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National Space Science Data Center/
World Data Center A For Rockets and Satellites

Launch Summary for 1980

July 1981

NSSDC/WDC-A-R&S 81-07

Launch Summary

for

1980

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July 1981

National Space Science Data Center
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

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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 supporting conclusions when 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 subcenters for rockets and satellites. Data related to rocket and satellite launchings are summarized in the *Launch Summary*. This 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 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 WDC's were set forth in the STP NOTES No. 6 and incorporated with slight modifications in the *Third Consolidated Guide to International Data Exchange through the World Data Centres*, published in December 1973 by the International Council of Scientific Unions (ICSU) panel on World Data Centers. A fourth revision was published in June 1979.

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 pruposes 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
(301) 344-6695

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
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Organization

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

The Sounding Rockets section contains a summary listing of sounding rocket launchings and a listing 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 listing 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 listing of satellite and space probe launchings, and a sample satellite or space probe launching report form. (The satellite and space probe launch listing, as well as the sounding rocket launch listing and the launch site index in the Sounding Rocket section, were all generated from the NSSDC information system.) There are also 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

Launch Listings

The listing 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 listings because it facilitates easy sorting, selecting, updating, and report generation.

The listing is a summary of launchings identified between January 1, 1980, and December 31, 1980. 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 (sponsored in this context means that the country provided scientists (experimenters), support personnel (such as launch crews), equipment (rocket vehicles, launch facilities), or funds for the launch); the launch site; experiment disciplines; instruments used for the experiment; experimenters or institutions involved in the launching; and the peak altitude achieved by the rocket.

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, as can be seen in 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 previously, preferably by means of the form shown in Figure 1. Copies of this form may be obtained from WDC-A-R&S.

Table 1. List of Launch Sites

SITE NAME	SITE LOCATION	GEOGRAPHIC LAT	GEOGRAPHIC E LONG	GEOMAGNETIC LAT	GEOMAGNETIC E LONG	ADD FOR UNIVERSAL TIME
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	113.96	-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	2.58	+4.0 HR.
ARENOSILLO	SEE EL ARENOSILLO					
ASCENSION ISLAND	EQUATORIAL ATLANTIC	-7.98	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.
BARRING SANDS	SEE KAUAI					
BARREIRA DO INFERNO	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	-24.58	113.48	-35.99	182.78	-8.0 HR.
CASSINO	BRAZIL	-32.20	307.85	-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	-75.80	228.07	-9.0 HR.
EAST BUDDY	CANADA/NEWFOUNDLAND	48.90	296.58	56.33	7.16	+4.0 HR.
EASTERN TEST RANGE	SEE CAPE CANAVERAL					
EGLIN AIR FORCE BASE	USA/FLORIDA	30.58	275.30	41.26	339.48	+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					
GILLAM	CANADA/MANITOBA	55.92	264.80	65.67	321.87	+6.0 HR.
GREEN RIVER	USA/UTAH	38.93	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.
HOLLOMAN 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	45.80	42.75	125.04	-4.0 HR.
KARACHI	SEE SONMIANI					
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.
KEWEENAW	USA/MICHIGAN	47.43	272.28	58.14	335.71	+6.0 HR.
KHEYSA ISLAND	SEE HEISS ISLAND					
KIRUNA	SWEDEN	67.90	21.10	65.5	115.8	-1.0 HR.
KORDLEV (SHIP)	VARIOUS OCEANS AND SEAS					
KORONI BEACH	GREECE	36.77	21.95	35.73	99.58	-2.0 HR.
KOUROU	FRENCH GUIANA	5.20	307.27	16.04	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.
KWAJALEIN	MARSHALL ISLANDS	8.75	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	54.67	17.53	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					
MCMURDO	ANTARCTICA	-77.50	165.00	-79.13	291.78	-11.0 HR.
MICHIKAWA	SEE AKITA					
MOLODEZHNAYA	ANTARCTICA	-67.67	45.87	-69.76	85.56	-3.0 HR.
NATAL	BRAZIL	-5.87	326.62	5.87	33.70	+3.0 HR.
NORTON SOUND (SHIP)	VARIOUS OCEANS AND SEAS					
NOUADHIBOU	MAURITANIA	20.91	342.99	27.67	56.21	+0.0
NOVEROV (SHIP)	VARIOUS OCEANS AND SEAS					
OBACHI	JAPAN	40.70	141.73	30.68	206.75	-9.0 HR.
OSTROV KHEYSA	SEE HEISS ISLAND					
PACIFIC MISSILE RANGE	SEE POINT ARGUELLO					
PASSAT (SHIP)	VARIOUS OCEANS AND SEAS					
PERDASDEFOGU	SEE SARDINIA					
PLESETSK	U.S.S.R.	65.70	40.35	59.99	139.08	-4.0 HR.

Table 1. List of Launch Sites (concluded)

SITE NAME	SITE LOCATION	GEOGRAPHIC LAT	GEOGRAPHIC E LONG	GEOMAGNETIC LAT	GEOMAGNETIC E LONG	ADD FOR UNIVERSAL TIME
PLYMOUTH ROCK (SHIP)	VARIOUS OCEANS AND SEAS					
POINT ARGUELLO	USA/CALIFORNIA	34.62	239.42	41.28	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	-12.30	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 QUIRRA	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	198.58	-0.31	267.59	+11.0 HR.
SHIP A.I. NOYEKOV	SEE NOYEKOV (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	58.43	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	20.06	+4.0 HR.
SHIRSHOV (SHIP)	VARIOUS OCEANS AND SEAS					
SHURALSKI (SHIP)	VARIOUS OCEANS AND SEAS					
SIPLE 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	61.88	88.17	-1.0 HR.
SRIHARIKOTA	INDIA	13.76	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					
TANTAGUL	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					
UCHINOURA	SEE KAGOSHIMA					
USHAKOV (SHIP)	VARIOUS OCEANS AND SEAS					
USS PLYMOUTH ROCK	SEE PLYMOUTH ROCK (SHIP)					
VANDENBURG AFB	SEE POINT ARGUELLO					
VEGA BAJA	SEE ARECIBO					
VILLECOMEDONO MARAMBIO	ANTARCTICA	-64.27	303.07	-52.95	8.67	-4.0 HR.
VIZE (SHIP)	SEE PROFESSOR VIZE (SHIP)					
VOLGOGRAD	U.S.S.R.	48.68	44.35	43.14	123.82	-4.0 HR.
VOYEYKOV (SHIP)	VARIOUS OCEANS AND SEAS					
WALKER CAY	BAHAMA ISLANDS	27.00	282.00	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 HEBRIDES	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.
WOOMERA	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

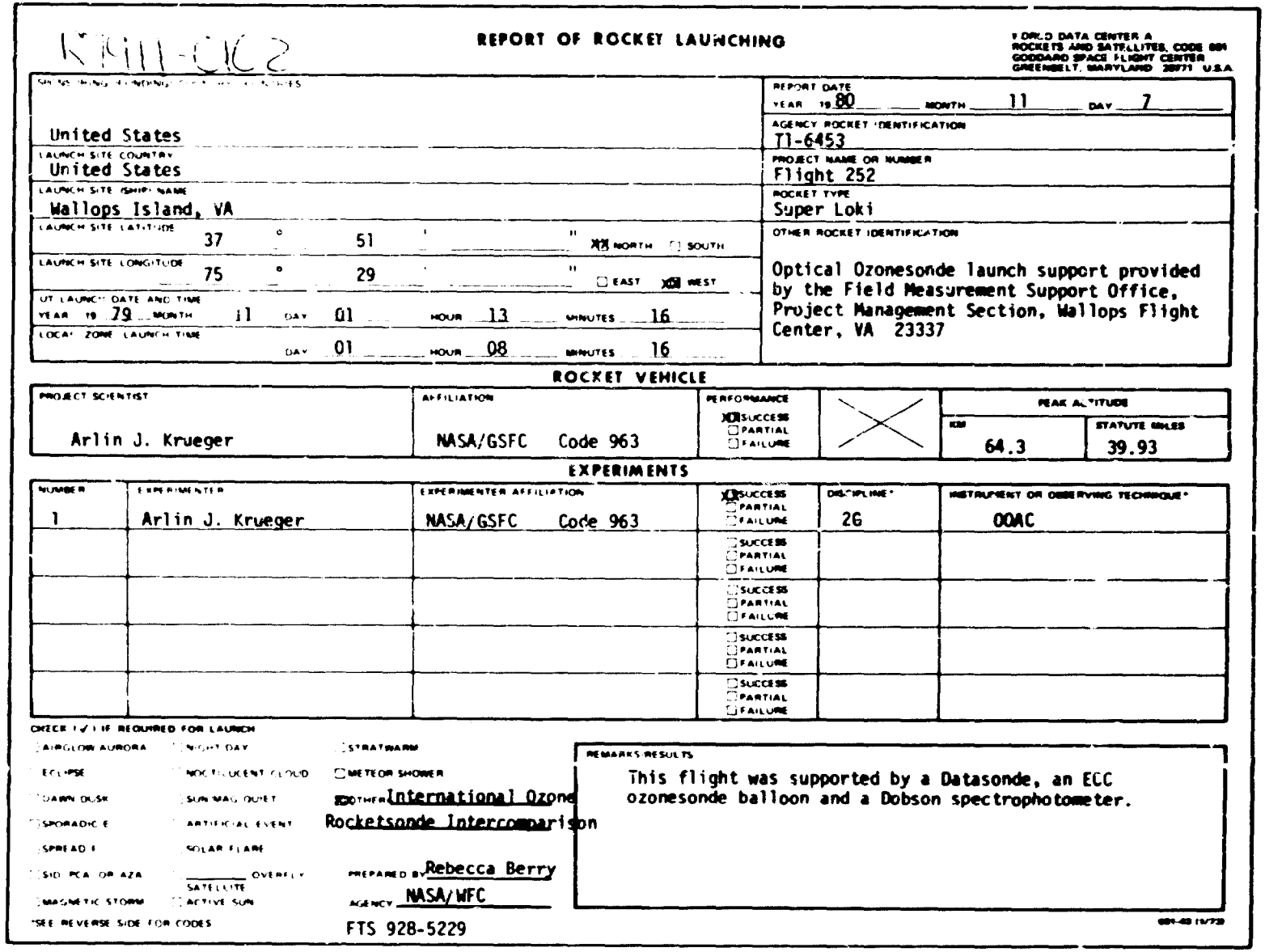
8. Planetology
   - 8A micrometeorites
   - 8B zodiacal light or gegenschein
   - 8C gravity
   - 8D terrain photographs
   - 8X subdiscipline unknown

9. Biology
   - 9X subdiscipline unknown

0. 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

AF	accelerometer
AR	air sample
BB	antenna
CR	camera
CRRE	image tube (TV)
CRRH	photography
CR	chaff, need e; tracked parachute
DC	chemical releases
DCLA	ion cloud
DCOR	neutral cloud
DCYR	vapor
GB	dust
GI	electric field meter (electrometer)
GY	energy deposition
GYRJ	ion chamber
GYPC	nuclear emulsions
HG	exobiology (extraterrestrial life)
HGCF	biological sample
HP	falling sphere
JE	gravity
JH	grenade
KD	hygrometer
LD	ion trap (probe or retarding potential analyzer)
LDBI	cold cathode gage
LDHR	Faraday cup (planar trap)
LDIY	capacitance probe
LDIZ	Gerdien condenser
LDKF	impedance probe
LDLU	Langmuir probe
LDTP	resonance probe
LDVY	spherical traps
LDWU	suprathermal ion detector
LG	ionization gauge
LGAS	alphatron
LGBY	Bayard-Alpert
LGPH	omegatron
LGTF	redhead (magnetron)
LI	ionosondes (pulsed transmitter, receiver)
LIMU	fixed frequency
LIOG	multichannel
LIWY	swept frequency
MT	magnetometer
MTBD	antenna
MTHZ	fluxgate
MTSH	proton precessor
MTU1	search coil
MTYQ	vapor
NP	meteorological rocketsonde
NR	micrometeorites
NX	other instrument or instruments
OH	multielement counter
OHCW	Cerenkov
OHCZ	channeltron (electron multiplier)
OHIQ	Geiger tube
OHOR	neutron monitor
OHPC	nuclear emulsions
OHSF	proportional
OHUH	scintillator
OHVP	solid-state detector
OHVU	spark chamber
OO	ozone
OOAC	absorption
OOGI	emission
OOUF	scattering (backscatter or forward scatter)
OOZL	chemiluminescence
PE	particle spectrometer (mass spectrometer)
PEBT	conductance/resistance
PEFV	double focus
PEGS	electrostatic analyzer
PEMR	magnetic
PESR	quadrupole radio frequency (mass filter)
PEST	radio frequency (Bennett tube)
PEVV	velocity filter (time of flight)
PEZL	chemiluminescence
QR	photon spectrometer (spectrograph)
QRCR	Bragg
QRKQ	interferometer (grating spectrometer)
QRPM	optical monochromator
QRSF	proportional
QRUH	scintillator
QQ	Pitot tube
QW	pressure
SE	propagation
SER?	beacon
SESN	radar
SE2A	vlf/elf emissions
SW	radiometer
SWCH	bolometer
SWHU	fixed frequency
SWOG	multichannel
SWOZ	nonscanning
SWQI	photometer
SWQJ	photomultiplier
SWRO	polarimeter
SWUI	scanning
SWUV	single frequency
SWWY	swept frequency
UT	single element counter
UTCW	Cerenkov
UTCZ	channeltron (electron multiplier)
UTIQ	Geiger tube
UTOR	neutron monitor
UTPC	nuclear emulsions
UTQJ	photomultiplier
UTSF	proportional
UTUH	scintillator
UTVP	sol d-state detector
XG	telescope
XGBD	antenna
XP	thermometer
XPCA	bead thermistor
XX	Rydas gyro
ZZ	unknown instrument or instruments



KP111-CIC2

REPORT OF ROCKET LAUNCHING

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

United States

LAUNCH SITE COUNTRY: United States

LAUNCH SITE (SHIP) NAME: Wallops Island, VA

LAUNCH SITE LATITUDE: 37 ° 51 ' " [X] NORTH [ ] SOUTH

LAUNCH SITE LONGITUDE: 75 ° 29 ' " [ ] EAST [X] WEST

UT LAUNCH DATE AND TIME: YEAR 19 79 MONTH 11 DAY 01 HOUR 13 MINUTES 16

LOCAL ZONE LAUNCH TIME: DAY 01 HOUR 08 MINUTES 16

REPORT DATE: YEAR 19 80 MONTH 11 DAY 7

AGENCY ROCKET IDENTIFICATION: TI-6453

PROJECT NAME OR NUMBER: Flight 252

ROCKET TYPE: Super Loki

OTHER ROCKET IDENTIFICATION:

Optical Ozonesonde launch support provided by the Field Measurement Support Office, Project Management Section, Wallops Flight Center, VA 23337

ROCKET VEHICLE

PROJECT SCIENTIST	AFFILIATION	PERFORMANCE		PEAK ALTITUDE KM	PEAK ALTITUDE STATUTE MILES
Arlin J. Krueger	NASA/GSFC Code 963	[X] SUCCESS [ ] PARTIAL [ ] FAILURE		64.3	39.93

EXPERIMENTS

NUMBER	EXPERIMENTER	EXPERIMENTER AFFILIATION		DISCIPLINE*	INSTRUMENT OR OBSERVING TECHNIQUE*
1	Arlin J. Krueger	NASA/GSFC Code 963	[X] SUCCESS [ ] PARTIAL [ ] FAILURE	2G	OOAC
			[ ] SUCCESS [ ] PARTIAL [ ] FAILURE		
			[ ] SUCCESS [ ] PARTIAL [ ] FAILURE		
			[ ] SUCCESS [ ] PARTIAL [ ] FAILURE		
			[ ] SUCCESS [ ] PARTIAL [ ] FAILURE		

CHECK (✓) IF REQUIRED FOR LAUNCH

[ ] AIRGLOW AURORA [ ] NIGHT DAY [ ] STRATWARM
[ ] ECLIPSE [ ] NOCTILUCENT CLOUD [ ] METEOR SHOWER
[ ] DAWN DUSK [ ] SUN MAG QUIET [X] OTHER International Ozone Rocketsonde Intercomparison
[ ] SPORADIC E [ ] ARTIFICIAL EVENT
[ ] SPREAD F [ ] SOLAR FLARE
[ ] SID PCA OR AZA _____ OVERFLY SATELLITE
[ ] MAGNETIC STORM [ ] ACTIVE SUN

*SEE REVERSE SIDE FOR CODES

PREPARED BY Rebecca Berry
AGENCY NASA/WFC
FTS 928-5229

REMARKS/RESULTS:

This flight was supported by a Datasonde, an ECC ozonesonde balloon and a Dobson spectrophotometer.

601-02 (5/73)

Figure 1. Sample Rocket Launching Report

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/06/21 1010	NASA 27.03RUE	UNITED STATES	WHITE SANDS	4B	PR	117	MOORE,J.
79/06/21 1202	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 05 00E)	2L	ODAC SWDJ	78	CENTRAL AEROLOGICAL OBS
79/06/24 1139	M-1000	U.S.S.R.	SHIRSHOV (SHIP (00 00N 78 49E)	2L	ODAC SWDJ	84	CENTRAL AEROLOGICAL OBS
79/06/25 0800	MMR-06	U.S.S.R.	ARENKEL' (SHIP) (53 00N 35 00W)	2J	MP	58	CENTRAL AEROLOGICAL OBS
79/06/27 0800	MMR-06	U.S.S.R.	ARENKEL' (SHIP) (53 00N 35 00W)	2J	MP	59	CENTRAL AEROLOGICAL OBS
79/06/27 1222	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 68 45E)	2L	ODAC SWDJ	84	CENTRAL AEROLOGICAL OBS
79/05/02 0325	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 05 23E)	2L	ODAC SWDJ	90	CENTRAL AEROLOGICAL OBS
79/05/16 1324	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 32N 54 37E)	2L	ODAC SWDJ	82	CENTRAL AEROLOGICAL OBS
79/05/18 1324	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 32N 54 39E)	2L	ODAC SWDJ	83	CENTRAL AEROLOGICAL OBS
79/05/21 1325	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	ODAC SWDJ	84	CENTRAL AEROLOGICAL OBS
79/05/23 1432	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	ODAC SWDJ	78	CENTRAL AEROLOGICAL OBS
79/05/25 1323	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	ODAC SWDJ	85	CENTRAL AEROLOGICAL OBS
79/05/27 0315	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	ODAC SWDJ	79	CENTRAL AEROLOGICAL OBS
79/05/28 0211	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	ODAC SWDJ	83	CENTRAL AEROLOGICAL OBS
79/05/28 0316	M-1000	U.S.S.R.	SHIRSHOV (SHIP) (06 30N 54 49E)	2L	ODAC SWDJ	79	CENTRAL AEROLOGICAL OBS
79/06/30 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	68	CENTRAL AEROLOGICAL OBS
79/07/03 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	83	CENTRAL AEROLOGICAL OBS
79/07/04 0500	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	87	CENTRAL AEROLOGICAL OBS
79/07/04 0500	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	81	CENTRAL AEROLOGICAL OBS
79/07/04 0800	MMR-06	U.S.S.R.	ARENKEL' (SHIP) (53 00N 35 00W)	2J	MP	58	CENTRAL AEROLOGICAL OBS
79/07/04 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	84	CENTRAL AEROLOGICAL OBS
79/07/05 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	68	CENTRAL AEROLOGICAL OBS
79/07/06 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	89	CENTRAL AEROLOGICAL OBS
79/07/07 1400	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	85	CENTRAL AEROLOGICAL OBS
79/07/08 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (26 00S 177 00E)	2J	MP	84	CENTRAL AEROLOGICAL OBS
79/07/10 1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (30 00S 180 00E)	2J	MP	86	CENTRAL AEROLOGICAL OBS
79/07/11 0800	MMR-06	U.S.S.R.	ARENKEL' (SHIP) (53 00N 35 00W)	2J	MP	59	CENTRAL AEROLOGICAL OBS
79/07/11 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
79/07/11 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	85	CENTRAL AEROLOGICAL OBS
79/07/11 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	90	CENTRAL AEROLOGICAL OBS
79/07/11 2130	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	85	CENTRAL AEROLOGICAL OBS
79/07/12 1400	MMR-06	U.S.S.R.	PRILIV (SHIP) (15 00N 89 00E)	2J	MP	57	CENTRAL AEROLOGICAL OBS
79/07/12 1500	MMR-06	U.S.S.R.	PRILIV (SHIP) (15 00N 89 00E)	2J	MP	58	CENTRAL AEROLOGICAL OBS
79/07/12 1600	MMR-06	U.S.S.R.	PRILIV (SHIP) (15 00N 89 00E)	2J	MP	58	CENTRAL AEROLOGICAL OBS
79/07/13 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	88	CENTRAL AEROLOGICAL OBS
79/07/18 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	81	CENTRAL AEROLOGICAL OBS
79/07/18 0800	MMR-06	U.S.S.R.	ARENKEL' (SHIP) (53 00N 35 00W)	2J	MP	57	CENTRAL AEROLOGICAL OBS
79/07/18 1330	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	84	CENTRAL AEROLOGICAL OBS
79/07/18 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	83	CENTRAL AEROLOGICAL OBS
79/07/18 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	87	CENTRAL AEROLOGICAL OBS
79/07/20 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
79/07/20 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	88	CENTRAL AEROLOGICAL OBS
79/07/22 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (39 00S 180 00E)	2J	MP	81	CENTRAL AEROLOGICAL OBS
79/07/22 1600	M-100	U.S.S.R.	SHOKALSKI (SHIP) (39 00S 180 00E)	2J	MP	82	CENTRAL AEROLOGICAL OBS
79/07/25 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	86	CENTRAL AEROLOGICAL OBS
79/07/25 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	87	CENTRAL AEROLOGICAL OBS
79/07/25 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	87	CENTRAL AEROLOGICAL OBS
79/07/25 1600	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	88	CENTRAL AEROLOGICAL OBS
79/07/27 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (26 00S 176 00E)	2J	MP	85	CENTRAL AEROLOGICAL OBS
79/07/27 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	81	CENTRAL AEROLOGICAL OBS
79/07/27 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (26 00S 176 00E)	2J	MP	87	CENTRAL AEROLOGICAL OBS
79/07/27 1500	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
79/08/01 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	84	CENTRAL AEROLOGICAL OBS
79/08/01 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	86	CENTRAL AEROLOGICAL OBS

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK A.T. (KM)	EXPERIMENTERS OR INSTITUTIONS
79/07/31 1500	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/03 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	83	CENTRAL AEROLOGICAL OBS
79/08/03 1500	M-100	INDIA U.S.S.R.	THUMBA	22	MP	83	CENTRAL AEROLOGICAL OBS
79/08/08 0200	M-100	U.S.S.R.	VOLGOGRAD	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/08 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	90	CENTRAL AEROLOGICAL OBS
79/08/08 1500	M-100	INDIA U.S.S.R.	THUMBA	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/09 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (65 00N 179 00E)	22	MP	92	CENTRAL AEROLOGICAL OBS
*79/08/10 1400	M-100	INDIA U.S.S.R.	THUMBA	22	MP	---	CENTRAL AEROLOGICAL OBS
79/08/10 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	87	CENTRAL AEROLOGICAL OBS
79/08/13 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (65 00N 180 00E)	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/13 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (10 00N 160 00E)	22	MP	78	CENTRAL AEROLOGICAL OBS
79/08/14 1500	M-100	INDIA U.S.S.R.	THUMBA	22	MP	84	CENTRAL AEROLOGICAL OBS
79/08/14 2230	M-100	U.S.S.R.	VOLGOGRAD	22	MP	84	CENTRAL AEROLOGICAL OBS
79/08/15 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	81	CENTRAL AEROLOGICAL OBS
79/08/15 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	86	CENTRAL AEROLOGICAL OBS
79/08/17 1200	M-100	INDIA U.S.S.R.	THUMBA	22	MP	88	CENTRAL AEROLOGICAL OBS
79/08/17 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (39 00N 180 00E)	22	MP	87	CENTRAL AEROLOGICAL OBS
79/08/20 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 180 00E)	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/22 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	82	CENTRAL AEROLOGICAL OBS
79/08/22 0440	M-100	U.S.S.R.	VOLGOGRAD	22	MP	81	CENTRAL AEROLOGICAL OBS
79/08/22 1400	M-100	INDIA U.S.S.R.	THUMBA	22	MP	84	CENTRAL AEROLOGICAL OBS
79/08/.. 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	87	CENTRAL AEROLOGICAL OBS
79/08/23 1300	M-100	U.S.S.R.	SHOKALSKI (SHIP) (50 00N 180 00E)	22	MP	87	CENTRAL AEROLOGICAL OBS
79/08/25 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (50 00N 180 00E)	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/26 1400	M-100	INDIA U.S.S.R.	THUMBA	22	MP	86	CENTRAL AEROLOGICAL OBS
79/08/29 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (54 00N 180 00E)	22	MP	86	CENTRAL AEROLOGICAL OBS
79/08/28 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 180 00E)	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/28 1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 180 00E)	22	MP	85	CENTRAL AEROLOGICAL OBS
79/08/29 0030	M-100	U.S.S.R.	VOLGOGRAD	22	MP	83	CENTRAL AEROLOGICAL OBS
79/08/29 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	87	CENTRAL AEROLOGICAL OBS
79/08/29 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	86	CENTRAL AEROLOGICAL OBS
79/08/29 1500	M-100	INDIA U.S.S.R.	THUMBA	22	MP	87	CENTRAL AEROLOGICAL OBS
79/08/30 1200	M-100	U.S.S.R.	SHOKALSKI (SHIP) (40 00N 180 00E)	22	MP	78	CENTRAL AEROLOGICAL OBS
79/09/04 2130	M-100	U.S.S.R.	VOLGOGRAD	22	MP	87	CENTRAL AEROLOGICAL OBS
79/09/05 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	87	CENTRAL AEROLOGICAL OBS
79/09/09 1630	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	89	CENTRAL AEROLOGICAL OBS
79/09/06 1.00	M-100	INDIA U.S.S.R.	THUMBA	22	MP	82	CENTRAL AEROLOGICAL OBS
79/09/10 1720	M-100	U.S.S.R.	VOLGOGRAD	22	MP	85	CENTRAL AEROLOGICAL OBS
79/09/11 2150	M-100	U.S.S.R.	VOLGOGRAD	22	MP	85	CENTRAL AEROLOGICAL OBS
79/09/12 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	87	CENTRAL AEROLOGICAL OBS
79/09/1. 1400	M-100	INDIA U.S.S.R.	THUMBA	22	MP	87	CENTRAL AEROLOGICAL OBS
79/09/12 1700	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	91	CENTRAL AEROLOGICAL OBS
79/09/15 1615	FLIGHT 245 T 1-9A-19	UNITED STATES	WALLOPS ISLAND	26	OOAL	68	KRUEGER,A.J.
79/09/16 1450	M-100	U.S.S.R.	VOLGOGRAD	22	MP	81	CENTRAL AEROLOGICAL OBS
** 79/09/18 1755	FLIGHT 246 TM1-9627	CANADA UNITED STATES	PRIMROSE LAKE	26	OOAC	64	KRUEGER,A.J.
79/09/18 1850	FLIGHT 247 TM1-9628	CANADA UNITED STATES	PRIMROSE LAKE	26	OOAC	57	KRUEGER,A.J.
79/09/17 1400	M-100	INDIA U.S.S.R.	THUMBA	22	MP	85	CENTRAL AEROLOGICAL OBS
79/09/19 1430	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	86	CENTRAL AEROLOGICAL OBS
79/09/19 1600	M-100	U.S.S.R.	VOLGOGRAD	22	MP	87	CENTRAL AEROLOGICAL OBS
79/09/20 2210	M-100	U.S.S.R.	VOLGOGRAD	22	MP	84	CENTRAL AEROLOGICAL OBS
79/09/26 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	85	CENTRAL AEROLOGICAL OBS
79/09/26 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	79	CENTRAL AEROLOGICAL OBS
79/10/02 2245	M-100	U.S.S.R.	VOLGOGRAD	22	MP	87	CENTRAL AEROLOGICAL OBS
79/10/03 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	90	CENTRAL AEROLOGICAL OBS
79/10/05 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	86	CENTRAL AEROLOGICAL OBS
79/10/09 2300	M-100	U.S.S.R.	VOLGOGRAD	22	MP	89	CENTRAL AEROLOGICAL OBS
79/10/10 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	89	CENTRAL AEROLOGICAL OBS
*79/10/10 1010	FLIGHT 248 TM1-9655	BRAZIL UNITED STATES	NATAL	26	OOAL	66	KRUEGER,A.J.
79/10/10 1700	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	84	CENTRAL AEROLOGICAL OBS
79/10/12 1409	M-GMI -97	BRAZIL FED REP OF GERMANY	NATAL	66	UTEZ	N/A	FAHR,H.J. LATOS, WULF-MATHIES,C.
79/10/17 0200	M-100	U.S.S.R.	HEISS ISLAND	22	MP	87	CENTRAL AEROLOGICAL OBS
79/10/17 1400	M-100	U.S.S.R.	MOLODEZHNAYA	22	MP	86	CENTRAL AEROLOGICAL OBS
79/10/17 1950	M-100	U.S.S.R.	VOLGOGRAD	22	MP	86	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
79/10/21	1548	FLIGHT 249 T 1-6450	UNITED STATES	WALLOPS ISLAND	2G	OOAC	66	KRUEGER,A.J.
79/10/21	1635	FLIGHT 250 T 1-6451	UNITED STATES	WALLOPS ISLAND	2G	OOAC	64	KRUEGER,A.J.
79/10/21	1732	FLIGHT 251 T 1-6452	UNITED STATES	WALLOPS ISLAND	2G	OOAC	67	KRUEGER,A.J.
79/10/23	2220	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	90	CENTRAL AEROLOGICAL OBS
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.	MOLODEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
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.	MOLODEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/11/01	1316	FLIGHT 252 T 1-6453	UNITED STATES	WALLOPS ISLAND	2G	OOAC	64	KRUEGER,A.J.
79/11/01	1355	FLIGHT 253 T 1-6454	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER,A.J.
79/11/01	1505	FLIGHT 254 T 1-6456	UNITED STATES	WALLOPS ISLAND	2G	OOAC	66	KRUEGER,A.J.
79/11/01	1751	FLIGHT 255 THI-9629	CANADA UNITED STATES	PRIMROSE LAKE	2G	OOAC	57	KRUEGER,A.J.
79/11/01	2030	FLIGHT 256 T 1-6455	UNITED STATES	WALLOPS ISLAND	2G	OOAC	69	KRUEGER,A.J.
79/11/01	2049	FLIGHT 257 T 1-6457	UNITED STATES	WALLOPS ISLAND	2G	OOAC	64	KRUEGER,A.J.
79/11/01	2140	MMR-06	U.S.S.R.	USHAKOV (SHIP) (26 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
79/11/05	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.	KREMKEL' (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
79/11/07	1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
79/11/08	1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (09 00S 90 00E)	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) (00 00N 90 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/11	1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/11	1630	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/11/11	1700	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/12	1500	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/11/12	1600	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/11/12	1800	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	77	CENTRAL AEROLOGICAL OBS
79/11/13	1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/11/13	1630	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
79/11/13	1740	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	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.	MOLODEZHNAYA	2J	NP	84	CENTRAL AEROLOGICAL OBS
79/11/14	1400	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/11/14	1540	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	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) (00 00N 90 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/11/14	2100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	74	CENTRAL AEROLOGICAL OBS
79/11/15	0100	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
79/11/15	[illegible]	M-100	U.S.S.R.	SHOKALSKI (SHIP) (00 00N 90 00E)	2J	NP	80	CENTRAL AEROLOGICAL OBS
79/11/16	[illegible]	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/16	0800	MMR-06	U.S.S.R.	KREMKEL' (SHIP) (53 00N 35 00W)	2J	NP	87	CENTRAL AEROLOGICAL OBS
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	MMR-06	U.S.S.R.	KREMKEL' (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
79/11/21	1400	M-100	U.S.S.R.	MOLODEZHNAYA	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) (29 00N 160 00E)	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/11/27	1500	M-100	U.S.S.R.	KOROLEV (SHIP) (29 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
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 U.S.S.R.	THUMBA	2J	NP	91	CENTRAL AEROLOGICAL OBS
79/11/28 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
79/11/28 1630	M-100	U.S.S.R.	VOLGOGRAD	2.	NP	89	CENTRAL AEROLOGICAL OBS
79/11/29 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (20 00N 160 00E)	2.	NP	84	CENTRAL AEROLOGICAL OBS
79/11/29 1500	M-100	U.S.S.R.	KOROLEV (SHIP) (20 00N 160 00E)	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	MMR-06	U.S.S.R.	KHENKEL' (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
79/11/30 1400	M-100	U.S.S.R.	KOROLEV (SHIP) (15 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/12/03 0533	AAP-N58-006	CANADA UNITED STATES	FORT CHURCHILL	1B 3G	LD OM PR GK UICZ	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) (03 00S 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
*79/12/04 1753	FLIGHT 258 TM1-6400	CANADA UNITED STATES	PRIMROSE LAKE	2G	OOAC	55	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.	MOLODEZHNAYA	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 U.S.S.R.	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	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	82	CENTRAL AEROLOGICAL OBS
79/12/12 0400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
79/12/12 0730	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/12/12 1140	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/12 1400	M-100	U.S.S.R.	MOLODEZHNAYA	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
79/12/13 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-048	CANADA	FORT CHURCHILL	1A 3A 3G	OM PR GK	138	KOEHLER,J.A. LLEWELLYN,E.J. MCEWEN,D.J. MCNAMARA,A.G.
79/12/19 0250	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
79/12/19 0800	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
79/12/19 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/19 1500	M-100	U.S.S.R.	MOLODEZHNAYA	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 1601	FLIGHT 259 T 1-6458	UNITED STATES	WALLOPS ISLAND	2G	OOAC	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	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 30N 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	89	CENTRAL AEROLOGICAL OBS
79/12/24 1000	MMR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
79/12/24 1545	MMR-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	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
79/12/26 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/26 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	89	CENTRAL AEROLOGICAL OBS
79/12/26 1720	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	89	CENTRAL AEROLOGICAL OBS
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 U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/01/02 1400	M-100	U.S.S.R.	MOLODEZHNAYA	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

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*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
80/01/04 1400	M-100	INDIA U.S.S.R.	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 U.S.S.R.	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	OUAC	67	KRUEGER,A.J.
80/01/09 0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	89	CENTRAL AEROLOGICAL OBS
*80/01/09 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/01/09 1400	M-100	U.S.S.R.	MOLODEZHNAYA	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 U.S.S.R.	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
80/01/14 1030	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
80/01/14 1200	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	72	CENTRAL AEROLOGICAL OBS
80/01/14 1330	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	76	CENTRAL AEROLOGICAL OBS
80/01/14 1500	M-100	INDIA U.S.S.R.	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-J9M-069	JAPAN	KAGOSHIMA	3A 3B 3C 3E 4B 5B	BD GT LD LDRF LDLG LIWY MTUI PRGS	328	AKAI,K. DENO,H. EJIRI,M. HIRAO,K. KAWASHIMA,N. NAKAI,T. OHAYASHI,T. OYAMA,K. SASAKI,S. WATANABE,Y. WILLIAMSON,W. YAGI,Y. YOSHINO,T.
80/01/16 1200	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	68	CENTRAL AEROLOGICAL OBS
80/01/16 1330	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	73	CENTRAL AEROLOGICAL OBS
80/01/16 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/16 1430	M-100	U.S.S.R.	MOLODEZHNAYA	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	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	80	CENTRAL AEROLOGICAL OBS
80/01/18 1330	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	81	CENTRAL AEROLOGICAL OBS
80/01/18 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/01/18 1500	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	69	CENTRAL AEROLOGICAL OBS
80/01/18 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	79	CENTRAL AEROLOGICAL OBS
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	7E	CN MT UTSP	216	HURROWS,D. KRAUSNAAN,W.L. SANDERS,W.
80/01/21 1400	M-100	INDIA U.S.S.R.	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 U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/01/23 1400	M-100	U.S.S.R.	MOLODEZHNAYA	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 5D 6F	BD LD LDWY MT MTMZ PRGS SEZA UTCZ UTUH UTVP	202	AANSNES,K. ARNOLDY,R.L. BLOCK,L.P. EVANS,D.S. FALTHAMMAR,C.G. GREENWALD,R.A. HOLMAC,H. HULTET,J.A. LUNDBLAD,J.A. PRIMDAHL,F. SORAAS,F. 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 U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/01/25 1530	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	80	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
60/01/28	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
60/01/29	1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/01/28	1500	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	95	CENTRAL AEROLOGICAL OBS
60/01/30	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	83	CENTRAL AEROLOGICAL OBS
60/01/30	1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/01/30	1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
60/01/30	1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/02/01	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
60/02/01	0500	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	81	CENTRAL AEROLOGICAL OBS
60/02/02	0847	S-310-006 S-151	JAPAN	KAGOSHIMA	2F 3C 3D 3E 6E	GYRZ LDKF LDLU PXSK QKKQ	179	EJIRI,M. HIGASHINO,I. HIRAO,K. ITOH,T. IWAMOTO,I. MATSUZAKI,A. NAKAMURA,Y. OBAYASHI,T. OSHIO,T. OYAMA,K. SAGAWA,E. WATANABE,N. WATANABE,Y.
60/02/04	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/02/06	0230	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/06	0700	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
*60/02/06	1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
60/02/06	1430	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	80	CENTRAL AEROLOGICAL OBS
60/02/06	1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/07	1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/02/08	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/02/08	1600	MMR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 165 00E)	2J	NP	56	CENTRAL AEROLOGICAL OBS
60/02/09	1540	MMR-06	U.S.S.R.	VOLNA (SHIP) (02 00N 165 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
60/02/11	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/13	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/02/13	0600	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	85	CENTRAL AEROLOGICAL OBS
*60/02/13	1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	---	CENTRAL AEROLOGICAL OBS
60/02/13	1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
*60/02/14	1612	FLIGHT 261 T 1-9642	UNITED STATES	WALLOPS ISLAND	2G	OOAC	66	KRUEGER,A.J.
60/02/15	0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	87	CENTRAL AEROLOGICAL OBS
60/02/15	0830	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	60	CENTRAL AEROLOGICAL OBS
60/02/15	1143	ADD-5A-050	CANADA	SOUTH END	1B 2I 3C 3G 6B 8A	LC NR OM ONCZ PX SEBZ SWQJ	156	FORSYTH,P.A. HARRIS,F.R. KOEHLER,J.A. LLEWELLYN,E.J. MCEWEN,D.J. MCNAMARA,A.G. WHALEN,B.A. WLOCHOWICZ,R.
60/02/15	1800	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
60/02/16	0700	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/16	0931	NASA 27.037US	UNITED STATES	WHITE SANDS	6D	GA XG	268	MUNRO,R. PARKINSON,W.H.
60/02/16	1100	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	86	CENTRAL AEROLOGICAL OBS
*60/02/18	1906	FLIGHT 262 TN1-9656	BRAZIL UNITED STATES	NATAL	2G	OOAC	---	KRUEGER,A.J.
*60/02/19	1510	FLIGHT 263 TN1-9657	BRAZIL UNITED STATES	NATAL	2G	OOAC	64	KRUEGER,A.J.
60/02/20	0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/02/20	0800	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	59	CENTRAL AEROLOGICAL OBS
60/02/20	1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	90	CENTRAL AEROLOGICAL OBS
60/02/20	1600	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
60/02/20	1630	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	83	CENTRAL AEROLOGICAL OBS
60/02/21	0054	FERDINAND 49	NORWAY SWEDEN UNITED STATES	ANDOYA	0A 1B 3A 3C 4B 5A 5B 6F	BD LD MTHZ SEZA SWQI UTCZ UTUH UTVP	196	AARSNES,K. AKSNES,J. BJORDAL,J. FLOCK,L.P. EVANS,D.S. FALTHAMMAR,C.G. HOLBACK,B. HOLTET,J.A. LUNDBLAD,J.A. MASEIDE,K. SORAAS,F. STADSNES,J.
60/02/22	0225	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	80	CENTRAL AEROLOGICAL OBS

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*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
80/02/23	1005	ADD-05A-052	CANADA	SOUTH END	1B 21 3C 36 6B 8A	LD OH OMCZ PR SEBZ	148	FONSYTH,P.A. HARRIS,F.W. KOEHLER,J. LLEWELLYN,E.J. MCEWEN,D.J. MCNAMARA,A.G. WHALEN,B.A. WLOCHOWICZ,W.
80/02/24	1510	FLIGHT 264 TN1-6600	BRAZIL UNITED STATES	NATAL	2G	ODAC	59	KRUEGER,A.J.
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 U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/02/27	1430	M-100	U.S.S.R.	MOLODEZHNAYA	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	86	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

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
60/02/28 1800	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	60	CENTRAL AEROLOGICAL OBS
60/02/29 1820	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/29 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	78	CENTRAL AEROLOGICAL OBS
60/02/29 0730	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
60/02/29 0900	MMR-06	U.S.S.R.	PASSAT (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
60/02/29 1100	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
60/02/29 1100	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	87	CENTRAL AEROLOGICAL OBS
60/02/29 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	88	CENTRAL AEROLOGICAL OBS
60/02/29 1220	MMR-06	U.S.S.R.	VOLNA (SHIP) (00 00N 160 00E)	2J	NP	59	CENTRAL AEROLOGICAL OBS
60/02/29 1330	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/29 1340	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/29 1400	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/29 1500	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/02/29 1550	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/03/01 1310	FLIGHT 265 TN1-6601	BRAZIL UNITED STATES	NATAL	2G	OOAC	65	KRUEGER,A.J.
60/03/03 0400	MMR-06	U.S.S.R.	PASSAT (SHIP) (48 00N 23 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
60/03/05 0400	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/03/05 0900	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
60/03/05 1200	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
60/03/05 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/03/05 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/03/06 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	88	CENTRAL AEROLOGICAL OBS
60/03/07 0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/03/07 1700	M-100	U.S.S.R.	SHIRSHOV (SHIP) (36 00S 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/03/12 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/03/12 0800	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	56	CENTRAL AEROLOGICAL OBS
*60/03/12 1311	FLIGHT 266 TN1-6602	BRAZIL UNITED STATES	NATAL	2G	OOAC	65	KRUEGER,A.J.
60/03/12 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/03/12 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/03/14 0800	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
*60/03/15 2130	FLIGHT 267 T 1-9603	UNITED STATES	WALLOPS ISLAND	2G	OOAC	65	KRUEGER,A.J.
60/03/19 0300	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	82	CENTRAL AEROLOGICAL OBS
60/03/19 0700	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
60/03/19 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	87	CENTRAL AEROLOGICAL OBS
60/03/19 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	81	CENTRAL AEROLOGICAL OBS
60/03/19 1600	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/03/19 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	85	CENTRAL AEROLOGICAL OBS
60/03/19 1940	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/03/21 0700	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	57	CENTRAL AEROLOGICAL OBS
60/03/21 1400	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/03/21 1540	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	92	CENTRAL AEROLOGICAL OBS
60/03/22 1030	NASA 25.04	UNITED STATES	WHITE SANDS	7F	MTMZ SWMJ	217	ROCCHIA,R. SCHNOPPER,H.W.
60/03/23 1500	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 160 00E)	2J	NP	82	CENTRAL AEROLOGICAL OBS
60/03/26 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/03/26 0800	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
60/03/26 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
60/03/26 1430	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
60/03/26 1520	M-100	U.S.S.R.	SHIRSHOV (SHIP) (15 00N 160 00E)	2J	NP	79	CENTRAL AEROLOGICAL OBS
60/03/26 1840	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/03/26 1950	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	88	CENTRAL AEROLOGICAL OBS
60/03/26 2100	M-100	U.S.S.R.	VOLGOGRAD	2J	NP	86	CENTRAL AEROLOGICAL OBS
60/03/29 0626	NASA 25.09	CANADA UNITED STATES	FORT CHURCHILL	1R	GYNZ QR	198	CHAPPELL,C.R. SHARP,W. WINNINGHAM,J.D.
60/03/28 0800	MMR-06	U.S.S.R.	USHAKOV (SHIP) (53 00N 35 00W)	2J	NP	58	CENTRAL AEROLOGICAL OBS
60/03/29 1600	M-100	U.S.S.R.	SHIRSHOV (SHIP) (30 00N 160 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
60/03/30 1420	M-100	U.S.S.R.	SHIRSHOV (SHIP) (36 00N 160 00E)	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
80/04/02 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	86	CENTRAL AEROLOGICAL OBS
80/04/02 1200	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/02 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	86	CENTRAL AEROLOGICAL OBS
80/04/02 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/06 0333	AAF-N5B-007	CANADA	FORT CHURCHILL	1B 2A 2I 3C 3G	AP DCVD LD LULU SWBI UT	317	FORSYTH,P.A. HARRIS,F.R. KOEHLER,J.A. MCNAMARA,A.G. PONGRATZ,M.B. WHALEN,B.A.
80/04/09 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/09 0220	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	83	CENTRAL AEROLOGICAL OBS
80/04/09 0600	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/09 1000	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/09 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/09 1430	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/09 1609	FLIGHT 268 T 1-9644	UNITED STATES	WALLOPS ISLAND	2G	OUAC	63	KRUEGER,A.J.
80/04/09 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	87	CENTRAL AEROLOGICAL OBS
80/04/09 1800	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/04/09 1900	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	87	CENTRAL AEROLOGICAL OBS
80/04/09 2100	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/10 0200	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/10 0600	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/10 1000	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/10 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/04/10 1800	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/04/10 2100	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	83	CENTRAL AEROLOGICAL OBS
80/04/11 0200	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/11 0600	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	83	CENTRAL AEROLOGICAL OBS
80/04/16 0220	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/16 1600	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	93	CENTRAL AEROLOGICAL OBS
80/04/16 1700	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	91	CENTRAL AEROLOGICAL OBS
80/04/19 0900	MMR-06	U.S.S.R.	PRILIV (SHIP) (40 00N 160 00W)	2J	MP	56	CENTRAL AEROLOGICAL OBS
80/04/22 2300	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	86	CENTRAL AEROLOGICAL OBS
80/04/23 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/04/23 0900	MMR-06	U.S.S.R.	PRILIV (SHIP) (36 00N 160 00W)	2J	MP	58	CENTRAL AEROLOGICAL OBS
80/04/23 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/23 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/25 0900	MMR-06	U.S.S.R.	PRILIV (SHIP) (30 00N 160 00W)	2J	MP	61	CENTRAL AEROLOGICAL OBS
*80/04/26 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	---	CENTRAL AEROLOGICAL OBS
80/04/28 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	87	CENTRAL AEROLOGICAL OBS
80/04/29 1400	M-100	INDIA U.S.S.R.	THUMBA	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/29 1600	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	89	CENTRAL AEROLOGICAL OBS
80/04/29 1600	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 90 00E)	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/04/29 1730	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 90 00E)	2J	MP	83	CENTRAL AEROLOGICAL OBS
80/04/29 2100	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	90	CENTRAL AEROLOGICAL OBS
80/04/30 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	85	CENTRAL AEROLOGICAL OBS
80/04/30 0200	M-100	U.S.S.R.	VOLGOGRAD	2J	MP	88	CENTRAL AEROLOGICAL OBS
80/04/30 0440	M-100	U.S.S.R.	HEISS ISLAND	2J	MP	84	CENTRAL AEROLOGICAL OBS
80/04/30 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	MP	90	CENTRAL AEROLOGICAL OBS
80/04/30 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	87	CENTRAL AEROLOGICAL OBS
80/05/01 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (26 00N 160 00W)	2J	MP	90	CENTRAL AEROLOGICAL OBS
80/05/01 1630	M-100	U.S.S.R.	SHIRSHOV (SHIP) (00 00N 82 00E)	2J	MP	81	CENTRAL AEROLOGICAL OBS
80/05/02 1400	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	86	CENTRAL AEROLOGICAL OBS
80/05/03 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/05/05 1500	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	82	CENTRAL AEROLOGICAL OBS
80/05/06 1200	M-100	U.S.S.R.	KOROLEV (SHIP) (00 00N 160 00W)	2J	MP	94	CENTRAL AEROLOGICAL OBS
80/05/06 1600	M-100	FRANCE U.S.S.R.	KERGUELEN ISLAND	2J	MP	82	CENTRAL AEROLOGICAL OBS

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*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
80/05/06	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.	MOLODEZHNAYA	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	OOAC	---	KRUEGER,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.	MOLODEZHNAYA	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	MMR-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	CRQH GKPM SWOG SWQI SWUE UTC2	232	HUFFMAN,R.E. MCINTYRE,A.,JR. OPAL,C.B. STEEVES,R.G. WHEELER,N.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.	MOLODEZHNAYA	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	GKKQ	249	DUNCAN,C.H. GUENTHER,B.W. HICKEY,J.R. WILLSON,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
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	OOAC	65	KRUEGER,A.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
80/05/27 1800	M-100	U.S.S.R.	SHIRSHOV (SHIP) (44 00S 67 00E)	2J	NP	84	CENTRAL AEROLOGICAL OBS
80/05/27 1928	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 U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/05/28 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	84	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
80/05/30 190	M-100	U.S.S.R.	SHIRSHOV (SHIP) (43 00S 75 00E)	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/05/31 0900	MMR-06	U.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	U.S.S.R.	SHIRSHOV (SHIP) (33 00S 82 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 U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/06/04 1400	M-100	U.S.S.R.	MOLODEZHNAYA	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	U.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.	MOLODEZHNAYA	2J	NP	86	CENTRAL AEROLOGICAL OBS
80/06/06 2120	M-100	U.S.S.R.	SHIRSHOV (SHIP) (11 00S 89 00E)	2J	NP	85	CENTRAL AEROLOGICAL OBS
80/06/10 1145	NASA 27.046AS	UNITED STATES	WHITE SANDS	6F	WKCM	298	BLAKE,W.
80/06/11 0200	M-100	U.S.S.R.	HEISS ISLAND	2J	NP	79	CENTRAL AEROLOGICAL OBS
80/06/11 1400	M-100	U.S.S.R.	MOLODEZHNAYA	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 U.S.S.R.	THUMBA	2J	NP	82	CENTRAL AEROLOGICAL OBS
80/06/13 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/06/16 0800	NASA 25.058DG	UNITED STATES	WHITE SANDS	7D	CR QR	217	CARMUTHERS,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.	MOLODEZHNAYA	2J	NP	88	CENTRAL AEROLOGICAL OBS
80/06/18 1700	M-100	U.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 U.S.S.R.	THUMBA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/06/20 1400	M-100	U.S.S.R.	MOLODEZHNAYA	2J	NP	87	CENTRAL AEROLOGICAL OBS
80/06/24 0530	NASA 27.041UH	UNITED STATES	WHITE SANDS	7F	CR QRCM	213	KRAUSHAAR,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.	MOLODEZHNAYA	2J	NP	91	CENTRAL AEROLOGICAL OBS
80/06/26 1400	M-100	INDIA U.S.S.R.	THUMBA	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.	MOLODEZHNAYA	2J	NP	83	CENTRAL AEROLOGICAL OBS
80/06/28 0000	MMR-06	U.S.S.R.	VOLGOGRAD	2J	NP	---	CENTRAL AEROLOGICAL OBS
80/07/15 1700	NASA 27.044US	UNITED STATES	WHITE SANDS	6E	CRQH QR SWQJ	322	ROTTMAN,G.J.
80/08/09 0730	NASA 25.053GG	UNITED STATES	WHITE SANDS	7D	CR XG	214	STECHER,T.P.
80/08/18 0950	A24.6S1-01	UNITED STATES	WHITE SANDS	7B 8B	SWQG	401	MURDOCK,T.L.
80/08/26 1140	K -10 -014 S-152	JAPAN	KAGOSHIMA	1C 7H 7C 7F 8B	CR SWQJ XG	219	HAYAKAWA,S. HINOKAWA,E. MATSUMOTO,T. MITSUDA,K. MIYAMOTO,S. MORIYAMA,T. MURAKAMI,H. NINOMIYA,K. NOGUSHI,K. ODA,M. OHAWARA,Y. UYAMA YAMASHITA,K.

DATE AND TIME OF LAUNCH (UT)	AGENCY ROCKET IDENTIFICATION	SPONSORING COUNTRIES	LAUNCHING SITE	EXPERIMENT DISCIPLINES	INSTRUMENTS	PEAK ALT. (KM)	EXPERIMENTERS OR INSTITUTIONS
80/09/22 1040	K -09M-070 S-153	JAPAN	KAGOSHIMA	0C 2A 3A 3C	DCOM LDRF SWMU	230	KAWASHIMA,N. KONDO,T. MIURA,S. MORIOKA,A. NAKAMURA,J. ONCHI,N. OYA,M.
*80/09/04 1245	K -09M-071 S-154	JAPAN	KAGOSHIMA		ZZ	308	NAKAMURA,Y.
80/09/18 1630	A04.801	UNITED STATES	WHITE SANDS	6D 6E	GKK6	196	BEDO,D.E.
80/09/20 0130	NASA 24.305CH	UNITED STATES	WHITE SANDS	7F	UTSF X6	309	CATURA,R.C.
80/09/23 2025	NASA 27.036CS	UNITED STATES	WHITE SANDS	6F	CRQH X6	296	BRUNER,E.C., JR.
*80/09/26 2235	NASA 27.035DH	UNITED STATES	WHITE SANDS	7E	CR QK X6	300	CRUDDANCE,R. FRITZ,G.G.
80/09/30 1816	NASA 21.065UL	UNITED STATES	WHITE SANDS	7E	QKKQ	281	JUDGE,D.L.
80/10/06 2327	TY1-6191	NORWAY UNITED STATES	ANDOYA	2C	NP	84	SCHMIDLIN,F.J.
80/10/07 0337	NASA 30.010GU TY2-7688	NORWAY UNITED STATES	ANDOYA	3C 4B 5A 6F	BD LDIZ LDLU UTUH UTVP	87	BARCUS,J.R. CROSKEY,C. GOLDBERG,R.A. HALE,L.C. MITCHELL,J. SUTTON,J.
80/10/07 0338	NASA 33.015GE TY2-7683	AUSTRIA NORWAY UNITED STATES	ANDOYA	0A 1B 3C 4B 5A 6F	BD LDHQ LDIZ LDKF SWQI UTUH UTVP	122	CROSKEY,C. FRIEDRICH,M. GOLDBERG,R.A. HALE,L.C. JACOBSEN,T.A. MASEIDE,K. MAYNARD,N.C. MITCHELL,J. SORAAS,F.
*80/10/07 0429	TY1-6678	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.
80/10/09 2215	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 LDIZ LDLU UTUH UTVP	83	BARCUS,J.R. CROSKEY,C. GOLDBERG,R.A. HALE,L.C. MITCHELL,J. SUTTON,J.
80/10/11 2158	NASA 33.016GE TY2-7684	AUSTRIA NORWAY UNITED STATES	ANDOYA	0A 1B 3C 4B 5A 6F	BD LDHQ LDIZ LDKF SWQI UTUH UTVP	120	CROSKEY,C. FRIEDRICH,M. GOLDBERG,R.A. HALE,L.C. JACOBSEN,T.A. MASEIDE,K. MAYNARD,N.C. MITCHELL,J. 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 1923	TY1-6423	NORWAY UNITED STATES	ANDOYA	2C	NP	---	SCHMIDLIN,F.J.
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 0207	TY1-7129	NORWAY UNITED STATES	ANDOYA	3C	LD	---	HALE,L.C. SCHMIDLIN,F.J.
80/10/16 0208	NASA 33.017GE TY2-7685	AUSTRIA NORWAY UNITED STATES	ANDOYA	0A 1B 3C 4B 5A 6F	BD LDHQ LDIZ LDKF SWQI UTUH UTVP	117	CROSKEY,C. FRIEDRICH,M. GOLDBERG,R.A. HALE,L.C. JACOBSEN,T.A. MASEIDE,K. MAYNARD,N.C. MITCHELL,J. SORAAS,F.
80/10/18 0250	NASA 30.012GU TY2-7690	NORWAY UNITED STATES	ANDOYA	3C 4A 4B 5A 6F	BD LDIZ LDLU UTUH UTVP	85	BARCUS,J.R. CROSKEY,C. GOLDBERG,R.A. HALE,L.C. MITCHELL,J. SUTTON,J.F.

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* 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
80/10/18	0318	TY1-6874	NORWAY UNITED STATES	ANDOYA	2C	MP	---	SCHMIDLIN,F.J.
80/10/19	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	MP	---	SCHMIDLIN,F.J.
80/10/22	2031	A10.981-01	UNITED STATES	FAIRBANKS	3C 3D	LDIZ LDRF PRSR	88	NANCISI,R.S.
80/10/22	2043	A14.021-01	UNITED STATES	FAIRBANKS	3D	LDRF	90	NANCISI,R.S.
*80/11/01	0644	NASA 25.050UG	UNITED STATES	WHITE SANDS	7D	SWAO XG	227	BLESS,M.C.
80/11/11	0012	FERDINAND-054 BUGATTI II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	CA 2G 3C 4B	LDMQ LDIZ MT OMIB OMVP PR UTVP	123	BJORDAL,J. FRIEDRICH,M. SOMAAS,F. THRANE,E.V. VON ZAHN,U.
80/11/11	0012	FERDINAND-057 TRINOM II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 3D	LDMQ LDIZ MT PRSR	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	CA	99	WIDDEL,H.U.
80/11/16	0316	A13.073	NORWAY UNITED STATES	ANDOYA	0A 1B 2E 2G 2H 3C 4B	GI GT LDTP MT SWQI SWUE XR	195	STAIR,A.T. ULWICK,J.C. WHEELEN,N.B.
80/11/16	0331	BUGATTI II FERDINAND 53	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 4H	LDMQ LDIZ MT OMIB OMVP PR UTVP	124	BJORDAL,J. FRIEDRICH,M. SOMAAS,F. THRANE,E.V. VON ZAHN,U.
80/11/16	0331	FERDINAND 55 TRINOM II	AUSTRIA FED REP OF GERMANY NORWAY	ANDOYA	0A 2G 3C 3D	LDMQ LDIZ MT PRSR	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	CA	87	WIDDEL,H.U.
80/11/16	0447	S12.010-01	SWEDEN UNITED STATES	KIRUNA	1B	MP	165	PHILBRICK,C.R.
80/11/19	0050	NASA 27.019NP	UNITED STATES	WHITE SANDS	0D	**	233	CHASSAY,R.P.

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*IDENTIFIES LAUNCHINGS THAT FAILED TO RETURN USEFUL DATA.

**NO SCIENTIFIC INSTRUMENTS USED.

Experimenters

This listing gives (in alphabetical order) the names of the experimenters associated with the sounding rocket launchings. The current organizational affiliation and address of the person 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 these data.*

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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. These were submitted to the International Ursigram and World Days Service 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 Maximum Mission (SMM) is shown in Figure 2. This sample illustrates the type of information in these 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, 1980, to December 31, 1980. The information is arranged sequentially by launch date. Apoapsis and periapsis entries are in kilometers except for satellites and space probes with heliocentric orbits, where the entries are in astronomical units. Periods are in minutes except for satellites and space probes with heliocentric orbits, where the entries are in days. All inclinations are in degrees. International organizations are included under the country heading.

REPORT OF SATELLITE OR SPACE PROBE LAUNCHING

COSPAR Designation	Popular Name	Launching Site	Launching Date	Universal Time
1980-014A	SMM	Eastern Test Range	Feb. 14, 1980	1557

The Solar Maximum Mission (SMM) is dedicated to coordinated observations of specific solar activity and solar flare problems. The spacecraft is oriented toward the sun during the daylight portion of the orbit. The spacecraft itself does not raster over the solar disk, although individual instruments have this capability. The SMM spacecraft is designed so that it can be retrieved by an early shuttle flight, returned to Earth, refurbished and fitted with an update payload, and returned to orbit for another solar-oriented mission.

Physical Characteristics

The satellite is a three-axis inertially stabilized platform providing precise stable pointing to any region on the solar disk to within 5 seconds of arc. The weight of the satellite is 2315.1 kg, which includes 593.75 kg for scientific instruments.

Transmitters

Tracking and telemetry frequency is at 2287.5 MHz.

Scientific Experiments

Objectives	Instruments	Principal Investigators and Institutions
1. Gamma Ray Spectrometer: To study solar gamma rays in the range 0.3 to 160 MeV	Seven high-resolution NaI integral line detectors, a CsI crystal, and two NaI X-ray detectors	Dr. E. L. Chupp University of New Hampshire Durham, New Hampshire
2. Hard X-Ray Burst Spectrometer: To measure solar X-ray bursts in the range from 20 to 300 keV	Anti-coincidence shielded CsI scintillator with 16 channels	Mr. K. J. Frost NASA/GSFC Greenbelt, Maryland
3. Hard X-Ray Imaging Spectrometer: To study hot thermal and nonthermal sources over the energy range from 3.5 to 30 keV	Imaging collimator and position sensitive detector system operating in six energy channels	Prof. C. de Jager Space Research Laboratory Utrecht, The Netherlands

Figure 2. Sample of Satellite or Space Probe Launching Report

Scientific Experiments

Objectives	Instruments	Principal Investigators and Institutions
4. Ultraviolet Spectrometer and Polarimeter: To study temperature, density, velocity, and magnetic fields of the corona and flares from 1100 to 3000Å	Gregorian telescope and Ebert spectrometer	Dr. E. Tandberg-Hanssen NASA/MSFC Huntsville, Alabama
5. X-Ray Polychromator: To measure X-ray emission lines in the 1.4 to 22.4 Å spectral interval	Flat Crystal Spectrometer (FCS) and a Bent Crystal Spectrometer (BCS)	Dr. L. W. Acton Lockheed Palo Alto Research Laboratory Palo Alto, California Dr. J. L. Culhane Mullard Space Science Laboratory England, United Kingdom Dr. A. H. Gabriel Appleton Laboratory England, United Kingdom
6. Coronagraph/Polarimeter: To study coronal evolution and coronal transient activity from 4000 to 7000 Å	Externally occulted coronagraph using an SEC vidicon detector	Dr. L. L. House High Altitude Observatory Boulder, Colorado
7. Active Cavity Radiometer Irradiance Monitor: To measure total solar irradiance	Three active cavity radiometer detectors	Dr. R. C. Willson NASA/JPL Pasadena, California

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1980-001A	COSMOS 1149	U.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.R.	01/11/80	01/12/80	GEOCENTRIC	40838.	478.	62.8	737.
1980-003A	COSMOS 1150	U.S.S.R.	01/14/80	01/15/80	GEOCENTRIC	1028.	969.	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.R.	01/23/80	01/24/80	GEOCENTRIC	678.	650.	82.5	97.6
1980-006A	COSMOS 1152	U.S.S.R.	01/24/80	01/25/80	GEOCENTRIC	370.	181.	67.1	89.7
1980-007A	COSMOS 1153	U.S.S.R.	01/25/80	01/26/80	GEOCENTRIC	1031.	983.	83.	105.
1980-008A	COSMOS 1154	U.S.S.R.	01/30/80	01/31/80	GEOCENTRIC	671.	634.	81.3	97.3
1980-009A	COSMOS 1155	U.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.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012B	COSMOS 1157	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012C	COSMOS 1158	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012D	COSMOS 1159	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012E	COSMOS 1160	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012F	COSMOS 1161	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012G	COSMOS 1162	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-012H	COSMOS 1163	U.S.S.R.	02/11/80	02/12/80	GEOCENTRIC	1528.	1450.	74.	115.4
1980-013A	COSMOS 1164	U.S.S.R.	02/12/80	02/13/80	GEOCENTRIC	640.	220.	82.6	92.9
1980-014A	SMM	UNITED STATES	02/14/80	02/15/80	GEOCENTRIC	573.5	571.5	28.5	96.12
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.R.	02/20/80	02/21/80	GEOCENTRIC	36610.	36610.	0.4	1478.
1980-017A	COSMOS 1165	U.S.S.R.	02/21/80	02/22/80	GEOCENTRIC	379.	182.	72.9	89.8
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.	83.0	107.1
1980-020A	COSMOS 1166	U.S.S.R.	03/04/80	03/05/80	GEOCENTRIC	406.	206.	72.9	90.3
1980-021A	COSMOS 1167	U.S.S.R.	03/14/80	03/15/80	GEOCENTRIC	457.	438.	65.	93.3
1980-022A	COSMOS 1168	U.S.S.R.	03/17/80	03/18/80	GEOCENTRIC	1026.	981.	82.9	104.9
1980-023A	COSMOS 1169	U.S.S.R.	03/27/80	03/28/80	GEOCENTRIC	521.	476.	65.8	94.5
1980-024A	PROGRESS 6	U.S.S.R.	03/27/80	03/29/80	GEOCENTRIC	186.	154.	51.6	87.8
1980-025A	COSMOS 1170	U.S.S.R.	04/01/80	04/02/80	GEOCENTRIC	366.	174.	70.4	89.9
1980-026A	COSMOS 1171	U.S.S.R.	04/03/80	04/04/80	GEOCENTRIC	1017.	976.	65.8	105.
1980-027A	SOYUZ 35	U.S.S.R.	04/09/80	04/10/80	GEOCENTRIC	315.	276.	51.6	90.3
1980-028A	COSMOS 1172	U.S.S.R.	04/12/80	04/13/80	GEOCENTRIC	40160.	657.	62.8	726.
1980-029A	COSMOS 1173	U.S.S.R.	04/17/80	04/18/80	GEOCENTRIC	379.	180.	70.3	89.9
1980-030A	COSMOS 1174	U.S.S.R.	04/18/80	04/19/80	GEOCENTRIC	1035.	987.	65.8	98.6
1980-031A	COSMOS 1175	U.S.S.R.	04/18/80	04/19/80	GEOCENTRIC	485.	317.	82.5	92.5
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.R.	04/27/80	04/28/80	GEOCENTRIC	275.	192.	51.6	88.9
1980-034A	COSMOS 1176	U.S.S.R.	04/29/80	04/30/80	GEOCENTRIC	265.	260.	65.	89.6
1980-035A	COSMOS 1177	U.S.S.R.	04/29/80	04/30/80	GEOCENTRIC	365.	181.	67.2	89.7
1980-036A	COSMOS 1178	U.S.S.R.	05/07/80	05/08/80	GEOCENTRIC	417.	207.	72.9	90.4
1980-037A	COSMOS 1179	U.S.S.R.	05/14/80	05/15/80	GEOCENTRIC	1570.	310.	83.	103.5
1980-038A	COSMOS 1180	U.S.S.R.	05/15/80	05/16/80	GEOCENTRIC	296.	240.	82.8	89.8
1980-039A	COSMOS 1181	U.S.S.R.	05/20/80	05/21/80	GEOCENTRIC	1020.	992.	82.	105.
1980-040A	COSMOS 1182	U.S.S.R.	05/23/80	05/24/80	GEOCENTRIC	278.	221.	82.5	89.2
1980-041A	SOYUZ 36	U.S.S.R.	05/26/80	05/27/80	GEOCENTRIC	319.	263.	51.6	90.1
1980-042A	COSMOS 1183	U.S.S.R.	05/28/80	05/29/80	GEOCENTRIC	414.	206.	72.9	90.4
1980-043A	NOAA-B	UNITED STATES	05/29/80	05/30/80	GEOCENTRIC	1453.	273.	92.3	102.2
1980-044A	COSMOS 1184	U.S.S.R.	06/04/80	06/04/80	GEOCENTRIC	647.	623.	81.3	97.4
1980-045A	SOYUZ T-2	U.S.S.R.	06/05/80	06/06/80	GEOCENTRIC	316.	267.	51.6	90.25
1980-046A	COSMOS 1185	U.S.S.R.	06/06/80	06/07/80	GEOCENTRIC	308.	226.	82.3	89.5
1980-047A	COSMOS 1186	U.S.S.R.	06/06/80	06/07/80	GEOCENTRIC	519.	473.	74.	94.5
1980-048A	COSMOS 1187	U.S.S.R.	06/12/80	06/13/80	GEOCENTRIC	332.	210.	72.9	89.6
1980-049A	MORIZON1 (80-049A)	U.S.S.R.	06/14/80	06/15/80	GEOCENTRIC	36515.	36515.	0.8	1473.
1980-050A	COSMOS 1188	U.S.S.R.	06/14/80	06/15/80	GEOCENTRIC	40165.	628.	62.8	726.
1980-051A	METEOR 1	U.S.S.R.	06/18/80	06/19/80	GEOCENTRIC	678.	589.	98.	97.3
1980-052A	1980-052A	UNITED STATES	06/18/80	06/19/80	GEOCENTRIC	265.	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.R.	06/21/80	06/22/80	GEOCENTRIC	40707.	658.	62.5	736.
1980-054A	COSMOS 1189	U.S.S.R.	06/26/80	06/26/80	GEOCENTRIC	305.	198.	72.9	89.5
1980-055A	PROGRESS 10	U.S.S.R.	06/29/80	06/30/80	GEOCENTRIC	281.	191.	51.6	88.9
1980-056A	COSMOS 1190	U.S.S.R.	07/01/80	07/02/80	GEOCENTRIC	829.	792.	74.	100.6
1980-057A	COSMOS 1191	U.S.S.R.	07/02/80	07/03/80	GEOCENTRIC	40165.	646.	62.8	726.
1980-058A	COSMOS 1192	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058B	COSMOS 1193	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058C	COSMOS 1194	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058D	COSMOS 1195	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058E	COSMOS 1196	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058F	COSMOS 1197	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058G	COSMOS 1198	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-058H	COSMOS 1199	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	1522.	1451.	74.	115.3
1980-059A	COSMOS 1200	U.S.S.R.	07/09/80	07/10/80	GEOCENTRIC	332.	209.	72.9	89.5
1980-060A	EKRAN	U.S.S.R.	07/14/80	07/15/80	GEOCENTRIC	35474.	35474.	0.36	1420.
1980-061A	COSMOS 1201	U.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.R.	07/18/80	07/19/80	GEOCENTRIC	40815.	467.	62.8	736.
1980-064A	SOYUZ 37	U.S.S.R.	07/23/80	07/24/80	GEOCENTRIC	312.	263.	51.6	90.
1980-065A	COSMOS 1202	U.S.S.R.	07/24/80	07/25/80	GEOCENTRIC	333.	209.	72.9	89.6
1980-066A	COSMOS 1203	U.S.S.R.	07/31/80	08/01/80	GEOCENTRIC	303.	227.	82.5	89.5
1980-067A	COSMOS 1204	U.S.S.R.	07/31/80	08/01/80	GEOCENTRIC	346.	346.	50.7	91.5
1980-068A	COSMOS 1205	U.S.S.R.	08/12/80	08/13/80	GEOCENTRIC	332.	208.	72.8	89.6
1980-069A	COSMOS 1206	U.S.S.R.	08/15/80	08/16/80	GEOCENTRIC	659.	630.	81.2	97.4
1980-070A	COSMOS 1207	U.S.S.R.	08/22/80	08/23/80	GEOCENTRIC	282.	218.	82.5	89.2
1980-071A	COSMOS 1208	U.S.S.R.	08/26/80	08/27/80	GEOCENTRIC	362.	181.	67.1	89.6
1980-072A	COSMOS 1209	U.S.S.R.	09/03/80	09/04/80	GEOCENTRIC	306.	227.	82.5	89.4
1980-073A	METEOR 2 (80-073A)	U.S.S.R.	09/09/80	09/10/80	GEOCENTRIC	906.	568.	81.2	102.4
1980-074A	GOES 4	UNITED STATES	09/09/80	09/10/80	GEOCENTRIC	49610.	167.	26.5	917.
1980-075A	SOYUZ 38	U.S.S.R.	09/18/80	09/19/80	GEOCENTRIC	275.	199.	51.6	88.9
1980-076A	COSMOS 1210	U.S.S.R.	09/19/80	09/20/80	GEOCENTRIC	266.	155.	82.5	88.8
1980-077A	COSMOS 1211	U.S.S.R.	09/23/80	09/24/80	GEOCENTRIC	261.	215.	82.4	89.1
1980-078A	COSMOS 1212	U.S.S.R.	09/26/80	09/27/80	GEOCENTRIC	275.	216.	82.3	89.1
1980-079A	PROGRESS 11	U.S.S.R.	09/28/80	09/29/80	GEOCENTRIC	270.	193.	51.6	88.8
1980-080A	COSMOS 1213	U.S.S.R.	10/03/80	10/04/80	GEOCENTRIC	343.	207.	72.8	89.6
1980-081A	RADUGA (80-081A)	U.S.S.R.	10/05/80	10/06/80	GEOCENTRIC	36000.	36000.	0.4	1444.
1980-082A	COSMOS 1214	U.S.S.R.	10/10/80	10/11/80	GEOCENTRIC	366.	181.	67.2	89.7
1980-083A	COSMOS 1215	U.S.S.R.	10/14/80	10/15/80	GEOCENTRIC	368.	181.	67.2	89.7
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	726.

COSPAR DESIGNATION	SPACECRAFT NAME	COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOAPSIS	PERIAPSIS	INCLINATION	PERIOD
1980-086A	COSMOS 1215	U.S.S.R.	10/30/80	10/31/80	GEOCENTRIC	574.	178.	64.9	89.7
1980-087A	FLEETSATCOM 4	UNITED STATES	10/31/80	11/01/80	GEOCENTRIC	35249.	173.	26.3	620.
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	SMS-A	UNITED STATES	11/15/80	11/16/80	GEOCENTRIC	40662.	600.	62.8	736.2
1980-092A	MOLNIYA 1 (80-092A)	U.S.S.R.	11/16/80	11/17/80	GEOCENTRIC	40651.	640.	62.8	736.
1980-093A	COSMOS 1222	U.S.S.R.	11/21/80	11/22/80	GEOCENTRIC	659.	624.	81.2	97.4
1980-094A	SOYUS T-5	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.	1416.	73.6	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	1458.	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	PROGNOZ 8	U.S.S.R.	12/25/80	12/25/80	GEOCENTRIC	197390.	980.	65.8	5689.
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	563.	169.	67.1	89.8

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 WDC's were under the supervision of the Comité International de Geophysique (CIG) for the period 1960 to 1967 and are now supervised by the ICSU Panel on World Data Centres.

The current plans for continued international exchange of data through the World Data Centers are set forth in the *Third Consolidated Guide to International Data Exchange through the World Data Centres*, issued by the ICSU Panel on World Data Centres, December 1973. These plans are broadly similar to those adopted under ICSU auspices for the IGY and IQSY. A fourth revision was published in June 1979.

Functions and Responsibilities of WDC's

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 WDC's differ from discipline to discipline.

The objects of establishing several World Data Centers for collecting observational data were (1) to insure 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) safekeeping of the incoming data; and (3) correct copying and reproduction of data, maintaining adequate standards of clarity and durability; (4) supplying copies to other WDC's of data not received directly; (5) preparation of

catalogues of all data in its charge; and (6) making data in the WDC's available to the scientific community. The WDC's 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 could 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; if it is more convenient, data may be sent to one WDC-A subcenter through the other one.

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) 389-6478

Glaciology (Snow and Ice):

World Data Center A: Glaciology
(Snow and Ice)
Inst. of Arctic & Alpine Research
University of Colorado
Boulder, Colorado 80309
U.S.A.
Telephone: (303) 492-5171

Meteorology (and Nuclear Radiation):

World Data Center A: Meteorology
National Climatic Center
Federal Building
Asheville, North Carolina 28801
U.S.A.
Telephone: (704) 258-2850

Oceanography:

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

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

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) 254-4023

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
Boulder, Colorado 80303
U.S.A.
Telephone: (303) 499-1000, Ext. 6467

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
Environmental Data Service, NOAA
Boulder, Colorado 80303
U.S.A.
Telephone: (303) 499-1000, Ext. 6521

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.