOZU	78	CENTRAL AEROLOGICAL OBS

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78/05/24 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/05/24 0510	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	67	CENTRAL AEROLOGICAL OBS
78/05/24 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	77	CENTRAL AEROLOGICAL OBS
78/05/24 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/05/24 1800	FLIGHT 192 THI-9302	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	71	WRIGHT,D.,U.,JR.
78/05/24 2132	M-100B	U.S.S.R.	VOLGOGRAD	2G	OOZU	80	CENTRAL AEROLOGICAL OBS
78/05/26 0000	M-100	U.S.S.R.	VOLGOGRAD	2K	NR	88	CENTRAL AEROLOGICAL OBS
78/05/26 0100	M-100	U.S.S.R.	VOLGOGRAD	2K	NR	82	CENTRAL AEROLOGICAL OBS
78/05/29 1400	M-100	INDIA	THURBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/05/30 2035	MR-12	U.S.S.R.	VOLGOGRAD	2H 4B 5A 5B	GI MT UTIQ	170	INST OF APPLIED GEOPHYS
78/05/30 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/05/31 1400	M-100	INDIA	THURBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/05/31 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS
78/05/31 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/06/02 1400	M-100	INDIA	THURBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/06/06 1741	MR-12	U.S.S.R.	VOLGOGRAD	2A 2G 3D	DCOM PXST	180	INST OF APPLIED GEOPHYS
78/06/06 2035	MR-12	U.S.S.R.	VOLGOGRAD	2A 2G 3D	DCOM PXST	176	INST OF APPLIED GEOPHYS
78/06/06 2321	MR-12	U.S.S.R.	VOLGOGRAD	2A	DCOM	176	INST OF EXP METEOROLOGY
78/06/07 0000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
78/06/07 0900	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	68	CENTRAL AEROLOGICAL OBS
78/06/07 1400	M-100	INDIA	THURBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/06/07 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/06/07 1506	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/06/09 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/06/11 0127	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (37 47N 75 14W)	2G 3D 4C 6D 6E	PXST SWGJ UTCZ UTIQ	170	INST OF APPLIED GEOPHYS SSCNR
78/06/13 2240	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/06/14 1400	M-100	INDIA	THURBA	2J	NP	78	CENTRAL AEROLOGICAL OBS
78/06/14 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/06/14 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/06/14 1433	M-100B	INDIA	THURBA	2G	KD	78	CENTRAL AEROLOGICAL OBS
78/06/14 1506	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/06/14 1711	FLIGHT 193 T 1-9308	UNITED STATES	WHITE SANDS	2G	OOAC	71	WRIGHT,D.,U.,JR.
78/06/14 1806	FLIGHT 194 THI-9303	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	73	WRIGHT,D.,U.,JR.
78/06/16 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/06/19 2310	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (37 45N 75 13W)	4C 6D 6E	SWGJ UTCZ UTIQ UTVP	175	INST OF APPLIED GEOPHYS SSCNR
78/06/20 2100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/06/21 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/06/21 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/06/21 1545	MHR-06	U.S.S.R.	VOLGOGRAD	2L	OOAC SWGJ	65	CENTRAL AEROLOGICAL OBS
78/06/21 1613	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/06/21 1720	M-100	U.S.S.R.	VOLGOGRAD	2L	OOAC SWGJ	84	CENTRAL AEROLOGICAL OBS
78/06/22 1400	M-100	INDIA	THURBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/06/22 1412	M-100B	INDIA	THURBA	2G	KD	84	CENTRAL AEROLOGICAL OBS
78/06/23 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/06/24 2113	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (37 47N 75 12W)	4C 6D 6E	SWGJ UTCZ UTIQ UTVP	168	INST OF APPLIED GEOPHYS SSCNR
78/06/26 2031	MR-12	U.S.S.R.	PROFESSOR VIZE (SHIP) (37 46N 75 13W)	4C 6D 6E	SWGJ UTCZ UTVP	165	INST OF APPLIED GEOPHYS SSCNR
78/06/27 2105	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/06/28 1400	M-100	INDIA	THURBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/06/28 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
78/06/28 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/06/28 1440	M-100	U.S.S.R.	VOLGOGRAD	2K	OO	77	CENTRAL AEROLOGICAL OBS
78/06/28 1545	MHR-06	U.S.S.R.	VOLGOGRAD	2L	OOAC SWGJ	66	CENTRAL AEROLOGICAL OBS
78/06/28 1725	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/06/30 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/07/05 1400	M-100	INDIA	THURBA	2J	NP	76	CENTRAL AEROLOGICAL OBS
78/07/05 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS

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78/07/05 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/07/05 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/07/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/07/07 1800	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/07/10 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/07/12 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
78/07/12 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/07/12 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	93	CENTRAL AEROLOGICAL OBS
*78/07/12 1407	M-100B	INDIA	THUMBA	2G	KD	---	CENTRAL AEROLOGICAL OBS
78/07/12 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/07/12 1704	FLIGHT 195 T 1-9309	UNITED STATES	WALLOPS ISLAND	2G	DOAC	74	WRIGHT,D.,U.,JR.
78/07/12 1836	FLIGHT 196 TMI-9304	UNITED STATES	FORT CHURCHILL	2G	DOAC	73	WRIGHT,D.,U.,JR.
78/07/13 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/07/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/07/15 1400	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/07/19 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/07/19 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/07/19 1434	M-100B	INDIA	THUMBA	2G	KD	82	CENTRAL AEROLOGICAL OBS
78/07/19 1500	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/07/19 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	76	CENTRAL AEROLOGICAL OBS
78/07/20 0430	NASA 25.037U4	UNITED STATES	WHITE SANDS	7F	CRGH JT XG	190	MURRAY,S.S.
78/07/21 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/07/25 0405	A03.604	UNITED STATES	WHITE SANDS	2F	LI DOU ^F	144	BEDDO,D.E. CHAMPION,K.S.W.
78/07/26 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/07/26 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/07/26 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/07/28 1500	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (36 00N 36 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/07/28 1600	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (36 00N 36 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
78/07/30 1500	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (36 00N 36 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/07/30 1600	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (36 00N 46 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
78/08/02 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/02 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/08/02 1500	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/02 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/08/02 1800	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (36 00N 64 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
78/08/04 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/08/09 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/08/09 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/09 1400	M-100B	INDIA	THUMBA	2G	KD	83	CENTRAL AEROLOGICAL OBS
78/08/09 1500	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/08/09 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/08/09 1900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/08/10 1420	M-100B	U.S.S.R.	VOLGOGRAD	2A 2C 3C	NP LDLU XP	---	PAKHOMOV,S.V.
78/08/10 1430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/08/11 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/08/13 0058	P--206K	SWEDEN UNITED KINGDOM	KIRUNA	2G 3C 5B	LDLU MTHZ QKPM	150	DICKINSON,P.H.G.
78/08/14 1420	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/08/14 1420	M-100B	U.S.S.R.	VOLGOGRAD	2A 2C 3C	LDLU XP	---	PAKHOMOV,S.V.
*78/09/14 1445	NASA 27.034DS	UNITED STATES	WHITE SANDS	6E	CRGH QK XG	220	BRUECKNER,G.E.
78/08/14 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/08/16 1300	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/08/16 1400	M-100	INDIA	THUMBA	2J	NP	74	CENTRAL AEROLOGICAL OBS
78/08/16 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/16 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/08/16 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	94	CENTRAL AEROLOGICAL OBS

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*78/08/16 1707	FLIGHT 197 T 1-9310	UNITED STATES	WALLOPS ISLAND	2G	ODAC	68	WRIGHT,D.U.,JR.
78/08/16 1729	FLIGHT 198 T 1-9320	UNITED STATES	WALLOPS ISLAND	2G	ODAC	74	WRIGHT,D.U.,JR.
78/08/16 1816	FLIGHT 199 TH1-9305	CANADA UNITED STATES	FORT CHURCHILL	2G	ODAC	69	WRIGHT,D.U.,JR.
78/08/16 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/08/16 2230	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/08/18 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/18 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/08/19 1700	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/08/20 1130	K-09M-064 S-142	JAPAN	KAGOSHIMA	0E 7R 7D 7E 7F 7G	GRSF GRUM SMCH SMGI SMFJ UTIO	319	FUKADA,Y. HAYAKAWA,S. ITO,K. KONDO,I. MATSUI,Y. MATSUMOTO,Y. YOGUCHI,K. TANAKA,Y. YAMASHITA,K.
78/08/23 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/23 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/23 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
78/08/23 1412	M-100B	INDIA U.S.S.R.	THUMBA	2G	KD	85	CENTRAL AEROLOGICAL OBS
78/08/23 1625	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/23 1700	M-100	FRANCE U.S.S.R.	KE-GUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/08/23 1734	FLIGHT 200 T 1-9311	UNITED STATES	WALLOPS ISLAND	2G	ODAC	64	WRIGHT,D.U.,JR.
78/08/24 0145	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS
78/08/25 1417	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/08/25 1703	FLIGHT 201 T 1-9312	UNITED STATES	WALLOPS ISLAND	2G	ODAC	64	WRIGHT,D.U.,JR.
78/08/28 1300	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/29 1606	M-100	FRANCE U.S.S.R.	KE-GUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/08/30 0420	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
78/08/30 0420	M-100B	U.S.S.R.	VOLGOGRAD	2A 2C 3C	LDLU XP	---	AKHOMOVA,S.V.
78/08/30 1300	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
78/08/30 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/08/30 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/08/30 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	79	CENTRAL AEROLOGICAL OBS
78/08/31 1307	FLIGHT 202 T 1-9313	UNITED STATES	WALLOPS ISLAND	2G	ODAC	61	WRIGHT,D.U.,JR.
78/08/31 1708	FLIGHT 203 T 1-9314	UNITED STATES	WALLOPS ISLAND	2G	ODAC	63	WRIGHT,D.U.,JR.
78/09/01 0140	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/09/01 0200	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 36 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/09/01 1410	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/09/04 0430	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/09/04 1800	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/09/05 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/09/05 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/09/06 0200	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
78/09/06 0420	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/09/06 1417	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/09/06 1505	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/09/06 1600	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/09/08 0300	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 36 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
78/09/08 1536	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/09/12 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/09/13 0053	A45-709-01	CANADA UNITED STATES	FORT CHURCHILL	2A	DC	45	QUESADA,A.F.
78/09/13 0220	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
78/09/13 0800	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (45 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/09/13 1113	A45-709-02	CANADA UNITED STATES	FORT CHURCHILL	2A	DC	43	QUESADA,A.F.
78/09/13 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/09/13 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/09/15 0800	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (55 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/09/15 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/09/15 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS

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78/09/15 2100	A08-708-01	UNITED STATES	WHITE SANDS	3C 3D	LDIZ PKSK	114	BAILEY, A. CONLEY, T. C. NARCISI, R. S. BEDDO, D. E.
78/09/19 1830	A04-711-01	UNITED STATES	WHITE SANDS	6D 6E	GKKQ SWG1	192	BARTH, C. A.
78/09/20 0258	NASA 25.02RUL	UNITED STATES	WHITE SANDS	7E	GKKQ KG	224	BARTH, C. A.
78/09/20 0800	MMR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 36 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/09/20 1314	FLIGHT 204 T 1-9315	UNITED STATES	WALLOPS ISLAND	2G	OOAC	57	WRIGHT, D. U., JR.
78/09/20 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/09/20 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/09/20 1607	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/09/20 1722	FLIGHT 205 T 1-9316	UNITED STATES	WALLOPS ISLAND	2G	OOAC	64	WRIGHT, D. U., JR.
78/09/20 1800	FLIGHT 206 TH1-9306	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC PX	60	WRIGHT, D. U., JR.
78/09/20 2030	FLIGHT 207 T 1-9317	UNITED STATES	WALLOPS ISLAND	2G	OOAC	63	WRIGHT, D. U., JR.
78/09/21 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/09/22 0900	MMR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/09/26 0505	NASA 25.042GG	UNITED STATES	WHITE SANDS	7D 7E	CR XG	231	STECHEK, T. P.
78/09/26 2132	M-100B	U.S.S.R.	VOLGOGRAD	9X	HGCF	---	LYSENKO
78/09/27 0900	MMR-06	U.S.S.R.	KRENKEL' (SHIP) (52 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
78/09/27 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/09/27 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/09/27 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/09/29 0800	MMR-06	U.S.S.R.	KRENKEL' (SHIP) (52 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/10/04 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/10/04 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/10/04 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/10/04 2125	M-100B	U.S.S.R.	VOLGOGRAD	9X	HGCF	---	LYSENKO
78/10/04 2317	M-100B	U.S.S.R.	VOLGOGRAD	2E	NR	84	CENTRAL AEROLOGICAL OBS
78/10/05 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/10/06 0155	MR-12	U.S.S.R.	VOLGOGRAD	2H 3B	GI LD SWG1	125	INST OF APPLIED GEOPHYS
78/10/11 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/10/11 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/10/11 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/10/11 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/10/18 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
78/10/18 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/10/18 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/10/18 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/10/18 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/10/18 1721	FLIGHT 208 T 1-9318	UNITED STATES	WALLOPS ISLAND	2G	OOAC	---	WRIGHT, D. U., JR.
78/10/18 1752	FLIGHT 209 T 1-9321	UNITED STATES	WALLOPS ISLAND	2G	OOAC	64	WRIGHT, D. U., JR.
78/10/18 1805	FLIGHT 210 TH1-9307	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	53	WRIGHT, D. U., JR.
78/10/25 0130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/10/25 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/10/25 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
78/10/26 0916	IC807.015-01	UNITED STATES	FAIRBANKS	1B	SWG SWG1	122	BURT, D. A. ULWICK, J. C.
78/10/26 0920	IC806.035-01	UNITED STATES	FAIRBANKS	2A	DC	---	ULWICK, J. C. VICKERY, R. W. HOWLETT, C. ULWICK, J. C.
78/10/26 0929	IR807.057-01	UNITED STATES	FAIRBANKS	1B	AK GI OHUH PX SWG1	160	HOWLETT, C. ULWICK, J. C.
78/10/26 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/10/29 0502	EX851.044-01	UNITED STATES	FAIRBANKS	1X	CRKE GI PX 3K GKKQ SWG UT	137	BROWN, N. BURT, D. A. FRODSHAM, G. KENN, J. O'NEIL, R. R. SHEPARD, O.
78/11/01 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/11/01 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/11/01 1427	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/11/01 1500	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/11/01 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/11/01 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
78/11/03 0120	NASA 13.135UE	UNITED STATES	WHITE SANDS	1B	PX SWQJ NP	151	SHARP, W. E.
78/11/03 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
78/11/08 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
78/11/08 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/11/07 1400	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/11/08 1500	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/11/09 0400	M-100	U.S.S.R.	VOLGOSRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/11/10 0414	SL-1424	NORWAY UNITED KINGDOM	ANDOYA	0A 0E 1B 2A 3A 3C 3E 4B 5A 5B	AF BD DCYQ LDLU MTBD MTHZ OMCZ OHIG PXGS SFZA UTIG ZZ	80	BRITISH AEROSPACE BRYANT, D. A. MAEHLUM, B. N. REES, D. WOOLLS-CROFT, L. J. C.
78/11/10 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
78/11/13 1244	ICR30,909-01A	UNITED STATES	FAIRBANKS	1B	GKKQ SWGI	141	BURT, D. A. STEED, A. ULWICK, J. C. WRIGHT, D. U., JR.
*78/11/13 1711	FLIGHT 211 TN1-9618	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	---	
78/11/15 0400	M-100	U.S.S.R.	VOLGOSRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/11/15 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	63	CENTRAL AEROLOGICAL OBS
78/11/15 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/11/15 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/11/15 1400	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/11/16 1815	NASA 13.138GS	UNITED STATES	WHITE SANDS	6B 6C 6D	GKPM SW	182	ASSAF, S. DUNCAN, C. H. GUENTHER, S. W. CENTRAL AEROLOGICAL OBS
78/11/17 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
78/11/19 1508	FLIGHT 212 TN1-9646	BRAZIL UNITED STATES	NATAL	2G	OOAC	74	WRIGHT, D. U., JR.
78/11/19 1700	FLIGHT 213 TN1-9619	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	75	WRIGHT, D. U., JR.
78/11/22 0400	M-100	U.S.S.R.	VOLGOSRAD	2J	NP	72	CENTRAL AEROLOGICAL OBS
78/11/22 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
78/11/22 1400	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/11/22 1408	FLIGHT 214 TN1-9647	BRAZIL UNITED STATES	NATAL	2G	OOAC	73	WRIGHT, D. U., JR.
78/11/22 1500	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/11/25 1510	FLIGHT 215 TN1-9648	BRAZIL UNITED STATES	NATAL	2G	OOAC	73	WRIGHT, D. U., JR.
78/11/27 1855	FERDINAND 40 NASA 18.216	AUSTRIA NORWAY UNITED KINGDOM UNITED STATES	ANDOYA	0A 1B 2H 3C 3E 3X 4B 5A	BD GI LDHQ LDIY LDLU LDLQ OMCZ OHVP SWOG SWGI SWUE	193	FRIEDRICH, M. GOUGH, P. HOLTET, J. A. JACOBSEN, T. A. MAEHLUM, B. N. MARTELLI, G. A. G. MASEIDE, K. MAYNARD, N. C. SMITH, P. N. SORAAS, F. THRANE, E. V. TROIIM, J. AARSNES, K. EVANS, D. S. FRIEDRICH, M. GOUGH, P. HOLTET, J. A. JACOBSEN, T. A. MAEHLUM, B. N. MARTELLI, G. A. G. MASEIDE, K. MAYNARD, N. C. SMITH, P. N. SORAAS, F. STADSNES, J. TROIIM, J.
78/11/27 1855	FERDINAND 41 NASA 18.207	AUSTRIA NORWAY UNITED KINGDOM UNITED STATES	ANDOYA	0A 1B 1X 2H 3C 3E 4B 5A	BD GI LDIY LDLU LDLQ OMCZ OHVP SWGI SWUE UTUM	202	AARSNES, K. EVANS, D. S. FRIEDRICH, M. GOUGH, P. HOLTET, J. A. JACOBSEN, T. A. MAEHLUM, B. N. MARTELLI, G. A. G. MASEIDE, K. MAYNARD, N. C. SMITH, P. N. SORAAS, F. STADSNES, J. TROIIM, J.
78/11/28 1358	FLIGHT 216 TN1-9649	BRAZIL UNITED STATES	NATAL	2G	OOAC	73	WRIGHT, D. U., JR.
78/11/29 1400	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/11/29 1520	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/11/29 1613	FLIGHT 217 T 1-9319	UNITED STATES	WALLOPS ISLAND	2G	OOAC	74	WRIGHT, D. U., JR.
78/11/29 1930	M-100	U.S.S.R.	VOLGOSRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/11/30 1200	MR-12	U.S.S.R.	VOLGOSRAD	2G 3D 3E	DCLA LDKF LDLU PXST	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY

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78/11/30 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/11/30 1600	MR-12	U.S.S.R.	VOLGOGRAD	2G 3D 3E	DCLA LDKF LDLU PKST GI	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
78/11/30 1855	MR-12	U.S.S.R.	VOLGOGRAD	2G 3B 3D 4B 5A	PKST SWG1 UT1G	170	INST OF APPLIED GEOPHYS
78/11/30 2255	MR-12	U.S.S.R.	VOLGOGRAD	4B 5A 5B 6X	SWG1 UT3J	190	INST OF APPLIED GEOPHYS
78/12/01 0055	MR-12	U.S.S.R.	VOLGOGRAD	2G 2H 3D 4B	PKST SIZ2 UT1G	165	INST OF APPLIED GEOPHYS
78/12/01 0720	NASA 25.03RUL	UNITED STATES	WHITE SANDS	7E	KG	238	FASTIC,W.G.
78/12/06 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
78/12/06 1200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/12/06 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/12/06 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
78/12/11 0300	NASA 25.001UH	UNITED STATES	WHITE SANDS	7F	CR KG	164	GARMIRE,G.P.
78/12/13 0430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/12/13 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
78/12/13 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/12/13 1440	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
78/12/15 0541	NASA 15.149GM TH1-9663	UNITED STATES	WHITE SANDS	2G	00ZU	70	HILSENRAITH,E.
78/12/20 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
78/12/20 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/12/20 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/12/20 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	80	CENTRAL AEROLOGICAL OBS
78/12/20 1542	FLIGHT 218 T 1-9630	UNITED STATES	WALLOPS ISLAND	2G	00AC	66	WRIGHT,J.U.,JR.
78/12/20 1713	FLIGHT 219 TH1-9620	CANADA UNITED STATES	FORT CHURCHILL	2G	00AC	77	WRIGHT,D.U.,JR.
78/12/27 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
78/12/27 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
78/12/27 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
78/12/27 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/01/02 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/01/03 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/01/03 0900	HMR-06	U.S.S.R.	KRENKEL (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/01/03 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/01/03 1800	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/01/05 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/01/07 1727	FLIGHT 220 T 1-9631	UNITED STATES	WALLOPS ISLAND	2G	00AC	64	KRUEGER,A.J.
79/01/07 1749	FLIGHT 221 T 1-9645	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	KRUEGER,A.J.
79/01/09 1153	NASA 25.032UL	UNITED STATES	WHITE SANDS	1C 1D	KG	214	BARTH,C.A.
79/01/09 1628	FLIGHT 222 T 1-9632	UNITED STATES	WALLOPS ISLAND	2G	00AC	64	KRUEGER,A.J.
79/01/10 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/01/10 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/01/10 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/01/10 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/10 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/01/11 1714	FLIGHT 223 TH1-9621	CANADA UNITED STATES	FORT CHURCHILL	2G	00AC	76	KRUEGER,A.J.
79/01/12 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/01/12 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/01/12 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/01/13 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/01/14 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/01/15 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
79/01/16 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/01/16 2050	K-09M-065 S-143	JAPAN	KAGOSHIMA	1C 3C 3E	LDLU SWG1 SWGJ UTCZ	353	EJIRI,M. HIRAO,K. ISHII,S. IWAGAMI,N. OBAYASHI,T. OGAWA,T. OYAMA,K. SHEPHERD,G.G. SUZUKI,K. WATANABE,Y.
79/01/17 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/01/17 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/17 1500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS

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79/01/17 1600	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	74	CENTRAL AEROLOGICAL OBS
79/01/17 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/01/17 2000	NASA 25-010AS	UNITED STATES	WHITE SANDS	6F	CR QK	226	BLAKE,R
79/01/18 1550	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/01/19 0340	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/01/19 0850	S-310-006 S-144	JAPAN	KAGOSHIMA	1C 2F 3C 3E	LDIZ LDLU ODAC SWQI	212	EJIRI,M. HIRAO,K. ISHII,S. ITOH,T. KONDO,Y. MAKINO,T. OBAYASHI,T. OGAWA,T. DYANA,K. TAKAGI,M. WATANABE,T. WATANABE,Y. YAMAMOTO,M.
79/01/19 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/01/19 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/01/19 1540	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/01/20 1525	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/01/21 0616	MR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 3F	LDKF LDLU PRXT	180	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
79/01/21 0906	K-09M-066 S-145	JAPAN	KAGOSHIMA	0C 2A 3A 3C 3E 4K 5A	BO DCLA LDKF LIWY PKGS SEZA SWOG	336	ARIKAWA,T. FURUI,HI,M. IZAWA,M. KAMADA,T. KANEKO,O. KAWASHIMA,N. MIURA,S. MORIYAMA,A. NAKAMURA,J. SACHIMOTO,N. ONO,T. OTA,M.
79/01/21 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/01/22 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/01/22 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/01/23 1510	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/24 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/24 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/24 1400	M-100	U.S.S.R.	MOLDOEZHAYYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/01/24 1535	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/01/24 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/01/25 1455	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/01/25 2107	P--215K	SWEDEN UNITED KINGDOM	KIRUNA	4B	PKGS UTCZ UTIQ	179	BRYANT,D.A.
79/01/26 0800	MMR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
*79/01/26 1101	NASA 29-013UE	UNITED STATES	FAIRBANKS	1B	GI LDLU MTHZ MTYQ UTCZ	186	ANDERSON,H.R. BERING,E.A.,JR
79/01/26 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/01/27 0700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/27 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/01/27 1455	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/01/27 1525	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/01/27 2004	P--215K	SWEDEN UNITED KINGDOM	KIRUNA	4B	PKGS UTCZ UTIQ	180	BRYANT,D.A.
79/01/27 2005	NASA 15-150GM TM1-9830	UNITED STATES	FAIRBANKS	2G	OOZU	60	HILSENATH,E.
*79/01/28 0307	NASA 25-041UE	CANADA UNITED STATES	FORT CHURCHILL	1B	PX SWQJ	---	SHARP,W.E.
*79/01/28 0606	A24-752-01	UNITED STATES	WHITE SANDS	7B	SWOG	401	PRICE,S.O.
79/01/28 0833	NASA 15-151GM TM1-9831	UNITED STATES	FAIRBANKS	2G	OOZU	69	HILSENATH,E.
79/01/28 1535	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/01/29 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/01/29 1535	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/01/30 1755	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/01/31 0200	S-310-005 S-146	JAPAN	KAGOSHIMA	3B 3C 3E 5C	LCKF LDLU MTYQ SEZA	185	AMEHITA, H. DOTE, T. EJIRI, M. HIRAO, K. ISHII, S. YAKAMURA, Y. NOMURA, Y. OHAYASHI, T. OYAMA, K. SHIMIZU, K. WATANABE, Y. YABUZAKI, T. YOSHINO, T.
79/01/31 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/01/31 0800	MMR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/01/31 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/01/31 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/01/31 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/01/31 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/01 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/02/02 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/02 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/02 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	61	CENTRAL AEROLOGICAL OBS
79/02/02 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/02/02 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/02/03 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/02/04 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (04 00N 90 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/02/04 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/05 1800	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/02/05 2120	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/02/06 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/02/07 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/07 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	61	CENTRAL AEROLOGICAL OBS
79/02/07 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
79/02/07 1500	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/07 1500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/07 1850	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	78	CENTRAL AEROLOGICAL OBS
79/02/08 0437	MR-12	U.S.S.R.	HEISS ISLAND	2A 3C 3E 3F 4A 4B	DCDM LCKF LDLU UTCZ UTIQ	155	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
79/02/09 0320	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/02/09 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	61	CENTRAL AEROLOGICAL OBS
79/02/09 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/09 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 80 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/02/09 2020	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/10 1930	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/02/11 1950	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/12 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/02/12 2050	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/13 2000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 65 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/02/13 2010	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/14 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/02/14 1350	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/14 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/14 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/02/14 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/02/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/14 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/14 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/14 2200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/02/15 1950	M-100	U.S.S.R.	SHOKALSKI (SHIP) (06 00N 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/16 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/16 1520	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/16 2000	M-100	U.S.S.R.	VOLGOGRAD (03 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/16 2000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (03 00N 65 00E)	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/02/17 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 65 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/18 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP) (03 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/21 0130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/02/21 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/21 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/02/21 1600	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/02/23 1407	MR-12	U.S.S.R.	HEISS ISLAND	2A 3C 4A 4B	DCOM LDKF UTCZ UTIQ	175	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
79/02/23 1800	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00N 67 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/02/23 2315	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/02/26 1800	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/02/27 1340	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
79/02/28 0700	M-100	U.S.S.R.	MUSSON (SHIP)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/02/28 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/02/28 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	66	CENTRAL AEROLOGICAL OBS
79/02/28 1400	MRR-06	U.S.S.R.	MOLODEZHAYA (53 00N 35 00E)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/02/28 1410	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/02/28 1750	FLIGHT 224 T 1-9634	UNITED STATES	WALL OPS ISLAND	2G	OOAC	67	KRUEGER, A. J.
79/03/01 0944	NASA 21.06005	UNITED STATES	WHITE SANDS	6E	CRQH OK XG NP	210	BRUECKNER, G. E.
79/03/01 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 65 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/01 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 65 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/03/06 1527	MR-12	U.S.S.R.	HEISS ISLAND	2A 3C 3E 4B	DCOM LDKF LDLU UTCZ UTIQ	160	INST OF EXP METEOROLOGY SSCNR
79/03/07 0145	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/03/07 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	66	CENTRAL AEROLOGICAL OBS
79/03/07 1715	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/08 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/10 1843	MR-12	U.S.S.R.	HEISS ISLAND	4B 5A 5B	GI NT UTCZ UTIQ	160	IZMIRAN
79/03/13 2152	MR-12	U.S.S.R.	HEISS ISLAND	2A 3C 4B	DCOM LDTP UTCZ UTIQ	160	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
79/03/14 0430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/03/14 0908	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	74	CENTRAL AEROLOGICAL OBS
79/03/14 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/14 1300	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/14 2100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/15 0435	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
*79/03/15 0520	NASA 25.045UH	UNITED STATES	WHITE SANDS	7F	CR NT UTSF	216	KRAUSHAAR, W. L.
79/03/15 0800	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/15 1708	FLIGHT 225 T11-9622	CANADA UNITED STATES	FORT CHURCHILL	2G	OOAC	75	KRUEGER, A. J.
79/03/16 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/16 0430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/03/16 0730	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/16 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/17 0600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/03/17 0750	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/17 1742	MR-12	U.S.S.R.	HEISS ISLAND	2A 3C 4B	DCOM LDTP UTCZ UTIQ	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
79/03/18 0407	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/03/18 0845	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/03/18 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/18 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/18 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 65 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
*79/03/19 0035	P--006	NORWAY UNITED KINGDOM	ANDOYA	0A 0E 1B 3A 3C 3E 5A 5B	AF BD LDLU MTD SEZA	15	SIBBONS, W. WOOLLISCROFT, L. J. C.
79/03/19 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/03/19 0725	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/19 1056	NASA 24.0051E	SWEDEN UNITED STATES	KIRUNA	5X	ZZ	---	HAERNDL, S.
79/03/19 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/19 1612	FLIGHT 226 T 1-9633	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	KRUEGER, A. J.
79/03/20 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/03/20 0715	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/03/20 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/20 1730	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/03/21 0345	NASA 25.0330J	UNITED STATES	WHITE SANDS	7D	XG	221	LILLIE, C. F.
79/03/21 0430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/03/21 0705	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/03/21 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/21 1700	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/03/22 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/22 0655	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/03/22 1145	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/03/23 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/23 0645	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/23 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/24 0645	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/24 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/03/24 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/24 1423	FLIGHT 227 TN1-9650	BRAZIL UNITED STATES	NATAL	2G	00AC	74	KRUEGER, A. J.
79/03/25 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/25 0630	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/03/26 0253	MR-12	U.S.S.R.	HEISS ISLAND	3B 3C 3E	GI LDLU LDTP	165	INST OF APPLIED GEOPHYS BOURGES, Y.
79/03/26 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/03/26 0530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/26 0955	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/26 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/27 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/03/27 0610	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/03/27 1800	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 65 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/03/27 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/28 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/03/28 0600	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/28 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/28 1538	P--208A	NORWAY UNITED KINGDOM	ANDOYA	0A 0E 1B 3A 3C 3E 5A 5B	AF BD LDLU MTD SEZA	169	SIBBONS, W. JONES, S. WOOLLISCROFT, L. J. C.
79/03/28 1700	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/28 1722	FLIGHT 228 T 1-9636	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	KRUEGER, A. J.
79/03/28 1840	M-100	UNITED STATES	WALLOPS ISLAND	2G	00ZU	59	BOLLARMAN, R.
79/03/29 0555	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/30 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/30 0545	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/30 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/31 0245	MR-12	U.S.S.R.	HEISS ISLAND	3B 3C 3E	GI LDLU LDTP	165	INST OF APPLIED GEOPHYS BOURGES, Y.
79/03/31 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/31 0535	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/03/31 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00N 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/03/31 1600	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00N 60 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/03/31 2229	NASA 24.0061E	SWEDEN UNITED STATES	KIRUNA	5X	ZZ	452	BOURGES, Y. INST OF APPLIED GEOPHYS
79/04/01 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/01 0525	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS

*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/04/01 1200	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/02 0400	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/04/02 0515	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/04/03 0400	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/04/03 0510	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/04/03 1200	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/04/04 0400	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/04/04 0500	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/04/04 1800	M-100	U.S.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/04/05 0034	MR-12	U.S.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B	LD LDF PXST UTCZ UTIQ	175	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
79/04/05 0400	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/04/05 0450	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/05 1200	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/05 1838	FLIGHT 229 TH1-9623	CANADA UNITED STATES	PRINROSE LAKE	2G	OOAC	70	KRUEGER,A.J.
*79/04/05 2154	FLIGHT 230 T 1-9637	UNITED STATES	WALLOPS ISLAND	2G	OOAC	67	KRUEGER,A.J.
79/04/05 2213	FLIGHT 231 T 1-9695	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER,A.J.
*79/04/05 2314	NASA 15-176GM T 1-9832	UNITED STATES	WALLOPS ISLAND	2G	OOZU	81	HILSENRATH,E.
79/04/06 0440	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/06 0440	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/04/06 0500	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/04/07 0148	MR-12	U.S.S.S.R.	HEISS ISLAND	3R 3C 3E	GI LDLU LDTI	170	INST OF APPLIED GEOPHYS BOURGES,Y.
79/04/07 0340	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/04/07 0430	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/07 1200	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/07 1400	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/04/08 0340	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/08 0425	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/04/09 0340	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/04/09 0415	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/04/09 0600	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	95	CENTRAL AEROLOGICAL OBS
79/04/09 1200	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/10 0305	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/04/10 0340	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/04/10 0450	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/11 0330	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/04/11 0355	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/04/11 1045	MR-12	U.S.S.S.R.	HEISS ISLAND	2G 3C 3D 4B	LDTI LTP PXST UTCZ UTIQ	180	INST OF APPLIED GEOPHYS SSCNR
79/04/11 1100	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/11 1700	M-100	U.S.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/04/11 1752	FLIGHT 232 TH1-9624	CANADA UNITED STATES	PRINROSE LAKE	2G	OOAC	68	KRUEGER,A.J.
79/04/12 0330	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/13 1810	FLIGHT 233 TH1-9651	BRAZIL UNITED STATES	NATAL	2G	OOAC	65	KRUEGER,A.J.
79/04/13 2205	NASA 27.033AS NASA 27.033US	UNITED STATES	WHITE SANDS	6X	GKKQ KG	268	MACQUEEN,R.M.
79/04/14 1201	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/04/14 1844	MR-12	U.S.S.S.R.	HEISS ISLAND	2G 3C 3D 4B	LD LDF PXST UTCZ UTIQ	175	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
79/04/15 0925	NASA 18.218GE	UNITED STATES	FAIRBANKS	1B	DC	---	HEPPNER,J.P.
79/04/15 0931	NASA 29.011GE	UNITED STATES	FAIRBANKS	4B 5A	GI GKZ LDLU	671	BUSBOSO,E. HEPPNER,J.P. HOFFMAN,R.A. RAYNARD,N.C.
79/04/17 2131	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/04/18 0200	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/04/18 0909	NASA 29.012GE	UNITED STATES	FAIRBANKS	1B	DC	---	HEPPNER,J.P.
79/04/18 0915	NASA 18.217GE	UNITED STATES	FAIRBANKS	4B 5A	GI GKZ LDLU	---	BUSBOSO,E. HEPPNER,J.P. HOFFMAN,R.A. RAYNARD,N.C.
79/04/18 1400	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/04/19 1400	M-100	INDIA U.S.S.S.R.	THUMBAA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/04/20 1900	M-100	U.S.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/04/21 1010	NASA 27.038UE	UNITED STATES	WHITE SANDS	4B	PX	317	MOORE,J.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/04/21 1202	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 83 00E)	2L	OOAC SWGJ	78	CENTRAL AEROLOGICAL OBS
79/04/21 1358	FLIGHT 234 TN1-9652	BRAZIL UNITED STATES	NATAL	2G	OOAC	67	KRUEGER, A. J.
79/04/21 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 88 00E)	2J	NP	78	CENTRAL AEROLOGICAL OBS
79/04/22 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 87 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/04/23 1700	MNR-06	U.S.S.R.	PRILIV (SHIP) (02 00N 85 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/04/24 1139	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 78 49E)	2L	OOAC SWGJ	84	CENTRAL AEROLOGICAL OBS
79/04/24 2010	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 78 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/04/25 0300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/25 0800	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/04/25 1224	P--201H	UNITED KINGDOM	SOUTH WIST	2C 3C 6E	GYKZ XP	130	WILLIAMS, E. R.
79/04/25 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/25 1700	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/04/26 2300	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 71 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/04/27 0800	MNR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/04/27 1222	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 68 45E)	2L	OOAC SWGJ	84	CENTRAL AEROLOGICAL OBS
79/04/29 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 78 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/01 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 58 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/02 0325	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 53 23E)	2L	OOAC SWGJ	90	CENTRAL AEROLOGICAL OBS
79/05/02 1130	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/05/02 1900	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/05/02 2200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 51 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/05/03 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/03 0300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/05/03 1636	FLIGHT 235 T 1-9635	UNITED STATES	WALLOPS ISLAND	2G	OOAC	64	KRUEGER, A. J.
79/05/03 1805	FLIGHT 236 TN1-9625	CANADA UNITED STATES	PRIMROSE LAKE	2G	OOAC	68	KRUEGER, A. J.
79/05/09 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/09 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/09 1700	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/05/10 0100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/05/10 0300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/05/12 1746	FLIGHT 237 T 1-9638	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER, A. J.
79/05/13 2200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 51 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/05/16 0040	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/16 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/05/16 0220	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	61	CENTRAL AEROLOGICAL OBS
79/05/16 0940	M-100	INDIA	THUMBA	2J	NP	94	CENTRAL AEROLOGICAL OBS
79/05/16 1324	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (06 32N 54 37E)	2L	OOAC SWGJ	82	CENTRAL AEROLOGICAL OBS
79/05/16 1400	M-100	INDIA	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/05/16 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/05/16 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (06 00N 55 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/05/16 2100	MNR-06	U.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	55	CENTRAL AEROLOGICAL OBS
79/05/18 0040	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/18 1324	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (06 32N 54 39E)	2L	OOAC SWGJ	83	CENTRAL AEROLOGICAL OBS
79/05/18 1440	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/05/18 2000	MNR-06	U.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/05/18 2200	M-100	U.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/19 2200	M-100	U.S.S.R.	KOROLEV (SHIP) (06 00N 55 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/05/21 0500	NASA 25.04353	UNITED STATES	WHITE SANDS	7D 7E	CRKE SWGJ XG	226	STECHER, T. P.
79/07/21 0640	NASA 25.04466	UNITED STATES	WHITE SANDS	7D 7E	CRKE SWGJ UTCZ SWGJ NP	240	SMITH, A. M.
79/05/21 1325	M-100B	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	OOAC SWGJ	84	CENTRAL AEROLOGICAL OBS
79/05/21 2000	MNR-06	U.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/05/21 2200	M-100	U.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/05/21 2200	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/21 2200	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/22 2220	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/05/23 0200	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/05/23 0200	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	77	CENTRAL AEROLOGICAL OBS
79/05/23 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/05/23 1400	M-100	U.S.S.S.R.	MOL. ODE ZH-NAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/23 1432	M-100B	U.S.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	OOAC SWQJ	78	CENTRAL AEROLOGICAL OBS
79/05/23 2000	MMR-06	U.S.S.S.R.	PRILIV (SHIP) (03 00N 57 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/05/23 2300	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/05/24 2000	MMR-06	U.S.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/05/24 2200	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/05/25 1323	M-100B	U.S.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	OOAC SWQJ	85	CENTRAL AEROLOGICAL OBS
79/05/25 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/05/26 0040	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/26 2200	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/05/27 0315	M-100B	U.S.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	OOAC SWQJ	79	CENTRAL AEROLOGICAL OBS
79/05/27 0800	MMR-06	U.S.S.S.R.	MUSSON (SHIP) (00 00N 29 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/05/27 2000	MMR-06	U.S.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/05/27 2130	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/05/28 0211	M-100B	U.S.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	OOAC SWQJ	83	CENTRAL AEROLOGICAL OBS
79/05/28 0316	M-100B	U.S.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	OOAC SWQJ	79	CENTRAL AEROLOGICAL OBS
79/05/28 2000	MMR-06	U.S.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/05/29 2000	MMR-06	U.S.S.S.R.	PRILIV (SHIP) (04 00N 57 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/05/29 2130	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/29 2130	M-100	U.S.S.S.R.	KOROLEV (SHIP) (06 00N 54 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/05/30 1440	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/05/30 1700	M-100	U.S.S.S.R.	MOL. ODE ZH-NAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/05/30 1900	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/06/01 0800	MMR-06	U.S.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/06/01 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
79/06/02 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/05 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/06/05 1715	NASA 27-02BUS	UNITED STATES	WHITE SANDS	6E	OK XG	325	ROTTMAN, G. J.
79/06/05 2130	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/06/06 0200	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/06/06 0800	M-100	INDIA	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/06/06 0800	MMR-06	U.S.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/06/06 1400	M-100	U.S.S.S.R.	MOL. ODE ZH-NAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/06 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/08 0700	MMR-06	U.S.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/06/08 1140	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/06/08 1400	M-100	U.S.S.S.R.	MOL. ODE ZH-NAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/08 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/09 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/10 1340	M-100	U.S.S.S.R.	SHOKALSKI (SHIP) (40 00N 17 00E)	2J	NP	75	CENTRAL AEROLOGICAL OBS
79/06/13 0800	MMR-06	U.S.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/06/13 1030	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/06/13 1340	M-100	U.S.S.S.R.	SHOKALSKI (SHIP) (40 00N 17 00E)	2J	NP	75	CENTRAL AEROLOGICAL OBS
79/06/13 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/06/13 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/06/13 1900	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/06/15 0700	MRR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/06/15 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/15 1830	MR-12	U.S.S.R.	VOLGOGRAD	2B 2F 2G 3D	LG PKST	170	INST OF APPLIED GEOPHYS
79/06/16 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/18 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	73	CENTRAL AEROLOGICAL OBS
79/06/20 0210	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/06/20 0800	MRR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/06/20 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/20 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/06/20 1440	M-100	U.S.S.R.	SHOKALSKI (SHIP) (19 00N 18 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/06/20 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/20 2030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/06/21 0525	NASA 27.040UG	UNITED STATES	WHITE SANDS	6F	QKCM	215	KRAUSHAR, W.L.
79/06/22 0700	MRR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/06/22 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/06/23 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 18 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/23 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/06/24 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/06/24 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 77 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/06/25 1240	M-100	U.S.S.R.	SHOKALSKI (SHIP) (50 00N 18 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/26 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 79 00E)	2J	NP	92	CENTRAL AEROLOGICAL OBS
79/06/26 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/06/27 0700	MRR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00E)	2J	NP	61	CENTRAL AEROLOGICAL OBS
79/06/27 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/06/27 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/06/27 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/06/27 1500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/06/29 0815	NASA 21.059UG	UNITED STATES	WHITE SANDS	7E	CRKE QKKQ	238	DAVIDSON, A. FASTIE, W.G.
79/06/29 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/06/29 1500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/06/30 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/07/03 1630	NASA 27.032CS	UNITED STATES	WHITE SANDS	6F	QKKQ XG	300	ACTON, L.W.
79/07/03 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/07/04 0500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/07/04 0500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/07/04 0800	MRR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/07/04 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/07/05 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/07/06 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/07/07 1400	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/07/08 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (26 00S 177 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/07/10 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00S 180 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/07/11 0800	MRR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/07/11 1200	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/07/11 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/07/11 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/07/11 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/07/12 1400	MRR-06	U.S.S.R.	PRILIV (SHIP) (15 00N 89 00E)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/07/12 1500	MRR-06	U.S.S.R.	PRILIV (SHIP) (15 00N 89 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/07/12 1600	MRR-06	U.S.S.R.	PRILIV (SHIP) (15 00N 89 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/07/13 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/07/16 1213	NASA 15.194GM TM1-9839	UNITED STATES	FAIRBANKS	2G	00ZU	---	HILSENRAH, E.
79/07/16 1320	NASA 15.196GM TM1-9880	UNITED STATES	FAIRBANKS	2G	00ZU	72	HILSENRAH, E.

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79/07/17 1223	NASA 15.1950M TM1-9840	UNITED STATES	FAIRBANKS	26	00ZU	81	MILSEN RATH, E.
79/07/18 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/07/18 0800	MRR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/07/18 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/07/18 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/07/18 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/07/20 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/07/20 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/07/22 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (39 00S 180 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/07/22 1600	M-100	U.S.S.R.	SHOKALSKI (SHIP) (39 00S 180 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/07/25 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/07/25 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/07/25 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/07/25 1600	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/07/27 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (26 00S 176 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/07/27 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/07/27 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (26 00S 176 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/07/27 1500	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/08/01 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/08/01 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/08/01 1500	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/03 0920	A31.702	UNITED STATES	WHITE SANDS	1C 7B	QKKG	172	ULWICK, J. C. WHEELER, N. B.
79/08/03 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/08/03 1500	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/08/07 1714	MR-12	U.S.S.R.	VOLGOGRAD	2A	DCOM	160	INST OF EXP METEOROLOGY
79/08/07 1930	A18.805	UNITED STATES	WHITE SANDS	0D	CRKE CNGM	219	MCKENNA, E. F.
79/08/08 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/08 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/08/08 1500	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/09 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (03 00N 179 00E)	2J	NP	92	CENTRAL AEROLOGICAL OBS
79/08/10 1400	M-100	INDIA	THUMBA	2J	NP	--	CENTRAL AEROLOGICAL OBS
79/08/10 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/08/10 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (05 00N 180 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/10 1712	MR-12	U.S.S.R.	VOLGOGRAD	2A 2G 3D	DCOM PXST	160	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
79/08/13 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 180 00E)	2J	NP	78	CENTRAL AEROLOGICAL OBS
79/08/14 1500	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/08/14 1650	A08.705-02	UNITED STATES	WHITE SANDS	2F 2G	PX	190	PHILBRICK, C. R.
79/08/14 1940	A08.706-02	UNITED STATES	WHITE SANDS	2B 2C 2F 3C 3E	AF LDLU	84	PHILBRICK, C. R. SMITH, L. J.
79/08/14 2020	A04.703	UNITED STATES	WHITE SANDS	1C 3C 6E	PXGS QKKG SMGI	177	MEROUX, L. J. MCRAHON, M. J. VAN TASSEL, R. A.
79/08/14 2230	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/08/15 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/08/15 1400	M-100	U.S.S.R.	MOLODEZH NAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/08/17 1200	M-100	INDIA	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/08/17 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (19 00N 180 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/08/17 2115	NASA 25.011AS	UNITED STATES	WHITE SANDS	6F	CR QK BD	225	BLAKE, R.
79/08/18 1600	K-09M-067 S-147	JAPAN	KAGOSHIMA	3A 3C 3E	LDHQ LDLU LIHU SEZA SMU SMOG	365	AMEIYA, H. DOTE, T. FUKAMI, T. HIRAO, K. ISHII, S. NAMBO, M. MINAMI, S. NAGANO, I. NAKAMURA, Y. NOMURA, Y. OYO, T. OYA, M. SHIMIZU, K. TAKEYA, Y.
79/08/20 1400	M-100	U.S.S.R.	KORDLEV (SHIP) (00 00N 180 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/08/20 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (24 00N 180 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/22 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/08/22 0440	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS

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79/08/22 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/08/22 1400	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/08/22 1642	MR-12	U.S.S.R.	VOLGOGRAD	2A 2G 3D	DCDM PXST	155	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
79/08/23 1300	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00N 180 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/08/23 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00N 180 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/24 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/08/25 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (34 00N 180 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/08/27 1610	FLIGHT 244 T 1-9322	UNITED STATES	WALLOPS ISLAND	2G	OOAC	66	KRUEGER, A. J.
79/08/28 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 180 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/08/28 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 180 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/08/29 0030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/08/29 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/08/29 1400	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/08/29 1500	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/08/30 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (45 00N 180 00E)	2J	NP	75	CENTRAL AEROLOGICAL OBS
79/09/04 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/09/05 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/09/05 1630	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/09/06 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/09/10 1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/09/11 1000	K-09M-06R S-14B	JAPAN	KAGOSHIMA	1C 2B 3C 3E 6E	LKPF LDLU LGBY QK QKPM	353	EJIRI, M. HIGASHI, K. KAYAMA, KITUTANI, MATSUMOTO, H. MISHI, K. OBAYASHI, T. SUZUKI, H. TANAKA, Y. WATANABE, Y. YAMAGUCHI, A.
79/09/11 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/09/12 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/09/12 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/09/12 1500	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/09/13 1615	FLIGHT 245 T 1-9639	UNITED STATES	WALLOPS ISLAND	2G	OOAC	66	KRUEGER, A. J.
79/09/14 1430	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/09/15 2000	S-310-007 S-149	JAPAN	KAGOSHIMA	2C	SMCH	166	ISHIDO, N. KAWASHIMA, N. TOYODA, T.
*79/09/18 1755	FLIGHT 246 TH1-9627	CANADA	PRIMROSE LAKE	2G	OOAC	66	KRUEGER, A. J.
79/09/18 1830	FLIGHT 247 TH1-9628	CANADA	PRIMROSE LAKE	2G	OOAC	57	KRUEGER, A. J.
79/09/19 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/09/19 1400	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/09/19 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/09/20 2100	NASA 21-057UL	UNITED STATES	WHITE SANDS	7E	GKYZ GKKQ SMQJ	278	CARLSON, R. W. JUDGE, D. L. MALOY, J. O. PHILLIPS, E.
*79/09/24 0532	P--217E	SPAIN	EL ARENOSILLO	3J	DC	30	MARTELLI, G. A. G.
79/09/24 1115	NASA 25-039UJ	UNITED KINGDOM UNITED STATES	WHITE SANDS	1C	CR QK XG	246	FASTIE, W. G. FELDMAN, P. J.
79/09/24 2020	NASA 27-039UE	SWEDEN UNITED STATES	KIRUNA	5A	DCLA QK	397	KELLEY, M. C.
79/09/25 2250	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/09/26 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/09/26 1400	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/09/27 1130	NASA 21-0625S	UNITED STATES	WHITE SANDS	6E	QKKQ XG	247	BEHRING, W. E.
79/10/02 2245	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/10/03 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/10/03 1700	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/10/03 1842	P--218E	SPAIN UNITED KINGDOM	EL ARENOSILLO	3K	DC	145	MARTELLI, G. A. G.
79/10/09 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/10/10 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
*79/10/10 1010	FLIGHT 248 TH1-9655	BRAZIL UNITED STATES	NATAL	2G	OOAC	66	KRUEGER, A. J.
79/10/10 1500	M-100	U.S.S.R.	MOLDEZHAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/10/12 1409	N-GRC -97	BRAZIL FED REP OF GERMANY	NATAL	6E	UTCZ	829	FARR, J. LAY, S. WULF-MATHIES, C.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/10/17 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/10/17 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/10/17 1450	MR-12	U.S.S.R.	VOLGOGRAD	3C 3D 4B 5A 5B	GI LDFK MT PXST UTCZ UTIQ	160	INST OF APPLIED GEOPHYS
79/10/17 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/10/18 0055	MR-12	U.S.S.R.	VOLGOGRAD	3C 3D 4B 5A 5B	GI LDFK MT PXST UTCZ UTIQ	165	INST OF APPLIED GEOPHYS
79/10/19 0546	A51.970	UNITED STATES	FAIRBANKS	1X	CRKE CRQH MT-Z QKKG	128	BURT,D.A. CALLINAN,T. FRODSHAM,D. KEMP,J. O'NEIL,R.R. SHEPHERD,O. SUDER,R.
79/10/21 1537	NASA 15.203GM T 1-7040	UNITED STATES	WALLOPS ISLAND	2G	00ZU	74	HILSENATH,E.
79/10/21 1548	FLIGHT 249 T 1-6450	UNITED STATES	WALLOPS ISLAND	2G	00AC	66	KRUEGER,A.J.
79/10/21 1630	NASA 15.204GM T 1-7041	UNITED STATES	WALLOPS ISLAND	2G	00ZU	82	HILSENATH,E.
79/10/21 1635	FLIGHT 250 T 1-6451	UNITED STATES	WALLOPS ISLAND	2G	00AC	64	KRUEGER,A.J.
79/10/21 1715	NASA 15.205GM T 1-7042	UNITED STATES	WALLOPS ISLAND	2G	00ZU	75	HILSENATH,E.
79/10/21 1732	FLIGHT 251 T 1-6452	UNITED STATES	WALLOPS ISLAND	2G	00AC	67	KRUEGER,A.J.
79/10/22 0900	MR-12	U.S.S.R.	VOLGOGRAD	3C 3D 3E	LDFK LDFP PXST	170	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
79/10/23 0315	NASA 25.04955	UNITED STATES	WHITE SANDS	7D	SWGQ XG	227	BOHLIV,R.C. STECHEM,T.P.
79/10/23 2220	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
79/10/23 2304	A45.803-01	PERU UNITED STATES	PUNTA LOBOS	2A	DCOM	50	QUESADA,A.F. VICKERY,K.W.
79/10/24 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/10/24 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/10/24 2324	A45.803-02	PERU UNITED STATES	PUNTA LOBOS	2A	DCOM	50	QUESADA,A.F. VICKERY,K.W.
79/10/25 2005	MR-12	U.S.S.R.	VOLGOGRAD	1A 3C 3D 4B 5A 5B	GI LDFK MT PXST SWG1 UTCZ UTIQ DCOM	---	INST OF APPLIED GEOPHYS
79/10/29 2304	A45.803-03	PERU UNITED STATES	PUNTA LOBOS	2A	DCOM	50	QUESADA,A.F. VICKERY,K.W.
79/10/30 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/10/31 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/10/31 1400	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/11/01 1316	FLIGHT 252 T 1-6453	UNITED STATES	WALLOPS ISLAND	2G	00AC	64	KRUEGER,A.J.
79/11/01 1355	FLIGHT 253 T 1-6454	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	KRUEGER,A.J.
79/11/01 1505	FLIGHT 254 T 1-6455	UNITED STATES	WALLOPS ISLAND	2G	00AC	66	KRUEGER,A.J.
79/11/01 1751	FLIGHT 255 TH1-9629	CANADA UNITED STATES	PRIMROSE LAKE	2G	00AC	57	KRUEGER,A.J.
79/11/01 2030	FLIGHT 256 T 1-6455	UNITED STATES	WALLOPS ISLAND	2G	00AC	69	KRUEGER,A.J.
79/11/01 2049	FLIGHT 257 T 1-6457	UNITED STATES	WALLOPS ISLAND	2G	00AC	64	KRUEGER,A.J.
79/11/01 2140	MMR-06	U.S.S.R.	USHAKOV (SHIP) (25 00N 30 00W)	2J	NP	55	CENTRAL AEROLOGICAL OBS
79/11/02 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/11/02 0420	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/11/02 1600	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00S 90 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/04 0850	NASA 15.209GM T 1-7046	UNITED STATES	WALLOPS ISLAND	2G	00ZU	78	HILSENATH,E.
79/11/04 0925	NASA 15.208GM T 1-7045	UNITED STATES	WALLOPS ISLAND	2G	00ZU	82	HILSENATH,E.
79/11/04 1000	NASA 15.207GM T 1-7044	UNITED STATES	WALLOPS ISLAND	2G	00ZU	81	HILSENATH,E.
79/11/05 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00S 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/05 1600	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00S 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/11/05 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/07 0440	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/07 0800	MMR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/11/07 0900	MMR-06	U.S.S.R.	USHAKOV (SHIP) (52 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS

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79/11/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/11/07 2050	NASA 27.030CS	UNITED STATES	WHITE SANDS	6F	CR OK KG	271	DAVIS, J.M.
79/11/08 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/11/09 2025	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/11/11 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/11 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/11 1630	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/11/11 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/12 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/11/12 1600	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/12 1800	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	77	CENTRAL AEROLOGICAL OBS
79/11/13 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/13 1630	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/11/13 1740	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/14 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/11/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/11/14 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/11/14 1540	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/14 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/14 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/11/14 2100	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	VP	74	CENTRAL AEROLOGICAL OBS
79/11/15 2000	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/11/15 2100	M-100	U.S.S.R.	SHOKALSKI (SHIP)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/11/16 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/16 0800	MNR-06	U.S.S.R.	KRENKEL' (SHIP)	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/11/16 1700	NASA 04.337CS	UNITED STATES	WHITE SANDS	6F	CRGM QKKQ KG	154	DAVIS, J.M.
79/11/20 2330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/11/21 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/11/21 0740	MNR-06	U.S.S.R.	KRENKEL' (SHIP)	2J	NP	56	CENTRAL AEROLOGICAL OBS
79/11/21 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/11/23 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/11/27 1400	M-100	U.S.S.R.	KOROLEV (SHIP)	2J	VP	81	CENTRAL AEROLOGICAL OBS
79/11/27 1500	M-100	U.S.S.R.	KOROLEV (SHIP)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/28 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/11/28 1400	M-100	INDIA	THUMBA	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/11/28 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/28 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/11/29 1400	M-100	U.S.S.R.	KOROLEV (SHIP)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/11/29 1500	M-100	U.S.S.R.	KOROLEV (SHIP)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/30 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/30 0730	MNR-06	U.S.S.R.	KRENKEL' (SHIP)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/11/30 1400	M-100	U.S.S.R.	KOROLEV (SHIP)	2J	VP	82	CENTRAL AEROLOGICAL OBS
79/12/03 0533	AAF-N58-006	CANADA UNITED STATES	FORT CHURCHILL	1R 3G	LD OH PX QK UTCZ	344	HARRIS, F.R. KELLOGG, P.J. KOEHLER, J.A. MCNAMARA, A.G. WHALEN, B.A.
79/12/04 1400	M-100	U.S.S.R.	KOROLEV (SHIP)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/12/04 1753	FLIGHT 25R THI-6400	CANADA UNITED STATES	PRIMROSE LAKE	2G	00AC	53	KRUEGER, A.J.
79/12/05 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/12/05 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/12/05 1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/12/06 1400	M-100	INDIA	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/07 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/12/11 1100	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/12/12 0105	NASA 4.338UE	UNITED STATES	WHITE SANDS	1R	PX SWGJ	122	SHARP, W.E.
79/12/12 0400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS

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79/12/12 0730	MRR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/12/12 1140	M-100	INDIA	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/12 1430	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/12/12 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00S 163 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/12/12 1630	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00S 163 00E)	2J	NP	76	CENTRAL AEROLOGICAL OBS
79/12/12 1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/12/12 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/12/14 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/12/14 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
79/12/17 0627	ADD-5A-04R	CANADA	FORT CHURCHILL	1A 3A 3G	OH PX QR	138	KOEHLE, A. J. LLEWELLYN, E. J. MCENEN, D. J. MCNAMARA, A. G.
79/12/19 0157	MR-12	U.S.S.R.	VOLGOGRAD	6D 6E	SWG1 UTVP	165	INST OF APPLIED GEOPHYS
79/12/19 0250	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/12/19 0800	MRR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/12/19 1400	M-100	INDIA	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/19 1500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/12/19 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/12/19 1900	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/12/19 1920	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/12/20 1158	MR-12	U.S.S.R.	VOLGOGRAD	6D 6E	SWG1 UTVP OAC	165	INST OF APPLIED GEOPHYS
79/12/20 1601	FLIGHT 259 T 1-645H	UNITED STATES	WALLOPS ISLAND	2G	SWG1 UTVP OAC	66	KRUEGER, A. J.
79/12/21 0215	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/12/24 0730	MRR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/12/24 1000	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 160 00E)	2J	NP	69	CENTRAL AEROLOGICAL OBS
79/12/24 1000	MRR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/12/24 1545	MRR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 160 00E)	2J	NP	62	CENTRAL AEROLOGICAL OBS
79/12/26 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
79/12/26 0715	MRR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/12/26 1400	M-100	INDIA	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/26 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/26 1405	MR-12	U.S.S.R.	VOLGOGRAD	2A 2G 3D	DCOM PXST	170	INST OF APPLIED GEOPHYS
79/12/26 1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/27 1407	MR-12	U.S.S.R.	VOLGOGRAD	1A 2G 3D	OAC PXST SWG1	165	INST OF APPLIED GEOPHYS
79/12/28 0220	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/12/28 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/01 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (20 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/02 1100	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/02 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/01/02 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/02 1930	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/03 0700	M-100	U.S.S.R.	KOROLEV (SHIP) (15 00S 110 00W)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/03 0800	M-100	U.S.S.R.	KOROLEV (SHIP) (15 00S 110 00W)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/04 0230	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/04 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/04 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/05 1100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00N 160 00E)	2J	NP	76	CENTRAL AEROLOGICAL OBS
80/01/05 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/07 0400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/07 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/01/07 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/01/07 1938	FLIGHT 260 T 1-9641	UNITED STATES	WALLOPS ISLAND	2G	OAC	67	KRUEGER, A. J.
80/01/09 0100	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/01/09 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/01/09 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/01/09 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/11 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/11 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/11 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/14 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/01/14 1030	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
80/01/14 1200	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
80/01/14 1330	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
80/01/14 1500	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/01/14 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/16 0300	K-09M-069	JAPAN	KAGOSHIMA	3A 3B 3C 3E 4B 5B	BD GY LD LDF LDLU LIWY MTUI PKGS	328	AKAI, K. DENIG, R. EJIRI, M. HIRAO, K. KAWASIMA, N. NAKAI, Y. ORAYASHI, T. OYAMA, K. SASAKI, S. WATANABE, Y. WILLIAMSON, R. J. YAGI, Y. YOSHINO, T.
80/01/16 1200	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	68	CENTRAL AEROLOGICAL OBS
80/01/16 1330	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
80/01/16 1400	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/16 1430	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/01/16 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/01/16 1900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/18 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/01/18 1030	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/01/18 1330	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/18 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/18 1500	MRR-06	U.S.S.R.	VOLGOGRAD	2J	NP	64	CENTRAL AEROLOGICAL OBS
80/01/18 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/01/20 0450	NASA 25-0620G	UNITED STATES	WHITE SANDS	6E	CR GK	209	CARRUTH, R. S.
80/01/21 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/21 0700	M-100	U.S.S.R.	KOROLEV (SHIP) (02 00S 96 00W)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/21 0800	M-100	U.S.S.R.	KOROLEV (SHIP) (02 00S 96 00W)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/21 0805	NASA 25-051UH	UNITED STATES	WHITE SANDS	7F	CR MT UTSF	215	BURROWS, D. KRAUSHAR, W. L. SANDERS, W.
80/01/21 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/21 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/01/23 0250	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/01/23 0800	M-100	U.S.S.R.	KOROLEV (SHIP) (04 00N 103 00W)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/23 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/01/23 1400	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/23 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/01/24 1722	FERDINAND 50	DENMARK NORWAY SWEDEN UNITED STATES	ANDOYA	0A 3A 3C 3E 3G 4B 5A 5B 6F	BD LD LDVY MT MTHZ PKGS SEZA UTCZ UTUH UTVP	202	ARNOLD, R. L. ARNOLD, R. L. BLOCK, L. P. EVANS, D. S. FALTHAMMAR, C. G. GREENWALD, R. A. HOLBACK, S. HOLTET, J. A. LUNDLAD, J. A. PRIMDAHL, F. SORAAS, P. SPANGSLEV, F. STADSNES, J. UNGSTRUP, E.
80/01/25 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/01/25 1500	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/25 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/01/27 0917	NASA 29-014UE TM2-9510	UNITED STATES	FAIRBANKS	5A	LD MTUI UTGJ	433	ARNOLD, R. L. CASHILL, L. J., JR.
80/01/28 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/28 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/28 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	95	CENTRAL AEROLOGICAL OBS
80/01/30 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/30 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/30 1400	M-100	U.S.S.R.	MOLDEZHNAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/01/30 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/01 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/02/01 0500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS

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80/02/02 0847	S-310-008 S-151	JAPAN	KAGOSHIMA	2F 3C 3D 3E 6E	GYKZ LDKF LOLU PXSR QKKG	179	EJIRI, M. HIGASHINO, I. HIRAO, K. ITOH, T. IWAMOTO, I. MATSUZAKI, A. NAKAMURA, Y. OHYASHI, T. OSHIO, T. DYAMA, K. SAGAWA, E. WATANABE, N. WATANABE, Y.
80/02/04 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/06 0230	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/06 0700	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
*80/02/06 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/02/06 1430	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/02/06 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/07 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/08 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/08 1600	MMR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 163 00E)	2J	NP	56	CENTRAL AEROLOGICAL OBS
80/02/09 1540	MMR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 163 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/11 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/13 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/13 0800	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
*80/02/13 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/02/13 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
*80/02/14 1412	FLIGHT 261 T 1-9642	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER, A. J.
80/02/15 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/02/15 0825	NASA 15-200UE	ITALY UNITED STATES	SAN MARCO PLATFORM	3C	LDIZ LOLU	88	HALE, L. C. MITCHELL, J. D.
80/02/15 0830	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/02/15 1143	ADD-5A-050	CANADA	SOUTH END	1B 2I 3C 3G 6B 8A	LD NR OH OHCZ PX SEBZ SWGJ	156	FORSYTH, P. A. HARRIS, F. R. KOEHLER, J. A. LLEWELLYN, E. J. MCEWEN, D. J. MCNAMARA, A. G. WHALEN, B. A. WLOCHOWICZ, R.
80/02/15 1800	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/02/15 0700	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/16 0825	NASA 15-201UE	ITALY UNITED STATES	SAN MARCO PLATFORM	3C	LDIZ LOLU	83	HALE, L. C. MITCHELL, J. D.
80/02/16 0825	NASA 23-017UE	ITALY UNITED STATES	SAN MARCO PLATFORM	4C	LD	78	CROSKY, C. HALE, L. C.
80/02/16 0910	NASA 15-202UE	ITALY UNITED STATES	SAN MARCO PLATFORM	3C	LDIZ LOLU	78	HALE, L. C. MITCHELL, J. D.
80/02/16 0931	NASA 27-037US	UNITED STATES	WHITE SANDS	6D	2K FG NP	268	MURPHY, R. PARINSON, W. H.
80/02/16 1100	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/16 2030	NASA 23-018UE	ITALY UNITED STATES	SAN MARCO PLATFORM	4C	LD	76	CROSKY, C. HALE, L. C.
*80/02/18 1906	FLIGHT 262 TN1-9655	BRAZIL UNITED STATES	NATAL	2G	OOAC	---	KRUEGER, A. J.
*80/02/19 1510	FLIGHT 263 TN1-9657	BRAZIL UNITED STATES	NATAL	2G	OOAC	64	KRUEGER, A. J.
80/02/20 0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/20 0800	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/20 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/02/20 1600	M-100	INDIA	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/02/20 1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/21 0054	FERDINAND 49	NORWAY SWEDEN UNITED STATES	ANDOYA	0A 1B 3A 3C 4B 5A 5B 6F	BD LD MTHZ SEZA SWG1 UTCZ UTUM UTVP	196	AARSNES, K. AKSNES, J. BJORDAL, J. BLOCK, L. P. EVANS, D. S. FALTHAMMAR, C. G. HOLBACK, S. HOLTET, J. A. LUNDBLAD, J. A. MASEIDE, K. SORAAS, F. STADSNES, J.

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80/02/22 0225	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/02/23 1005	ADD-05A-052	CANADA	SOUTH END	1B 2I 3C 3G 6B 8A	LD OH DMCZ PX SERZ	148	FORSYTH, P. A. HARRIS, F. R. KOEHLER, J. A. LLEWELLYN, E. J. MCENENY, D. J. MCNAMARA, A. G. WALLEN, S. A. WLOCHOWICZ, R. KRUEGER, A. J.
80/02/24 1510	FLIGHT 264 TN1-6600	BRAZIL UNITED STATES	NATAL	2G	OGAC	54	
80/02/25 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/02/25 1400	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/02/25 1400	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/25 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/25 1500	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/25 1630	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/25 1630	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/25 1630	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/25 1750	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/25 1800	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/25 1830	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/02/26 1430	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/02/26 1430	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/02/26 1440	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/02/26 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/02/26 1600	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/02/26 1730	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/02/26 1730	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/26 1830	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/26 1840	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/02/26 1840	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
80/02/27 0430	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/27 0800	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	52	CENTRAL AEROLOGICAL OBS
80/02/27 1210	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/27 1320	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/27 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/27 1430	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/27 1440	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/27 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/27 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/27 1540	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/27 1730	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/02/27 1730	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/28 1300	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/02/28 1320	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/28 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/02/28 1420	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/28 1420	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/02/28 1530	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/28 1530	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/28 1540	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/28 1700	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/28 1700	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS

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80/02/28 1800	MNR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/02/28 1820	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/29 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/02/29 0730	MNR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/02/29 0900	MNR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/02/29 1100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/02/29 1100	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/02/29 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/02/29 1220	MNR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/02/29 1330	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/29 1340	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/29 1400	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/29 1500	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/02/29 1550	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/03/01 1310	FLIGHT 265 TN1-6601	BRAZIL UNITED STATES	NATAL	2G	00AC	65	KRUEGER, A. J.
80/03/03 0400	MNR-06	U.S.S.R.	PASSAT (SHIP) (48 00N 23 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/03/05 0400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/03/05 0900	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/03/05 1200	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/03/05 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/03/05 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/03/06 1400	M-100	INDIA	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/03/07 0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/03/07 1700	M-100	U.S.S.R.	SHIRSHOV (SHIP) (36 00S 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/03/12 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/03/12 0800	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
*80/03/12 1311	FLIGHT 266 TN1-6602	BRAZIL UNITED STATES	NATAL	2G	00AC	65	KRUEGER, A. J.
80/03/12 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/03/12 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	66	CENTRAL AEROLOGICAL OBS
80/03/14 0800	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/03/16 1155	NASA 34,003UE TM2-6087	UNITED STATES	FAIRBANKS	5A	DC	571	WESCOTT, E. M.
*80/03/18 2105	FLIGHT 267 T 1-9643	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	KRUEGER, A. J.
80/03/19 0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/03/19 0700	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/03/19 0759	NASA 34,001UE TM2-6085	UNITED STATES	FAIRBANKS	5A	DC	596	WESCOTT, E. M.
80/03/19 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/03/19 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/03/19 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/03/19 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/03/19 1940	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/03/21 0700	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/03/21 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/03/21 1540	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
80/03/22 1030	NASA 25,047UH	UNITED STATES	WHITE SANDS	7F	MTHZ SWGJ DC	217	ROCHIA, R. SCHNOPPER, H. W.
80/03/22 1136	NASA 34,002UE TM2-6086	UNITED STATES	FAIRBANKS	5A	DC	618	WESCOTT, E. M.
80/03/23 1500	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/03/26 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/03/26 0800	MNR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
80/03/26 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/03/26 1430	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/03/26 1520	M-100	U.S.S.R.	SHIRSHOV (SHIP) (15 00N 160 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/03/26 1840	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/03/26 1950	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/03/26 2100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/03/28 0626	NASA 25,059UH	CANADA UNITED STATES	FORT CHURCHILL	1B	GKYZ GK	198	CHAPPELL, C. R. SHARP, W. WINNINGHAM, J. D.

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/03/28 0800	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	VP	58	CENTRAL AEROLOGICAL OBS
80/03/29 1600	M-100	U.S.S.R.	SHIRSHOV (SHIP) (30 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/03/30 1420	M-100	U.S.S.R.	SHIRSHOV (SHIP) (34 00N 160 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/04/02 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/04/02 1200	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/02 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/04/02 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/06 0333	AAF-N5B-007	CANADA	FORT CHURCHILL	1B 2A 2I 3C 3G	AF DCYQ LD LGLU SMDI SWDI UT	317	FORSYTH, F. A. HARRIS, F. R. KOEHLER, J. A. MCNAMARA, A. G. PONGRATZ, M. B. WHALEN, E. A.
80/04/09 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/09 0220	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/04/09 0600	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/09 1000	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/09 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/09 1430	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/09 1609	FLIGHT 268 T 1-9644	UNITED STATES	WALLOPS ISLAND	2G	ODAC	63	KRUEGER, A. J.
80/04/09 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/04/09 1800	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/04/09 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/04/09 2100	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/10 0200	M-100	INDIA	THUMBA	2J	VP	85	CENTRAL AEROLOGICAL OBS
80/04/10 0600	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/10 1000	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/10 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/04/10 1800	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/04/10 2100	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/04/11 0200	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/11 0600	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/04/16 0220	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/16 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	93	CENTRAL AEROLOGICAL OBS
80/04/16 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/04/19 0900	MMR-06	U.S.S.R.	PRILIV (SHIP) (40 00N 160 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
80/04/22 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/04/23 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/04/23 0900	MMR-06	U.S.S.R.	PRILIV (SHIP) (36 00N 160 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
80/04/23 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/23 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/25 0900	MMR-06	U.S.S.R.	PRILIV (SHIP) (30 00N 160 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
80/04/26 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	VP	---	CENTRAL AEROLOGICAL OBS
80/04/28 0209	MMR-12	U.S.S.R.	VOLGOGRAD	2G 3C 3D 3E	LDF LDLU PKST	155	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
80/04/28 1500	M-100	FRANCE	HEISS ISLAND	2J	VP	155	CENTRAL AEROLOGICAL OBS
80/04/29 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/29 1600	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/04/29 1600	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/04/29 1730	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 90 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/04/29 2100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/04/30 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/04/30 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	VP	88	CENTRAL AEROLOGICAL OBS
80/04/30 0440	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/04/30 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/04/30 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/05/01 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (26 00N 160 00W)	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/05/01 1630	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 82 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS

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80/05/02 1400	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/05/03 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/05 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/06 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00W)	2J	NP	94	CENTRAL AEROLOGICAL OBS
80/05/06 1600	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/06 2100	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 62 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/05/06 2210	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 62 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/07 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/07 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/07 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00W)	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/05/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/05/07 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/05/07 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/05/07 2140	M-100	U.S.S.R.	SHIRSHOV (SHIP) (05 00S 67 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/05/08 2240	M-100	U.S.S.R.	SHIRSHOV (SHIP) (10 00S 65 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/09 1600	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/05/09 2210	M-100	U.S.S.R.	SHIRSHOV (SHIP) (15 00S 65 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/10 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/05/12 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
*80/05/12 1800	FLIGHT 269 TH1-6401	CANADA UNITED STATES	PRIMROSE LAKE	2G	DOAC	---	KRUESER, A. J.
80/05/13 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/05/14 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/14 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/05/14 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/05/14 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/05/16 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/05/17 1100	MHR-06	U.S.S.R.	PRILIV (SHIP) (05 00N 180 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
80/05/17 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/05/19 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/05/19 2130	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 67 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/05/20 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (01 00N 160 00W)	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/05/20 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/05/20 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (01 00N 160 00W)	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/05/20 2130	M-100	U.S.S.R.	SHIRSHOV (SHIP) (06 00S 67 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/05/21 0220	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/05/21 1208	A24-609-02	UNITED STATES	WHITE SANDS	0C 0D 1C 7B 7D 7E	NP CRGH QKPM SWGI SWUI SWUE UTCZ	232	HUFFMAN, R. E. MCINTYRE, A., JR. OPAL, C. B. STEEVES, R. G. WHEELER, W. B.
80/05/21 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/21 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/05/21 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	93	CENTRAL AEROLOGICAL OBS
80/05/21 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/05/21 2130	M-100	U.S.S.R.	SHIRSHOV (SHIP) (11 00S 67 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/05/22 1500	NASA 25-063GS	UNITED STATES	WHITE SANDS	6F	QKKQ	249	DUNCAN, C. H. GUENTHER, B. W. HICKEY, J. R. WILSON, R. C.
80/05/22 2240	M-100	U.S.S.R.	SHIRSHOV (SHIP) (17 00S 67 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/23 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/05/23 2120	M-100	U.S.S.R.	SHIRSHOV (SHIP) (22 00S 67 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/05/24 2030	M-100	U.S.S.R.	SHIRSHOV (SHIP) (27 00S 67 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/05/25 2000	M-100	U.S.S.R.	SHIRSHOV (SHIP) (33 00S 67 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/26 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00N 163 00W)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/05/26 1300	M-100	U.S.S.R.	KOROLEV (SHIP) (30 00N 163 00W)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/05/26 1930	M-100	U.S.S.R.	SHIRSHOV (SHIP) (39 00S 67 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/26 2200	FLIGHT 270 T 1-9929	UNITED STATES	Wallops Island	2G	DOAC	65	KRUEGER, A. J.
80/05/27 1800	M-100	U.S.S.R.	SHIRSHOV (SHIP) (44 00S 67 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/05/27 1920	M-100	U.S.S.R.	SHIRSHOV (SHIP) (44 00S 67 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/05/28 0240	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	75	CENTRAL AEROLOGICAL OBS
80/05/28 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 162 00W)	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/28 1300	M-100	U.S.S.R.	KOROLEV (SHIP) (40 00N 162 00W)	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/05/28 1400	M-100	INDIA	THUMBRA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/28 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/05/28 1940	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/29 1000	MMR-06	U.S.S.R.	PRILIV (SHIP) (40 00N 180 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
90/05/30 1900	M-100	U.S.S.R.	SHIRSHOV (SHIP) (43 00S 75 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/31 0900	MMR-06	J.S.S.R.	PRILIV (SHIP) (45 00N 180 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
80/05/31 1000	MMR-06	U.S.S.R.	PRILIV (SHIP) (45 00N 180 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/06/01 1730	M-100	J.S.S.R.	SHIRSHOV (SHIP) (33 00S 62 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/06/02 1100	MMR-06	U.S.S.R.	PRILIV (SHIP) (40 00N 180 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
80/06/03 1300	M-100	U.S.S.R.	KOROLEV (SHIP) (50 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/06/03 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (50 00N 160 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/06/04 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/06/04 1200	M-100	INDIA	THUMBRA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/06/04 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/06/04 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/06/04 1830	M-100	U.S.S.R.	SHIRSHOV (SHIP) (20 00S 86 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/06/05 2000	M-100	J.S.S.R.	SHIRSHOV (SHIP) (16 00S 88 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/06/06 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/06/06 2120	M-100	U.S.S.R.	SHIRSHOV (SHIP) (11 00S 79 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/06/09 1617	FLIGHT 271 T 1-9930	UNITED STATES	Wallops Island	2G	DOAC	67	KRUEGER, A. J.
80/06/09 1804	FLIGHT 272 T 1-9932	CANADA UNITED STATES	PRIMROSE LAKE	2G	DOAC	69	KRUEGER, A. J.
80/06/10 1145	NASA 27.046AS	UNITED STATES	WHITE SANDS	6F	QKCM	298	BLAKE, R.
80/06/11 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/06/11 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/06/11 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/06/12 1400	M-100	INDIA	THUMBRA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/06/13 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/06/16 0800	NASA 25.0580G	UNITED STATES	WHITE SANDS	7C	CR GK	217	CARRUTHERS, G. R.
80/06/18 0320	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/06/18 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/06/18 1700	M-100	J.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/06/18 1830	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/06/19 1400	M-100	INDIA	THUMBRA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/06/20 1400	M-100	J.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/06/24 0530	NASA 27.041UH	UNITED STATES	WHITE SANDS	7F	CR QKCM	213	KRUSHAAR, W. L. MCCAMMON, D.
80/06/24 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/06/25 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/06/25 0210	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/06/25 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/06/26 1400	M-100	INDIA	THUMBRA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/06/27 0100	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/06/27 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/06/27 1901	NASA 25.046CE TWT-9852	UNITED STATES	WHITE SANDS	3A	PK PXFV QKKG SW31	260	CHRISTENSEN, A. J. FELDMAN, P. D. GENTIEU, E. P.
80/06/28 0800	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/07/02 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/07/02 1400	M-100	INDIA	THUMBRA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/07/02 1930	M-100	J.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/07/04 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS

*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/07/05 1830	FLIGHT 273 TNI-6603	BRAZIL UNITED STATES	NATAL	2G	OOAC	66	KRUEGER, A. J.
80/07/06 1403	FLIGHT 274 TNI-6604	BRAZIL UNITED STATES	NATAL	2G	OOAC	62	KRUEGER, A. J.
80/07/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/07/09 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/07/09 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/07/09 1500	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/07/09 1730	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/07/09 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/07/11 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/07/12 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/07/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/07/14 1911	NASA 30-0030U T 1-9968	UNITED STATES	WALLOPS ISLAND	2F	AK	76	HORVATH, J. J.
80/07/15 1700	NASA 27-044US	UNITED STATES	WHITE SANDS	6E	CRGH SK SWQJ NP	322	ROTHMAN, G. J.
80/07/16 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/07/16 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/07/16 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/07/16 2030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
*80/07/17 1347	FLIGHT 275 TNI-6605	BRAZIL UNITED STATES	NATAL	2G	OOAC	64	KRUEGER, A. J.
80/07/18 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/07/18 1600	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/07/23 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/07/23 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/07/23 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/07/23 1615	FLIGHT 276 T 1-6610	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER, A. J.
80/07/23 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/07/23 2020	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/07/24 0320	FLIGHT 277 TMI-9817	UNITED STATES	FAIRBANKS	2G	OOAC	78	KRUEGER, A. J.
80/07/24 2235	FLIGHT 278 TMI-9818	UNITED STATES	FAIRBANKS	2G	OOAC	70	KRUEGER, A. J.
80/07/25 0341	FLIGHT 279 TMI-9819	UNITED STATES	FAIRBANKS	2G	OOAC	66	KRUEGER, A. J.
80/07/25 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
*80/07/28 1900	NASA 33-013UE	UNITED STATES	WALLOPS ISLAND	3D	PX	229	NIERA, D. C.
80/07/30 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	67	CENTRAL AEROLOGICAL OBS
80/07/30 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/07/30 1420	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/07/30 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/07/30 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/08/06 0130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/08/06 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/08/06 0300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/08/06 1700	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/08/09 0730	NASA 25-0536J	UNITED STATES	WHITE SANDS	7D	CR XG	214	STECHEK, T. P.
80/08/13 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/08/13 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/08/13 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/08/13 1800	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/08/13 1930	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
*80/08/14 0202	NASA 33-005UA TM2-9873	UNITED STATES	WHITE SANDS	6D	PX	192	ZIPPE, C. J. JR.
80/08/14 0240	NASA 31-021UE T 2-7428	UNITED STATES	WALLOPS ISLAND	3A 3C 3D	LD	90	KELLEY, P. C.
80/08/14 0311	NASA 15-210UE T 1-7429	UNITED STATES	WALLOPS ISLAND	3C 3D 3E	LD	94	HALES, C.
80/08/16 1150	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/08/18 0950	A24-651-01	UNITED STATES	WHITE SANDS	7B 8B	SHOG	401	MURDOCK, T. L.
80/08/19 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/08/20 0220	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/08/20 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/08/20 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/08/20 1615	FLIGHT 280 T 1-6611	UNITED STATES	WALLOPS ISLAND	2G	OOAC	53	KRUEGER, A. J.
80/08/20 1750	FLIGHT 281 TH1-6403	CANADA UNITED STATES	PRIOROSE LAKE	2G	OOAC	70	KRUEGER, A. J.
80/08/26 1140	K-10-014 S-152	JAPAN	KAGOSHIMA	1C 7B 7C 7F 8B	CR SWQI XG	219	HAYAKAWA, S. MIYAKAWA, E. MATSUMOTO, T. MITSUDA, K. MIYAMOTO, S. MORIYAMA, T. MURAKAMI, H. YINOWIYA, K. NOGUSHI, K. ODA, M. OSAMURA, Y. UYAMA

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	YEAR ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/08/26 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	YAMASITA,K.
80/08/26 2120	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/08/26 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/08/27 0210	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/08/27 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/08/27 1400	M-100	U.S.S.R.	U.S.S.R.				
80/08/27 1400	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/09/02 1040	K -09M-070 S-153	JAPAN	KAGOSHIMA	0C 2A 3A 3C	NP DCOM I JKF SMHU	230	KAWASHIMA,N. KONDO,T. MIURA,S. MORIKAWA,A. NAKAMURA,J. OHCHI,N. OYAMA
80/09/03 0520	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/09/03 1215	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/09/03 1400	M-100	U.S.S.R.	U.S.S.R.				
80/09/03 1430	MNR-06	U.S.S.R.	MOLODEZHAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/09/03 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/09/03 1730	MNR-06	U.S.S.R.	MOLODEZHAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/09/03 1900	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/09/03 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	77	CENTRAL AEROLOGICAL OBS
80/09/04 1245	K -09M-071 S-154	JAPAN	KAGOSHIMA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/09/05 0820	MNR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	308	NAKAMURA,Y.
80/09/09 1500	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	54	CENTRAL AEROLOGICAL OBS
80/09/09 1630	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	49	CENTRAL AEROLOGICAL OBS
80/09/09 1800	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/09/09 2110	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	75	CENTRAL AEROLOGICAL OBS
80/09/10 0220	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/09/10 0735	MNR-06	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/09/10 1400	M-100	INDIA	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/09/10 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/09/10 1400	M-100	U.S.S.R.	U.S.S.R.				
80/09/12 0735	MNR-06	U.S.S.R.	MOLODEZHAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/09/17 1400	M-100	JAPAN	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
80/09/17 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/09/17 1400	M-100	U.S.S.R.	U.S.S.R.				
80/09/17 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/09/17 1600	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/09/17 1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/09/18 1630	A04-R01	UNITED STATES	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/09/19 0730	MNR-06	U.S.S.R.	WHITE SANDS	6D 6E	QKKQ NP	196	BEDDO,J.E.
80/09/19 0730	MNR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/09/20 0130	NASA 24.003CH	UNITED STATES	WHITE SANDS	7F	UTSF KG	309	CATURA,R.C.
80/09/23 1025	NASA 27.036CS	UNITED STATES	WHITE SANDS	6F	CRQH KG	296	BRUNER,E.C., JR.
80/09/24 0200	M-100	U.S.S.R.	WHITE SANDS	7E	CR OK KG	300	CRUDDANCE,H. FRITZ,S.S.
80/09/24 0700	MNR-06	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/09/24 1400	M-100	INDIA	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
80/09/24 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/09/24 1400	M-100	U.S.S.R.	U.S.S.R.				
80/09/24 1650	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/09/26 2235	NASA 27.0350H	UNITED STATES	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/09/26 2235	NASA 27.0350H	UNITED STATES	WHITE SANDS	7E	CR OK KG	300	CRUDDANCE,H. FRITZ,S.S.
80/09/30 1816	NASA 21.065UL	UNITED STATES	WHITE SANDS	7E	QKKQ	281	JUDGE,D.L.
80/10/01 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/10/01 0700	MNR-06	U.S.S.R.	KRENKEL' (SHIP) (52 00N 34 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/01 0900	MNR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/01 1400	M-100	INDIA	THUMBA	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/10/01 1400	M-100	U.S.S.R.	U.S.S.R.				
80/10/01 1850	M-100	U.S.S.R.	MOLODEZHAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/10/03 0700	MNR-06	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/10/03 0700	MNR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/06 2327	TY1-6191	NORWAY	ANDOYA	2C	NP	84	SCHMIDLIN,F.J.
80/10/07 0337	NASA 30.010GU TY2-7688	UNITED STATES NORWAY UNITED STATES	ANDOYA	3C 4B 5A 6F	BD LD12 LDLU UTUH UTVP	87	BARCUS,J.R. CROSKY,C. GOLDBERG,R.A. HALE,L.C. MITCHELL,J.D. SUTTON,J.F.
80/10/07 0338	NASA 33.015GE TY2-7683	AUSTRIA NORWAY UNITED STATES	ANDOYA	0A 1B 3C 4B 5A 6F	BD LD4Q LD12 I JKF SOCI UTJH UTVP	122	CROSKY,C. FRIEDRICH,M. GOLDBERG,R.A. HALE,L.C. JACOBSEN,T.A. MASEIDE,K. MAYNARD,N.C. MITCHELL,J.D. SORAAS,F.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
*80/10/07 0429	TY1-6878	NORWAY UNITED STATES	ANDOYA	3C	LD	---	HALE, L. C. SCHMIDLIN, F. J.
80/10/07 0602	TY1-6192	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/08 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/10/08 0700	MNR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/08 1400	M-100	INDIA U.S.S.R.	THUMBAA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/10/08 1400	M-100	U.S.S.R.	MOLODE ZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/10/08 1503	FLIGHT 282 TY1-6606	BRAZIL UNITED STATES	NATAL	2G	OOAC	71	KRUEGER, A. J.
80/10/08 1650	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/10/08 1839	NASA 33.007U TY2-9874	UNITED STATES	WHITE SANDS	3F	LD PK QKPM	200	ZIPP, E. C., JR.
80/10/09 0115	TY1-6193	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/09 2202	TY1-6194	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/10 2129	TY1-6195	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/11 2033	TY1-6196	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/11 2157	NASA 30.011GU TY2-7689	NORWAY UNITED STATES	ANDOYA	3C 4B 5A 6F	BD LDI2 LDLU UTUH UTVP	83	BARCUS, J. R. CROSKY, C. GOLDBERG, R. A. HALE, L. C. MITCHELL, J. D. SUTTON, J. F.
80/10/11 2158	NASA 33.016GE TY2-7684	AUSTRIA NORWAY UNITED STATES	ANDOYA	0A 1B 3C 4B 5A 6F	BD LDHQ LDI2 LDKF SWG1 UTUH UTVP	120	CROSKY, C. FRIEDRICH, M. GOLDBERG, R. A. HALE, L. C. JACOBSEN, T. A. MASEIDE, K. MAYNARD, N. C. MITCHELL, J. D. SORAAS, F.
80/10/11 2231	TY1-6197	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/11 2328	TY1-7128	NORWAY UNITED STATES	ANDOYA	3C	LD	65	HALE, L. C. SCHMIDLIN, F. J.
80/10/12 0026	TY1-6422	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/15 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/10/15 0800	MNR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/15 1400	M-100	INDIA U.S.S.R.	THUMBAA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/10/15 1400	M-100	U.S.S.R.	MOLODE ZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/10/15 1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/10/15 1923	TY1-6423	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/15 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/10/15 2053	TY1-6424	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/15 2304	TY1-6425	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
*80/10/16 1551	FLIGHT 283 T 1-7859	UNITED STATES	WALLOPS ISLAND		**	---	KRUEGER, A. J.
80/10/16 1645	FLIGHT 284 T 1-7649	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER, A. J.
80/10/16 1820	FLIGHT 285 T 1-7860	UNITED STATES	WALLOPS ISLAND	2G	OOAC	66	KRUEGER, A. J.
80/10/16 1854	NASA 30.004UU T 1-9969	UNITED STATES	WALLOPS ISLAND	2F	AK	75	HORVATH, J. J.
80/10/17 0700	MNR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/18 0207	TY1-7129	NORWAY UNITED STATES	ANDOYA	3C	LD	---	HALE, L. C. SCHMIDLIN, F. J.
80/10/18 0208	NASA 33.017GE TY2-7685	AUSTRIA NORWAY UNITED STATES	ANDOYA	0A 1B 3C 4B 5A 6F	BD LDHQ LDI2 LDKF SWG1 UTUH UTVP	117	CROSKY, C. FRIEDRICH, M. GOLDBERG, R. A. HALE, L. C. JACOBSEN, T. A. MASEIDE, K. MAYNARD, N. C. MITCHELL, J. D. SORAAS, F.
80/10/18 0250	NASA 30.012GU TY2-7690	NORWAY UNITED STATES	ANDOYA	3C 4A 4B 5A 6F	BD LDI2 LDLU UTUH UTVP	85	BARCUS, J. R. CROSKY, C. GOLDBERG, R. A. HALE, L. C. MITCHELL, J. D. SUTTON, J. F.
80/10/18 0318	TY1-6874	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.
80/10/18 0352	TY1-7130	NORWAY UNITED STATES	ANDOYA	3C	LD	63	HALE, L. C. SCHMIDLIN, F. J.
*80/10/18 0435	TY1-6875	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN, F. J.

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/10/22 0240	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/10/22 0800	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
80/10/22 1400	M-100	INDIA	THUMBHA	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/10/22 1500	M-100	U.S.S.R.	MOLDE ZHNAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/10/22 1650	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/10/22 2031	A10.901-01	UNITED STATES	FAIRBANKS	3C 3D	LDIZ LDF LDF PKSK	89	NARCISI,R.S.
80/10/22 2043	A14.021-01	UNITED STATES	FAIRBANKS	3D	LDF	90	NARCISI,R.S.
80/10/23 1900	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/10/24 0800	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/10/29 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/10/29 0900	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
80/10/29 1403	M-100	INDIA	THUMBHA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/10/29 1400	M-100	U.S.S.R.	MOLDE ZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/10/29 1920	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/10/30 0430	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/11/01 0644	NASA 25.050U3	UNITED STATES	WHITE SANDS	7D	SWRD XG	227	BLESS,R.C.
80/11/04 2100	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/11/04 2130	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/11/05 1400	M-100	INDIA	THUMBHA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/11/05 1400	M-100	U.S.S.R.	MOLDE ZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/11/11 0012	FERDINAND-054 BUGATTI II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 4B	LDHQ LDIZ MT OHIG OHVP PX UTWP	123	BJORJAL,J. FRIEDRICH,M. SORAAS,F. THRANE,E.V. VON ZAMM,U.
80/11/11 0012	FERDINAND-057 TRINOM II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 3D	LDHQ LDIZ MT PKSK	146	ARNOLD,F. FRIEDRICH,M. KRANKOWSKY,D.K.H. THRANE,E.V.
80/11/11 0032	MPSC-8001A	FED REP OF GERMANY NORWAY	ANDOYA	2A 2F	CK	99	WIDDEL,H.U.
80/11/11 2100	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/11/12 1400	M-100	U.S.S.R.	MOLDE ZHNAYA	2J	NP	71	CENTRAL AEROLOGICAL OBS
80/11/12 1450	M-100	INDIA	THUMBHA	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/11/12 1630	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/11/14 0720	MHR-06	U.S.S.R.	VOLGOGRAO	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/11/14 0920	MHR-06	U.S.S.R.	VOLGOGRAO	2J	NP	76	CENTRAL AEROLOGICAL OBS
80/11/14 1220	MHR-06	U.S.S.R.	VOLGOGRAO	2J	NP	75	CENTRAL AEROLOGICAL OBS
80/11/16 0316	A13.073	NORWAY UNITED STATES	ANDOYA	0A 1B 2E 2G 2H 3C 4R	GI GY LDFP MT SWOI SWUE XR	195	STAIR,A.T. ULWICK,J.C. WHEELER,N.B.
80/11/16 0331	BUGATTI II FERDINAND 53	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 4B	LDHQ LDIZ MT OHIG OHVP PX UTWP	124	BJORJAL,J. FRIEDRICH,M. SORAAS,F. THRANE,E.V. VON ZAMM,U.
80/11/16 0331	FERDINAND 55 TRINOM II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 3D	LDHQ LDIZ MT PKSK	149	ARNOLD,F. FRIEDRICH,M. KRANKOWSKY,D.K.H. THRANE,E.V.
80/11/16 0346	MPSC-8002A	FED REP OF GERMANY NORWAY	ANDOYA	2A 2F	CK	87	WIDDEL,H.U.
80/11/16 0349	NASA 33.010UE T02-9835	SWEDEN UNITED STATES	KIRUNA	3C 3D 6C 6F	LD LDLU OHIG PX	180	KOPPE,E. SMITH,L.G.
80/11/16 0415	NASA 33.011UE T02-9836	SWEDEN UNITED STATES	KIRUNA	3C 3D 6C 6F	LD LDLU OHIG PX	181	KOPPE,E. SMITH,L.G.
80/11/16 0447	S12.010-01	SWEDEN UNITED STATES	KIRUNA	1X	HP	165	PHILBRICK,C.R.
80/11/18 1020	MHR-06	U.S.S.R.	VOLGOGRAO	2J	NP	76	CENTRAL AEROLOGICAL OBS
80/11/18 1130	MHR-06	U.S.S.R.	VOLGOGRAO	2J	NP	76	CENTRAL AEROLOGICAL OBS
80/11/18 2100	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/11/19 0050	NASA 27.019NP	UNITED STATES	WHITE SANDS	0D	**	233	CHASSAY,R.P.
80/11/19 1000	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/11/19 1310	M-100	U.S.S.R.	VOLGOGRAO	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/11/19 1400	M-100	U.S.S.R.	MOLDE ZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/11/20 1400	M-100	INDIA	THUMBHA	2J	NP	86	CENTRAL AEROLOGICAL OBS

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80/11/21 0750	MRR-12	U.S.S.R.	HEISS ISLAND	2A 2B 2G 3C	DCOM LDTP LG PXST	166	CENTRAL AEROLOGICAL OBS INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY
80/11/21 0820	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/11/25 0810	MRR-12	U.S.S.R.	HEISS ISLAND	2A 2B 2G 4B	DCOM LG PXST UTCZ UTIQ	170	CENTRAL AEROLOGICAL OBS CENTRAL AEROLOGICAL OBS INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
80/11/25 0900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/11/25 2100	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
80/11/26 1400	M-100	INDIA	THURBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/11/26 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/11/26 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/11/26 1600	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
80/11/28 0325	FERDINAND 52 RUGATTI II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 4B	LDHQ LDIZ MT OHVQ OHVP PX UTVP	97	BJORDAL, J. FRIEDRICH, H. SORAAS, F. THRANE, E. V. VON ZAHN, U.
80/11/28 0325	FERDINAND 56 TRIONOM II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 3D	LDHQ LDIZ MT PXSK	146	ARNOLD, F. FRIEDRICH, H. KRANKOWSKI, D. K. H. THRANE, E. V.
80/11/28 0345	MPSC-8003A	FED REP OF GERMANY NORWAY	ANDOYA	2A 2F	CX	94	WIDDEL, H. U.
80/11/30 2344	NASA 33,009UE T02-983A	SWEDEN UNITED STATES	KIRUNA	3C 3D 6C 6F	LD LDLU OHVQ PX	171	KOPP, E. SMITH, L. G.
80/12/03 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/12/03 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/12/03 1410	M-100	INDIA	THURBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/12/03 1700	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/12/03 1812	FLIGHT 286 TH1-6404	CANADA UNITED STATES	PRINROSE LAKE	2G	OOAC	66	KRUEGER, A. J.
80/12/04 1911	FLIGHT 287 T 1-9820	UNITED STATES	WALLOPS ISLAND		**	---	KRUEGER, A. J.
80/12/05 0820	MRR-12	U.S.S.R.	HEISS ISLAND	2A	DCOM	170	INST OF EXP METEOROLOGY
80/12/05 0900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/12/05 1910	FLIGHT 288 T 1-6613	UNITED STATES	WALLOPS ISLAND		**	---	KRUEGER, A. J.
80/12/09 0630	NASA 27,04755	UNITED STATES	WHITE SANDS	7X	CR CRQH	301	SMITH, A. H.
80/12/09 2100	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	68	CENTRAL AEROLOGICAL OBS
80/12/10 1300	M-100	INDIA	THURBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/12/10 1430	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/12/10 1820	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/12/12 0105	MRR-12	U.S.S.R.	HEISS ISLAND	2A 2B 4B	DCOM LG UTCZ UTIQ	180	CENTRAL AEROLOGICAL OBS INST OF EXP METEOROLOGY SSCNR
80/12/12 0145	MRR-12	U.S.S.R.	HEISS ISLAND	3C 3E 4B 5A	GI LDKF LDTP UTCZ UTIQ	180	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
80/12/12 0250	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	70	CENTRAL AEROLOGICAL OBS
80/12/12 0620	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	77	CENTRAL AEROLOGICAL OBS
80/12/12 0715	MRR-12	U.S.S.R.	HEISS ISLAND	2G 3C 3D 3E 4B 5A	GI LDKF LDTP PXST UTCZ UTIQ	175	INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
80/12/12 1020	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	96	CENTRAL AEROLOGICAL OBS
80/12/12 1117	NASA 15,189UE T21-9506	UNITED STATES	SIPLE STATION	4B	UTIQ UTUH	80	SHELDON, W. R.
80/12/12 1719	NASA 1P,203UE	UNITED STATES	SIPLE STATION	3C 5A 5B	BD GI L10G MT	211	CORNELL U UNIVERSITY OF OSLO U OF SOUTHAMPTON MATTHEWS, D. L.
80/12/16 2130	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
80/12/17 0120	MRR-12	U.S.S.R.	HEISS ISLAND	2A 2B 2G 3C 3E 4B	DCOM LDKF LDTP LG PXST UTCZ UTIQ	175	CENTRAL AEROLOGICAL OBS INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
80/12/17 0210	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/12/17 0430	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	69	CENTRAL AEROLOGICAL OBS
80/12/17 0530	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/12/17 1000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
80/12/17 1400	M-100	INDIA	THURBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/12/17 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS

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80/12/18 2300	MNR-12	U.S.S.R.	HEISS ISLAND	2A 2B 2G 3C 3E 4B	DCOM LORF LDTP LG PKST UTC2 UTIG	170	CENTRAL AEROLOGICAL OBS INST OF APPLIED GEOPHYS INST OF EXP METEOROLOGY SSCNR
80/12/18 2330	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	60	CENTRAL AEROLOGICAL OBS
80/12/20 1730	NASA 15.190UE T21-9507	UNITED STATES	SIPLE STATION	4B	UTIG UTUH	80	SHELDON, W.R.
80/12/20 1732	NASA 18.204UE	UNITED STATES	SIPLE STATION	3C 5A 5B	8D GI LLOG MT	---	CORNELL U UNIVERSITY OF OSLO U OF SOUTHAMPTON MATTHEWS, D.L.
80/12/23 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
80/12/24 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/12/24 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/12/24 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	93	CENTRAL AEROLOGICAL OBS
80/12/24 1900	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/12/30 2200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/12/30 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/12/31 0200	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/12/31 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/01/01 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/01/04 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/01/05 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/01/06 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/01/07 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/01/07 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/01/07 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/01/08 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
81/01/09 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/01/10 1822	NASA 18.205UE	UNITED STATES	SIPLE STATION	3C 5A 5B	8D GI LLOG MT	199	CORNELL U UNIVERSITY OF OSLO U OF SOUTHAMPTON MATTHEWS, D.L.
81/01/11 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/01/12 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/01/13 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/01/14 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/01/14 0440	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	77	CENTRAL AEROLOGICAL OBS
81/01/14 1300	MNR-06	U.S.S.R.	VOLNA (SHIP) (62 005 162 00E)	2J	NP	54	CENTRAL AEROLOGICAL OBS
81/01/14 1400	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/01/14 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/01/14 1450	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/01/14 1500	MNR-06	U.S.S.R.	PRILIV (SHIP) (62 005 172 00E)	2J	NP	55	CENTRAL AEROLOGICAL OBS
81/01/15 1300	MNR-06	U.S.S.R.	VOLNA (SHIP) (62 005 159 00E)	2J	NP	61	CENTRAL AEROLOGICAL OBS
81/01/15 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/01/16 1450	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/01/17 1400	MNR-06	U.S.S.R.	PRILIV (SHIP) (57 005 170 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/01/18 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/01/19 0337	AED-05B-054	CANADA	FORT CHURCHILL	2B 2C	NP LG OH	263	DE LEEUW, J.H.
81/01/19 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/01/20 1300	MNR-06	U.S.S.R.	PRILIV (SHIP) (53 005 167 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/01/20 1300	MNR-06	U.S.S.R.	VOLNA (SHIP) (62 005 155 00E)	2J	NP	55	CENTRAL AEROLOGICAL OBS
81/01/20 2120	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/01/21 0025	NASA 27.017NP	UNITED STATES	WHITE SANDS	0C	**	209	CHASSAY, R.P.
81/01/21 0440	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
81/01/21 1330	MNR-06	U.S.S.R.	VOLNA (SHIP) (59 005 155 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/01/21 1340	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/01/21 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/01/21 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/01/21 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	61	CENTRAL AEROLOGICAL OBS
81/01/21 2146	S-310-009	JAPAN	KAGOSHIMA	2G 2L 3C 3E	LORF LDLU OOAC	174	HIRAO, K. ITO, T. JIBAYASHI, T. OGAWA, T. OYAMA, K. WATANABE, T. WATANABE, Y. KRUEGER, A.J.
81/01/22 1617	FLIGHT 289 T 1-6612	UNITED STATES	WALLOPS ISLAND	2G	OOAC	67	KRUEGER, A.J.
81/01/22 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/01/23 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	74	CENTRAL AEROLOGICAL OBS
81/01/24 1400	M-100	U.S.S.R.	SHIRSHOV (SHIP) (13 41N 170 00E)	2J	NP	42	CENTRAL AEROLOGICAL OBS
81/01/25 2040	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS

IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/01/26 0720	A4F-04B-036	CANADA	FORT CHURCHILL	1B 3G	LD LDWU DH	564	KELLOGG, P. J. KOEHLER, J. A. MCNAHARA, A. G. WHALE, N. A.
81/01/26 1300	M-100	U.S.S.R.	SHIRSHOV (SHIP) (05 00N 180 00E)	2J	NP	67	CENTRAL AEROLOGICAL OBS
81/01/26 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/01/27 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	66	CENTRAL AEROLOGICAL OBS
81/01/28 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/01/28 1340	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/01/28 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/01/28 1400	M-100	U.S.S.R.	MOLDEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/01/28 2200	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/01/29 0412	NASA 25-060UE	CANADA	FORT CHURCHILL	4A	HT	189	SHARP, W. E.
81/01/29 0700	S-520-002 T-112	UNITED STATES JAPAN UNITED STATES	KAGOSHIMA	3A 3B 3C 3E 5A 5B	CRKE LDHO LDLU SE SEZA UTCZ XX	323	AKAI, K. BANKS, P. M. DENIG, W. F. HIRAO, K. KAWASHIMA, N. KAYA, N. KIMURA, I. MATSUMOTO, H. MATSUO, H. MIYATAKE, S. NAKAI, Y. OYAMA, K. RAITI, J. SASAKI, S. WATANABE, Y. WILLIAMSON, R. YAMAGISHI, H. YOKOTA, T.
81/01/30 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/01/30 2200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/02/02 1240	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 179 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
*81/02/02 1800	FLIGHT 290 TH1-6405	CANADA UNITED STATES	PRIMROSE LAKE	2G	00AC	65	KRUEGER, A. J.
81/02/03 1300	M-100	U.S.S.R.	SHIRSHOV (SHIP) (04 00N 180 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/02/03 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
*81/02/04 0110	A24-7S1-01	UNITED STATES	WHITE SANDS	7B	SWOG	387	MURDOCK, T. L.
81/02/04 0700	MHR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	54	CENTRAL AEROLOGICAL OBS
81/02/04 1400	M-100	U.S.S.R.	MOLDEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/02/04 1400	M-100	U.S.S.R.	SHIRSHOV (SHIP) (01 25N 179 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/04 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	78	CENTRAL AEROLOGICAL OBS
81/02/05 1126	A30-072	UNITED STATES	FAIRBANKS	1B	00KQ SWQI	130	BURT, D. A. STEED, A. WHEELER, N. B.
81/02/05 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/02/06 0700	MHR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
81/02/06 0845	MHR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
81/02/06 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/02/10 1300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/02/10 1400	MHR-06	U.S.S.R.	PRILIV (SHIP) (55 00S 150 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/02/10 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/02/11 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/02/11 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/11 1400	M-100	UNITED STATES					
81/02/11 1400	M-100	U.S.S.R.	MOLDEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/12 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/02/13 0830	MHR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/02/13 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/13 1715	NASA 27-050CS	UNITED STATES	WHITE SANDS	6F	CRKE QKSF	265	DAVIS, J. H.
81/02/15 1330	M-100	U.S.S.R.	SHIRSHOV (SHIP) (05 00S 165 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/02/17 1330	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/02/17 1440	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/02/17 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	72	CENTRAL AEROLOGICAL OBS
81/02/18 0720	MHR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/02/18 0840	MHR-06	U.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/02/18 1330	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/02/19 1400	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/02/18 1400	M-100	U.S.S.R.	MOLDEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/02/18 1440	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/02/18 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/02/19 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/19 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/20 1500	MHR-06	U.S.S.R.	PRILIV (SHIP)	2J	NP	64	CENTRAL AEROLOGICAL OBS
81/02/20 1700	MHR-06	U.S.S.R.	(63 00S 145 00E)				
81/02/21 1500	M-100	U.S.S.R.	KRENKEL (SHIP)	2J	NP	56	CENTRAL AEROLOGICAL OBS
81/02/22 1320	MHR-06	U.S.S.R.	(53 00N 35 00W)				
81/02/23 1500	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/02/23 1500	MHR-06	U.S.S.R.	(15 00N 160 00E)				
81/02/24 1340	MHR-06	U.S.S.R.	VOLNA (SHIP)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/02/24 1350	M-100	U.S.S.R.	(63 00S 147 00E)				
81/02/25 2130	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/02/25 1230	MHR-06	U.S.S.R.	(25 00N 160 00E)				
81/02/25 1400	M-100	INDIA	VOLNA (SHIP)	2J	NP	62	CENTRAL AEROLOGICAL OBS
81/02/25 1407	M-100	U.S.S.R.	(60 00S 147 00E)				
81/02/25 1500	M-100	U.S.S.R.	VOLNA (SHIP)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/02/25 1600	M-100	U.S.S.R.	(58 00S 147 00E)				
81/02/25 1700	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/25 1628	FLIGHT 291	UNITED STATES	WALLOPS ISLAND	2G	00AC	66	KRUEGER, A. J.
81/02/26 2030	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/02/26 2045	FLIGHT 292	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	KRUEGER, A. J.
81/02/27 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/02/27 1827	NASA 30.0070U	UNITED STATES	WALLOPS ISLAND	2F	AK	77	KORVAT, J. J.
81/03/02 0040	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/03/02 0530	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	63	CENTRAL AEROLOGICAL OBS
81/03/03 1740	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	77	CENTRAL AEROLOGICAL OBS
81/03/03 2030	M-100	U.S.S.R.	(34 00N 155 00E)				
81/03/04 1400	M-100	INDIA	HEISS ISLAND	2J	NP	98	CENTRAL AEROLOGICAL OBS
81/03/04 1400	M-100	U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/03/04 1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/03/04 1640	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/03/04 1700	M-100	U.S.S.R.	(32 00N 155 00E)				
81/03/05 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/03/06 2130	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/03/07 0809	A13.020	UNITED STATES	VOLGOGRAD	1D 3D 3E 4E	LDLU ORUH PXSK SWOI	203	VARETSI, R. S. ROSSI, R. J.
81/03/07 0809	A13.030	UNITED STATES	FAIRBANKS	1B 3C	PXKS PXGS SWOI	156	HEROUX, L. J. MCHAHON, J. J. VAN TASSEL, R. A.
81/03/07 0826	A13.031	UNITED STATES	FAIRBANKS	1B 3C	PXGS	169	HEROUX, L. J. MCHAHON, J. J.
81/03/07 0838	A10.903	UNITED STATES	FAIRBANKS	2A 2B 2C 2F 5A	AF BD DC HP	187	PAULSEY, J. E. PHILBRICK, C. R. QUESADA, A. F. SHIDDY, M.
81/03/07 1600	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/03/07 1700	M-100	U.S.S.R.	(20 00N 152 00E)				
81/03/10 2000	M-100	U.S.S.R.	SHIRSHOV (SHIP)	2J	NP	77	CENTRAL AEROLOGICAL OBS
81/03/11 1400	M-100	INDIA	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/03/11 1400	M-100	U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/03/11 1600	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/03/13 0210	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/03/13 1600	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/03/17 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/03/18 1400	M-100	INDIA	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
81/03/18 1400	M-100	U.S.S.R.	THUMBA	2J	NP	72	CENTRAL AEROLOGICAL OBS
81/03/18 1600	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/03/19 1600	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/03/19 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/03/20 0710	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	76	CENTRAL AEROLOGICAL OBS
81/03/23 1500	MHR-06	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/03/24 0300	NASA 27.055UH	UNITED STATES	PRILIV (SHIP)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/03/24 2020	M-100	U.S.S.R.	(33 00S 90 00E)				
81/03/25 1400	M-100	INDIA	WHITE SANDS	7E	CROH XG	261	GARMIRE, G. P.
81/03/25 1400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/03/25 1400	M-100	U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/03/25 1620	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/03/26 1500	MHR-06	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/03/26 1500	MHR-06	U.S.S.R.	PRILIV (SHIP)	2J	NP	55	CENTRAL AEROLOGICAL OBS
81/03/26 1500	MHR-06	U.S.S.R.	(21 00S 90 00E)				

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/03/26 1600	MHR-06	U.S.S.S.R.	VOLNA (SHIP) (08 00S 100 00E)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/03/26 2300	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	72	CENTRAL AEROLOGICAL OBS
81/03/27 1600	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/03/28 0154	AAF-4B-037	CANADA UNITED STATES	FORT CHURCHILL	3C 4X 5B	LDLU HT PX	675	ANDERSON, H.R. MCNAMARA, A.G. WALLIS, D.D. WHALEN, B.A.
81/03/28 0154	AAF-5B-55	CANADA	FORT CHURCHILL	3C 4X 5B	LDLU HT PX	327	KOEHLE, J.A. MCNAMARA, A.G. WALLIS, K. WHALEN, B.A.
81/03/28 1600	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/03/28 1720	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/03/28 1830	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/03/29 1630	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/03/29 1740	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/03/29 1850	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/03/30 1620	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/03/30 1730	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/03/30 1833	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (12 00N 135 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/03/31 2120	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/04/01 1400	M-100	U.S.S.S.R.	MOLODEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/04/01 1410	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/04/01 1440	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/04/01 1600	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/04/02 1500	MHR-06	U.S.S.S.R.	PRILIV (SHIP) (02 00S 40 00E)	2J	NP	55	CENTRAL AEROLOGICAL OBS
81/04/05 1600	MHR-06	U.S.S.S.R.	PRILIV (SHIP) (02 00S 50 00E)	2J	NP	56	CENTRAL AEROLOGICAL OBS
81/04/06 0820	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/04/06 1040	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/04/07 0710	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/04/07 2030	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/04/08 1400	M-100	INDIA U.S.S.S.R.	THUMBA	2J	NP	70	CENTRAL AEROLOGICAL OBS
81/04/08 1430	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/04/08 1440	M-100	U.S.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/04/08 1630	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/04/14 2000	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	52	CENTRAL AEROLOGICAL OBS
81/04/15 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/04/15 1400	M-100	U.S.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/04/15 1700	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/04/21 2000	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/04/22 0130	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/04/22 0300	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/04/22 0400	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/04/22 1400	M-100	INDIA U.S.S.S.R.	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/04/22 1400	M-100	U.S.S.S.R.	MOLODEZHNYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/04/24 1700	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/04/27 1300	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	71	CENTRAL AEROLOGICAL OBS
81/04/27 1420	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
81/04/27 1635	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/04/27 1730	MHR-06	U.S.S.S.R.	VOLGOGRAD	2J	NP	77	CENTRAL AEROLOGICAL OBS
81/04/27 2315	NASA 24.010UG	UNITED STATES	WHITE SANDS	7E	OK UT XG	263	DAVIDSEN, A.
81/04/28 2000	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/04/29 1400	M-100	INDIA U.S.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/04/29 1400	M-100	U.S.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/04/29 1930	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/05/01 0750	MHR-06	U.S.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/05/02 1830	M-100	U.S.S.S.R.	KOROLEV (SHIP) (00 00N 89 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/05/03 1400	M-100	INDIA U.S.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/05/04 0755	NASA 27.058UH	UNITED STATES	WHITE SANDS	7F	GY HT	251	DELVAILLE, J.
81/05/04 2000	M-100	U.S.S.S.R.	KOROLEV (SHIP) (00 00N 80 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/05 2000	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/05/06 0800	NASA 27.060UL	UNITED STATES	WHITE SANDS	7E	NP UTCZ XG	322	BARTH, C.A.
81/05/06 0830	MHR-06	U.S.S.S.R.	KRENKEL' (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/05/06 1400	M-100	INDIA U.S.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/06 1400	M-100	U.S.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/05/08 0700	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	55	CENTRAL AEROLOGICAL OBS
81/05/09 1835	M-100	U.S.S.R.	KOROLEV (SHIP) (15 00S 70 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/12 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (31 00S 70 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/05/12 1810	M-100	U.S.S.R.	KOROLEV (SHIP) (31 00S 70 00E)	2J	NP	76	CENTRAL AEROLOGICAL OBS
81/05/12 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/13 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/05/13 1700	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/05/13 1800	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/14 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (41 00S 70 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/05/14 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (42 00S 70 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/05/15 0800	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/05/15 1400	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
81/05/15 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (47 00S 70 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/05/17 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (48 00S 70 00E)	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/05/17 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (48 00S 70 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/05/18 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (44 00S 70 00E)	2J	NP	76	CENTRAL AEROLOGICAL OBS
81/05/19 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (39 00S 65 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/05/19 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (39 00S 65 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/05/19 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/05/20 0800	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
81/05/20 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
81/05/20 1435	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	---	CENTRAL AEROLOGICAL OBS
81/05/20 1630	M-100	INDIA	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
81/05/20 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/05/20 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (33 00S 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/20 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (33 00S 65 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/05/21 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (27 00S 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/22 0245	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/05/22 0800	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/05/22 1630	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/05/24 0830	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
81/05/26 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	77	CENTRAL AEROLOGICAL OBS
81/05/27 0425	NASA 21.067UG	UNITED STATES	WHITE SANDS	7E	NP CRKE QK XG	225	FELDMAN, P.D.
81/05/27 0730	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/05/27 1400	M-100	INDIA	THUMBA	2J	NP	63	CENTRAL AEROLOGICAL OBS
81/05/27 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/05/27 1515	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	75	CENTRAL AEROLOGICAL OBS
81/05/27 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/05/29 0840	MHR-06	U.S.S.R.	KRENKEL* (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/05/29 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/06/02 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/06/03 0730	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
81/06/03 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/03 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/03 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/06/05 0700	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
81/06/05 1400	M-100	INDIA	THUMBA	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/06/08 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/08 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/06/09 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/09 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/10 0100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/10 0315	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	93	CENTRAL AEROLOGICAL OBS

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DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/06/10 0700	HMR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/06/10 1400	M-100	INDIA	THUMBA	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/06/10 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/06/10 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/06/10 1530	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/06/11 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/11 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (14 00S 65 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/06/12 0700	HMR-05	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
81/06/12 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/06/12 1700	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/12 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (10 00S 65 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/06/13 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (05 00S 65 00E)	2J	NP	93	CENTRAL AEROLOGICAL OBS
81/06/14 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 65 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/06/14 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/15 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/15 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (05 00N 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/16 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (10 00N 65 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/06/17 0700	HMR-05	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	54	CENTRAL AEROLOGICAL OBS
81/06/17 0712	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/17 0900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/06/17 1020	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	94	CENTRAL AEROLOGICAL OBS
81/06/17 1300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/06/17 1400	M-100	INDIA	THUMBA	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/06/17 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/06/17 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/17 2300	M-100	U.S.S.R.	KOROLEV (SHIP) (15 00N 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/19 0700	HMR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/06/19 0712	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/19 1012	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/19 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/06/21 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 70 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/06/22 0200	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/06/22 0200	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/06/22 0400	HMR-05	U.S.S.R.	VOLGOGRAD	2J	NP	---	CENTRAL AEROLOGICAL OBS
81/06/22 0600	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	52	CENTRAL AEROLOGICAL OBS
81/06/22 0800	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	53	CENTRAL AEROLOGICAL OBS
81/06/22 1000	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
81/06/23 0500	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	---	CENTRAL AEROLOGICAL OBS
81/06/23 0600	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	72	CENTRAL AEROLOGICAL OBS
81/06/23 0700	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	48	CENTRAL AEROLOGICAL OBS
81/06/23 0800	HMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	46	CENTRAL AEROLOGICAL OBS
81/06/23 0840	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/06/23 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/06/23 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/06/23 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 30 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/06/24 0800	HMR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/06/24 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/24 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/06/24 1500	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/06/24 2030	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 85 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/06/25 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/06/25 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/06/25 2100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/06/26 0700	HMR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/06/28 0700	HMR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/06/28 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/06/30 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
81/07/01 1400	M-100	INDIA	THUMBA	2J	NP	64	CENTRAL AEROLOGICAL OBS
81/07/01 1700	M-100	FRANCE	KERGUELEN ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/07/01 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/07/02 0200	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	75	CENTRAL AEROLOGICAL OBS
81/07/03 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS

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81/07/06	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/07/07	2000 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/07/08	0200 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	77	CENTRAL AEROLOGICAL OBS
81/07/08	1400 M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/07/08	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/07/08	1500 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/07/10	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	43	CENTRAL AEROLOGICAL OBS
81/07/13	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/07/14	2100 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/07/15	1400 M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/07/15	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/07/15	1500 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/07/15	1700 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/07/17	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/07/20	1500 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/07/21	1500 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/07/21	2000 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/07/21	2030 M-100	U.S.S.R.	VOLGOGRAD	2J	VP	90	CENTRAL AEROLOGICAL OBS
81/07/22	1400 M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/07/22	1500 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/07/22	1530 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/07/23	1700 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/07/24	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
81/07/24	1600 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/07/26	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/07/28	2000 M-100	HEISS ISLAND	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/07/28	2030 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/07/28	2200 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/07/28	2330 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/07/29	1400 M-100	FRANCE	KERGUELEN ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
81/07/29	1400 M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/07/29	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/07/30	2030 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/07/31	1050 A24.6S1-02	UNITED STATES	WHITE SANDS	7B 8B	SW06	392	MURDOCK, I.T.L.
81/07/31	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/08/03	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/08/04	0720 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/08/04	1950 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/08/04	2000 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/08/04	2000 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/08/04	2200 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/08/05	1400 M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/08/05	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/08/07	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/08/09	0206 NASA 15-211UE T 1-0211	UNITED STATES	WALLOPS ISLAND	5A	BD	75	HALE, L.C.
81/08/11	0208 NASA 15-212UE T 1-0212	UNITED STATES	WALLOPS ISLAND	5A	LD1Z	82	MITCHELL, J.D.
81/08/11	2000 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	MITCHELL, J.D.
81/08/11	2040 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	HALE, L.C.
81/08/12	1400 M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/08/12	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/08/18	2000 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/08/18	2030 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/08/19	1400 M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/08/19	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/08/24	1200 S-310-010 S-156	JAPAN	KAGOSHIMA	0E 1B 1C	SW01 SW0J	187	MIYASHITA, M. NAKAMURA, H. NAKAMURA, Y. TAKECHI, A.
81/08/25	2000 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	93	CENTRAL AEROLOGICAL OBS
81/08/25	2030 M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/08/26	1400 M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/08/26	1400 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/09/02	1400 M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/09/02	1430 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	66	CENTRAL AEROLOGICAL OBS
81/09/02	1600 M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/09/03	0900 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/09/03	1130 M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/09/04	0900 MHR-06	U.S.S.R.	MUSSON (SHIP)	2J	NP	60	CENTRAL AEROLOGICAL OBS
			(53 00N 35 00W)				

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/09/05 0100	S -520-004 S-157	JAPAN	KAGOSHIMA	1A 2F 3C 3D 3E 5B	LKDF LDLU MTUI OOGT PXSK QKPM	229	HIRAO,K. IWAMOTO,I. MAKINO,T. MATSUO,H. OBAYASHI,T. OYAMA,K. SAGAWA,S. SEKIGUCHI,H. SUZUKI,K. TANIZAWA,I. WATANABE,Y. YAMAMOTO,H. YOSHINO,T.
81/09/07 0938	S -310-011 S-158	JAPAN	KAGOSHIMA	3C 2C 2G 2L 3C 3E	AK LKDF LDLU OOLC SWOI	193	HIRAO,K. ITO,H. IWAKAMI,N. KONDO,Y. MATSUZAKI,A. NAKAMURA,Y. OGAWA,T. OYAMA,K. TAKAGI,H. WATANABE,T. WATANABE,Y.
81/09/08 2035	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/09/09 0900	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/09/09 1400	M-100	INDIA	THUMBA	2J	NP	73	CENTRAL AEROLOGICAL OBS
81/09/09 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/09/09 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/09/11 0740	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/09/13 1605	FLIGHT 293 T 1-6617	UNITED STATES	WALLOPS ISLAND	2L	O OAC	65	REED, E. I.
81/09/15 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	43	CENTRAL AEROLOGICAL OBS
81/09/15 2130	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/09/16 0900	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/09/16 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/09/16 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/09/16 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/09/17 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/09/22 1420	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/09/22 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	64	CENTRAL AEROLOGICAL OBS
81/09/23 1700	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	80	CENTRAL AEROLOGICAL OBS
81/09/23 1730	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/09/24 1350	MARS 30.0130E T 1-0032	UNITED STATES	WALLOPS ISLAND	2A 2H 5A	BD LDIZ UT	71	GOEBERG,R.A. HALE,L.C. MITCHELL,J.D.
81/09/25 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
81/09/29 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/09/30 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/09/30 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/09/30 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/09/30 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/10/02 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/10/05 1610	FLIGHT 294 T 1-6616	UNITED STATES	WALLOPS ISLAND	2L	O OAC	67	REED, E. I.
81/10/06 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/10/06 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/10/07 0800	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
81/10/07 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/10/07 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/10/09 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/10/13 2015	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/10/14 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/10/14 1400	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/10/14 1540	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/10/14 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	91	CENTRAL AEROLOGICAL OBS
81/10/15 0050	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/10/20 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/10/20 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/10/20 2330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/10/21 0030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/10/21 0700	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
81/10/21 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/10/21 1450	M-100	U.S.S.R.	MOL ODEZHNYAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS

*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
81/10/25 1901	FERDINAND-051 POLAR 6	AUSTRIA NORWAY UNITED STATES	ANDJOYA	0A 1B 3A 3B 3C 3E 4B 4X 5A	AF BD GI LDHO LDIY LDIZ LDLU MT PKSS SEZA SNOI UTVP LDIZ LDKF PKSK	184	AARNES, K. FRIEDRICH, M. GRANDAL, B. HOL TET, J. A. LUNDBLAD, J. A. MAEHLUM, B. N. MASEIDE, K. MAYNARD, N. C. SRAAS, F. THRANE, E. V. TROIM, J.
81/10/26 2130	A10.901-02	UNITED STATES	FAIRBANKS	3C 3D	LDIZ LDKF PKSK	96	VARCISI, R. S.
81/10/27 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
81/10/27 2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/10/27 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/10/27 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	75	CENTRAL AEROLOGICAL OBS
81/10/28 0800	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
81/10/28 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/10/29 1420	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/11/02 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/11/03 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/11/04 0010	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/11/04 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/11/04 1400	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/11/04 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/11/05 0300	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/11/06 0700	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
81/11/07 1204	A30.175	UNITED STATES	FAIRBANKS	1B	OKKO SNOI	138	BURT, D. A. STEED, A. WHEELER, N. B.
81/11/10 2050	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	94	CENTRAL AEROLOGICAL OBS
81/11/10 2330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/11/11 0740	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
81/11/11 0920	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/11/11 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/11/11 1400	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/11/11 2135	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
81/11/12 0930	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/11/12 1829	FLIGHT 295 T 1-6615	UNITED STATES	WALLOPS ISLAND	2G	00AC	---	REED, E. I.
81/11/16 1540	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/11/17 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/11/17 2300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/11/18 0700	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
81/11/18 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/11/18 1400	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/11/23 1040	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/11/23 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
81/11/24 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/11/25 0700	MHR-06	U.S.S.R.	V. BUGAYEV (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
81/11/25 1400	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/11/25 1540	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/11/30 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/12/01 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/12/02 0620	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/12/02 1400	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
81/12/03 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	62	CENTRAL AEROLOGICAL OBS
81/12/04 0500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/12/06 2314	AAF-48-038	CANADA	CAPE PARRY	1B 2I 3C 5B	GYZK LD LDLU LDWU RTHZ	615	KOehler, R. A. MACDOUGALL, J. W. MCEWEN, D. J. MCNAMARA, R. S. WALLIS, D. D. WHALEN, B. A.
81/12/08 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
81/12/09 1100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/12/09 1400	M-100	INDIA	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/12/09 1400	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	79	CENTRAL AEROLOGICAL OBS
81/12/09 1600	M-100	U.S.S.R.	MOL ODEZH NAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/12/10 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	59	CENTRAL AEROLOGICAL OBS
81/12/11 1440	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
*81/12/13 2131	AAF-48-039	CANADA	CAPE PARRY	1B 2I 3C 5B	GYKZ LD LDLU LDMU MTHZ	50	KOehler, R. A. YACOUSALL, J. W. MCEMENA, D. J. MCNAMARA, A. G. WALLIS, D. D. WHALEN, B. A.
81/12/15 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/12/16 0150	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
81/12/16 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
81/12/17 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
81/12/18 1920	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
81/12/22 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/12/23 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/12/23 2020	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
81/12/24 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
81/12/25 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
81/12/29 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	--	CENTRAL AEROLOGICAL OBS
81/12/30 1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
81/12/31 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/01/01 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
82/01/01 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/01/04 1120	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/01/05 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/01/06 0345	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/01/06 0730	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
82/01/06 1420	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/01/06 1440	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
82/01/07 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	75	CENTRAL AEROLOGICAL OBS
82/01/08 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/01/12 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/01/13 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/01/13 1420	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/01/14 0000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/01/14 1400	M-100	INDIA	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/01/14 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/01/15 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/01/15 0920	K-09M-073 S-159	JAPAN	KAGOSHIMA	0C 2A 3A 3B 3C 3X 5A	BD CRKE DCOM LDKF SMHU SMRO	303	KATO, S. KAWASHIMA, N. MATSUMOTO, H. NAKAMURA, J. NISHIDA, A. OHCHI, N. OYA, H. SASAKI, S. TSURUDA, K.
82/01/16 1119	TM1-0224	UNITED STATES	FAIRBANKS	2C 2J	CX NP XPCA	---	SCHMIDLIN, F. J.
82/01/16 1144	TM1-0225	UNITED STATES	FAIRBANKS	2C 2J	CX NP XPCA	57	SCHMIDLIN, F. J.
82/01/17 1140	TM1-0226	UNITED STATES	FAIRBANKS	2C 2J	CX NP XPCA	57	SCHMIDLIN, F. J.
82/01/18 1127	TM1-0227	UNITED STATES	FAIRBANKS	2C 2J	CX NP XPCA	55	SCHMIDLIN, F. J.
82/01/19 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/01/19 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/01/20 0030	NASA 31.018GE	UNITED STATES	FAIRBANKS	3C 5A	GI LDLU	94	HALEY, L. C. MAYNARD, N. C.
82/01/20 0127	TM1-0228	UNITED STATES	FAIRBANKS	2C 2J	CX NP XPCA	62	SCHMIDLIN, F. J.
82/01/20 0140	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/01/20 0530	TM1-0229	UNITED STATES	FAIRBANKS	2C 2J	CX NP XPCA	60	SCHMIDLIN, F. J.
82/01/20 0700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
82/01/20 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/01/20 1420	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	78	CENTRAL AEROLOGICAL OBS
82/01/20 1609	FLIGHT 296 T1-0068	UNITED STATES	WALLOPS ISLAND	2G	NP OOAC	66	REED, E. I.
82/01/21 0131	NASA 29.018UE TH2-0135	CANADA UNITED STATES	CAPE PARRY	1B	BD MTHZ PXGS PXMR	633	CARLSON, C. W. HOZER, F. S.
82/01/21 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/01/22 0730	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/01/23 0800	A24.7S2-02	UNITED STATES	WHITE SANDS	7B	SW06	378	PRICE, S. D.

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82/01/23 1213	NASA 31-0196E	UNITED STATES	FAIRBANKS	3C 5A	GI	101	HALE, L. C.	
82/01/23 1348	TM1-0231	UNITED STATES	FAIRBANKS	2C 2J	L DLU CX NP KPCA CX NP KPCA CX NP	68	MAYNARD, W. C. SCHMIDLIN, F. J.	
82/01/24 1305	TM1-0232	UNITED STATES	FAIRBANKS	2C 2J	KPCA CX NP	59	SCHMIDLIN, F. J.	
82/01/24 1432	TM1-0233	UNITED STATES	FAIRBANKS	2C 2J	KPCA CX NP	65	SCHMIDLIN, F. J.	
82/01/25 1600	FLIGHT 297 TN1-6607	BRAZIL	NATAL	2L	00AC	67	REED, E. I.	
82/01/25 1640	FLIGHT 298 TN1-6609	BRAZIL	NATAL	2L	00AC	65	REED, E. I.	
82/01/25 1755	TN1-0145	BRAZIL	NATAL	2J	00ZU	69	HILSEN RATH, E.	
82/01/25 1830	FLIGHT 299 TN1-6608	BRAZIL	NATAL	2L	00AC	62	REED, E. I.	
82/01/25 1913	TN1-0146	BRAZIL	NATAL	2J	00ZU	68	HILSEN RATH, E.	
82/01/26 2004	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS	
82/01/27 0800	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS	
82/01/27 1200	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	59	CENTRAL AEROLOGICAL OBS	
82/01/27 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS	
82/01/27 1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	56	CENTRAL AEROLOGICAL OBS	
82/01/27 1530	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	84	CENTRAL AEROLOGICAL OBS	
82/01/28 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS	
82/01/29 0330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS	
82/01/29 0700	MMR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS	
82/01/31 1416	TN1-0137	BRAZIL	NATAL	2J	00ZU	71	HILSEN RATH, E.	
82/01/31 1446	TN1-0138	BRAZIL	NATAL	2J	00ZU	75	HILSEN RATH, E.	
82/01/31 1523	FLIGHT 300 TN1-0248	BRAZIL	NATAL	2L	00AC	65	REED, E. I.	
82/02/02 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS	
82/02/03 0325	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS	
82/02/03 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS	
82/02/03 1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS	
82/02/04 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS	
82/02/08 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (02 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS	
82/02/09 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS	
82/02/10 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (02 00S 163 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS	
82/02/10 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS	
82/02/10 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS	
82/02/10 1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS	
82/02/10 1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS	
82/02/11 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS	
82/02/12 0730	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS	
82/02/13 0200	K-09H-072 S-160	JAPAN	KAGOSHIMA	0C 3A 3C 3E 3X 4B 5B	L DHQ LDKF LDLU LI-HU MT MTHZ DHCZ PXGS UTCZ	328	AOYAMA, I. FUKAMI, T. HIRAO, K. KAYA, N. MAMBO, M. MASHIMA, K. MATSUMOTO, H. YUKAI, T. NAGANO, I. NAKAMURA, Y. OBAYASHI, T. OYAMA, C. SAITO, T. SETO, M. WATANABE, Y. YOSHIZAKI, Y. YUMOTO, K.	
82/02/14 0750	S-520-003 S-161	JAPAN	KAGOSHIMA	0C 7D 7E	JE QKKQ RW SWOG SWOJ XG XP	266	KODAIRA, K. MURAKAMI, M. YAKAYO, Y. NISHI, K. NOGUCHI, K. SASAKI, T. TANAKA, Y. TSUJIMURA, T. YAMASHITA, K. REED, E. I.	
82/02/15 1708	FLIGHT 301 TZ1-0057	ARGENTINA	VICECOMEDORO	HARAMBI	26	00AC	70	REED, E. I.
82/02/15 1915	FLIGHT 302 TZ1-0058	ARGENTINA	VICECOMEDORO	HARAMBI	26	00AC	69	REED, E. I.
82/02/16 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS	
82/02/17 0300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS	

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82/02/17 0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
*82/02/17 1400	M-100	INDIA	THUMBHA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/02/17 1420	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
*82/02/17 1838	FLIGHT 303 TZ1-0059	ARGENTINA UNITED STATES	VICECOMEDORO MARAMBI	2J	NP	---	REED,E.I.
82/02/17 1907	FLIGHT 304 TZ1-0060	ARGENTINA UNITED STATES	VICECOMEDORO MARAMBI	2G	00AC	70	REED,E.I.
82/02/18 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (35 00S 163 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/02/18 1240	K-09M-074 S-162	JAPAN	KAGOSHIMA	7D 7E 7F	QKSF SNOJ	315	MIYANO,T.S. MSUNEMI,H. MURATA,H. OGAWARA,Y. SATO,Y. SHIMIZU,S. TSUNEMI,H. TSUNO,K. YAMASHITA,K.
82/02/19 0635	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/02/19 0900	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
82/02/19 0945	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/02/19 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (30 46S 163 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/02/21 0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
82/02/21 1653	FLIGHT 305 TZ1-0061	ARGENTINA UNITED STATES	VICECOMEDORO MARAMBI	2G	00AC	70	REED,E.I.
82/02/22 0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/02/23 1911	T 1-0105	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	79	SCHMIDLIN,F.J.
82/02/23 2105	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/02/24 0300	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/02/24 0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/02/24 1420	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/02/24 1500	M-100	INDIA	THUMBHA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/02/24 1900	T 1-010E	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	82	SCHMIDLIN,F.J.
82/02/25 1900	T 1-0107	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	74	SCHMIDLIN,F.J.
82/02/25 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	77	CENTRAL AEROLOGICAL OBS
82/02/25 0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/02/26 1651	FLIGHT 306 TZ1-0062	ARGENTINA UNITED STATES	VICECOMEDORO MARAMBI	2G	00AC	75	REED,E.I.
82/02/26 1920	T 1-0108	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	80	SCHMIDLIN,F.J.
82/02/27 1900	T 1-0109	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	60	SCHMIDLIN,F.J.
82/02/28 0850	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
82/02/28 1946	T 1-0112	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	79	SCHMIDLIN,F.J.
82/03/01 2000	T 1-0113	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	80	SCHMIDLIN,F.J.
82/03/02 1955	T 1-0116	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	81	SCHMIDLIN,F.J.
82/03/02 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/03/03 1420	M-100	U.S.S.R.	MOLDOEZHNAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/03/03 1500	M-100	INDIA	THUMBHA	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/03/03 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/03/03 1900	T 1-0117	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	83	SCHMIDLIN,F.J.
82/03/04 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (45 00S 110 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/04 1900	T 1-0118	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	79	SCHMIDLIN,F.J.
82/03/04 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/03/05 1903	T 1-0119	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	81	SCHMIDLIN,F.J.
82/03/06 1902	T 1-0120	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	60	SCHMIDLIN,F.J.

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82/03/07 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (45 00S 110 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/03/07 1520	M-100	U.S.S.R.	KOROLEV (SHIP) (45 00S 110 00E)	2J	NP	74	CENTRAL AEROLOGICAL OBS
82/03/07 1901	T 1-0121	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	59	SCHMIDLIN,F.J.
82/03/09 1908	T 1-0122	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	81	SCHMIDLIN,F.J.
82/03/09 1900	T 1-0123	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	78	SCHMIDLIN,F.J.
82/03/09 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/03/10 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/10 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/03/10 1520	M-100	U.S.S.R.	KOROLEV (SHIP) (44 47S 90 00E)	2J	NP	93	CENTRAL AEROLOGICAL OBS
82/03/10 1850	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/03/10 1900	T 1-0124	UNITED STATES	WALLOPS ISLAND	0A 2E 2J	CX NP XPCA	76	SCHMIDLIN,F.J.
82/03/11 1900	T 1-0125	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	79	SCHMIDLIN,F.J.
82/03/11 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/03/12 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (44 54S 79 00E)	2J	NP	75	CENTRAL AEROLOGICAL OBS
82/03/12 1825	M-100	U.S.S.R.	KOROLEV (SHIP) (44 50S 79 00E)	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/03/12 1900	T 1-0126	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	79	SCHMIDLIN,F.J.
82/03/13 1903	T 1-0127	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	61	SCHMIDLIN,F.J.
82/03/14 0840	M-100	U.S.S.R.	KOROLEV (SHIP) (42 53S 70 00E)	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/03/14 1901	T 1-0128	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	61	SCHMIDLIN,F.J.
82/03/15 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (38 37S 70 00E)	2J	NP	93	CENTRAL AEROLOGICAL OBS
82/03/15 1900	T 1-0129	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	74	SCHMIDLIN,F.J.
*82/03/16 0510	AAF-9C-001	CANADA	FORT CHURCHILL	1B 1C 3C 4B 5A 5B	DCDH GI LD LDLU 4THZ	3	FORSYTH,P.A. HARRIS,F.R. KELLEY,P.C. KOEHLER,R.A. MUNAMARA,A.G. PONGRATZ,M.B. WALLIS,D.O. WHALEN,B.A.
82/03/16 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (34 21S 70 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/03/16 1900	T 1-0130	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	76	SCHMIDLIN,F.J.
82/03/16 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/03/17 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
82/03/17 1420	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/17 1420	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/03/17 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (29 49S 70 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/03/17 1923	T 1-0131	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	79	SCHMIDLIN,F.J.
82/03/18 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (25 00S 70 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/03/18 1901	T 1-0132	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	60	SCHMIDLIN,F.J.
82/03/18 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/03/19 1800	M-100	U.S.S.R.	KOROLEV (SHIP) (20 00S 70 00E)	2J	NP	91	CENTRAL AEROLOGICAL OBS
82/03/19 1900	T 1-0133	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	76	SCHMIDLIN,F.J.
82/03/20 1900	M-100	U.S.S.R.	KOROLEV (SHIP) (15 37S 70 00E)	2J	NP	74	CENTRAL AEROLOGICAL OBS
82/03/20 1900	T 1-0134	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	62	SCHMIDLIN,F.J.
82/03/21 1720	M-100	U.S.S.R.	KOROLEV (SHIP) (11 00S 70 00E)	2J	NP	91	CENTRAL AEROLOGICAL OBS

* IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
82/03/21 1920	T 1-0288	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	61	SCHMIDLIN,F.J.
82/03/22 1924	T 1-0290	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	75	SCHMIDLIN,F.J.
82/03/22 2000	M-100	U.S.S.R.	KOROLEV (SHIP) (05 20S 70 00E)	2J	XP	89	CENTRAL AEROLOGICAL OBS
82/03/23 1900	T 1-0291	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	78	SCHMIDLIN,F.J.
82/03/23 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/03/23 2127	F--230H	UNITED KINGDOM	SOUTH UIST	1C	SWQI	132	GREER,R.G.H. LLEWELLYN,E.J.
82/03/23 2148	F--232H	UNITED KINGDOM	SOUTH UIST	2G 3C	LDLU QKPH XP	138	DICKINSON,P.H.G. GREER,R.G.H. WILLIAMS,E.R.
82/03/23 2210	F--227H	UNITED KINGDOM	SOUTH UIST	1C 2C	SWQI XP	129	GREER,R.G.H. WILLIAMS,E.R.
82/03/23 2257	F--229H	UNITED KINGDOM	SOUTH UIST	1C	SWQI	139	GREER,R.G.H. WITT,G.
82/03/23 2312	P--231H	UNITED KINGDOM	SOUTH UIST	1C	SWQI	131	GREER,R.G.H. LLEWELLYN,E.J.
82/03/23 2328	F--228H	UNITED KINGDOM	SOUTH UIST	1C	SWQI XP	127	GREER,R.G.H. WILLIAMS,E.R.
82/03/23 2355	P--234H	UNITED KINGDOM	SOUTH UIST	2C 2G 3C	LDLU QKPH XP	129	DICKINSON,P.H.G. GREER,R.G.H. WILLIAMS,E.R.
82/03/24 0150	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/24 0700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/03/24 1040	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/03/24 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/03/24 1420	M-100	U.S.S.R.	MOLDEZHAY	2J	NP	79	CENTRAL AEROLOGICAL OBS
82/03/24 1901	T 1-0292	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	74	SCHMIDLIN,F.J.
82/03/25 1725	M-100	U.S.S.R.	KOROLEV (SHIP) (05 00S 80 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/03/25 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/03/27 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (05 00S 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/27 1700	M-100	U.S.S.R.	KOROLEV (SHIP) (05 00S 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/28 1630	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/03/28 1735	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 90 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/03/29 1405	T 1-0283	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	HP NP	75	SCHMIDLIN,F.J.
82/03/29 1457	T 1-0293	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	71	SCHMIDLIN,F.J.
82/03/29 1600	M-100	U.S.S.R.	KOROLEV (SHIP) (03 00N 90 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/03/29 1730	M-100	U.S.S.R.	KOROLEV (SHIP) (03 00N 90 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/03/30 1330	T 1-0294	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	HP NP	97	SCHMIDLIN,F.J.
82/03/30 1420	T 1-0297	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	65	SCHMIDLIN,F.J.
82/03/30 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/03/31 0140	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
82/03/31 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
82/03/31 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/03/31 1430	M-100	U.S.S.R.	MOLDEZHAY	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/04/06 2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/04/07 0700	MNR-05	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/04/07 1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/04/07 1400	M-100	U.S.S.R.	MOLDEZHAY	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/04/07 1640	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/04/07 1700	M-100	U.S.S.R.	MOLDEZHAY	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/04/07 1940	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/04/09 0800	MNR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
82/04/11 0730	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	63	CENTRAL AEROLOGICAL OBS
82/04/14 0330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/04/14 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/04/14 1400	M-100	U.S.S.R.	MOLDEZHAY	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/04/16 0700	MNR-05	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/04/19 0800	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/04/19 0900	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/04/20 1559	FLIGHT 307 T 1-0069	UNITED STATES	WALLOPS ISLAND	2G	00AC	64	REED,E.I.
82/04/20 1641	FLIGHT 308 T 1-0071	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	REED,E.I.

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82/04/20	1646	FLIGHT 309 T 1-0072	UNITED STATES	WALLOPS ISLAND	2G	00AC	65	REED, C. I.
82/04/20	1717	FLIGHT 310 T 1-0073	UNITED STATES	WALLOPS ISLAND	2G	00AC	63	REED, C. I.
82/04/20	2100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/04/21	0700	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
82/04/21	0800	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/04/21	1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/04/21	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/04/21	0700	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/04/27	2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/04/28	1000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
82/04/28	1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/04/28	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/04/28	1730	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	93	CENTRAL AEROLOGICAL OBS
82/04/28	1740	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	93	CENTRAL AEROLOGICAL OBS
82/04/28	2140	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/04/30	0700	MHR-06	U.S.S.R.	MUSSON (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/05/03	0600	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	VP	56	CENTRAL AEROLOGICAL OBS
82/05/03	0700	MHR-06	U.S.S.R.	MUSSON (SHIP) (50 00N 25 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/05/03	0740	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/05/05	0250	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/05/05	0600	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
82/05/05	1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/05/05	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/05/07	0530	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/05/07	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/05/07	0800	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/05/10	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	55	CENTRAL AEROLOGICAL OBS
82/05/11	2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/05/12	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
82/05/12	1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/05/12	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/05/13	1100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/05/14	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	62	CENTRAL AEROLOGICAL OBS
82/05/17	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	61	CENTRAL AEROLOGICAL OBS
82/05/18	2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	92	CENTRAL AEROLOGICAL OBS
82/05/19	1420	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/05/19	1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/05/19	2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/05/20	1400	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
82/05/21	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	VP	60	CENTRAL AEROLOGICAL OBS
82/05/24	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
82/05/24	1700	T 1-0298	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	61	SCHMIDTIN, F. J.
82/05/26	0700	MHR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
82/05/26	1400	M-100	INDIA	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
82/05/26	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/05/28	1547	AZ4.609-03	UNITED STATES	WHITE SANDS	0C 1C 7B 7D 7E	NP OHVP QKPM SMOG SMQI SMUE	236	MUFFMAN, R. E. WHEELER, N. B.
82/05/30	1930	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 90 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
82/05/30	2045	M-100	U.S.S.R.	SHIRSHOV (SHIP) (01 00N 85 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/05/31	2030	M-100	U.S.S.R.	SHIRSHOV (SHIP) (01 00N 86 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
82/06/01	1200	M-100	U.S.S.R.	SHIRSHOV (SHIP) (01 00N 83 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/06/01	2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/06/02	1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/06/02	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/02	2125	M-100	U.S.S.R.	SHIRSHOV (SHIP) (01 00N 80 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/06/04	0220	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/04	1400	M-100	U.S.S.R.	MOLODEZHNYAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS

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82/06/08	1437	T 1-2301	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP KPCA	64	SCHMIDLIN, F. J.
82/06/09	0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/09	0800	M-100	U.S.S.S.P.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
82/06/09	1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/09	1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/06/09	1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/06/11	1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/06/14	1400	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/15	2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/06/16	0815	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/16	1400	M-100	INDIA	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/06/16	1750	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/17	1030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/17	1330	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/06/18	2000	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/23	1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/06/23	1500	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/06/23	1600	T 1-0300	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP KPCA	70	SCHMIDLIN, F. J.
82/06/25	1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/06/25	2100	M-100	U.S.S.R.	SHIRSHOV (SHIP) (25 00S 60 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/06/29	1101	A13.217	UNITED STATES	WALLOPS ISLAND	1A 2A 2B 2C 2F 2G	AK OO RW SW XF	147	PHILBRICK, C. R. PICKARD, R.
82/06/29	1145	T 1-0303	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	HP NP	95	SCHMIDLIN, F. J.
82/06/29	1510	T 1-0302	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	HP NP	95	SCHMIDLIN, F. J.
82/06/29	2000	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/06/30	1030	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/30	1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/06/30	1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/06/30	2100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/07/01	1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/07/01	1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/07/01	2230	M-100	U.S.S.R.	SHIRSHOV (SHIP) (03 00S 60 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
82/07/02	1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/07/02	2207	M-100	U.S.S.R.	SHIRSHOV (SHIP) (02 00N 60 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/07/03	2200	M-100	U.S.S.R.	SHIRSHOV (SHIP) (05 00N 60 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/07/04	1040	T 1-0306	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	HP NP	97	SCHMIDLIN, F. J.
82/07/04	1100	T 1-0307	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	HP NP	95	SCHMIDLIN, F. J.
82/07/04	1120	T 1-0308	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP KPCA	66	SCHMIDLIN, F. J.
82/07/04	2200	M-100	U.S.S.R.	SHIRSHOV (SHIP) (05 00N 65 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/07/05	2210	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 64 00E)	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/07/06	2200	M-100	U.S.S.R.	SHIRSHOV (SHIP) (04 00S 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/07/07	0929	T 1-0299	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP KPCA	71	SCHMIDLIN, F. J.
82/07/07	1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/07/07	1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/07/07	2200	M-100	U.S.S.R.	SHIRSHOV (SHIP) (08 00S 65 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/07/08	2200	M-100	U.S.S.R.	SHIRSHOV (SHIP) (12 00S 65 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
82/07/09	1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/07/09	2230	M-100	U.S.S.R.	SHIRSHOV (SHIP) (17 00S 65 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/07/10	2151	M-100	U.S.S.R.	SHIRSHOV (SHIP) (21 00S 65 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/07/11	2000	M-100	U.S.S.R.	SHIRSHOV (SHIP) (25 00S 65 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/07/12	1900	M-100	U.S.S.R.	SHIRSHOV (SHIP) (24 00S 65 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
82/07/13	1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
82/07/13	1930	M-100	U.S.S.R.	SHIRSHOV (SHIP) (20 00S 70 00E)	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/07/13	2000	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/07/13	2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/07/14	0230	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS

*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
82/07/14 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/07/14 1430	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/07/14 1930	M-100	U.S.S.S.R.	SHIRSHOV (SHIP) (15 00S 70 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/07/16 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/07/21 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/07/21 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/07/23 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	VP	88	CENTRAL AEROLOGICAL OBS
82/07/27 2005	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/07/27 2205	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/07/28 1400	M-100	INDIA	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/07/28 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/07/28 1500	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/07/30 1500	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/08/04 0030	P--235K	SWEDEN	KIRUNA	2C 2G 3C	LDLJ QKPM XP	140	DICKINSON,P.H.S. WILLIAMS,E.R.
82/08/04 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/08/04 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/08/06 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/08/10 2005	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/08/11 0300	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/08/11 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/08/11 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
82/08/11 1900	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/08/11 2330	P--214K	SWEDEN	KIRUNA	2B 3C 3D	LDIZ LG PXSK	129	KRANKOWSKY,D.K.H.
82/08/17 2005	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/08/18 1400	M-100	INDIA	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/08/18 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	VP	87	CENTRAL AEROLOGICAL OBS
82/08/18 1610	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/08/19 1630	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/08/24 2005	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/08/25 1400	M-100	INDIA	THUMBA	2J	VP	90	CENTRAL AEROLOGICAL OBS
82/08/25 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/08/25 1655	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/09/01 0130	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/09/01 0200	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/09/01 0205	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/09/01 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
82/09/01 1900	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/09/02 1400	M-100	INDIA	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/09/03 1845	T 1-0309	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	74	SCHMIDLIN,F.J.
82/09/06 0200	S-520-005 S-163	JAPAN	KAGOSHIMA	0C 0E 2F 2H 3A 3C 5B 6E	RO UI GYKZ LDKF LLOG MTMZ QK SEZA	237	AKITA,K. AYUKAWA,I. FUKUNISHI,H. HIGASHINO,I. HIRAO,K. HIRAYAMA,T. KIHUJI,I. KOKURUN,S. MACHIDA,S. MAMBO,M. MATSUMOTO,H. MORIOKA,A. NAGANO,I. VISHI,K. OSHIO,T. OYA,H. TANAKA,K. TSURUDA,K. WATANABE,N. WATANABE,T.
82/09/07 2005	M-100	U.S.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/09/08 0350	M-100	U.S.S.S.R.	VOLGOGRAD	2J	VP	82	CENTRAL AEROLOGICAL OBS
82/09/08 1400	M-100	INDIA	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
82/09/08 1420	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/09/08 1530	M-100	U.S.S.S.R.	MOL ODE ZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/09/08 2142	A19-124-01	BRAZIL	NATAL	3C 3D 3X	DC LDLU PXSK	321	NARCISI,R.S. SZUSZCZEWICZ,E.P. VICKEY,K.W.
82/09/08 2152	A20-123-01	BRAZIL	NATAL	3C 3D	LDLU PXSK	525	NARCISI,R.S. SZUSZCZEWICZ,E.P.
82/09/09 1540	M-100	U.S.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/09/10 1505	T 1-0311	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA DCOM	72	SCHMIDLIN,F.J.
82/09/12 1200	S-210-013 S-164	JAPAN	KAGOSHIMA	2A		97	KAWASHIMA,N. YAKAMURA,J. OHCHI,N.

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82/09/13 1230	K-09M-075 S-165	JAPAN	KAGOSHIMA	1C 7B	SWGG SWGJ SWGJ	320	AKIBA, M. MATSUMOTO, Y. MATSUOKA, M. MIZUDO, T. MURAKAMI, H. NAKAMURA, M. NOGUCHI, K. TAKAYO, M.
82/09/13 2105	A'9.124-02	BRAZIL UNITED STATES	NATAL	3C 3D 3X	DL LDLU PXSK	133	NARCISI, R. S. SZUSZCZEWICZ, E. P. VICKERY, K. M.
82/09/13 2105	A20.123-02	BRAZIL UNITED STATES	NATAL	3C 3D	LDLU PXSK	549	VARCISI, R. S. SZUSZCZEWICZ, E. P.
82/09/14 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/09/15 0449	A24.752-03	UNITED STATES	WHITE SANDS	7B	NP	86	CENTRAL AEROLOGICAL OBS
82/09/15 1400	M-100	INDIA	THUMBA	2J	SWGG NP	361	PRICE, S. D.
82/09/15 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
82/09/15 1440	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/09/15 1815	AMP-5C-053	CANADA UNITED STATES	WHITE SANDS	3C 6C 6X 7B	CR LD SWGJ	243	LLEWELLYN, T. MCNAMARA, A. G. NICHOLLS, R. W.
82/09/16 1400	T 1-0312	UNITED STATES	WALLOPS ISLAND	2A 2J	CX NP	73	SCHMIDLIN, F. J.
82/09/21 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/09/22 0400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
82/09/22 1400	M-100	INDIA	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
82/09/22 1420	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/09/25 0915	S-310-012 S-166	JAPAN	KAGOSHIMA	2J 1A 1C 2F 2G 3C 3E 6E	NP GYKZ LDKF LDTP SW SWGJ	200	HIGASHINO, I. HIRAO, K. ITOH, T. IWAGAMI, N. KONDO, Y. MAKINO, T. OBAYASHI, T. OGAWA, T. OSHIO, T. OYAMA, K. SEKIGUCHI, H. SUZUKI, K. WATANABE, N. WATANABE, Y. YAMAMOTO, H.
82/09/28 2005	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	88	CENTRAL AEROLOGICAL OBS
82/09/28 2120	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	90	CENTRAL AEROLOGICAL OBS
82/09/29 0700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/09/29 1430	M-100	U.S.S.R.	MOLODEZHNYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
82/09/29 1900	T 1-0310	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP	77	SCHMIDLIN, F. J.
82/09/30 1400	M-100	INDIA	THUMBA	2J	XPCA NP	81	CENTRAL AEROLOGICAL OBS
82/10/05 1510	FERDINAND-061 HERO 4	U.S.S.R. FED REP OF GERMANY NORWAY	ANDOYA	0A 1C 3A 3C 3F 5A	AF GI LD LDKF LIOG MTHZ SWGJ SWGJ	296	VTFNR GRANDAL, B. HOLTET, J. A. MASEIDE, K. NESKE, E. OTT, M. E. ROSE, G. SPENNER, K. TROI, J.
82/10/22 0822	T 1-0442	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP	59	SCHMIDLIN, F. J.
82/10/23 0617	FERDINAND-060 HERO 3	FED REP OF GERMANY NORWAY	ANDOYA	0A 1C 3A 3C 3F 5A	XPCA AF GI LD LDKF LIOG MTHZ SWGJ SWGJ	297	VTFNR GRANDAL, B. HOLTET, J. A. MASEIDE, K. NESKE, E. OTT, M. E. ROSE, G. SPENNER, K. TROI, J.
82/11/16 0824	T 1-0443	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP	59	SCHMIDLIN, F. J.
82/11/16 0836	T 1-0453	UNITED STATES	WALLOPS ISLAND	0C 2A 2J	XPCA	107	SCHMIDLIN, F. J.
82/11/16 0911	T 1-0447	UNITED STATES	WALLOPS ISLAND	0A 2A 2C 2F 2J	NP NP	107	SCHMIDLIN, F. J.
82/11/16 0931	T 1-0454	UNITED STATES	WALLOPS ISLAND	0A 2A 2J	NP	110	SCHMIDLIN, F. J.
82/11/16 0946	T 1-0448	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	NP CX NP	78	SCHMIDLIN, F. J.
82/11/24 0833	T 1-0444	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	XPCA CX NP	63	SCHMIDLIN, F. J.
82/11/24 0847	T 1-0455	UNITED STATES	WALLOPS ISLAND	0A 2A 2C 2F 2J	XPCA HP NP	110	SCHMIDLIN, F. J.

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82/11/24 0903	T 1-0456	UNITED STATES	WALLOPS ISLAND	0A 2A 2C 2F 2J	HP NP	117	SCHMIDLIN,F.J.
82/11/24 0950	T 1-0457	UNITED STATES	WALLOPS ISLAND	0A 2A 2C 2F 2J	HP NP	105	SCHMIDLIN,F.J.
82/12/01 1530	FERDINAND-059 HERO 2	FED REP OF GERMANY NORWAY	ANDOYA	0A 1C 3A 3C 3F 5A	AF GI LD LDKF LIDG MTHZ SWQI SWQJ	295	NTNFR GRANDAL,B. HOLTE,J.A. MASEIDE,K. NESKE,E. OTT,M.E. ROSE,G. SPENNER,K. TROIM,J.
82/12/02 0827	T 1-0450	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	60	SCHMIDLIN,F.J.
82/12/03 0815	T 1-0451	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	62	SCHMIDLIN,F.J.
82/12/14 1422	FERDINAND-059 HERO 1	FED REP OF GERMANY NORWAY	ANDOYA	0A 3A 3C 3F 5A	AF GI LD LDKF LIDG MTHZ SWQI	296	NTNFR GRANDAL,B. HOLTE,J.A. NESKE,E. OTT,M.E. ROSE,G. SPENNER,K. TROIM,J.
82/12/20 0810	T 1-0452	UNITED STATES	WALLOPS ISLAND	0A 2C 2J	CX NP XPCA	61	SCHMIDLIN,F.J.
82/12/20 0830	T 1-0466	UNITED STATES	WALLOPS ISLAND	0A 2A 2C 2F 2J	HP NP	97	SCHMIDLIN,F.J.
82/12/20 0908	T 1-0467	UNITED STATES	WALLOPS ISLAND	0A 2A 2C 2F 2J	HP NP	91	SCHMIDLIN,F.J.

List of Experimenters

The list which follows gives (in alphabetical order) the names of the experimenters associated with the sounding rocket launches. The current organizational affiliation and address of the experimenters are also given. Because NSSDC/WDC-A-R&S does not acquire experiment data from these launchings, please contact the experimenters for further information about them.

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ARTIFICIAL EARTH SATELLITES AND SPACE PROBES

The summary of satellite and space probe launchings that follows was compiled from information received from several sources. Primary sources of information were contained in the national launching announcements and the reports of satellite and space probe launchings. This information was submitted to the International Ursigram and World Days Service (iuwds) and to the World Data Centers in accordance with the revised *COSPAR Guide to Rocket and Satellite Information and Data Exchange*, adopted at the XVth Plenary Meetings of COSPAR, Madrid, May 1972 (*COSPAR Transactions*, No. 8); the former version was published as Part I of *COSPAR Transactions*, No. 4, in December 1967. These announcements and reports are published every month in the *SPACEWARN Bulletin*. Additional information was obtained from the *Table of Artificial Earth Satellites*, published by the Royal Aircraft Establishment, Farnborough, Hants, England. Requests for information on the availability of the *SPACEWARN Bulletin* should be directed to the following address:

iuwds World Warning Agency for Satellites
World Data Center A for Rockets and Satellites
Goddard Space Flight Center
Code 601
Greenbelt, Maryland 20771
U.S.A.

A report on the U.S. scientific satellite Solar Mesosphere Explorer (SME) is shown in Figure 2. This sample illustrates the type of information in such reports. More detailed narrative descriptions are submitted to COSPAR and published in *COSPAR Information Bulletin* when information on spacecraft experiments is available.

The entries in this summary are for satellites and space probes launched during the period January 1, 1978, to December 31, 1982. The information is arranged sequentially by launch date. Apoapsis and periapsis entries are given in kilometers except those for satellites and space probes with heliocentric orbits, which are in astronomical units. Periods are given in minutes except for the entries for satellites and space probes with heliocentric orbits, which are given in days. All inclinations are in degrees. International organizations are included under the country heading. An R after the name of a country indicates that it was reimbursed for the launch.

SAMPLE SATELLITE OR SPACE PROBE LAUNCHING REPORT

<u>COSPAR Designation</u>	<u>Popular Name</u>	<u>Launching Site</u>	<u>Launching Date</u>	<u>Universal Time</u>
1981-100A	SME	Western Test Range	Oct. 6, 1981	1127 UT

Spacecraft Brief Description

The Solar Mesosphere Explorer (SME) mission objective was to understand what physical phenomena cause changes in the density and distribution of the Earth's ozone. Specific mission objectives were (1) to understand the nature and magnitude of changes in mesospheric ozone densities that are the result of changes in solar ultraviolet flux; (2) to understand the relationship between solar flux, ozone, and the temperature of the mesosphere; (3) to understand the relationship between mesospheric ozone and water vapor; (4) to study the atmosphere ozone chemistry following solar proton events; (5) to understand the stability of ozone against changes of any kind in mesospheric conditions; and (6) to extend any increase in understanding of the mesosphere into the stratosphere. These objectives were accomplished by measuring ozone parameters and the processes in the mesosphere and upper stratosphere that determine their values. Simultaneous measurements were made of ozone, the solar ultraviolet radiation that produces and destroys it, and the amount of water vapor and nitrogen dioxide whose photodissociation products cause catalytic destruction of ozone. Temperature and pressure were also measured. The satellite experiment complement consisted of a solar ultraviolet spectrometer, an ozone UV spectrometer, an infrared radiometer, an infrared spectrometer, and a nitrogen dioxide spectrometer. In addition, a solar proton alarm mechanism was carried to measure the integrated solar flux in the range 30-500 MeV. Spin stabilized at about 5 rpm, the satellite moved in a 3 a.m. - 3 p.m. sun-synchronous orbit. The spin axis was oriented normal to the orbital plane in the data-taking mode. A magnetic control system maintained the attitude of the spin axis to within plus or minus 1 deg pitch and plus or minus 2 deg yaw, and was not used during data-taking periods. There was a separate spin rate control. The command system was capable of executing either discrete or modal commands in real time or from stored program control. Power was supplied by a solar cell array. The telemetry system was PCM and could be used either in real time or in a tape-recorder mode.

Physical Characteristics

The spacecraft shape was that of a cylinder approximately 1.7 m long and 1.25 m in diameter. The base module housed all spacecraft subsystems except the scientific payload and data storage. The observatory module containing the scientific instruments, associated engineering sensors, and the data storage system was attached as an assembly to the base module.

Transmitters

Telemetry frequency was 2287.5 MHz at 5 W.

Figure 2. Sample Satellite or Space Probe Launching Report

SAMPLE SATELLITE OR SPACE PROBE LAUNCHING REPORT
(Continued)

<u>Objectives</u>	<u>Instruments</u>	<u>Principal Investigators and Institutions</u>
1. <u>UV Ozone:</u> To measure ozone absorption of Rayleigh-scattered sunlight in the middle ultraviolet region	Dual-channel Ebert-Fastie spectrometer	C. A. Barth University of Colorado Boulder, Colorado
2. <u>Infrared Radiometer:</u> To determine altitude-mixing ratio profiles for water and ozone from thermal emissions	Four-channel radiometer/telescope	C. A. Barth University of Colorado Boulder, Colorado
3. <u>1.27 Micrometer Airglow:</u> To obtain limb-scanning measurements of 1.27 μm airglow in 50- to 80-km altitude range and hydroxyl emission between 0.8 and 2.4 μm	Dual-channel Ebert-Fastie spectrometer	C. A. Barth University of Colorado Boulder, Colorado
4. <u>Visible Nitrogen Dioxide:</u> To measure distribution of NO_2 in the 20- to 40-km region	Dual-channel Ebert-Fastie spectrometer	C. A. Barth University of Colorado Boulder, Colorado
5. <u>Solar UV Monitor:</u> To monitor incoming solar radiation to determine the effect on ozone concentration	Dual-channel Ebert-Fastie spectrometer	C. A. Barth University of Colorado Boulder, Colorado

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPDCH DATE	ORBIT TYPE	APDAPSIS	PERIAPSIS	INCLINATION	PERIOD
1978-001A	COSMOS 974	U.S.S.R.	01/06/78	01/07/78	GEOCENTRIC	356.	188.	62.8	89.6
1978-002A	INTELSAT IVA F-3	INTERNATIONAL UNITED STATES-R	01/07/78	01/08/78	GEOCENTRIC	36418.	602.	21.9	651.3
1978-003A	SOYUZ 27	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	302.	257.	51.6	89.9
1978-004A	COSMOS 975	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	680.	637.	81.2	97.6
1978-005A	COSMOS 976	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005B	COSMOS 977	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005C	COSMOS 978	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005D	COSMOS 979	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005E	COSMOS 980	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005F	COSMOS 981	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005G	COSMOS 982	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-005H	COSMOS 983	U.S.S.R.	01/10/78	01/11/78	GEOCENTRIC	11520.	1452.	74.	115.3
1978-006A	COSMOS 984	U.S.S.R.	01/13/78	01/14/78	GEOCENTRIC	291.	206.	62.8	89.6
1978-007A	COSMOS 985	U.S.S.R.	01/17/78	01/18/78	GEOCENTRIC	1032.	960.	83.	105.
1978-008A	PROGRESS 1	U.S.S.R.	01/20/78	01/22/78	GEOCENTRIC	349.	329.	51.6	91.3
1978-009A	MOLNIYA 3	U.S.S.R.	01/24/78	01/25/78	GEOCENTRIC	40631.	661.	62.8	736.
1978-010A	COSMOS 986	U.S.S.R.	01/24/78	01/25/78	GEOCENTRIC	341.	179.	65.	89.4
1978-011A	1978-011A	PEOPLE'S REP OF CHINA	01/26/78	01/26/78	GEOCENTRIC	479.	161.	57.0	90.9
1978-012A	IUE	INTERNATIONAL UNITED STATES UNITED KINGDOM	01/26/78	01/27/78	GEOCENTRIC	44951.	26643.	28.8	1436.5
1978-013A	COSMOS 987	J.S.S.R.	01/31/78	02/01/78	GEOCENTRIC	359.	183.	62.8	89.6
1978-014A	KYOKKO	JAPAN	02/04/78	02/06/78	GEOCENTRIC	3978.	642.	63.4	134.
1978-015A	COSMOS 988	U.S.S.R.	02/08/78	02/09/78	GEOCENTRIC	363.	210.	72.8	89.9
1978-016A	FLEETSATCOM 1	UNITED STATES	02/09/78	02/10/78	GEOCENTRIC	35978.	767.	26.5	634.2
1978-017A	COSMOS 989	U.S.S.R.	02/14/78	02/15/78	GEOCENTRIC	354.	178.	65.	89.3
1978-018A	ISS-B	JAPAN	02/16/78	02/17/78	GEOCENTRIC	1225.	972.	69.4	107.
1978-019A	COSMOS 990	U.S.S.R.	02/17/78	02/18/78	GEOCENTRIC	824.	783.	74.	101.
1978-020A	1978-020A	UNITED STATES	02/22/78	03/07/78	GEOCENTRIC	20308.	20095.	63.3	718.7
1978-021A	1978-021A	UNITED STATES	02/25/78	02/25/78	GEOCENTRIC	39377.	311.	63.2	703.7
1978-022A	COSMOS 991	U.S.S.R.	02/28/78	03/01/78	GEOCENTRIC	1022.	972.	83.	104.8
1978-023A	SOYUZ 28	U.S.S.R.	03/02/78	03/03/78	GEOCENTRIC	309.	269.	51.6	90.
1978-024A	MOLNIYA 1	U.S.S.R.	03/03/78	03/04/78	GEOCENTRIC	40733.	632.	62.8	738.
1978-025A	COSMOS 992	U.S.S.R.	03/04/78	03/05/78	GEOCENTRIC	346.	210.	71.4	89.8
1978-026A	LANDSAT 3	UNITED STATES	03/05/78	03/06/78	GEOCENTRIC	914.	897.	99.1	103.1
1978-026B	OSCAR 8	UNITED STATES	03/05/78	03/06/78	GEOCENTRIC	914.	897.	99.1	103.1
1978-027A	COSMOS 993	J.S.S.R.	03/10/78	03/11/78	GEOCENTRIC	368.	182.	72.9	89.7
1978-028A	COSMOS 994	U.S.S.R.	03/15/78	03/16/78	GEOCENTRIC	1023.	996.	82.9	105.
1978-029A	1978-029A	UNITED STATES	03/16/78	03/23/78	GEOCENTRIC	240.	160.	96.4	88.5
1978-029B	S3-4	UNITED STATES	03/16/78	03/19/78	GEOCENTRIC	645.	639.	95.8	97.6
1978-030A	COSMOS 995	U.S.S.R.	03/17/78	03/18/78	GEOCENTRIC	262.	221.	81.4	89.1
1978-031A	COSMOS 996	U.S.S.R.	03/28/78	03/29/78	GEOCENTRIC	1021.	970.	82.9	104.8
1978-032A	COSMOS 997	U.S.S.R.	03/30/78	03/31/78	GEOCENTRIC	230.	200.	51.6	89.
1978-032B	COSMOS 998	U.S.S.R.	03/30/78	03/31/78	GEOCENTRIC	230.	200.	51.6	89.
1978-033A	COSMOS 999	U.S.S.R.	03/30/78	03/31/78	GEOCENTRIC	376.	180.	71.4	89.8
1978-034A	COSMOS 1000	U.S.S.R.	03/31/78	04/01/78	GEOCENTRIC	1024.	978.	83.	104.9
1978-035A	INTELSAT IVA F-6	INTERNATIONAL	03/31/78	04/01/78	GEOCENTRIC	35949.	549.	21.8	641.0
1978-038A	1978-038A	UNITED STATES	04/07/78	04/08/78	GEOCENTRIC	189.	149.	29.9	87.7
1978-039A	YURI	JAPAN UNITED STATES-R	04/07/78	04/08/78	GEOCENTRIC	35844.4	166.976	27.277	631.56
1978-040A	COSMOS 1003	J.S.S.R.	04/20/78	04/21/78	GEOCENTRIC	349.	185.	62.8	89.6
1978-041A	HCMH	UNITED STATES	04/26/78	04/27/78	GEOCENTRIC	646.	558.	97.6	96.7
1978-042A	DHSP 50-1/F3	UNITED STATES	05/01/78	05/02/78	GEOCENTRIC	653.	564.	97.6	96.89
1978-043A	COSMOS 1004	U.S.S.R.	05/05/78	05/06/78	GEOCENTRIC	311.	213.	62.8	89.4
1978-044A	OTS 2	ESA UNITED STATES-R	05/11/78	05/12/78	GEOCENTRIC	35942.	184.	27.3	633.3
1978-045A	COSMOS 1005	U.S.S.R.	05/12/78	05/13/78	GEOCENTRIC	672.	626.	81.2	97.6
1978-046A	COSMOS 1006	U.S.S.R.	05/12/78	05/13/78	GEOCENTRIC	417.	383.	65.8	92.5
1978-047A	1978-047A	UNITED STATES	05/13/78	05/22/78	GEOCENTRIC	20084.	19952.	61.1	711.3
1978-048A	COSMOS 1007	U.S.S.R.	05/16/78	05/17/78	GEOCENTRIC	384.	180.	72.9	89.8
1978-049A	COSMOS 1008	U.S.S.R.	05/17/78	05/18/78	GEOCENTRIC	551.	501.	74.	95.1
1978-050A	COSMOS 1009	U.S.S.R.	05/19/78	05/20/78	GEOCENTRIC	1378.	971.	66.	109.
1978-051A	PIONEER VENUS 1	UNITED STATES	05/20/78	05/20/78	VENUS DRIBTER	66614.	200.	105.	1440.
1978-052A	COSMOS 1010	U.S.S.R.	05/23/78	05/24/78	GEOCENTRIC	257.	218.	81.4	89.
1978-053A	COSMOS 1011	U.S.S.R.	05/23/78	05/24/78	GEOCENTRIC	1026.	978.	82.9	104.9
1978-054A	COSMOS 1012	J.S.S.R.	05/25/78	05/26/78	GEOCENTRIC	280.	214.	62.8	89.2
1978-055A	MOLNIYA 1 (78-055A)	U.S.S.R.	06/02/78	06/03/78	GEOCENTRIC	40837.	457.	62.5	736.
1978-056A	COSMOS 10	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056B	COSMOS 101	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056C	COSMOS 1015	J.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056D	COSMOS 1016	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056E	COSMOS 1017	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056F	COSMOS 1018	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056G	COSMOS 1019	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-056H	COSMOS 1020	U.S.S.R.	06/07/78	06/08/78	GEOCENTRIC	1539.	1456.	74.	115.6
1978-057A	COSMOS 1021	U.S.S.R.	06/10/78	06/11/78	GEOCENTRIC	336.	180.	65.	84.9
1978-058A	1978-058A	UNITED STATES	06/10/78	07/01/78	GEOCENTRIC	35860.	35620.	0.5	1433.3
1978-059A	COSMOS 1022	U.S.S.R.	06/12/78	06/13/78	GEOCENTRIC	374.	182.	72.9	89.7
1978-060A	1978-060A	UNITED STATES	06/14/78	06/16/78	GEOCENTRIC	509.	276.	96.8	92.4
1978-061A	SOYUZ 29	U.S.S.R.	06/15/78	06/16/78	GEOCENTRIC	314.	270.	51.6	90.
1978-062A	GOES 3	UNITED STATES UNITED STATES-R	06/16/78	06/17/78	GEOCENTRIC	36679.2	35469.1	1.7	1450.8
1978-063A	COSMOS 1023	U.S.S.R.	06/21/78	06/22/78	GEOCENTRIC	822.	784.	74.1	100.8
1978-064A	SEASAT 1	UNITED STATES	06/27/78	05/28/78	GEOCENTRIC	799.	769.	108.0	100.7
1978-065A	SOYUZ 30	U.S.S.R.	06/27/78	06/28/78	GEOCENTRIC	261.	197.	51.6	88.8
1978-066A	COSMOS 1024	U.S.S.R.	06/28/78	06/29/78	GEOCENTRIC	40000.	630.	62.8	726.
1978-067A	COSMOS 1025	U.S.S.R.	06/28/78	06/29/78	GEOCENTRIC	680.	649.	82.5	97.8
1978-068A	COMSTAR 1-03	UNITED STATES	06/29/78	06/30/78	GEOCENTRIC	35852.	550.	21.9	639.2
1978-069A	COSMOS 1026	U.S.S.R.	07/02/78	07/03/78	GEOCENTRIC	261.	209.	51.8	89.
1978-070A	PROGRESS 2	U.S.S.R.	07/07/78	07/08/78	GEOCENTRIC	262.	193.	51.6	88.7
1978-071A	ESA-GEOS 2	INTERNATIONAL	07/14/78	09/06/78	GEOCENTRIC	35774.1	35615.5	0.772	1431.2
1978-072A	MOLNIYA 1 (78-072A)	U.S.S.R.	07/14/78	07/15/78	GEOCENTRIC	40660.	650.	62.8	737.
1978-073A	RADUGA (78-073A)	U.S.S.R.	07/19/78	07/20/78	GEOCENTRIC	36590.	16590.	0.5	1478.
1978-074A	COSMOS 1027	U.S.S.R.	07/27/78	07/28/78	GEOCENTRIC	1015.	979.	82.9	104.8
1978-075A	1978-075A	UNITED STATES	08/05/78	08/13/78	GEOCENTRIC	39315.	380.	63.3	703.8
1978-076A	COSMOS 1028	U.S.S.R.	08/05/78	08/06/78	GEOCENTRIC	272.	182.	67.1	86.7

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INC.	INCLINATION	PERIOD
1978-077A	PROGRESS 3	U.S.S.R.	08/08/78	08/09/78	GEOCENTRIC	249.	195.		51.6	88.7
1978-078A	PIONEER VENUS 2	UNITED STATES	08/08/78		VENUS PROBE					
1978-078D	PIONEER VENUS PROBE LRG	UNITED STATES	08/08/78		VENUS PROBE					
1978-078E	PIONEER VENUS PROBE SM1	UNITED STATES	08/08/78		VENUS PROBE					
1978-078F	PIONEER VENUS PROBE SM2	UNITED STATES	08/08/78		VENUS PROBE					
1978-078G	PIONEER VENUS PROBE SM3	UNITED STATES	08/08/78		VENUS PROBE					
1978-079A	ISEE 3	UNITED STATES	08/12/78	11/25/78	HELIOCENTRIC	0.99	0.99		0.	365.
1978-080A	HOLNIYA 1 (78-080A)	U.S.S.R.	08/22/78	08/23/78	GEOCENTRIC	40786.	480.		62.8	736.
1978-081A	SOYUZ 31	U.S.S.R.	08/26/78	08/27/78	GEOCENTRIC	326.	271.		51.5	90.2
1978-082A	COSMOS 1029	U.S.S.R.	08/29/78	08/30/78	GEOCENTRIC	353.	186.		62.8	89.6
1978-083A	COSMOS 1030	U.S.S.R.	09/06/78	09/07/78	GEOCENTRIC	40100.	650.		62.8	726.
1978-084A	VENERA 11	U.S.S.R.	09/09/78		HELIOCENTRIC					
1978-084D	VENERA 11 DESCENT CRAFT	U.S.S.R.	09/09/78		VENUS LANDER					
1978-085A	COSMOS 1031	U.S.S.R.	09/09/78	09/10/78	GEOCENTRIC	351.	191.		62.8	89.6
1978-086A	VENERA 12	U.S.S.R.	09/14/78		HELIOCENTRIC					
1978-086C	VENERA 12 DESCENT CRAFT	U.S.S.R.	09/14/78		VENUS LANDER					
1978-087A	JIKIKEN	JAPAN	09/16/78	09/16/78	GEOCENTRIC	30558.	250.		31.	533.
1978-088A	COSMOS 1032	U.S.S.R.	09/19/78	09/20/78	GEOCENTRIC	249.	218.		81.4	88.9
1978-089A	COSMOS 1033	U.S.S.R.	10/03/78	10/04/78	GEOCENTRIC	268.	223.		81.4	89.1
1978-090A	PROGRESS 4	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	266.	191.		51.7	88.3
1978-091A	COSMOS 1034	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091B	COSMOS 1035	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091C	COSMOS 1036	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091D	COSMOS 1037	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091E	COSMOS 1038	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091F	COSMOS 1039	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091G	COSMOS 1040	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-091H	COSMOS 1041	U.S.S.R.	10/04/78	10/05/78	GEOCENTRIC	1483.	1422.		74.	114.9
1978-092A	COSMOS 1042	U.S.S.R.	10/06/78	10/06/78	GEOCENTRIC	326.	187.		62.8	89.3
1978-093A	1978-093A	UNITED STATES	10/07/78	10/17/78	GEOCENTRIC	20312.	20285.		62.8	722.6
1978-094A	COSMOS 1043	U.S.S.R.	10/10/78	10/11/78	GEOCENTRIC	650.	625.		81.1	97.3
1978-095A	HOLNIYA 3 (78-095A)	U.S.S.R.	10/13/78	10/14/78	GEOCENTRIC	40825.	967.		62.8	736.
1978-096A	TIROS-N	UNITED STATES	10/13/78	10/14/78	GEOCENTRIC	862.	846.		98.9	102.
		UNITED STATES-R								
1978-097A	COSMOS 1044	U.S.S.R.	10/17/78	10/18/78	GEOCENTRIC	315.	211.		62.8	89.3
1978-098A	NIMBUS 7	UNITED STATES	10/24/78	10/25/78	GEOCENTRIC	953.	938.		99.3	104.0
1978-098B	CAMEO	UNITED STATES	10/24/78	10/25/78	GEOCENTRIC	953.0	952.0		99.3	104.1
1978-099A	INTERCOSMOS 18	U.S.S.R.	10/24/78	10/25/78	GEOCENTRIC	768.	407.		83.	95.1
1978-099C	MAGION	U.S.S.R.	10/24/78	10/25/78	GEOCENTRIC	768.	407.		82.96	96.4
		CZECHOSLOVAKIA								
1978-100A	COSMOS 1045	U.S.S.R.	10/26/78	10/27/78	GEOCENTRIC	1724.	1688.		82.6	120.4
1978-1003	RADIO 1	U.S.S.R.	10/26/78	10/27/78	GEOCENTRIC	1724.	1688.		82.6	120.4
1978-100C	RADIO 2	U.S.S.R.	10/26/78	10/27/78	GEOCENTRIC	1724.	1688.		82.6	120.4
1978-101A	PROGNOZ 7	U.S.S.R.	10/30/78	10/31/78	GEOCENTRIC	202965.	483.		65.	588.9
1978-102A	COSMOS 1046	U.S.S.R.	11/01/78	11/02/78	GEOCENTRIC	353.	212.		72.9	89.9
1978-103A	HEAO 2	UNITED STATES	11/13/78	11/14/78	GEOCENTRIC	476.	965.		23.5	94.3
1978-104A	COSMOS 1047	U.S.S.R.	11/15/78	11/16/78	GEOCENTRIC	378.	182.		72.9	89.8
1978-105A	COSMOS 1048	U.S.S.R.	11/17/78	11/18/78	GEOCENTRIC	824.	788.		74.0	101.
1978-108A	COSMOS 1050	U.S.S.R.	11/28/78	11/29/78	GEOCENTRIC	298.	258.		62.8	89.8
1978-109A	COSMOS 1051	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109B	COSMOS 1052	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109C	COSMOS 1053	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109D	COSMOS 1054	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109E	COSMOS 1055	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109F	COSMOS 1056	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109G	COSMOS 1057	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-109H	COSMOS 1058	U.S.S.R.	12/05/78	12/06/78	GEOCENTRIC	1530.	1451.		74.	115.3
1978-110A	COSMOS 1059	U.S.S.R.	12/07/78	12/08/78	GEOCENTRIC	360.	188.		62.8	89.7
1978-111A	COSMOS 1060	U.S.S.R.	12/08/78	12/09/78	GEOCENTRIC	360.	188.		62.8	89.7
1978-112A	1978-112A	UNITED STATES	12/11/78	12/14/78	GEOCENTRIC	20314.	20267.		63.3	722.4
1978-113A	1978-113A	UNITED STATES	12/14/78	12/14/78	GEOCENTRIC	36412.	35796.		7.5	145.2
1978-114A	COSMOS 1061	U.S.S.R.	12/14/78	12/15/78	GEOCENTRIC	353.	211.		62.8	89.6
1978-115A	COSMOS 1062	U.S.S.R.	12/15/78	12/16/78	GEOCENTRIC	548.	508.		74.	95.1
1978-116A	TELESAT 4	CANADA	12/16/78	12/17/78	GEOCENTRIC	35896.	195.		27.3	632.3
		UNITED STATES-R								
1978-117A	COSMOS 1063	U.S.S.R.	12/19/78	12/20/78	GEOCENTRIC	661.	632.		81.2	97.4
1978-118A	HORIZONT	U.S.S.R.	12/19/78	12/20/78	GEOCENTRIC	48365.	22581.		11.3	142.0
1978-119A	COSMOS 1064	U.S.S.R.	12/20/78	12/21/78	GEOCENTRIC	991.	435.		53.	98.7
1978-120A	COSMOS 1065	U.S.S.R.	12/22/78	12/23/78	GEOCENTRIC	548.	344.		50.7	93.5
1978-121A	COSMOS 1066	U.S.S.R.	12/23/78	12/24/78	GEOCENTRIC	908.	848.		81.2	102.2
1978-122A	COSMOS 1067	U.S.S.R.	12/26/78	12/27/78	GEOCENTRIC	1226.	1194.		83.	109.2
1978-123A	COSMOS 1068	U.S.S.R.	12/28/78	12/29/78	GEOCENTRIC	488.	187.		62.8	90.2
1979-001A	COSMOS 1070	U.S.S.R.	01/11/79	01/12/79	GEOCENTRIC	290.	244.		62.8	89.8
1979-002A	COSMOS 1071	U.S.S.R.	01/13/79	01/14/79	GEOCENTRIC	316.	214.		62.8	89.5
1979-003A	COSMOS 1072	U.S.S.R.	01/13/79	01/14/79	GEOCENTRIC	360.	190.		61.9	89.7
1979-004A	COSMOS 1073	U.S.S.R.	01/16/79	01/17/79	GEOCENTRIC	1030.	983.		83.	105.
1979-004A	HOLNIYA 3 (79-004A)	U.S.S.R.	01/18/79	01/19/79	GEOCENTRIC	40806.	474.		62.8	736.
1979-005A	HEYLIK 1 (79-005A)	U.S.S.R.	01/25/79	01/26/79	GEOCENTRIC	656.	628.		98.	97.4
1979-006A	COSMOS 1073	U.S.S.R.	01/30/79	01/31/79	GEOCENTRIC	350.	187.		62.8	89.5
1979-007A	STP P78-2	UNITED STATES	01/30/79	04/29/79	GEOCENTRIC	43239.	27553.		7.7	1416.2
1979-008A	COSMOS 1074	U.S.S.R.	01/31/79	02/01/79	GEOCENTRIC	258.	203.		51.6	88.8
1979-009A	ECS	JAPAN	02/06/79	02/07/79	GEOCENTRIC	34411.	193.		24.1	504.
1979-010A	COSMOS 1075	U.S.S.R.	02/08/79	02/09/79	GEOCENTRIC	521.	475.		65.8	94.6
1979-011A	COSMOS 1076	U.S.S.R.	02/12/79	02/13/79	GEOCENTRIC	678.	647.		82.	97.
1979-012A	COSMOS 1077	U.S.S.R.	02/18/79	02/19/79	GEOCENTRIC	651.	629.		81.2	96.3
1979-013A	SAGE	UNITED STATES	02/18/79	02/19/79	GEOCENTRIC	660.2	547.5		54.3	97.8
1979-014A	HAKUCHO	JAPAN	02/21/79	02/22/79	GEOCENTRIC	433.	421.		29.9	93.1
1979-015A	EKRAN 3	U.S.S.R.	02/21/79	02/22/79	GEOCENTRIC	35780.	35780.		0.35	1436.
1979-016A	COSMOS 1078	U.S.S.R.	02/22/79	02/23/79	GEOCENTRIC	306.	180.		72.9	89.
1979-017A	STP P78-1	UNITED STATES	02/24/79	02/24/79	GEOCENTRIC	600.	560.		97.9	96.3
1979-018A	SOYUZ 32	U.S.S.R.	02/25/79	02/26/79	GEOCENTRIC	283.	244.		51.6	89.6
1979-019A	COSMOS 1079	U.S.S.R.	02/27/79	02/28/79	GEOCENTRIC	359.	179.		67.1	89.6
1979-020A	INTERCOSMOS 19	U.S.S.R.	02/27/79	02/28/79	GEOCENTRIC	966.	502.		74.	99.3
1979-021A	METEOR 2 (79-021A)	U.S.S.R.	03/01/79	03/02/79	GEOCENTRIC	908.	857.		81.2	102.3
1979-022A	PROGRESS 5	U.S.S.R.	03/12/79	03/13/79	GEOCENTRIC	269.	191.		51.6	88.8
1979-023A	COSMOS 1080	U.S.S.R.	03/14/79	03/15/79	GEOCENTRIC	320.	180.		79.2	89.2
1979-024A	COSMOS 1081	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.		74.	115.4

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1979-024B	COSMOS 1082	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-024C	COSMOS 1083	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-024D	COSMOS 1084	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-024E	COSMOS 1085	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-024F	COSMOS 1086	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-024G	COSMOS 1087	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-024H	COSMOS 1088	U.S.S.R.	03/15/79	03/16/79	GEOCENTRIC	1526.	1455.	74.	115.4
1979-025A	1979-025A	UNITED STATES	03/16/79	03/17/79	GEOCENTRIC	286.	177.	96.3	88.7
1979-025B	1979-025B	UNITED STATES	03/16/79	03/17/79	GEOCENTRIC	625.	620.	95.7	97.1
1979-026A	COSMOS 1089	U.S.S.R.	03/21/79	03/22/79	GEOCENTRIC	1016.	986.	83.	104.9
1979-027A	COSMOS 1090	U.S.S.R.	03/31/79	04/01/79	GEOCENTRIC	354.	212.	72.9	89.8
1979-028A	COSMOS 1091	U.S.S.R.	04/07/79	04/08/79	GEOCENTRIC	1024.	985.	83.	105.
1979-029A	SOYUZ 33	U.S.S.R.	04/10/79	04/11/79	GEOCENTRIC	330.	273.	51.6	90.1
1979-030A	COSMOS 1092	U.S.S.R.	04/12/79	04/13/79	GEOCENTRIC	1021.	983.	83.	105.
1979-031A	MOLNIYA 1 (79-031A)	U.S.S.R.	04/12/79	04/13/79	GEOCENTRIC	40590.	656.	62.9	735.
1979-032A	COSMOS 1093	U.S.S.R.	04/14/79	04/15/79	GEOCENTRIC	650.	625.	81.3	97.3
1979-033A	COSMOS 1094	U.S.S.R.	04/18/79	04/19/79	GEOCENTRIC	457.	437.	65.	93.3
1979-034A	COSMOS 1095	U.S.S.R.	04/20/79	04/21/79	GEOCENTRIC	404.	209.	72.9	90.3
1979-035A	RADUGA 5	U.S.S.R.	04/25/79	04/26/79	GEOCENTRIC	36000.	36000.	0.4	1442.
1979-036A	COSMOS 1096	U.S.S.R.	04/25/79	04/26/79	GEOCENTRIC	457.	439.	65.	93.3
1979-037A	COSMOS 1097	U.S.S.R.	04/27/79	04/28/79	GEOCENTRIC	357.	180.	62.8	89.6
1979-038A	FLEETSATCOM 2	UNITED STATES	05/04/79	05/05/79	GEOCENTRIC	35985.	116.	26.4	634.3
1979-039A	PROGRESS 6	U.S.S.R.	05/13/79	05/14/79	GEOCENTRIC	268.	193.	51.6	88.8
1979-040A	COSMOS 1098	U.S.S.R.	05/15/79	05/16/79	GEOCENTRIC	382.	180.	72.9	89.8
1979-041A	COSMOS 1099	U.S.S.R.	05/17/79	05/18/79	GEOCENTRIC	274.	224.	81.4	89.2
1979-042A	COSMOS 1100	U.S.S.R.	05/23/79	05/24/79	GEOCENTRIC	230.	199.	51.6	88.7
1979-042B	COSMOS 1101	U.S.S.R.	05/23/79	05/24/79	GEOCENTRIC	230.	199.	51.6	88.7
1979-043A	COSMOS 1102	U.S.S.R.	05/25/79	05/26/79	GEOCENTRIC	288.	222.	81.4	89.2
1979-044A	1979-044A	UNITED STATES	05/28/79	05/29/79	GEOCENTRIC	305.	124.	96.4	88.7
1979-045A	COSMOS 1103	U.S.S.R.	05/31/79	06/01/79	GEOCENTRIC	396.	264.	62.8	90.8
1979-046A	COSMOS 1104	U.S.S.R.	05/31/79	06/01/79	GEOCENTRIC	1022.	979.	83.	104.9
1979-047A	UK 6	UNITED KINGDOM	06/02/79	06/02/79	GEOCENTRIC	651.	605.	55.	97.3
1979-048A	MOLNIYA 3 (79-048A)	U.S.S.R.	06/06/79	06/07/79	GEOCENTRIC	40769.	473.	62.5	735.
1979-049A	SOYUZ 34	U.S.S.R.	06/06/79	06/07/79	GEOCENTRIC	270.	198.	51.6	88.7
1979-050A	DHSP 50-1/F4	UNITED STATES	06/06/79	06/07/79	GEOCENTRIC	839.	817.	98.7	101.4
1979-051A	BHASKARA	INDIA	06/07/79	06/07/79	GEOCENTRIC	557.	512.	50.7	95.2
1979-052A	COSMOS 1105	U.S.S.R.	06/08/79	06/09/79	GEOCENTRIC	281.	223.	81.4	89.2
1979-053A	1979-053A	UNITED STATES	06/10/79	06/11/79	GEOCENTRIC	35859.	35729.	1.9	1436.5
1979-054A	COSMOS 1106	U.S.S.R.	06/12/79	06/13/79	GEOCENTRIC	264.	222.	81.4	89.1
1979-055A	COSMOS 1107	U.S.S.R.	06/15/79	06/16/79	GEOCENTRIC	328.	209.	72.9	89.5
1979-056A	COSMOS 1108	U.S.S.R.	06/22/79	06/23/79	GEOCENTRIC	272.	224.	81.3	89.1
1979-057A	NOAA 6	UNITED STATES	06/27/79	06/28/79	GEOCENTRIC	833.	833.	98.7	101.5
1979-058A	COSMOS 1109	U.S.S.R.	06/27/79	06/28/79	GEOCENTRIC	40130.	626.	62.8	720.
1979-059A	PROGRESS 7	U.S.S.R.	06/28/79	06/29/79	GEOCENTRIC	270.	193.	51.6	88.8
1979-060A	COSMOS 1110	U.S.S.R.	06/28/79	06/29/79	GEOCENTRIC	833.	792.	74.	101.
1979-061A	COSMOS 1111	U.S.S.R.	06/29/79	06/30/79	GEOCENTRIC	353.	264.	63.	90.4
1979-065A	COSMOS 1114	U.S.S.R.	07/11/79	07/12/79	GEOCENTRIC	558.	507.	74.	95.2
1979-066A	COSMOS 1115	U.S.S.R.	07/13/79	07/14/79	GEOCENTRIC	263.	222.	81.4	89.1
1979-067A	COSMOS 1116	U.S.S.R.	07/20/79	07/21/79	GEOCENTRIC	649.	608.	81.2	97.1
1979-068A	COSMOS 1117	U.S.S.R.	07/25/79	07/26/79	GEOCENTRIC	349.	187.	62.8	89.6
1979-069A	COSMOS 1118	U.S.S.R.	07/27/79	07/28/79	GEOCENTRIC	273.	222.	81.4	89.1
1979-070A	MOLNIYA 1 (79-070A)	U.S.S.R.	07/31/79	08/01/79	GEOCENTRIC	39892.	457.	62.9	717.7
1979-071A	COSMOS 1119	U.S.S.R.	08/03/79	08/04/79	GEOCENTRIC	267.	222.	81.3	89.1
1979-072A	WESTAR 3	UNITED STATES	08/10/79	08/10/79	GEOCENTRIC	238.7	129.9	31.5	88.2
1979-073A	COSMOS 1120	U.S.S.R.	08/11/79	08/12/79	GEOCENTRIC	376.	181.	70.4	89.3
1979-074A	COSMOS 1121	U.S.S.R.	08/14/79	08/15/79	GEOCENTRIC	375.	180.	67.2	89.7
1979-075A	COSMOS 1122	U.S.S.R.	08/17/79	08/18/79	GEOCENTRIC	260.	218.	81.4	89.1
1979-076A	COSMOS 1123	U.S.S.R.	08/21/79	08/22/79	GEOCENTRIC	266.	221.	81.4	89.1
1979-077A	COSMOS 1124	U.S.S.R.	08/28/79	08/29/79	GEOCENTRIC	40070.	620.	62.8	724.
1979-078A	COSMOS 1125	U.S.S.R.	08/28/79	08/29/79	GEOCENTRIC	834.	795.	74.	100.9
1979-079A	COSMOS 1126	U.S.S.R.	08/31/79	09/01/79	GEOCENTRIC	421.	208.	72.9	90.5
1979-080A	COSMOS 1127	U.S.S.R.	09/05/79	09/06/79	GEOCENTRIC	300.	226.	81.4	89.1
1979-081A	COSMOS 1128	U.S.S.R.	09/14/79	09/15/79	GEOCENTRIC	352.	184.	62.8	89.6
1979-082A	HEAO 3	UNITED STATES	09/20/79	09/21/79	GEOCENTRIC	504.9	486.4	43.6	94.5
1979-083A	COSMOS 1129	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	406.	226.	62.8	90.5
1979-084A	COSMOS 1130	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084B	COSMOS 1131	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084C	COSMOS 1132	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084D	COSMOS 1133	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084E	COSMOS 1134	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084F	COSMOS 1135	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084G	COSMOS 1136	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-084H	COSMOS 1137	U.S.S.R.	09/25/79	09/26/79	GEOCENTRIC	1515.	1446.	74.	115.
1979-085A	COSMOS 1138	U.S.S.R.	09/28/79	09/29/79	GEOCENTRIC	398.	210.	72.9	90.2
1979-086A	1979-086A	UNITED STATES	10/01/79	10/02/79	GEOCENTRIC	36261.	35801.	1.9	1448.5
1979-087A	EKRAN	U.S.S.R.	10/03/79	10/04/79	GEOCENTRIC	35557.	35557.	0.43	1424.
1979-088A	COSMOS 1139	U.S.S.R.	10/05/79	10/06/79	GEOCENTRIC	357.	212.	72.9	89.9
1979-089A	COSMOS 1140	U.S.S.R.	10/11/79	10/12/79	GEOCENTRIC	818.	781.	74.	101.
1979-090A	COSMOS 1141	U.S.S.R.	10/16/79	10/17/79	GEOCENTRIC	1014.	976.	82.9	104.7
1979-091A	MOLNIYA 1 (79-091A)	U.S.S.R.	10/20/79	10/21/79	GEOCENTRIC	40640.	640.	62.8	736.
1979-092A	COSMOS 1142	U.S.S.R.	10/22/79	10/23/79	GEOCENTRIC	408.	208.	72.9	90.3
1979-093A	COSMOS 1143	U.S.S.R.	10/26/79	10/27/79	GEOCENTRIC	665.	625.	81.2	97.4
1979-094A	MAGSAT	UNITED STATES	10/30/79	10/31/79	GEOCENTRIC	578.4	351.9	96.8	93.9
1979-095A	METEOR 2 (79-095A)	U.S.S.R.	10/31/79	11/01/79	GEOCENTRIC	904.	877.	81.2	102.6
1979-096A	INTERCOSMOS 20	U.S.S.R.	11/01/79	11/02/79	GEOCENTRIC	523.	467.	74.	94.4
1979-097A	COSMOS 1144	U.S.S.R.	11/02/79	11/04/79	GEOCENTRIC	337.	158.	67.2	89.4
1979-098A	1979-098A	UNITED STATES	11/21/79	11/23/79	GEOCENTRIC	35789.	35594.	2.4	1431.1
1979-099A	COSMOS 1145	U.S.S.R.	11/27/79	11/28/79	GEOCENTRIC	652.	629.	81.2	97.3
1979-100A	COSMOS 1146	U.S.S.R.	12/05/79	12/06/79	GEOCENTRIC	497.	441.	65.9	93.9
1979-101A	RCA-SATCOM 3	UNITED STATES	12/07/79	12/08/79	GEOCENTRIC	36124.	166.3	23.8	637.
1979-102A	COSMOS 1147	U.S.S.R.	12/12/79	12/13/79	GEOCENTRIC	407.	207.	72.9	90.3
1979-103A	SOYUZ-T	U.S.S.R.	12/16/79	12/17/79	GEOCENTRIC	232.	201.	51.6	88.6
1979-104A	ARIANE LO-1	ESA	12/24/79	12/25/79	GEOCENTRIC	42381.	6579.	17.6	635.3
1979-105A	HORIZONT (79-105A)	U.S.S.R.	12/28/79	12/29/79	GEOCENTRIC	36300.	36300.	0.8	1453.
1979-106A	COSMOS 1148	U.S.S.R.	12/28/79	12/29/79	GEOCENTRIC	367.	180.	67.1	89.7

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1980-001A	COSMOS 1149	U.S.S.S.R.	01/09/80	01/15/80	GEOCENTRIC	420.	353.	72.9	92.3
1980-002A	MOLNIYA 1 (80-002A)	U.S.S.S.R.	01/11/80	01/12/80	GEOCENTRIC	40830.	478.	52.8	737.
1980-003A	COSMOS 1150	U.S.S.S.R.	01/14/80	01/15/80	GEOCENTRIC	1028.	989.	83.	105.
1980-004A	FLEETSATCOM 3	UNITED STATES	01/18/80	01/19/80	GEOCENTRIC	35240.	171.	26.3	619.9
1980-005A	COSMOS 1151	U.S.S.S.R.	01/23/80	01/24/80	GEOCENTRIC	678.	650.	82.5	97.8
1980-006A	COSMOS 1152	U.S.S.S.R.	01/24/80	01/25/80	GEOCENTRIC	370.	181.	67.1	89.7
1980-007A	COSMOS 1153	U.S.S.S.R.	01/25/80	01/26/80	GEOCENTRIC	1031.	983.	83.	105.
1980-008A	COSMOS 1154	U.S.S.S.R.	01/30/80	01/31/80	GEOCENTRIC	673.	634.	81.3	97.3
1980-009A	COSMOS 1155	U.S.S.S.R.	02/07/80	02/08/80	GEOCENTRIC	422.	206.	72.9	90.4
1980-010A	1980-010A	UNITED STATES	02/07/80	02/09/80	GEOCENTRIC	501.	309.	97.1	92.7
1980-011A	1980-011A	UNITED STATES	02/09/80	02/23/80	GEOCENTRIC	20147.	20083.	63.7	715.2
1980-012A	COSMOS 1156	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012B	COSMOS 1157	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012C	COSMOS 1158	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012D	COSMOS 1159	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012E	COSMOS 1160	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012F	COSMOS 1161	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012G	COSMOS 1162	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012H	COSMOS 1163	U.S.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-013A	COSMOS 1164	U.S.S.S.R.	02/12/80	02/13/80	GEOCENTRIC	640.	227.	62.8	92.7
1980-014A	SMN	UNITED STATES	02/14/80	02/15/80	GEOCENTRIC	512.	508.	28.5	94.8
1980-015A	TANSEI 4	JAPAN	02/17/80	02/18/80	GEOCENTRIC	672.	517.	38.7	96.5
1980-016A	RADUGA (80-016A)	U.S.S.S.R.	02/20/80	02/21/80	GEOCENTRIC	36610.	36610.	0.4	1478.
1980-017A	COSMOS 1165	U.S.S.S.R.	02/21/80	02/22/80	GEOCENTRIC	379.	192.	72.9	89.1
1980-018A	AYAME-2	JAPAN	02/22/80	02/23/80	GEOCENTRIC	35512.1	206.9	24.59	625.8
1980-019A	1980-019A	UNITED STATES	03/03/80	03/03/80	GEOCENTRIC	1150.	1035.	63.0	107.1
1980-020A	COSMOS 1166	U.S.S.S.R.	03/04/80	03/05/80	GEOCENTRIC	406.	205.	72.9	90.3
1980-021A	COSMOS 1167	U.S.S.S.R.	03/14/80	03/15/80	GEOCENTRIC	457.	438.	65.	93.3
1980-022A	COSMOS 1168	U.S.S.S.R.	03/17/80	03/18/80	GEOCENTRIC	1026.	981.	82.9	104.9
1980-023A	COSMOS 1169	U.S.S.S.R.	03/27/80	03/28/80	GEOCENTRIC	521.	478.	65.8	94.5
1980-024A	PROGRESS A	U.S.S.S.R.	03/27/80	03/29/80	GEOCENTRIC	185.	154.	51.5	87.3
1980-025A	COSMOS 1170	U.S.S.S.R.	04/01/80	04/02/80	GEOCENTRIC	366.	174.	70.4	89.9
1980-026A	COSMOS 1171	U.S.S.S.R.	04/03/80	04/04/80	GEOCENTRIC	1017.	976.	65.8	105.
1980-027A	SOYUZ 35	U.S.S.S.R.	04/09/80	04/10/80	GEOCENTRIC	315.	276.	51.6	92.3
1980-028A	COSMOS 1172	U.S.S.S.R.	04/12/80	04/13/80	GEOCENTRIC	40160.	637.	62.8	725.
1980-029A	COSMOS 1173	U.S.S.S.R.	04/17/80	04/18/80	GEOCENTRIC	378.	180.	70.3	89.9
1980-030A	COSMOS 1174	U.S.S.S.R.	04/18/80	04/19/80	GEOCENTRIC	1035.	387.	65.8	94.6
1980-031A	COSMOS 1175	U.S.S.S.R.	04/18/80	04/19/80	GEOCENTRIC	485.	317.	62.5	92.3
1980-032A	1980-032A	UNITED STATES	04/26/80	04/29/80	GEOCENTRIC	20232.	19628.	62.8	707.7
1980-033A	PROGRESS 9	U.S.S.S.R.	04/27/80	04/28/80	GEOCENTRIC	275.	192.	51.6	88.7
1980-034A	COSMOS 1176	U.S.S.S.R.	04/29/80	04/30/80	GEOCENTRIC	275.	260.	65.	89.6
1980-035A	COSMOS 1177	U.S.S.S.R.	04/29/80	04/30/80	GEOCENTRIC	365.	181.	57.2	89.7
1980-036A	COSMOS 1178	U.S.S.S.R.	05/07/80	05/08/80	GEOCENTRIC	417.	207.	72.9	90.4
1980-037A	COSMOS 1179	U.S.S.S.R.	05/14/80	05/15/80	GEOCENTRIC	1570.	310.	83.	103.5
1980-038A	COSMOS 1180	U.S.S.S.R.	05/15/80	05/16/80	GEOCENTRIC	294.	240.	62.8	89.8
1980-039A	COSMOS 1181	U.S.S.S.R.	05/20/80	05/21/80	GEOCENTRIC	1020.	992.	82.	105.
1980-040A	COSMOS 1182	U.S.S.S.R.	05/23/80	05/24/80	GEOCENTRIC	278.	221.	82.3	89.2
1980-041A	SOYUZ 36	U.S.S.S.R.	05/26/80	05/27/80	GEOCENTRIC	319.	28.	51.6	90.1
1980-044A	COSMOS 1184	U.S.S.S.R.	06/04/80	06/04/80	GEOCENTRIC	647.	621.	81.3	97.4
1980-045A	SOYUZ T-2	U.S.S.S.R.	06/05/80	06/06/80	GEOCENTRIC	316.	267.	51.6	90.25
1980-046A	COSMOS 1185	U.S.S.S.R.	06/06/80	06/07/80	GEOCENTRIC	308.	226.	82.3	89.5
1980-047A	COSMOS 1186	U.S.S.S.R.	06/06/80	06/07/80	GEOCENTRIC	519.	473.	74.	94.5
1980-048A	COSMOS 1187	U.S.S.S.R.	06/12/80	06/13/80	GEOCENTRIC	332.	210.	72.9	89.5
1980-049A	HORIZONT (80-049A)	U.S.S.S.R.	06/14/80	06/15/80	GEOCENTRIC	36515.	36515.	0.8	1473.
1980-050A	COSMOS 1188	U.S.S.S.R.	06/14/80	06/15/80	GEOCENTRIC	40165.	628.	62.8	726.
1980-051A	METEOR 1 (80-051A)	U.S.S.S.R.	06/18/80	06/19/80	GEOCENTRIC	678.	589.	88.	37.3
1980-052A	1980-052A	UNITED STATES	06/18/80	06/19/80	GEOCENTRIC	2655.	169.	96.5	88.9
1980-052C	1980-052C	UNITED STATES	06/18/80	06/19/80	GEOCENTRIC	1333.	1333.	96.6	112.3
1980-053A	MOLNIYA 1 (80-053A)	U.S.S.S.R.	06/21/80	06/22/80	GEOCENTRIC	40707.	654.	62.5	738.
1980-054A	COSMOS 1189	U.S.S.S.R.	06/26/80	06/26/80	GEOCENTRIC	305.	198.	72.9	89.5
1980-055A	PROGRESS 10	U.S.S.S.R.	06/29/80	06/30/80	GEOCENTRIC	281.	191.	51.6	88.9
1980-056A	COSMOS 1190	U.S.S.S.R.	07/01/80	07/02/80	GEOCENTRIC	829.	792.	74.	100.8
1980-057A	COSMOS 1191	U.S.S.S.R.	07/02/80	07/03/80	GEOCENTRIC	40165.	646.	62.8	726.
1980-058A	COSMOS 1192	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058B	COSMOS 1193	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058C	COSMOS 1194	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058D	COSMOS 1195	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058E	COSMOS 1196	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058F	COSMOS 1197	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058G	COSMOS 1198	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058H	COSMOS 1199	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-059A	COSMOS 1200	U.S.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	332.	209.	72.9	89.5
1980-060A	EKRAN	U.S.S.S.R.	07/14/80	07/15/80	GEOCENTRIC	35474.	35474.	0.36	1420.
1980-061A	COSMOS 1201	U.S.S.S.R.	07/15/80	07/16/80	GEOCENTRIC	274.	220.	82.3	89.1
1980-062A	ROHINA-1	INDIA	07/18/80	07/18/80	GEOCENTRIC	919.	305.	44.7	96.9
1980-063A	MOLNIYA 3 (80-063A)	U.S.S.S.R.	07/18/80	07/19/80	GEOCENTRIC	40815.	467.	62.1	736.
1980-064A	SOYUZ 37	U.S.S.S.R.	07/23/80	07/24/80	GEOCENTRIC	312.	263.	51.6	90.
1980-065A	COSMOS 1202	U.S.S.S.R.	07/24/80	07/25/80	GEOCENTRIC	333.	209.	72.9	89.5
1980-066A	COSMOS 1203	U.S.S.S.R.	07/31/80	08/01/80	GEOCENTRIC	303.	227.	82.3	89.5
1980-067A	COSMOS 1204	U.S.S.S.R.	07/31/80	08/01/80	GEOCENTRIC	546.	346.	50.7	93.3
1980-068A	COSMOS 1205	U.S.S.S.R.	08/12/80	08/13/80	GEOCENTRIC	332.	208.	72.8	89.6
1980-069A	COSMOS 1206	U.S.S.S.R.	08/15/80	08/16/80	GEOCENTRIC	659.	630.	81.2	97.4
1980-070A	COSMOS 1207	U.S.S.S.R.	08/22/80	08/23/80	GEOCENTRIC	282.	218.	82.3	89.2
1980-071A	COSMOS 1208	U.S.S.S.R.	08/26/80	08/27/80	GEOCENTRIC	362.	181.	67.1	89.6
1980-072A	COSMOS 1209	U.S.S.S.R.	09/03/80	09/04/80	GEOCENTRIC	306.	222.	82.3	89.4
1980-073A	METEOR 2 (80-073A)	U.S.S.S.R.	09/05/80	09/10/80	GEOCENTRIC	906.	868.	81.2	102.4
1980-074A	GOES 4	UNITED STATES UNITED STATES-S-R	09/09/80	09/28/80	GEOCENTRIC	35800.	35776.	0.2	1436.2
1980-075A	SOYUZ 38	U.S.S.S.R.	09/18/80	09/19/80	GEOCENTRIC	273.	193.	51.5	89.7
1980-076A	COSMOS 1210	U.S.S.S.R.	09/19/80	09/20/80	GEOCENTRIC	268.	195.	82.3	88.8
1980-077A	COSMOS 1211	U.S.S.S.R.	09/23/80	09/24/80	GEOCENTRIC	261.	215.	82.4	89.1
1980-078A	COSMOS 1212	U.S.S.S.R.	09/26/80	09/27/80	GEOCENTRIC	275.	215.	52.3	89.1
1980-079A	PROGRESS 11	U.S.S.S.R.	09/28/80	09/29/80	GEOCENTRIC	270.	193.	51.6	88.8
1980-080A	COSMOS 1213	U.S.S.S.R.	10/03/80	10/04/80	GEOCENTRIC	343.	207.	72.8	89.6
1980-081A	RADUGA (80-081A)	U.S.S.S.R.	10/05/80	10/06/80	GEOCENTRIC	36000.	36000.	0.4	1444.
1980-082A	COSMOS 1214	U.S.S.S.R.	10/10/80	10/11/80	GEOCENTRIC	369.	181.	57.2	89.7
1980-083A	COSMOS 1215	U.S.S.S.R.	10/14/80	10/15/80	GEOCENTRIC	368.	181.	67.2	89.7

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPDCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1980-084A	COSMOS 1216	U.S.S.R.	10/16/80	10/17/80	GEOCENTRIC	404.	209.	72.9	90.3
1980-085A	COSMOS 1217	U.S.S.R.	10/24/80	10/25/80	GEOCENTRIC	40165.	642.	62.8	72.6
1980-086A	COSMOS 1218	U.S.S.R.	10/30/80	10/31/80	GEOCENTRIC	374.	178.	64.9	89.7
1980-087A	FLEETSATCOM 4	UNITED STATES	10/31/80	11/01/80	GEOCENTRIC	35249.	173.	26.3	62.0
1980-088A	COSMOS 1219	U.S.S.R.	10/31/80	11/01/80	GEOCENTRIC	1219.	205.	72.9	89.7
1980-089A	COSMOS 1220	U.S.S.R.	11/04/80	11/05/80	GEOCENTRIC	454.	432.	65.	93.3
1980-090A	COSMOS 1221	U.S.S.R.	11/12/80	11/13/80	GEOCENTRIC	424.	207.	72.9	90.5
1980-091A	SBS-A	UNITED STATES	11/15/80	11/16/80	GEOCENTRIC	40652.	60.0.	62.8	73.6
1980-092A	MOLNIYA 1 (80-092A)	U.S.S.R.	11/16/80	11/17/80	GEOCENTRIC	40651.	64.0.	62.8	73.6
1980-093A	COSMOS 1222	U.S.S.R.	11/21/80	11/22/80	GEOCENTRIC	659.	624.	81.2	97.4
1980-094A	SOYUZ T-3	U.S.S.R.	11/27/80	11/28/80	GEOCENTRIC	271.5	253.	51.6	89.6
1980-095A	COSMOS 1223	U.S.S.R.	11/27/80	12/02/80	GEOCENTRIC	39749.	605.	62.9	717.7
1980-096A	COSMOS 1224	U.S.S.R.	12/01/80	12/02/80	GEOCENTRIC	403.	209.	72.9	90.3
1980-097A	COSMOS 1225	U.S.S.R.	12/05/80	12/06/80	GEOCENTRIC	1041.	967.	82.9	105.
1980-098A	INTELSAT V F-2	UNITED STATES	12/06/80	12/07/80	GEOCENTRIC	34834.	169.	23.8	614.9
1980-099A	COSMOS 1226	U.S.S.R.	12/10/80	12/11/80	GEOCENTRIC	1025.	982.	83.	105.
1980-100A	1980-100A	UNITED STATES	12/13/80	12/14/80	GEOCENTRIC	39130.	250.	63.8	697.4
1980-101A	COSMOS 1227	U.S.S.R.	12/16/80	12/17/80	GEOCENTRIC	300.	229.	72.8	89.8
1980-102A	COSMOS 1228	U.S.S.R.	12/23/80	12/24/80	GEOCENTRIC	1464.	1391.	74.0	114.4
1980-102B	COSMOS 1229	U.S.S.R.	12/23/80	12/23/80	GEOCENTRIC	1498.	1415.	73.9	115.1
1980-102C	COSMOS 1230	U.S.S.R.	12/23/80	12/24/80	GEOCENTRIC	1452.	1412.	74.2	114.5
1980-102D	COSMOS 1231	U.S.S.R.	12/23/80	12/24/80	GEOCENTRIC	1461.	1410.	74.0	114.6
1980-102E	COSMOS 1232	U.S.S.R.	12/23/80	12/24/80	GEOCENTRIC	1459.	1414.	74.0	114.6
1980-102F	COSMOS 1233	U.S.S.R.	12/23/80	12/23/80	GEOCENTRIC	1452.	1372.	74.0	114.1
1980-102G	COSMOS 1234	U.S.S.R.	12/23/80	12/23/80	GEOCENTRIC	1454.	1404.	74.0	114.4
1980-102H	COSMOS 1235	U.S.S.R.	12/23/80	12/23/80	GEOCENTRIC	1455.	1392.	73.7	114.3
1980-103A	PROGN02 8	U.S.S.R.	12/25/80	12/25/80	GEOCENTRIC	19739.0	980.	65.8	568.9
1980-104A	EKRAN 1224	U.S.S.R.	12/26/80	12/27/80	GEOCENTRIC	35859.	35859.	0.1	1439.9
1980-105A	COSMOS 1236	U.S.S.R.	12/26/80	12/27/80	GEOCENTRIC	363.	169.	67.1	89.8
1981-001A	COSMOS 1237	U.S.S.R.	01/06/81	01/07/81	GEOCENTRIC	410.	207.	72.9	90.4
1981-002A	MOLNIYA 3 (81-002A)	U.S.S.R.	01/09/81	01/10/81	GEOCENTRIC	40784.	485.	62.5	73.6
1981-003A	COSMOS 1238	U.S.S.R.	01/16/81	01/17/81	GEOCENTRIC	1976.	411.	83.	109.1
1981-004A	COSMOS 1239	U.S.S.R.	01/16/81	01/17/81	GEOCENTRIC	265.	222.	82.3	89.
1981-005A	COSMOS 1240	U.S.S.R.	01/20/81	01/21/81	GEOCENTRIC	377.	178.	64.9	89.3
1981-006A	COSMOS 1241	U.S.S.R.	01/21/81	01/22/81	GEOCENTRIC	1000.	1000.	65.8	105.
1981-007A	PROGRESS 12	U.S.S.R.	01/24/81	01/25/81	GEOCENTRIC	299.	188.	51.6	89.1
1981-008A	COSMOS 1242	U.S.S.R.	01/27/81	01/28/81	GEOCENTRIC	684.	635.	81.2	97.6
1981-009A	MOLNIYA 1 (81-009A)	U.S.S.R.	01/30/81	01/31/81	GEOCENTRIC	40801.	464.	62.8	73.6
1981-010A	COSMOS 1243	U.S.S.R.	02/02/81	02/03/81	GEOCENTRIC	1026.	316.	66.	96.5
1981-011A	INTERCOSMOS 21	U.S.S.R.	02/06/81	02/07/81	GEOCENTRIC	520.	475.	74.	94.5
1981-012A	ETS 4	JAPAN	02/11/81	02/12/81	GEOCENTRIC	35824.	223.	28.6	636.
1981-013A	COSMOS 1244	U.S.S.R.	02/12/81	02/13/81	GEOCENTRIC	1024.	975.	82.9	105.
1981-014A	COSMOS 1245	U.S.S.R.	02/13/81	02/14/81	GEOCENTRIC	403.	208.	72.9	90.3
1981-015A	COSMOS 1246	U.S.S.R.	02/18/81	02/19/81	GEOCENTRIC	292.	202.	64.9	89.2
1981-016A	COSMOS 1247	U.S.S.R.	02/19/81	02/20/81	GEOCENTRIC	39540.	613.	62.8	70.9
1981-017A	HINDORI	JAPAN	02/21/81	02/22/81	GEOCENTRIC	603.	548.	31.3	96.2
1981-018A	CONSTAR 4	UNITED STATES	02/21/81	02/22/81	GEOCENTRIC	36519.5	552.8	20.7	652.3
1981-019A	1981-019A	UNITED STATES	02/28/81	03/01/81	GEOCENTRIC	336.	138.	96.4	89.3
1981-022B	COSMOS 1251	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-022C	COSMOS 1252	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-022D	COSMOS 1253	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-022E	COSMOS 1254	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-022F	COSMOS 1255	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-022G	COSMOS 1256	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-022H	COSMOS 1257	U.S.S.R.	03/06/81	03/07/81	GEOCENTRIC	1500.	1450.	74.	115.
1981-023A	SOYUZ T-4	U.S.S.R.	03/12/81	03/13/81	GEOCENTRIC	331.	250.	51.5	90.1
1981-024A	COSMOS 1258	U.S.S.R.	03/14/81	03/15/81	GEOCENTRIC	1032.	322.	65.8	98.
1981-025A	1981-025A	UNITED STATES	03/16/81	03/17/81	GEOCENTRIC	35527.	35463.	1.9	1421.2
1981-026A	COSMOS 1259	U.S.S.R.	03/17/81	03/18/81	GEOCENTRIC	405.	215.	70.4	90.4
1981-027A	RADUGA (81-027A)	U.S.S.R.	03/18/81	03/19/81	GEOCENTRIC	36590.	36590.	0.4	1477.
1981-028A	COSMOS 1260	U.S.S.R.	03/20/81	03/21/81	GEOCENTRIC	458.7	435.2	65.	93.3
1981-029A	SOYUZ 39	U.S.S.R.	03/22/81	03/23/81	GEOCENTRIC	321.	271.	51.6	90.3
1981-030A	MOLNIYA 3 (81-030A)	U.S.S.R.	03/24/81	03/25/81	GEOCENTRIC	40655.	640.	62.9	73.6
1981-031A	COSMOS 1261	U.S.S.R.	04/01/81	04/02/81	GEOCENTRIC	40170.	615.	62.8	710.
1981-032A	COSMOS 1262	U.S.S.R.	04/07/81	04/08/81	GEOCENTRIC	418.0.	207.	72.9	90.4
1981-033A	COSMOS 1263	U.S.S.R.	04/09/81	04/10/81	GEOCENTRIC	1988.	403.	83.	109.
1981-034A	STS-1	UNITED STATES	04/12/81	04/12/81	GEOCENTRIC	245.	237.	40.4	89.2
1981-035A	COSMOS 1264	U.S.S.R.	04/15/81	04/16/81	GEOCENTRIC	411.	216.	70.4	90.5
1981-036A	COSMOS 1265	U.S.S.R.	04/16/81	04/17/81	GEOCENTRIC	317.	210.	72.9	89.4
1981-037A	COSMOS 1266	U.S.S.R.	04/21/81	04/22/81	GEOCENTRIC	278.	259.	65.	89.65
1981-038A	1981-038A	UNITED STATES	04/24/81	04/25/81	GEOCENTRIC	26068.	250.	63.8	697.
1981-039A	COSMOS 1267	U.S.S.R.	04/25/81	04/26/81	GEOCENTRIC	278.	200.	51.6	89.
1981-040A	COSMOS 1268	U.S.S.R.	04/28/81	04/29/81	GEOCENTRIC	391.	217.	70.4	90.3
1981-041A	COSMOS 1269	U.S.S.R.	05/07/81	05/08/81	GEOCENTRIC	833.	797.	74.	100.9
1981-042A	SOYUZ 40	U.S.S.R.	05/14/81	05/15/81	GEOCENTRIC	307.	260.	51.6	90.1
1981-043A	METEOR 2 (81-043A)	U.S.S.R.	05/14/81	05/15/81	GEOCENTRIC	904.	868.	81.3	102.5
1981-044A	1981-044A	UNITED STATES	05/15/81	05/16/81	GEOCENTRIC	937.	354.	90.2	97.7
1981-045A	COSMOS 1270	U.S.S.R.	05/18/81	05/19/81	GEOCENTRIC	370.	180.	64.9	89.7
1981-046A	COSMOS 1271	U.S.S.R.	05/19/81	05/20/81	GEOCENTRIC	670.	628.	81.2	97.5
1981-047A	COSMOS 1272	U.S.S.R.	05/21/81	05/22/81	GEOCENTRIC	403.	217.	70.4	90.4
1981-048A	COSMOS 1273	U.S.S.R.	05/22/81	05/23/81	GEOCENTRIC	277.	221.	82.3	89.2
1981-049A	G3ES 5	UNITED STATES	05/22/81	07/29/81	GEOCENTRIC	35769.	35715.	0.32	1434.
1981-050A	INTELSAT 5B F-1	UNITED STATES	05/23/81	05/24/81	GEOCENTRIC	35960.	172.	24.1	633.9
1981-051A	ROHINA 2	INDIA	05/31/81	05/31/81	GEOCENTRIC	418.	196.	46.3	90.3
1981-052A	COSMOS 1274	U.S.S.R.	06/03/81	06/04/81	GEOCENTRIC	380.	183.	67.2	89.8
1981-053A	COSMOS 1275	U.S.S.R.	06/04/81	06/05/81	GEOCENTRIC	126.	93.	83.	104.9
1981-054A	MOLNIYA 3 (81-054A)	U.S.S.R.	06/09/81	06/10/81	GEOCENTRIC	40837.	471.	62.8	73.6
1981-055A	COSMOS 1276	U.S.S.R.	06/16/81	06/17/81	GEOCENTRIC	265.	224.	82.3	89.1
1981-056A	COSMOS 1277	U.S.S.R.	06/17/81	06/18/81	GEOCENTRIC	393.	216.	70.4	90.3
1981-057A	METEOSAT 2	INTERNATIONAL	06/19/81	06/27/81	GEOCENTRIC	35973.	35847.	1.01	1442.1
1981-057B	APPLE	INDIA	06/19/81	06/20/81	GEOCENTRIC	35983.	35551.	0.2	1435.1
1981-058A	COSMOS 1278	U.S.S.R.	06/19/81	06/20/81	GEOCENTRIC	40165.	614.	62.8	72.6
1981-059A	NOAA 7	UNITED STATES	06/23/81	06/24/81	GEOCENTRIC	863.	845.	98.9	102.
1981-060A	MOLNIYA 1 (81-060A)	U.S.S.R.	06/24/81	06/25/81	GEOCENTRIC	40640.	645.	62.8	73.6
1981-061A	EKRAN	U.S.S.R.	06/26/81	06/27/81	GEOCENTRIC	35636.	35635.	0.4	1426.
1981-062A	COSMOS 1279	U.S.S.R.	07/01/81	07/02/81	GEOCENTRIC	385.	218.	70.4	90.3
1981-063A	COSMOS 1280	U.S.S.R.	07/02/81	07/03/81	GEOCENTRIC	312.	222.	82.3	89.5

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COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1981-064A	COSMOS 1281	U.S.S.R.	07/07/81	07/08/81	GEOCENTRIC	419.	208.	72.8	90.4
1981-065A	MEFCOR 1 (81-065A)	U.S.S.R.	07/10/81	07/11/81	GEOCENTRIC	667.	634.	97.9	97.8
1981-065C	ISKRA	U.S.S.R.	07/10/81	07/11/81	GEOCENTRIC	653.	638.	98.	97.8
1981-066A	COSMOS 1282	U.S.S.R.	07/15/81	07/16/81	GEOCENTRIC	357.	179.	64.9	89.6
1981-067A	COSMOS 1283	U.S.S.R.	07/17/81	07/18/81	GEOCENTRIC	278.	184.	82.1	89.7
1981-068A	COSMOS 1284	U.S.S.R.	07/29/81	07/30/81	GEOCENTRIC	270.	195.	82.3	89.8
1981-069A	RADUGA (81-069A)	U.S.S.R.	07/30/81	07/30/81	GEOCENTRIC	36583.	36582.	0.4	1476.8
1981-070A	DYNAMICS EXPLORER 1	UNITED STATES	08/03/81	08/03/81	GEOCENTRIC	23289.	567.6	89.9	410.3
1981-070B	DYNAMICS EXPLORER 2	UNITED STATES	08/03/81	08/03/81	GEOCENTRIC	1012.5	309.	89.9	98.
1981-071A	COSMOS 1285	U.S.S.R.	08/04/81	08/05/81	GEOCENTRIC	40165.	630.	62.8	72.6
1981-072A	COSMOS 1286	U.S.S.R.	08/04/81	08/05/81	GEOCENTRIC	453.	433.	65.	93.24
1981-073A	FLTSATCOM 5	UNITED STATES	08/06/81	08/07/81	GEOCENTRIC	35781.	174.	26.6	630.3
1981-074A	COSMOS 1287	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074B	COSMOS 1288	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074C	COSMOS 1289	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074D	COSMOS 1290	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074E	COSMOS 1291	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074F	COSMOS 1292	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074G	COSMOS 1293	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1446.	71.	115.2
1981-074H	COSMOS 1294	U.S.S.R.	08/06/81	08/07/81	GEOCENTRIC	1508.	1444.	71.	115.2
1981-075A	IK BULGARIA 1300	BULGARIA	08/07/81	08/08/81	GEOCENTRIC	906.	825.	81.2	101.9
1981-076A	GMS-2	JAPAN	08/10/81	08/26/81	GEOCENTRIC	35792.	35775.	0.2	1435.7
1981-077A	COSMOS 1295	U.S.S.R.	08/12/81	08/13/81	GEOCENTRIC	1026.	966.	82.9	104.8
1981-078A	COSMOS 1296	U.S.S.R.	08/13/81	08/14/81	GEOCENTRIC	377.	181.	67.2	89.8
1981-079A	COSMOS 1297	U.S.S.R.	08/18/81	08/19/81	GEOCENTRIC	389.	209.	72.9	90.2
1981-080A	COSMOS 1298	U.S.S.R.	08/21/81	08/22/81	GEOCENTRIC	351.	179.	64.9	89.6
1981-081A	COSMOS 1299	U.S.S.R.	08/24/81	08/25/81	GEOCENTRIC	281.	250.	65.	89.7
1981-082A	COSMOS 1300	U.S.S.R.	08/24/81	08/25/81	GEOCENTRIC	675.	648.	82.5	97.7
1981-083A	COSMOS 1301	U.S.S.R.	08/27/81	08/28/81	GEOCENTRIC	300.	224.	82.3	89.3
1981-084A	COSMOS 1302	U.S.S.R.	08/28/81	08/30/81	GEOCENTRIC	812.	783.	74.0	100.8
1981-085A	1981-085A	UNITED STATES	09/03/81	09/04/81	GEOCENTRIC	526.	244.	96.9	92.3
1981-086A	COSMOS 1303	U.S.S.R.	09/04/81	09/05/81	GEOCENTRIC	398.	215.	70.4	90.4
1981-087A	COSMOS 1304	U.S.S.R.	09/04/81	09/05/81	GEOCENTRIC	984.	917.	83.	104.
1981-088A	COSMOS 1305	U.S.S.R.	09/11/81	09/12/81	GEOCENTRIC	13870.	648.	63.	264.
1981-089A	COSMOS 1306	U.S.S.R.	09/14/81	09/18/81	GEOCENTRIC	462.	409.	65.	93.3
1981-090A	COSMOS 1307	U.S.S.R.	09/15/81	09/16/81	GEOCENTRIC	419.	203.	72.9	90.4
1981-091A	COSMOS 1308	U.S.S.R.	09/18/81	09/19/81	GEOCENTRIC	1017.	978.	82.9	104.9
1981-092A	COSMOS 1309	U.S.S.R.	09/18/81	09/19/81	GEOCENTRIC	282.	225.	82.3	89.2
1981-093A	CHINA 9	PEOPLE'S REP OF CHINA	09/19/81	09/20/81	GEOCENTRIC	1615.	235.	59.47	103.49
1981-094A	AUREOL 3	U.S.S.R.	09/21/81	09/22/81	GEOCENTRIC	1920.	380.	82.6	108.2
1981-095A	COSMOS 1310	U.S.S.R.	09/23/81	09/24/81	GEOCENTRIC	524.	478.	65.9	94.6
1981-096A	SBS-B	UNITED STATES	09/24/81	09/25/81	GEOCENTRIC	36830.	166.	27.7	650.8
1981-097A	COSMOS 1311	U.S.S.R.	09/28/81	10/01/81	GEOCENTRIC	521.	470.	83.	94.3
1981-098A	COSMOS 1312	U.S.S.R.	09/30/81	09/30/81	GEOCENTRIC	1503.	1490.	82.6	115.9
1981-099A	COSMOS 1313	U.S.S.P.	10/01/81	10/02/81	GEOCENTRIC	314.	214.	70.4	89.5
1981-100A	SME	UNITED STATES	10/06/81	10/16/81	GEOCENTRIC	551.	535.	97.5	95.5
1981-100B	UOSAT	UNITED STATES	10/06/81	10/07/81	GEOCENTRIC	561.	535.	97.5	95.4
1981-103A	COSMOS 1315	U.S.S.R.	10/14/81	10/15/81	GEOCENTRIC	685.	628.	81.2	97.7
1981-104A	COSMOS 1316	U.S.S.R.	10/15/81	10/16/81	GEOCENTRIC	407.	215.	70.3	90.5
1981-105A	MOLNIYA 3 (81-105A)	U.S.S.R.	10/17/81	10/18/81	GEOCENTRIC	40644.	649.	63.	736.
1981-106A	VENERA 13	U.S.S.R.	10/30/81		VENUS ORBITER				
1981-106B	VENERA 13 DESCENT CRAFT	U.S.S.R.	10/30/81		VENUS LANDER				
1981-107A	1981-107A	UNITED STATES	10/31/81	11/01/81	GEOCENTRIC	35527.	35463.	2.0	1421.
1981-108A	COSMOS 1317	U.S.S.R.	10/31/81	11/01/81	GEOCENTRIC	40165.	584.	62.9	725.7
1981-109A	COSMOS 1318	U.S.S.R.	11/03/81	11/04/81	GEOCENTRIC	379.	183.	67.2	89.8
1981-110A	VENERA 14	U.S.S.R.	11/04/81		VENUS ORBITER				
1981-110B	VENERA 14 DESCENT CRAFT	U.S.S.R.	11/04/81		VENUS LANDER				
1981-111A	STS-2	UNITED STATES	11/12/81	11/12/81	GEOCENTRIC	229.	219.	36.	89.0
1981-112A	COSMOS 1319	U.S.S.R.	11/13/81	11/13/81	GEOCENTRIC	377.	209.	70.4	90.4
1981-113A	MOLNIYA 1 (81-113A)	U.S.S.R.	11/17/81	11/17/81	GEOCENTRIC	441.	39136.	62.8	702.
1981-114A	RCA-SATCOM 3R	U.S.S.R.	11/20/81	11/21/81	GEOCENTRIC	35929.9	185.1	27.4	635.9
1981-115A	BHASKARA 2	INDIA	11/20/81	11/20/81	GEOCENTRIC	542.	520.	50.6	95.2
1981-116A	COSMOS 1320	U.S.S.R.	11/28/81	11/29/81	GEOCENTRIC	1638.	1482.	73.9	117.3
1981-116B	COSMOS 1321	U.S.S.R.	11/28/81	11/29/81	GEOCENTRIC	1635.	1482.	74.	117.3
1981-116C	COSMOS 1322	U.S.S.R.	11/28/81	11/29/81	GEOCENTRIC	1631.	1482.	74.	117.3
1981-116D	COSMOS 1323	U.S.S.R.	11/28/81	11/30/81	GEOCENTRIC	1627.	1483.	74.	117.2
1981-116E	COSMOS 1324	U.S.S.R.	11/28/81	11/30/81	GEOCENTRIC	1623.	1482.	74.	117.2
1981-116F	COSMOS 1325	U.S.S.R.	11/28/81	11/30/81	GEOCENTRIC	1619.	1483.	74.	117.1
1981-116G	COSMOS 1326	U.S.S.R.	11/28/81	11/29/81	GEOCENTRIC	1617.	1485.	74.	117.1
1981-116H	COSMOS 1327	U.S.S.R.	11/28/81	11/29/81	GEOCENTRIC	1609.	1486.	74.	117.
1981-117A	COSMOS 1328	U.S.S.R.	12/03/81	12/03/81	GEOCENTRIC	665.	637.	82.5	97.7
1981-118A	COSMOS 1329	U.S.S.R.	12/04/81	12/04/81	GEOCENTRIC	264.	232.	65.0	89.5
1981-119A	INFELSAT 5 F-3	UNITED STATES	12/15/81	12/16/81	GEOCENTRIC	35947.	165.	23.7	633.5
1981-120A	RADIO 3	U.S.S.R.	12/17/81	12/18/81	GEOCENTRIC	1794.	1685.	83.	120.9
1981-120B	RADIO 4	U.S.S.R.	12/17/81	12/18/81	GEOCENTRIC	1794.	1685.	83.	120.9
1981-120C	RADIO 5	U.S.S.R.	12/17/81	12/18/81	GEOCENTRIC	1794.	1685.	83.	120.9
1981-120D	RADIO 6	U.S.S.R.	12/17/81	12/18/81	GEOCENTRIC	1794.	1685.	83.	120.9
1981-120E	RADIO 7	U.S.S.R.	12/17/81	12/18/81	GEOCENTRIC	1794.	1685.	83.	120.9
1981-120F	RADIO 8	U.S.S.R.	12/17/81	12/18/81	GEOCENTRIC	1794.	1685.	83.	120.9
1981-121A	COSMOS 1330	U.S.S.R.	12/19/81	12/20/81	GEOCENTRIC	403.	177.	70.4	90.
1981-122A	MARECS-A	INTERNATIONAL	12/20/81	12/23/81	GEOCENTRIC	35724.	35640.	2.3	1430.7
1981-123A	MOLNIYA 1 (81-123A)	U.S.S.R.	12/23/81	12/24/81	GEOCENTRIC	38990.	485.	63.	699.
1982-001A	COSMOS 1331	U.S.S.R.	01/07/82	01/08/82	GEOCENTRIC	819.	776.	74.	100.7
1982-002A	COSMOS 1332	U.S.S.R.	01/12/82	01/13/82	GEOCENTRIC	275.	218.	82.3	94.1
1982-003A	COSMOS 1333	U.S.S.R.	01/14/82	01/15/82	GEOCENTRIC	1029.	989.	82.9	105.
1982-004A	RCA-SATCOM 4	UNITED STATES	01/16/82	01/17/82	GEOCENTRIC	35978.3	185.7	27.4	634.5
1982-005A	COSMOS 1334	U.S.S.R.	01/20/82	01/21/82	GEOCENTRIC	315.	206.	72.9	89.4
1982-006A	1982-006A	UNITED STATES	01/21/82	01/22/82	GEOCENTRIC	641.	630.	97.2	97.4
1982-007A	COSMOS 1335	U.S.S.R.	01/29/82	01/30/82	GEOCENTRIC	535.	487.	74.	94.7
1982-008A	COSMOS 1336	U.S.S.R.	01/29/82	01/30/82	GEOCENTRIC	379.	179.	70.4	89.3
1982-009A	EKRAN	U.S.S.R.	02/05/82	02/06/82	GEOCENTRIC	35658.	35658.	0.4	1429.
1982-010A	COSMOS 1337	U.S.S.R.	02/11/82	02/12/82	GEOCENTRIC	456.	436.	65.	93.3
1982-011A	COSMOS 1338	U.S.S.R.	02/16/82	02/17/82	GEOCENTRIC	393.	208.	72.	90.2
1982-012A	COSMOS 1339	U.S.S.R.	02/17/82	02/18/82	GEOCENTRIC	1209.	975.	82.9	104.8
1982-013A	COSMOS 1340	U.S.S.R.	02/19/82	02/20/82	GEOCENTRIC	679.	636.	81.2	97.6
1982-014A	WESTAR 4	UNITED STATES	02/26/82	02/27/82	GEOCENTRIC	36722.	167.	27.5	648.7

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1982-015A	MOLNIYA 1 (82-015A)	U.S.S.R.	02/26/82	02/27/82	GEOCENTRIC	40765.	490.	62.8	735.
1982-016A	COSMOS 1341	U.S.S.R.	03/03/82	03/04/82	GEOCENTRIC	40165.	614.	62.8	709.
1982-017A	INTELSAT 5 F-4	UNITED STATES	03/05/82	03/06/82	GEOCENTRIC	42132.	6547.	24.1	629.8
1982-018A	COSMOS 1342	U.S.S.R.	03/05/82	03/06/82	GEOCENTRIC	326.	207.	72.9	89.5
1982-019A	1982-019A	UNITED STATES	03/06/82	03/07/82	GEOCENTRIC	35795.	35777.	1.6	1436.1
1982-020A	HORIZONT (82-020A)	U.S.S.R.	03/15/82	03/16/82	GEOCENTRIC	36320.	36320.	0.7	1463.0
1982-021A	COSMOS 1343	U.S.S.R.	03/17/82	03/18/82	GEOCENTRIC	314.	208.	72.9	89.4
1982-022A	STS-3	UNITED STATES	03/22/82	03/23/82	GEOCENTRIC	240.	240.	38.	89.3
1982-023A	MOLNIYA 3 (82-023A)	U.S.S.R.	03/24/82	03/25/82	GEOCENTRIC	40615.	656.	62.9	736.
1982-024A	COSMOS 1344	U.S.S.R.	03/24/82	03/25/82	GEOCENTRIC	1023.	987.	82.9	105.2
1982-025A	NETEON 2 (82-025A)	U.S.S.R.	03/25/82	03/26/82	GEOCENTRIC	976.	954.	74.	95.2
1982-026A	COSMOS 1345	U.S.S.R.	03/31/82	04/01/82	GEOCENTRIC	950.	507.	81.2	97.4
1982-027A	COSMOS 1346	U.S.S.R.	04/02/82	04/03/82	GEOCENTRIC	364.	181.	70.4	89.7
1982-028A	COSMOS 1347	U.S.S.R.	04/07/82	04/08/82	GEOCENTRIC	39342.	613.	62.8	709.
1982-029A	COSMOS 1348	U.S.S.R.	04/08/82	04/09/82	GEOCENTRIC	1025.	984.	84.	105.
1982-030A	COSMOS 1349	U.S.S.R.	04/10/82	04/11/82	GEOCENTRIC	35784.	225.	28.1	631.5
1982-031A	INSAT-1A	INDIA							
1982-032A	COSMOS 1350	U.S.S.R.	04/15/82	01/16/82	GEOCENTRIC	322.	167.	67.1	89.5
1982-033A	SALYUT 7	U.S.S.R.	04/19/82	04/20/82	GEOCENTRIC	278.	219.	51.6	89.2
1982-033C	ISKRA 2	U.S.S.R.	04/19/82	04/20/82	GEOCENTRIC	357.	342.	51.6	91.3
1982-033D	ISKRA 3	U.S.S.R.	11/18/82	11/19/82	GEOCENTRIC	365.0	330.0	51.6	91.5
1982-034A	COSMOS 1351	U.S.S.R.	04/21/82	04/22/82	GEOCENTRIC	555.	349.	50.7	93.5
1982-035A	COSMOS 1352	U.S.S.R.	04/21/82	04/22/82	GEOCENTRIC	383.	216.	70.4	90.2
1982-036A	COSMOS 1353	U.S.S.R.	04/23/82	04/24/82	GEOCENTRIC	269.	218.	82.3	89.1
1982-037A	COSMOS 1354	U.S.S.R.	04/28/82	04/29/82	GEOCENTRIC	829.	795.	74.	101.
1982-038A	COSMOS 1355	U.S.S.R.	04/29/82	04/30/82	GEOCENTRIC	459.	438.	65.1	93.3
1982-039A	COSMOS 1356	U.S.S.R.	05/05/82	05/06/82	GEOCENTRIC	644.	632.	81.2	97.6
1982-040A	COSMOS 1357	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040B	COSMOS 1358	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040C	COSMOS 1359	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040D	COSMOS 1360	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040E	COSMOS 1361	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040F	COSMOS 1362	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040G	COSMOS 1363	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-040H	COSMOS 1364	U.S.S.R.	05/06/82	05/07/82	GEOCENTRIC	1520.	1449.	74.	115.4
1982-041A	SFP SB-1-1	UNITED STATES	05/11/82	05/13/82	GEOCENTRIC	262.	177.	96.4	88.91
1982-041C	1982-041C	UNITED STATES							
1982-042A	SOYUZ T-5	U.S.S.R.	05/13/82	05/14/82	GEOCENTRIC	701.	694.	96.0	98.7
1982-043A	COSMOS 1365	U.S.S.R.	05/13/82	05/14/82	GEOCENTRIC	329.	271.	51.6	90.4
1982-044A	COSMOS 1366	U.S.S.R.	05/14/82	05/15/82	GEOCENTRIC	276.	259.	65.	89.6
1982-045A	COSMOS 1367	U.S.S.R.	05/17/82	05/18/82	GEOCENTRIC	35820.	35820.	1.5	1437.
1982-046A	COSMOS 1368	U.S.S.R.	05/20/82	05/21/82	GEOCENTRIC	39530.	612.	62.8	709.
1982-047A	PROGRESS 13	U.S.S.R.	05/21/82	05/22/82	GEOCENTRIC	365.	218.	70.4	90.
1982-048A	COSMOS 1369	U.S.S.R.	05/23/82	05/24/82	GEOCENTRIC	278.	191.	51.6	88.9
1982-049A	COSMOS 1370	U.S.S.R.	05/25/82	05/26/82	GEOCENTRIC	296.	229.	62.3	89.4
1982-050A	MOLNIYA 1 (82-052A)	U.S.S.R.	05/25/82	05/29/82	GEOCENTRIC	290.	203.	84.9	89.2
1982-054A	COSMOS 1374	U.S.S.R.	05/29/82	05/30/82	GEOCENTRIC	40633.	653.	62.8	736.
1982-055A	COSMOS 1375	U.S.S.R.	06/03/82	06/04/82	GEOCENTRIC	225.	225.	50.7	88.9
1982-056A	COSMOS 1376	U.S.S.R.	06/06/82	06/07/82	GEOCENTRIC	1021.	990.	65.9	105.
1982-057A	COSMOS 1377	U.S.S.R.	06/08/82	06/09/82	GEOCENTRIC	274.	227.	82.3	89.2
1982-058A	WESTAR 5	UNITED STATES	06/08/82	06/09/82	GEOCENTRIC	362.	179.	64.9	89.7
1982-059A	COSMOS 1378	U.S.S.R.	06/09/82	06/10/82	GEOCENTRIC	36468.9	167.6	27.5	643.7
1982-060A	COSMOS 1379	U.S.S.R.	06/10/82	06/11/82	GEOCENTRIC	682.	648.	82.5	97.8
1982-061A	COSMOS 1380	U.S.S.R.	06/18/82	06/19/82	GEOCENTRIC	1027.	552.	62.5	100.3
1982-062A	COSMOS 1381	U.S.S.R.	06/18/82	06/19/82	GEOCENTRIC	732.	156.	82.9	93.1
1982-063A	SOYUZ T-6	U.S.S.R.	06/18/82	06/19/82	GEOCENTRIC	395.	216.	70.4	90.3
1982-064A	COSMOS 1382	U.S.S.R.	06/24/82	06/25/82	GEOCENTRIC	277.	248.	51.6	89.6
1982-065A	STS-4	UNITED STATES	06/25/82	06/26/82	GEOCENTRIC	39540.	614.	62.8	709.
1982-066A	COSMOS 1383	U.S.S.R.	06/27/82	06/28/82	GEOCENTRIC	304.8	296.7	28.5	90.5
1982-067A	COSMOS 1384	U.S.S.R.	06/29/82	06/30/82	GEOCENTRIC	1041.	1084.	83.	105.4
1982-068A	COSMOS 1385	U.S.S.R.	06/30/82	07/01/82	GEOCENTRIC	381.	181.	67.1	89.3
1982-069A	COSMOS 1386	U.S.S.R.	07/06/82	07/07/82	GEOCENTRIC	264.	197.	82.3	88.7
1982-070A	COSMOS 1387	U.S.S.R.	07/07/82	07/08/82	GEOCENTRIC	1010.	965.	83.	104.6
1982-071A	PROGRESS 14	U.S.S.R.	07/10/82	07/11/82	GEOCENTRIC	258.	192.	51.6	89.7
1982-072A	COSMOS 1387	U.S.S.R.	07/13/82	07/13/82	GEOCENTRIC	271.	219.	82.3	89.1
1982-072A	LANDSAT 4	UNITED STATES	07/16/82	07/17/82	GEOCENTRIC	696.	678.	98.3	98.5
1982-073A	COSMOS 1388	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073B	COSMOS 1389	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073C	COSMOS 1390	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073D	COSMOS 1391	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073E	COSMOS 1392	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073F	COSMOS 1393	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073G	COSMOS 1394	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-073H	COSMOS 1395	U.S.S.R.	07/21/82	07/22/82	GEOCENTRIC	1515.	1448.	74.	115.3
1982-074A	MOLNIYA 1 (82-074A)	U.S.S.R.	07/21/82	07/21/82	GEOCENTRIC	38900.	650.	63.	701.
1982-075A	COSMOS 1396	U.S.S.R.	07/27/82	07/28/82	GEOCENTRIC	323.	208.	72.9	89.5
1982-076A	COSMOS 1397	U.S.S.R.	07/29/82	07/30/82	GEOCENTRIC	549.	346.	50.7	93.4
1982-077A	COSMOS 1398	U.S.S.R.	08/03/82	08/03/82	GEOCENTRIC	262.	225.	82.3	89.
1982-078A	COSMOS 1399	U.S.S.R.	08/04/82	08/04/82	GEOCENTRIC	371.	179.	64.9	89.7
1982-079A	COSMOS 1400	U.S.S.R.	08/05/82	08/06/82	GEOCENTRIC	675.	631.	81.2	97.6
1982-080A	SOYUZ T-7	U.S.S.R.	08/19/82	08/20/82	GEOCENTRIC	280.	228.	51.6	89.3
1982-081A	COSMOS 1401	U.S.S.R.	08/20/82	08/21/82	GEOCENTRIC	282.	226.	82.3	89.3
1982-082A	ANIK D-1	CANADA	08/26/82	08/27/82	GEOCENTRIC	36474.	185.	24.5	644.2
1982-083A	MOLNIYA 3 (82-083A)	UNITED STATES	08/27/82	08/28/82	GEOCENTRIC	40814.	494.	62.5	736.
1982-084A	COSMOS 1402	U.S.S.R.	08/30/82	08/31/82	GEOCENTRIC	279.	254.	65.	89.6
1982-085A	COSMOS 1403	U.S.S.R.	09/01/82	09/02/82	GEOCENTRIC	380.	216.	70.4	90.2
1982-086A	COSMOS 1404	U.S.S.R.	09/01/82	09/02/82	GEOCENTRIC	394.	211.	72.9	90.2
1982-087A	ETS 3	JAPAN	09/03/82	09/04/82	GEOCENTRIC	1234.	964.	45.	107.
1982-088A	COSMOS 1405	U.S.S.R.	09/04/82	09/05/82	GEOCENTRIC	456.	438.	65.	93.3
1982-089A	COSMOS 1406	U.S.S.R.	09/08/82	09/09/82	GEOCENTRIC	253.	222.	82.3	89.
1982-090A	PRC 12	PEOPLE'S REP OF CHINA	09/09/82	09/10/82	GEOCENTRIC	392.	174.	53.0	90.1
1982-091A	COSMOS 1407	U.S.S.R.	09/15/82	09/16/82	GEOCENTRIC	364.	181.	67.2	89.7
1982-092A	COSMOS 1408	U.S.S.R.	09/16/82	09/17/82	GEOCENTRIC	679.	645.	82.5	97.1

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1982-093A	EKRAN	U.S.S.R.	09/16/82	09/17/82	GEOCENTRIC	35580.	35580.	0.3	1426.
1982-094A	PROGRESS 15	U.S.S.R.	09/18/82	09/19/82	GEOCENTRIC	258.	195.	51.6	88.7
1982-095A	COSMOS 1409	U.S.S.R.	09/22/82	09/23/82	GEOCENTRIC	39340.	613.	62.8	709.
1982-096A	COSMOS 1410	U.S.S.R.	09/24/82	09/25/82	GEOCENTRIC	1522.	1500.	82.6	116.
1982-097A	INTELSAT 5 F-5	UNITED STATES	09/27/82	09/28/82	GEOCENTRIC	357.	148.	28.3	89.5
1982-098A	COSMOS 1411	U.S.S.R.	09/30/82	10/01/82	GEOCENTRIC	384.	208.	72.9	90.1
1982-099A	COSMOS 1412	U.S.S.R.	10/02/82	10/03/82	GEOCENTRIC	280.	255.	65.	89.6
1982-100A	COSMOS 1413	U.S.S.R.	10/12/82	10/13/82	GEOCENTRIC	19100.	19100.	64.8	573.
1982-100D	COSMOS 1415	U.S.S.R.	10/12/82	10/13/82	GEOCENTRIC	19100.	19100.	64.8	673.
1982-100C	COSMOS 1414	U.S.S.R.	10/12/82	10/13/82	GEOCENTRIC	19100.	19100.	64.8	673.
1982-101A	COSMOS 1416	U.S.S.R.	10/14/82	10/14/82	GEOCENTRIC	380.	217.	70.4	90.2
1982-102A	COSMOS 1417	U.S.S.R.	10/19/82	10/19/82	GEOCENTRIC	1023.	978.	83.	104.1
1982-103A	HORIZONT (82-103A)	U.S.S.R.	10/20/82	10/21/82	GEOCENTRIC	35800.	35800.	0.8	1437.
1982-104A	COSMOS 1418	U.S.S.R.	10/21/82	10/22/82	GEOCENTRIC	417.	362.	50.7	92.2
1982-105A	RCA-SATCOM 5	UNITED STATES	10/28/82	10/29/82	GEOCENTRIC	4217.6	236.99	26.53	132.4
1982-106A	1982-106A	UNITED STATES	10/30/82	10/31/82	GEOCENTRIC	35790.0	35784.0	1.6	1436.1
1982-106B	1982-106B	UNITED STATES	10/30/82	10/31/82	GEOCENTRIC	35805.0	35773.	0.1	1436.2
1982-107A	PROGRESS 16	U.S.S.R.	10/31/82	11/01/82	GEOCENTRIC	263.0	193.0	51.6	88.7
1982-108A	COSMOS 1419	U.S.S.R.	11/02/82	11/03/82	GEOCENTRIC	290.0	215.0	70.4	89.3
1982-109A	COSMOS 1420	U.S.S.R.	11/11/82	11/12/82	GEOCENTRIC	820.0	782.0	74.0	100.4
1982-110A	STS-5	UNITED STATES	11/11/82	11/12/82	GEOCENTRIC	302.	296.	28.5	90.3
1982-110B	SBS-3	UNITED STATES	11/11/82	11/12/82	GEOCENTRIC	37127.0	294.	23.7	659.1
1982-110C	ELESAT 5	UNITED STATES	11/12/82	11/13/82	GEOCENTRIC	36902.0	295.0	23.4	654.7
1982-111A	82-111A	UNITED STATES	11/17/82	11/20/82	GEOCENTRIC	520.0	280.0	96.9	92.6
1982-112A	COSMOS 1421	U.S.S.R.	11/18/82	11/19/82	GEOCENTRIC	286.0	216.0	70.4	89.2
1982-113A	RADUGA (82-113A)	U.S.S.R.	11/18/82	11/27/82	GEOCENTRIC	36640.0	36640.0	1.3	1480.7
1982-114A	COSMOS 1422	U.S.S.R.	12/01/82	12/04/82	GEOCENTRIC	314.0	208.0	73.0	89.0
1982-115A	COSMOS 1423	U.S.S.R.	12/01/82	12/09/82	GEOCENTRIC	575.0	400.0	62.8	94.3
1982-116A	METEOR 2 (82-116A)	U.S.S.R.	12/14/82	12/15/82	GEOCENTRIC	904.0	836.0	81.3	102.0
1982-117A	COSMOS 1424	U.S.S.R.	12/16/82	12/17/82	GEOCENTRIC	371.0	173.4	64.9	89.7
1982-118A	DMSP 5D-2/F6	UNITED STATES	12/21/82	12/22/82	GEOCENTRIC	639.	417.	98.7	101.4
1982-119A	COSMOS 1425	U.S.S.R.	12/23/82	12/24/82	GEOCENTRIC	374.0	237.0	70.0	90.3
1982-120A	COSMOS 1426	U.S.S.R.	12/28/82	12/29/82	GEOCENTRIC	377.	203.	50.6	90.
1982-121A	COSMOS 1427	U.S.S.R.	12/29/82	12/30/82	GEOCENTRIC	494.	460.	65.8	94.

APPENDIXES

Appendix 1 - World Data Centers

World Data Centers conduct international exchange of geophysical observations in accordance with the principles set forth by the International Council of Scientific Unions (ICSU). They were established in 1957 by the International IGY Committee (CSAGI) as part of the fundamental international planning for an International Geophysical Year program. This program was to collect data from the numerous and widespread IGY observational programs and to make such data readily accessible to interested scientists and scholars for an indefinite period of time. WDC-A was established in the U.S.A.; WDC-B, in the U.S.S.R.; and WDC-C, in Western Europe, Australia, and Japan. This new system for exchanging geophysical data was found to be very effective, and the operations of the World Data Centers were extended by ICSU on a continuing basis to other international programs; the WDCs were under the supervision of the Comité International de Géophysique (CIG) for the period 1960 to 1967 and are now supervised by the ICSU Panel on World Data Centers.

The current plans for continued international exchange of solar-terrestrial data through the WDCs were set forth in the *STP Notes*, No. 6, and incorporated with slight modifications in the *Fourth Consolidated Guide to International Data Exchange through the World Data Centres*, published in June 1979 by the International Council of Scientific Unions (ICSU) panel on World Data Centers.

Functions and Responsibilities of WDCs

The World Data Centers collect data and publications for the following disciplines: Glaciology, Meteorology, Oceanography, Rockets and Satellites, Solar-Terrestrial Physics disciplines (Solar and Interplanetary Phenomena, Ionospheric Phenomena, Flare Associated Events, Geomagnetic Phenomena, Aurora, Cosmic Rays, Airglow), Solid-Earth Geophysics disciplines (Seismology, Tsunamis, Marine Geology and Geophysics, Gravimetry, Earth Tides, Recent Movements of the Earth's Crust, Rotation of the Earth, Magnetic Measurements, Paleomagnetism and Archeomagnetism, Volcanology, Geothermics). In planning for the various scientific programs, decisions on data exchange were made by the scientific community through the international scientific unions and committees. In each discipline the specialists themselves determined the nature and form of data exchange, based on their needs as research workers. Thus the type and amount of data in the WDCs differ from discipline to discipline.

The objects of establishing several World Data Centers for collecting observational data were (1) to ensure against loss of data by the catastrophic destruction of a single center; and (2) to meet the geographical convenience of, and provide easy communication for, workers in different parts of the world. Each WDC is responsible for (1) endeavoring to collect a complete set of data in the field or discipline for which it is responsible; (2) safe-keeping of the incoming data; and (3) correct copying and reproduction of data, maintaining adequate standards of clarity and durability; (4) supplying copies to other WDCs of data not received directly; (5) preparation of

catalogs of all data in its charge; and (6) making data in the WDCs available to the scientific community. The WDCs conduct their operation at no expense to ICSU or to the ICSU family of unions and committees.

World Data Center A

World Data Center A, for which the National Academy of Sciences through the Geophysics Research Board (GRB) and its Committee on Data Interchange and Data Centers has overall responsibility, consists of the WDC-A Coordination Office and seven subcenters at scientific institutions in various parts of the United States. The GRB periodically reviews the activities of WDC-A and has conducted several studies on the effectiveness of the WDC system. As a result of these reviews and studies, some of the subcenters of WDC-A have been relocated so that they can serve the scientific community more effectively. The addresses of the WDC-A subcenters and Coordination Office are given in Appendix 2. There are very close connections between WDC-A for Solar-Terrestrial Physics and WDC-A for Rockets and Satellites, which exchange solar-terrestrial geophysical data; for the convenience of users, data may be sent to one WDC-A subcenter by way of the other.

The data received by WDC-A have been made available to the scientific community in the following ways: (1) reports containing data and results of experiments have been compiled, published, and widely distributed; (2) synoptic type data on cards, microfilm, or tables are available for use at the subcenters and for loan to scientists; and (3) copies of data and reports are provided upon request.

World Data Center A consists of the Coordination Office
and seven Subcenters:

World Data Center A
Coordination Office
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C. 20418
U.S.A.
Telephone: (202) 334-3359

Glaciology (Snow and Ice):

World Data Center A: Glaciology
(Snow and Ice)
Campus Box 449
CIRES
Boulder, Colorado 80309
U.S.A.
Telephone: (303) 492-5171

Rotation of the Earth:

World Data Center A: Rotation
of the Earth
U.S. Naval Observatory
Washington, D.C. 20390
U.S.A.
Telephone: (202) 653-1529

Meteorology (and Nuclear Radiation):

World Data Center A: Meteorology
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801
U.S.A.
Telephone: (704) 259-0682

*Solar-Terrestrial Physics (Solar
and Interplanetary Phenomena,
Ionospheric Phenomena, Flare-
Associated Events, Geomagnetic
Variations, Magnetospheric and
Interplanetary Magnetic Phenomena,
Aurora, Cosmic Rays, Airglow):*

World Data Center A
for Solar-Terrestrial Physics
Environmental Data Service, NOAA
325 Broadway
Boulder, Colorado 80303
U.S.A.
Telephone: (303) 497-6323

Oceanography:

World Data Center A: Oceanography
National Oceanic and Atmospheric
Administration
Washington, D.C. 20235
U.S.A.
Telephone: (202) 634-7249

*Solid-Earth Geophysics (Seismology,
Tsunamis, Gravimetry, Earth Tides,
Recent Movements of the Earth's
Crust, Magnetic Measurements,
Paleomagnetism and Archeomagnetism,
Volcanology, Geothermics):*

World Data Center A
for Solid-Earth Geophysics
NOAA NGDC/NESDIS E/GC1
325 Broadway
Boulder, Colorado 80303
U.S.A.
Telephone: (303) 497-6521

Rockets and Satellites:

World Data Center A for Rockets and
Satellites
Goddard Space Flight Center
Code 601
Greenbelt, Maryland 20771
U.S.A.
Telephone: (301) 344-6695

1. Communications regarding data interchange matters in general and the World Data Center A as a whole should be addressed to World Data Center A, Coordination Office (See address above).

2. Inquiries and communications concerning data in specific disciplines should be addressed to the appropriate subcenter listed above.