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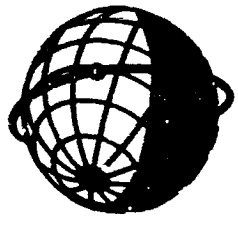
Produced by the NASA Center for Aerospace Information (CASI)

JULY 1969

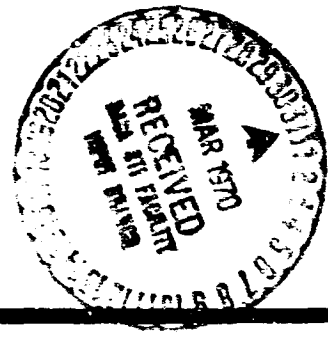
WORLD DATA CENTER A

Rockets and Satellites



CATALOGUE OF DATA

1 JANUARY–30 JUNE 1969



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CATALOGUE OF DATA

IN

WORLD DATA CENTER A

Rockets and Satellites

Data Received by WDC-A

during the period

1 January – 30 June 1969

World Data Center A

Rockets and Satellites

Code 601

Goddard Space Flight Center

Greenbelt, Maryland, U.S.A. 20771

July 1969

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INTRODUCTION

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 the International Geophysical Year program to collect data from the numerous and wide-spread 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 Géophysique (CIG) for the period 1960 to 1967 and are now supervised by the ICSU Panel on World Data Centers.

The plans for continued international exchange of data through the World Data Centers in the post-IGY period are set forth in the "Guide to International Data Exchange through the World Data Centers for the period 1960-onwards" which was adopted by CIG in August 1963. These plans are broadly similar to those adopted under ICSU auspices for the IGY.

The World Data Centers collect data and publications for the following disciplines: Airglow, Aurora; Cosmic Rays; Geomagnetism; Glaciology; Gravimetry; Ionosphere; Longitude and Latitude; Meteorology; Oceanography; Rockets and Satellites; Seismology; Solar Activity; Tsunami; UMP (Upper Mantle Project) disciplines (recent movements of the earth's crust, paleomagnetism, volcanology, geochemistry, properties of rocks under high pressure and temperatures, geothermics, deep drilling). 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, (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, (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, (6) making data in the WDC's available to the scientific community.

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 eight

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 more effectively serve the scientific community. Several of the discipline centers of WDC-A dealing with the upper atmosphere were consolidated in the WDC-A for Upper Atmosphere Geophysics during the period 1 July 1966 to 1 July 1968. The WDC-A for Rockets and Satellites was moved from the National Academy of Sciences to a location adjacent to the National Space Science Data Center at NASA Goddard Space Flight Center on 1 January 1969. Because of its convenient location contiguous to the National Space Science Data Center, this WDC-A subcenter can effectively cooperate with this institution in obtaining reduced and analyzed data to satisfy requests from the scientific community for data required for research projects. The addresses of the WDC-A are given inside the front cover.

Scientific organizations and individual scientists may order documents from the WDC-A for Rockets and Satellites directly or through their national organization responsible for communication with the cent Scientists may borrow materials from the subcenter whenever duplicate copies are available. Otherwise, duplicate copies are made for the requester at a cost not to exceed the cost of copying and transmittal. The subcenter also provides facilities for scientists who wish to participate in on-site study of data. Advance notice of such a visit enables the staff to provide better services to the user.

The data received by WDC-A have been made available to the scientific community in various 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; (3) copies of data and reports are provided upon request.

Rocket and Satellite Data

International agreements concerning international exchange of rocket and satellite data through the World Data Centers were adopted by the Committee on Space Research (COSPAR) in May 1962 (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 CIG into the overall "Guide to International Data Exchange through the World Data Centers for the period 1960-onwards" (published in November 1963). These agreements were modified to include recommendations for improving the exchange of information and data, and a revised "COSPAR Guide to Rocket and Satellite Information and Data Exchange" was adopted by COSPAR in July 1967 (published in COSPAR Transactions No. 4, Part I, December 1967).

Catalogues of Rocket and Satellite Data

A complete listing of all data received by WDC-A for Rockets and Satellites is in the following catalogues:

Catalogues of data received during the period

1 July 1957 - 31 December 1961	The first compilation of data prepared and submitted to COSPAR (April 1962)
1 January 1962 - 31 December 1963	The second compilation of data prepared and submitted to COSPAR (January 1964)
1 January 1964 - 31 December 1965	The third compilation of data prepared and submitted to COSPAR (March 1966)
1 January 1966 - 31 December 1967	The fourth compilation of data prepared and submitted to COSPAR (March 1968)
1 January - 31 December 1968	The fifth compilation of data prepared and submitted to COSPAR (March 1969)
1 January - 30 June 1969	This catalogue (July 1969)

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CONTENTS

WDC-A for Rockets and Satellites
Code 601, Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

SRL-38
3 November 1969

Summary of Sounding Rocket Launchings*
Supplementary List 1968-1969

Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Experiments (see page 3 for Discipline Codes)										Approx. Altitude (km)	Principal Experimenter(s)
					Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Particles	Solar Physics	Astronomy	Planetology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
1968																
24 Jul.†	0019	NASA 14.349 UA	U.S.A.	Wallops Island	E	G	D								104	J. B. Pearce
24 Jul.†	0954	NASA 14.348 UA	U.S.A.	Wallops Island	E	G	D								105	J. B. Pearce
1969																
22 Jun.	0528	NASA 4.183 UG	U.S.A.	Natal						F					165	C. S. Bowyer
16 Jul.	0250	NASA 18.32 UG	U.S.A.	Wallops Island	B					F					209	W. L. Kraushaar A. Bunner
21 Aug.	1409	NASA 18.78 GA	U.S.A.	Wallops Island		G								A	227	D. Grimes D. Harpold G. R. Carignan
21 Aug.	1609	NASA 18.102 GA	U.S.A.	Wallops Island			C E								318	G. R. Carignan L. H. Brace
10 Sep.	0435	NASA 4.312 UG	U.S.A.	White Sands							D				157	M. Harwit
11 Sep.	0107	AAD-II-122	Canada	Fort Churchill	C	G	C					A			137	P. Ryder R. Wlochowicz A. G. McNamara
12 Sep.	0102	AAD-II-123	Canada	Fort Churchill	C	G	C					A			138	P. Ryder R. Wlochowicz A. G. McNamara
19 Sep.	0315	NASA 19.05 NE	U.S.A.	Natal					A						856	G. W. Brandon, Jr. D. Greiner
23 Sep.	1635	NASA 4.170 US	U.S.A.	White Sands						E					174	J. T. Jefferies H. C. McAllister
24 Sep.	1745	NASA 4.294 US	U.S.A.	White Sands						E					200	W. A. Rense C. A. Barth E. Bruner
03 Oct.	0224	NASA 4.279 UG	U.S.A.	White Sands						F					158	H. Bradt

Latest Monthly "Data Report - Meteorological Rocket Network Firings"
Issued by WDC-A for Meteorology is December 1968

*Compiled from rocket flight summaries received by WDC-A for Rockets and Satellites during period 4 October - 3 November 1969.
† These launch dates were erroneously listed as 24 July 1969 in SRL-37.

ADDRESSES OF EXPERIMENTERS

Dr. C. A. Barth
Atmospheric and Space Physics
Laboratory
University of Colorado
Boulder, Colorado 80302 U.S.A.

Dr. C. S. Bowyer
University of California, Berkeley
Berkeley, California 94720 U.S.A.

L. H. Brace
Code 621
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

Dr. H. Bradt
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139 U.S.A.

G. W. Brandon, Jr.
NASA Manned Spacecraft Center
Houston, Texas 77058 U.S.A.

Dr. E. Bruner
University of Colorado
Boulder, Colorado 80302 U.S.A.

Dr. A. Bunner
University of Wisconsin
Madison, Wisconsin 53706 U.S.A.

G. R. Carignan
University of Michigan
Ann Arbor, Michigan 48104 U.S.A.

Dr. D. Greiner
University of California, Berkeley
Berkeley, California 94720 U.S.A.

D. Grimes
Code 620
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

D. Harpold
Code 621
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

Dr. M. Harwitt
Clark Hall
Cornell University
Ithaca, New York 14850 U.S.A.

Dr. J. T. Jefferies
University of Hawaii
Honolulu, Hawaii 96822 U.S.A.

Dr. W. L. Kraushaar
Physics Department
University of Wisconsin
Madison, Wisconsin 53706 U.S.A.

Dr. H. C. McAllister
Department of Physics and Astronomy
2565 The Mall
University of Hawaii
Honolulu, Hawaii 96822 U.S.A.

Dr. A. G. McNamara
National Research Council
100 Sussex Drive
Ottawa 1, Ontario, CANADA

J. B. Pearce
University of Colorado
Boulder, Colorado 80302 U.S.A.

Dr. W. A. Rense
Atmospheric and Space Physics
Laboratory
University of Colorado
Boulder, Colorado 80302 U.S.A.

Dr. P. Ryder
Meteorological Office
Bracknell, ENGLAND

R. Wlochowicz
National Research Council
100 Sussex Drive
Ottawa 1, Ontario, CANADA

ROCKET DISCIPLINE CODES

1. Aurora and Airglow
   - A. Gegenschein
   - B. Auroral emissions
   - C. Airglow emissions
   - D. Airglow composition
   - E. Atmospheric radiations

2. Atmospheric Physics
   - A. Winds
   - B. Pressure
   - C. Temperature
   - D. Albedo
   - E. Planetary radiations (IR)
   - F. Neutral density
   - G. Neutral composition
   - H. Electromagnetic waves
   - I. Acoustics
   - J. Meteorology
   - K. Noctilucent clouds
   - V. Vapor trail
   - Y. Falling sphere – winds, temperature, and density
   - Z. Grenades – winds, temperature, pressure, and density

3. Ionosphere
   - A. Wave propagation
   - B. Electric currents (mag. fields)
   - C. Ion/electron density
   - D. Ion/electron composition
   - E. Ion/electron temperature

4. Energetic Particles
   - A. Galactic cosmic rays
   - B. Solar particle radiation
   - C. Terrestrial trapped radiation
   - D. Particle precipitation

5. Magnetic Fields
   - A. Geomagnetic fields
   - B. Electric fields

6. Solar Physics
   - A. Radio (1-1000mm)
   - B. Infrared (.8-1000 μ)
   - C. Visible (3000-8000A)
   - D. Ultraviolet (2000-3000A)
   - E. Extreme UV (100-2000A)
   - F. X Rays (.001-100A)

7. Astronomy
   - A. Radio (1-1000mm)
   - B. Infrared (.8-1000 μ)
   - C. Visible (3000-8000A)
   - D. Ultraviolet (2000-3000A)
   - E. Extreme UV (100-2000A)
   - F. X Rays (.001-100A)
   - G. Gamma Rays (<.001A)

8. Planetology
   - A. Micrometeorites
   - B. Zodiacal light
   - C. Gravity
   - D. Terrain photographs

9. Biology

0. Test and Other
   - A. Rocket performance
   - B. Communication systems
   - C. Satellite experiment test
   - U. Discipline unknown

X. Subdivision of numbered discipline unknown.

A. SOUNDING ROCKETS

The following summaries of sounding rocket launchings have been compiled from reports of sounding rocket launchings, National Reports to COSPAR, and other reports received by World Data Center A for Rockets and Satellites. Shown below is a sample Report of Sounding Rocket Launching from the United States which illustrates the type of information available in the reports submitted to the World Data Centers.

NASA

REPORT OF SOUNDING ROCKET LAUNCHING

Vehicle No.: 13.47GT Rocket Type: Boosted Arcas II Launching Site: Wallops Island, Virginia

Range No.: G2-4098 Lat.: 37°50' 6"N Long.: 75°29'11"W

NASA Project Scientist: Mr. H. Pedolsky
GSFC - Code 721.4
Greenbelt, Maryland

Experimenter and Location: Mr. H. Pedolsky
GSFC - Code 721.4
Greenbelt, Maryland

OBJECTIVES AND INSTRUMENTATION: The objectives of this launch were to study the performance characteristics of the Boosted Arcas II in the configuration provided by the manufacturer and to insure that the vehicle was satisfactory for use in Resolute Bay with Dr. J. Kane's scientific payload.

REMARKS:

Launching Date: 27 January 1969 Time: 1953 Z Peak Altitude: 102 km.* (63.5 st. mi.)

Rocket Performance: The rocket reached a peak altitude of 22 kilometers below that predicted. Spin rate appeared to be nominal (12 rps), and drag separation of the stages appeared normal.

Instrumentation Performance: Instrumentation was good throughout the flight except for the tone ranging which appeared to be too weak for Resolute Bay.

PRELIMINARY EXPERIMENTAL RESULTS: The vehicle underperformed according to the predicted trajectory. It appeared that a portion of this performance can be attributed to wind weighting. However, the velocity after first stage burnout was only 900 ft/sec compared with the predicted 1500 ft/sec. The four sabots ejected from the tube properly and were recovered in good condition.

COMMENTS AND RECOMMENDATIONS: Additional information derived from the data received will be required to determine if the vehicle, as it performed, will be satisfactory for the Resolute Bay series.

*Based on plotboard data. Not to be considered final.

Prepared: 9 April 69
HP/jr

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Summary of Sounding Rocket Launchings* 1 January - 30 June 1969					Experiments										Approx. Altitude (km)	Principal Experimenter(s)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Fields	Solar Physics	Astronomy	Planetology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
04 Jan.	0200	T-70	Japan	Kagoshima		A C J									57	N. Arizumi I. Sakai S. Kobane
04 Jan.	0500	T-71	Japan	Kagoshima		A C J									59	N. Arizumi I. Sakai S. Kobane
05 Jan.	0200	T-72	Japan	Kagoshima		A C J									59	N. Arizumi I. Sakai S. Kobane
05 Jan.	0500	T-73	Japan	Kagoshima		A C J									44	N. Arizumi I. Sakai S. Kobane
08 Jan.	0210	S-69-1	Japan	Kagoshima			C								344	I. Kimura H. Oya T. Aso
08 Jan.	0210	S-69-2	Japan	Kagoshima				B							343	H. Takeuchi T. Imai S. Iwasaki H. Irie T. Yamasnita
08 Jan.	0210	S-69-3	Japan	Kagosnima			D								343	S. Takemura K. Fujitani T. Asahina Y. Hishida K. Kajiyama
08 Jan.	0210	S-69-4	Japan	Kagoshima					A						343	I. Aoyama F. Toyama
09 Jan.	0740	S-70-1	Japan	Kagoshima			B								188	N. Fugono H. Mimura K. Abiko T. Matsuzawa O. Sato
09 Jan.	0740	S-70-2	Japan	Kagoshima					A						188	I. Aoyama F. Toyama
09 Jan.	0740	S-70-3	Japan	Kagoshima			C								188	T. Obayashi M. Ejiri T. Yamaki
11 Jan.	0730	NASA 10.236 GM	USA	Point Barrow		G									N/A	E. Hilsenrath
11 Jan.	1015	NASA 10.256 GM	USA	Point Barrow		Z									N/A	W. S. Smith
12 Jan.	0510	T-75	Japan	Kagoshima		G					D				229	T. Tohmatsu T. Ogawa
14 Jan.	0525	AAF-IV-17	Canada	Fort Churchill		C		D							99	A. G. McNamara D. J. McEwen P. A. Forsyth
14 Jan.	1000	S-72-1	Japan	Kagoshima			C D E								229	K. Oyama N. Fugono T. Suitsu H. Mimura K. Abiko T. Matsuzawa O. Sato

*Compiled from rocket flight summaries received by WDC-A Rocketz and Satellites during period 1 January - 30 June 1969.
Note: The explanation for the Rocket Discipline Codes is located at the end of the Summary of Sounding Rocket Launchings section.

Summary of Sounding Rocket Launchings
1 January - 30 June 1969

Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Experiments: 1 Aurora and Airglow	2 Atmospheric Physics	3 Ionosphere	4 Energetic Particles	5 Magnetic Fields	6 Solar Physics	7 Astronomy	8 Planetology	9 Biology	0 Test and Other	Approx. Altitude Obtd.	Principal Experimenter(s)
14 Jan.	1000	S-72-2	Japan	Kagoshima						F					320	S. Hiyamoto S. Hayakawa Y. Tanaka
14 Jan.	1000	S-72-3	Japan	Kagoshima		E									320	T. Matsumoto
17 Jan.	1834	NASA 10.313 IM	USA	Kiruna		Z									N.A.	I. Udin A. F. D. Snell
17 Jan.	2152	NASA 10.306 IM	USA	Wallops Island		Z									113	W. S. Smith
19 Jan.	0200	NASA 10.299 GM	USA	Point Barrow		Z									N.A.	W. S. Smith
19 Jan.	1200	S-74-1	Japan	Kagoshima	C					C					340	H. Tanaka A. Takeuchi S. Asaoka
19 Jan.	1200	S-74-2	Japan	Kagoshima			C								320	H. Oya T. Aoki
19 Jan.	1200	S-74-3	Japan	Kagoshima			C								307	I. Kimura H. Matsumoto
19 Jan.	1200	S-74-4	Japan	Kagoshima	C	G				D					320	T. Takeuchi T. Ogawa
19 Jan.	1905	NASA 10.314 IM	USA	Kiruna		Z									N.A.	I. Udin A. F. D. Snell
23 Jan.	2000	SL 726	United Kingdom	Woomera		C F	F								140	K. Burrows J. N. G. Wilson E. B. Dorling
23 Jan.	2300	NASA 10.315 IM	USA	Kiruna		Z									120	I. Udin A. F. D. Snell
25 Jan.	2100	NASA 10.316 IM	USA	Kiruna		Z									119	I. Udin A. F. D. Snell
26 Jan.	0945	NASA 17.03 GE	USA	Wallops Island	B										271	W. N. Hess
26 Jan.	0947	NASA 18.11 GI	USA	Wallops Island			E								19	S. J. Bauer
27 Jan.	1953	NASA 15.47 GT	USA	Wallops Island										A	102	H. Pedolsky
28 Jan.	0549	NASA 18.23 UG	USA	Wallops Island						F					234	W. L. Kraushaar
28 Jan.	0716	AEF-II-118	Canada	Fort Churchill		C F									100	A. G. McNamara P. A. Forsyth N. I. Shiff
30 Jan.	2017	NASA 10.303 GM	USA	Fort Churchill		Z									134	W. S. Smith
31 Jan.	0315	NASA 4.266 DG NB 3.221	USA	White Sands							D E				170	G. R. Carruthers
31 Jan.	0900	NASA 10.298 GM	USA	Point Barrow		Z									N.A.	W. S. Smith
31 Jan.	0830	NASA 10.274 GM	USA	Point Barrow		G									N.A.	E. Hilsenrath
31 Jan.	1757	NASA 10.307 GM	USA	Wallops Island		Z									121	W. S. Smith
31 Jan.	1921	NASA 15.61 DM	USA	Wallops Island						D					93	A. J. Krueger
31 Jan.	1910	NASA 14.309 UA	USA	Wallops Island		F									115	C. A. Barth L. G. Mimms
04 Feb.	1455	NASA 4.272 UA	USA	Fort Churchill		G									106	A. O. C. Nier
04 Feb.	2330	NASA 10.300 GM	USA	Point Barrow		Z									N.A.	W. S. Smith
06 Feb.	0939	NASA 10.324 GM	USA	Fort Churchill		Z									123	W. S. Smith
06 Feb.	1435	NASA 4.273 UA	USA	Fort Churchill		G									124	A. O. C. Nier
05 Feb.	1800	NASA 15.62 DM	USA	Wallops Island						D					90	A. J. Krueger

Summary of Sounding Rocket Launchings
1 January - 30 June 1969

Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launch Site	Experiments: Aurora and Airglow (1)	Atmospheric Physics (2)	Ionosphere (3)	Energetic Particles (4)	Magnetic Fields (5)	Solar Physics (6)	Astronomy (7)	Planetology (C)	Biology (9)	Test and Other (0)	Approx. Altitude (km)	Principal Experimenter(s)
06 Feb.	1929	NASA 14.300 UA	USA	Wallops Island		F									117	C. A. Barth L. G. Meira
06 Feb.	2100	NASA 10.267 GM	USA	Wallops Island		Z									128	W. S. Smith
13 Feb.	1715	NASA 4.135 DG NE 3.173	USA	White Sands						E					188	R. Tousey
13 Feb.	0806	S-75	Japan	Kagoshima				B							310	I. Higashino M. Sasanuma T. Masuoka N. Watanabe
13 Feb.	2311	NASA 18.06 CA	USA	Wallops Island		A J									265	J. F. Bedinger, Jr.
19 Feb.	0417	AMF-[illegible] 17	Canada	Fort Churchill	B		C								124	D. J. McEwen A. G. McNamara H. I. Schiff R. W. Nicholls
09 Mar.	0614	AAD-IV-16	Canada	[illegible] Churchill			A	C D							N. A	R. E. Barrington E. E. Budzinski B. A. Whalen
07 Mar.	0227	NASA 4.200 DG	USA	White Sands							F				160	R. Novick
07 Mar.	1312	NASA 18.03 GE	USA	Cape Parry					B						N. A	E. Wescott
07 Mar.	2230	A[illegible] 3.72[illegible]	USA	Natal		X									200	R. G. Walker C. Cuniff
08 Mar.	0318	NASA 18.94 GE	USA	Cape Parry					B						N. A	E. Wescott
08 Mar.	0329	NASA 17.85 GE	USA	Cape Parry					B						N. A	E. Wescott
10 Mar.	0440	AAD-VB-20	Canada	Fort Churchill	B		E			F					N. A	A. G. McNamara B. A. Whalen P. A. Forsyth D. J. McEwen G. G. Cloutier C. D. Anger
11 Mar.	0333	AAF-VB-22	Canada	Fort Churchill	B		E			F		A			N. A	C. D. Anger P. A. Forsyth A. Kavadas D. J. McEwen E. E. Budzinski R. Wlochowicz A. G. McNamara
11 Mar.	0633	NASA 18.81 UA	USA	Fort Churchill	B										N. A	C. A. Barth W. Sharp
14 Mar.	0530	NASA 4.200 DG NB 3.210	USA	White Sands							F				154	R. C. Henry J. F. Meekins
15 Mar.	1705	K-NA-11	Federal Republic of Germany	Kiruna			X								226	G. Haerendel
17 Mar.	1810	K-NA-10	Federal Republic of Germany	Kiruna			X								231	G. Haerendel
29 Mar.	0040	ADF-III-37	Canada	Fort Churchill	B										106	A. V. Jones E. J. Llewellyn
29 Mar.	1130	ADF-III-38	Canada	Fort Churchill	B										114	A. V. Jones E. J. Llewellyn
31 Mar.	1410	Rehnuma-1	Pakistan	Sonmiani		B									138	M. Shafi Ahmad

Summary of Sounding Rocket Launchings 1 January - 30 June 1969					Experiments										Approx. Altitude (km)	Principal Experimenter(s)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Fields	Solar Physics	Astronomy	Planetology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
01 Apr.	0438	ADD-VB-23	Canada	Fort Churchill	B										372	C. D. Anger A. G. McNamara R. J. R. Judge A. V. Jones D. J. McEwen R. Wlochowicz
08 Apr.	1700	NASA 4.282 CS	USA	White Sands						F					176	W. P. Reidy G. S. Vaiana
19 Apr.	0019	AMM-BA-01	Canada	Fort Churchill	C										104	H. I. Schiff L. R. Megill
19 Apr.	0117	AMM-BA-02	Canada	Fort Churchill	C										103	H. I. Schiff L. R. Megill
19 Apr.	0409	AMM-BA-03	Canada	Fort Churchill	C										55	H. I. Schiff L. R. Megill
26 Apr.	1730	INCOSPAR 40.04	India	Thumba							F				144	E. V. Chitnis U. R. Rao M. Oda
28 Apr.	1734	INCOSPAR 40.05	India	Thumba							F				148	E. V. Chitnis U. R. Rao M. Oda
1 May	2000	AHF-IV-14	Canada	Fort Churchill			C D E								760	R. E. Barrington A. G. McNamara
7 May	1400	AHF-IV-15	Canada	Fort Churchill			D E								829	A. G. McNamara G. G. Shepherd
Supplementary List to Summary in WDC-A Catalogue of Data, March 1968																
1967																
07 Sep.	0007	NASA 14.305 UI	USA	Vega Baja			B C D E								N/A	S. A. Bowhill L. G. Smith
07 Sep.	2034	NASA 14.309 UI	USA	Vega Baja			B C D E								N/A	S. A. Bowhill L. G. Smith
08 Sep.	1003	NASA 14.308 UI	USA	Vega Baja			B C D E								N/A	S. A. Bowhill L. G. Smith
Supplementary List to Summary in WDC-A Catalogue of Data, March 1969																
1968																
24 Mar.	1245	NASA 10.270 GM	USA	Natal		Z									120	W. S. Smith
25 Mar.	0050	NASA 10.271 GM	USA	Natal		Z									120	W. S. Smith
25 Mar.	1258	NASA 10.272 GM	USA	Natal		Z									120	W. S. Smith
08 Jun.	1838	NASA 4.134 DS NE 3.174	USA	White Sands						E					179	R. Tousey J. D. Purcell G. E. Brueckner
11 Jun.	2330	Black Brant IV 19.01 NE	USA	Natal		G	X								790	G. W. Brandon J. E. McCoy

Summary of Sounding Rocket Launchings
1 January - 30 June 1969

Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Experiments: Aurora and Airglow 1	Atmospheric Physics 2	Ionosphere 3	Energetic Particles 4	Magnetic Fields 5	Solar Physics 6	Astronomy 7	Planetology 8	Biology 9	Test and Other 0	Approx. Altitude (km)	Principal Experimenter(s)
1968 (cont.)																
24 Jul.	1006	NASA 14.358 UI	USA	Wallops Island			A B C	B							206	S. A. Bowhill L. G. Smith
24 Jul.	1036	NASA 14.359 UI	USA	Wallops Island			A B C	B							211	S. A. Bowhill L. G. Smith
24 Jul.	1700	NASA 14.360 UI	USA	Wallops Island			A B C	B							214	S. A. Bowhill L. G. Smith
24 Jul.	2136	NASA 14.361 UI	USA	Wallops Island			A B C	B							206	S. A. Bowhill L. G. Smith
22 Sep.	1530	NASA 4.246 DS NE 3.220	USA	White Sands						E					189	M. J. Koomen R. Tousey
19 Nov.	1800	NASA 10.293 GM	USA	Wallops Island		Z									123	W. S. Smith
03 Dec.	1930	Black Brant IV	Federal Republic of Germany	Natal		G									700	Ulf Von Zahn
10 Dec.	1716	NASA 8.51 UA	USA	Fort Churchill			D								837	K. R. Damon
14 Dec.	1508	NASA 14.352 UA	USA	White Sands				D							159	C. L. Hemenway

ROCKET DISCIPLINE CODES

1. Aurora and Airglow
   - A. Gegenschein
   - B. Auroral emissions
   - C. Airglow emissions
   - D. Airglow composition
   - E. Atmospheric radiations
2. Atmospheric Physics
   - A. Winds
   - B. Pressure
   - C. Temperature
   - D. Albedo
   - E. Planetary radiations (IR)
   - F. Neutral density
   - G. Neutral composition
   - H. Electromagnetic waves
   - I. Acoustics
   - J. Meteorology
   - V. Vapor trail
   - Y. Falling sphere - winds, temperature, and density
   - Z. Grenades - winds, temperature, pressure, and density
3. Ionosphere
   - A. Wave propagation
   - B. Electric currents (mag. fields)
   - C. Ion/electron density
   - D. Ion/electron composition
   - E. Ion/electron temperature
4. Energetic Particles
   - A. Galactic cosmic rays
   - B. Solar particle radiation
   - C. Terrestrial trapped radiation
   - D. Particle precipitation
5. Magnetic Fields
   - A. Geomagnetic fields
   - B. Electric fields
6. Solar Physics
   - A. Radio (1-1000mm)
   - B. Infrared (.8-1000μ)
   - C. Visible (3000-8000A)
   - D. Ultraviolet (2000-3000A)
   - E. Extreme UV (100-2000A)
   - F. X Rays (.001-100A)
7. Astronomy
   - A. Radio (1-1000mm)
   - B. Infrared (.8-1000μ)
   - C. Visible (3000-8000A)
   - D. Ultraviolet (2000-3000A)
   - E. Extreme UV (100-2000A)
   - F. X Rays (.001-100A)
   - G. Gamma Rays (< .001A)
8. Planetology
   - A. Micrometeorites
   - B. Zodiacal light
   - C. Gravity
   - D. Terrain photographs
9. Biology
0. Test and Other
   - A. Rocket performance
   - B. Communication systems
   - C. Satellite experiment test
   - U. Unknown

X. Subdivision of numbered discipline unknown.

NASA ROCKET CODE

Example 10.36 G A

Place 1: Type of vehicle
Place 2: Flight number of series
Place 3: Instrumenting agency
Place 4: Type of experiment

Type of Vehicle:	Type of Vehicle:	Instrumenting Agency:	Type of Experiment:
1. Aerobee 100	10. Nike Cajun	G Goddard Space Flight Center	A Aeronomy
2. Arcon	11. Journeyman	N Other NASA centers	B Biological
3. Nike Asp	12. Special projects	U College or university	E Energetic particles and fields
4. Aerobee 150, 150A	13. Nike Apache	D Department of Defense	G Galactic astronomy
5. Iris	14. Arcas	A Other Government agency	I Ionospheric physics
6. Aerobee 300	15. Astrobee 1500	C Industrial corporation	M Meteorology
7. Argo E-5	16. Aerobee 350	I International	P Special projects
8. Javelin	17. Nike Tomahawk		R Radio astronomy
9. Skylark			S Solar physics
			T Test and support

SCIENTISTS AND INSTITUTIONS CONDUCTING SCIENTIFIC EXPERIMENTS USING SOUNDING ROCKETS

K. Abiko
Yokogawa-Hewlett-Packard, Ltd.
Hachioji
Tokyo, JAPAN

Dr. M. Shafi Ahmad
Pakistan Space and Upper Atmosphere
Research Committee
P. O. Box 3125
Karachi, PAKISTAN

Dr. C. D. Anger
University of Calgary
Calgary, Alberta, CANADA

Dr. I. Aoyama
Geophysical Institute
Tohoku University
Sendai, JAPAN

Dr. N. Arizumi
Aerological Section
Observation Division
Japan Meteorological Agency
Tokyo, JAPAN

T. Asahina
Hitachi Co., Ltd.
Totsuka
Yokohama, JAPAN

S. Ashida
Meisei Denki Co.
Meguro-Ku, Tokyo, JAPAN

Dr. T. Aso
Ionosphere Research Laboratory
Kyoto University
Kyoto, JAPAN

Dr. T. Asoh
Department of Electronics
Kyoto University
Kyoto, JAPAN

Dr. R. E. Barrington
Communications Research Center
Department of Communications
Shirley Bay
P. O. Box 490, Terminal "A"
Ottawa 2, Ontario, CANADA

Dr. C. A. Barth
Atmospheric & Space Physics Laboratory
University of Colorado
Boulder, Colorado 80302 U.S.A.

Dr. S. J. Bauer
Code 615
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

J. F. Bedinger, Jr.
Geophysics Corporation of America
Bedford, Massachusetts 01730 U.S.A.

Dr. S. A. Bowhill
Electrical Engineering Dept.
University of Illinois
Urbana, Illinois 61801 U.S.A.

Dr. G. W. Brandon
Code TG-6
NASA Manned Spacecraft Center
Houston, Texas 77058 U.S.A.

Dr. G. E. Brueckner
Code 7140-B
U.S. Naval Research Laboratory
Washington, D.C. 20390 U.S.A.

Dr. E. E. Budzinski
Pure Physics
National Research Council
100 Sussex Drive
Ottawa 7, Ontario, CANADA

Dr. K. Burrows
Radio and Space Research Station
Ditton Park
Slough, Bucks, ENGLAND

Dr. G. R. Carruthers
Code 7124.3
U.S. Naval Research Laboratory
Washington, D. C. 20390 U.S.A.

E. V. Chitnis
Physical Research Laboratory
Navrangpura
Ahmedabad-9, INDIA

Dr. G. G. Cloutier
University of Montreal
Montreal, Quebec, CANADA

C. Cunniff
Code CROI
Air Force Cambridge Research
Laboratories
L. G. Hanscom Field
Bedford, Massachusetts 01730 U.S.A.

Dr. K. R. Damon
Syracuse University Research Corp.
P. O. Box 26
Syracuse, New York 13210 U.S.A.

Dr. E. B. Dorling
University College London
Gower Street
London W.C. 1, ENGLAND

Dr. M. Ejiri
Institute of Space and Aeronautical
Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

Dr. P. A. Forsyth
Physics Department
University of Western Ontario
London, Ontario, CANADA

Dr. N. Fugono
Radio Research Laboratory
Ministry of Posts and Telecommunications
Kokubunji
Tokyo, JAPAN

Dr. K. Fujitani
Department of Instrumentation
Kobe University
Kobe, JAPAN

Dr. G. Haerendel
Max-Planck Institut fur Physik
und Astrophysik
8046 Garching
Munich
FEDERAL REPUBLIC OF GERMANY

Dr. S. Hayakawa
Department of Physics
Nagoya University
Chikusa-Ku, Nagoya, JAPAN

Dr. C. L. Hemenway
Dudley Observatory
100 Fuller Road
Albany, New York 12205 U.S.A.

Dr. R. C. Henry
Code 7122.11
U.S. Naval Research Laboratory
Washington, D.C. 20390 U.S.A.

Dr. W. N. Hess
Code TA
NASA Manned Spacecraft Center
Houston, Texas 77058 U.S.A.

I. Higashino
Osaka City University
Osaka, JAPAN

E. Hilsenrath
Code 622
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

Y. Hishida
Hitachi Co., Ltd.
Totsuka
Yokohama, JAPAN

Dr. T. Imai
Institute of Physical and Chemical Research
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

H. Irie
Osaka Denpa Co., Ltd.
Osaka, JAPAN

S. Iwasaki
Osaka Denpa Co., Ltd.
Osaka, JAPAN

Dr. A. V. Jones
National Research Council
100 Sussex Drive
Ottawa 7, Ontario, CANADA

Dr. R. J. R. Judge
Pure Physics
National Research Council
100 Sussex Drive
Ottawa 7, Ontario, CANADA

K. Kajiyama
Hitachi Co., Ltd.
Totsuka
Yokohama, JAPAN

Dr. A. Kavadas
Space Engineering Division
University of Saskatchewan
Saskatoon, Saskatchewan, CANADA

Dr. I. Kimura
Department of Electronics
Kyoto University
Kyoto, JAPAN

Dr. S. Kobane
Meisei Denki Co., Ltd.
Meguro-Ku, Tokyo, JAPAN

Dr. M. J. Koomen
Code 7141-K
U. S. Naval Research Laboratory
Washington, D. C. 20390 U.S.A.

Dr. W. L. Kraushaar
University of Wisconsin
Madison, Wisconsin 53706 U.S.A.

A. J. Krueger
U.S. Naval Ordnance Test Station
China Lake, California 93557 U.S.A.

Dr. E. J. Llewellyn
Institute of Space & Atmospheric Studies
University of Saskatchewan
Saskatoon, Saskatchewan, CANADA

T. Masuoka
Osaka City University
Osaka, JAPAN

Dr. H. Matsumoto
Department of Instrumentation
Kobe University
Kobe, JAPAN

Dr. T. Matsumoto
Department of Physics
Nagoya University
Chikusa-Ku, Nagoya, JAPAN

Dr. T. Matsuzawa
Yokogawa-Hewlett-Packard, Ltd.
Hachioji
Tokyo, JAPAN

Dr. J. E. McCoy
Code TG-53
NASA Manned Spacecraft Center
Houston, Texas 77058 U.S.A.

Dr. D. J. McEwen
Communications Research Center
Department of Communications
Shirley Bay
P. O. Box 490, Terminal "A"
Ottawa 4, Ontario, CANADA

Dr. A. G. McNamara
Radio Electric Engineering Division
100 Sussex Drive
Ottawa 7, Ontario, CANADA

J. F. Meekins
Code 7125.1
U.S. Naval Research Laboratory
Washington, D.C. 20390 U.S.A.

Dr. L. R. Megill
ESSA Research Laboratory
Boulder, Colorado 80302 U.S.A.

L. G. Meira
Atmospheric & Space Physics Laboratory
University of Colorado
Boulder, Colorado 80302 U.S.A.

H. Mimura
Yokogawa-Hewlett-Packard, Ltd.
Hachioji
Tokyo, JAPAN

Dr. S. Miyamoto
Institute of Space and Aeronautical Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

Dr. R. W. Nicholls
Department of Physics
York University
Toronto, Ontario, CANADA

Dr. A. O. C. Nier
Institute of Technology
Physics Department
University of Minnesota
Minneapolis, Minnesota 55455 U.S.A.

Dr. R. Novick
Radiation Laboratory
Columbia University
Broadway & West 116th Street
New York, New York 10027 U.S.A.

Dr. T. Obayashi
Institute of Space and Aeronautical Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

M. Oda
Institute of Space and Aeronautical Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

Dr. T. Ogawa
G.R.L. Faculty of Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

Dr. H. Oya
Ionosphere Research Laboratory
Kyoto University
Kyoto, JAPAN

Dr. K. Oyama
Institute of Space and Aeronautical Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

H. Pedolsky
Code 721
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

J. D. Purcell
Code 7142
U.S. Naval Research Laboratory
Washington, D.C. 20390 U.S.A.

Dr. U. R. Rao
Physical Research Laboratory
Navrangpura
Ahmedabad-9, INDIA

Dr. W. P. Reidy
American Science & Engineering Inc.
11 Carleton Street
Cambridge, Massachusetts 02138 U.S.A.

Dr. I. Sakai
Japan Meteorological Agency
Tokyo, JAPAN

M. Sasanuma
Osaka City University
Osaka, JAPAN

C. Sato
Yokogawa-Hewlett-Packard, Ltd.
Hachioji
Tokyo, JAPAN

Dr. H. I. Schiff
York University
Toronto, Ontario, CANADA

A. F. D. Scott
Physics Department
University College London
Gower Street
London W.C. 1, ENGLAND

W. Sharp
Atmospheric & Space Physics Laboratory
University of Colorado
Boulder, Colorado 80302 U.S.A.

G. G. Shepherd
University of Saskatchewan
Saskatoon, Saskatchewan, CANADA

Dr. L. G. Smith
Aeronautics and Astronautics Department
Stanford University
Stanford, California 94305 U.S.A.

W. S. Smith
Code 621
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

Dr. T. Suitsu
Radio Research Laboratory
Ministry of Posts and Telecommunications
Kokubunji
Tokyo, JAPAN

A. Takechi
Tokyo Astronautical Observatory
Mitaka, Tokyo, JAPAN

Dr. S. Takemura
Department of Instrumentation
Kobe University
Kobe, JAPAN

Dr. H. Takeuchi
Institute of Physical and Chemical Research
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

H. Tanabe
Tokyo Astronautical Observatory
Mitaka, Tokyo, JAPAN

Dr. Y. Tanaka
Department of Physics
Nagoya University
Chikusa-Ku, Nagoya, JAPAN

Dr. T. Tohmatsu
G.R.L. Faculty of Science
University of Tokyo
Meguro-Ku, Tokyo, JAPAN

Dr. R. Tousey
Code 7140
U.S. Naval Research Laboratory
Washington, D.C. 20390 U.S.A.

Dr. F. Toyama
Aeronautics and Astronautics Institute
Tokai University
Hiratsuka, JAPAN

I. Udin
Institute of Meteorology
University of Stockholm
Stockholm 19, SWEDEN

Dr. G. S. Vaiana
American Science & Engineering Inc.
11 Carleton Street
Cambridge, Massachusetts 02138 U.S.A.

Ulf Von Zahn
(address Unknown)

R. G. Walker
Code CROI
Air Force Cambridge Research
Laboratories
L. G. Hanscom Field
Bedford, Massachusetts 01730 U.S.A.

N. Watanabe
Osaka City University
Osaka, JAPAN

Dr. E. Wescott
Code 612
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.

Dr. B. A. Whalen
National Research Council
100 Sussex Drive
Ottawa 7, Ontario, CANADA

Dr. J. N. G. Wilson
University of Birmingham
Edgbaston
Birmingham 15, ENGLAND

Dr. R. Wlochowicz
National Research Council
100 Sussex Drive
Ottawa 7, Ontario, CANADA

T. Yamaki
Meisei Denki Co., Ltd.
Meguro-Ku, Tokyo, JAPAN

T. Yamashita
Osaka Denpa Co., Ltd.
Osaka, JAPAN

LAUNCHING SITES FOR SOUNDING ROCKETS*

Sponsoring Country or Organization Launching Site	Geographical Coordinates		Local Standard Time to Nearest 15° Meridian and Remarks
	Latitude	Longitude	
ARGENTINA			
Chamical	30°20'S	66°19'W	UT - 4 (LST is UT -3)
Mar Chiquita	37°46'S	57°25'W	UT - 4 (LST is UT -3)
Tartagul (Vespucio)	22°46'S	63°49'W	UT - 4 (LST is UT - 3)
AUSTRALIA			
Carnarvon	24°30'S	113°24'E	UT + 8
Woomera	31°58'S	136°31'E	UT + 9 (LST is UT + 9-1/2)
BRAZIL			
Cassino (1966 Solar Eclipse)	32°12'S	52°10'W	UT - 3
Natal (Barreira do Inferno)	05°52'S	35°23'W	UT - 3 (LST is UT - 2)
CANADA			
Cape Parry	70°10'N	124°43'W	UT - 8
Fort Churchill	58°44'N	93°49'W	UT - 6
Resolute Bay	74°42'N	94°54'W	UT - 6
FRANCE			
Dumont d'Urville	64°40'S	140°01'E	UT + 9
Hammaguir, Algeria	30°51'N	03°04'W	UT (LST is UT + 1)
Ile du Levant	43°03'N	06°28'E	UT (LST is UT + 1)
Reggane, Algeria	26°43'N	0°10'E	UT (LST is UT + 1)
Vik	63°25'N	19° W	UT - 1
GREECE			
Karystos, Euboea (Evvoia)	38°01'N	24°25'E	UT + 2
INDIA			
Thumba	08°32'N	76°52'E	UT + 5 (LST is UT + 5-1/2)
INDONESIA	Western part of Java,		UT + 7 (LST is UT + 7-1/2)
LAPAN Space Center	Pameungpeuk area		
ITALY			
Sardinia	39°56'N	09°24'E	UT + 1
JAPAN			
Kagoshima	31°15'N	131°04'E	UT + 9
NETHERLANDS			
Suriname (Coronie)	05°50'N	56°19'W	UT - 4 (LST is UT - 3-1/2)
NEW ZEALAND			
Cape Karikari	34° S	173°30'E	UT + 12
NORWAY			
Andoya	69°18'N	16°00'E	UT + 1
PAKISTAN			
Sonmiani	25°12'N	66°45'E	UT + 4 (LST is UT + 5)
SPAIN			
El Arenosillo	37°06'N	06°44'W	UT (LST is UT + 1)
SWEDEN			
Kiruna (Esrange)	68°00'N	21°00'E	UT + 1
Kronogard	66°13'N	19°47'E	UT + 1
USA			
Ascension Island	07°53'S	14°25'W	UT - 1 (LST is UT)
Barking Sands (Kauai) Hawaii	22°04'N	159°46'W	UT - 11 (LST is UT - 10)
Cape Kennedy, Florida	28°27'N	80°32'W	UT - 5
Eglin AFB, Florida	30°23'N	86°42'W	UT - 6
Fort Wainwright, Alaska	64°48'N	147°38'W	UT - 10
Johnston Atoll	16°45'N	169°31'W	UT - 11
Point Arguello, Calif.	34°37'N	120°35'W	UT - 8
Point Barrow, Alaska	71°20'N	156°47'W	UT - 10
Point Mugu, California	34°07'N	119°07'W	UT - 8
San Nicolas Isl., Calif.	33°14'N	119°25'W	UT - 8
Tonopah, Nev.	38°00'N	116°30'W	UT - 8
Vandenberg AFB, Calif.	34°38'N	120°32'W	UT - 8
Vega Baja (Camp Tortoquero) P.R.	18°28'N	66°25'W	UT - 5
Wallops Island, Virginia	37°50'N	75°29'W	UT - 5
White Sands, New Mexico	32°24'N	106°32'W	UT - 7
USNS Croatan	Sounding rockets launched in western North Atlantic and eastern South Pacific Oceans		
USSR			
Kheisa Island	80°37'N	58°03'E	UT + 4 (LST is UT + 5)
Volgograd	48°41'N	44°21'E	UT + 3 (LST is UT + 4)
Mid-Latitudes of USSR	45°-50°N		–
Ship "Professor Vize"	–	–	–

*Launching sites used only to launch synoptic meteorological sounding rockets are not included in this list.

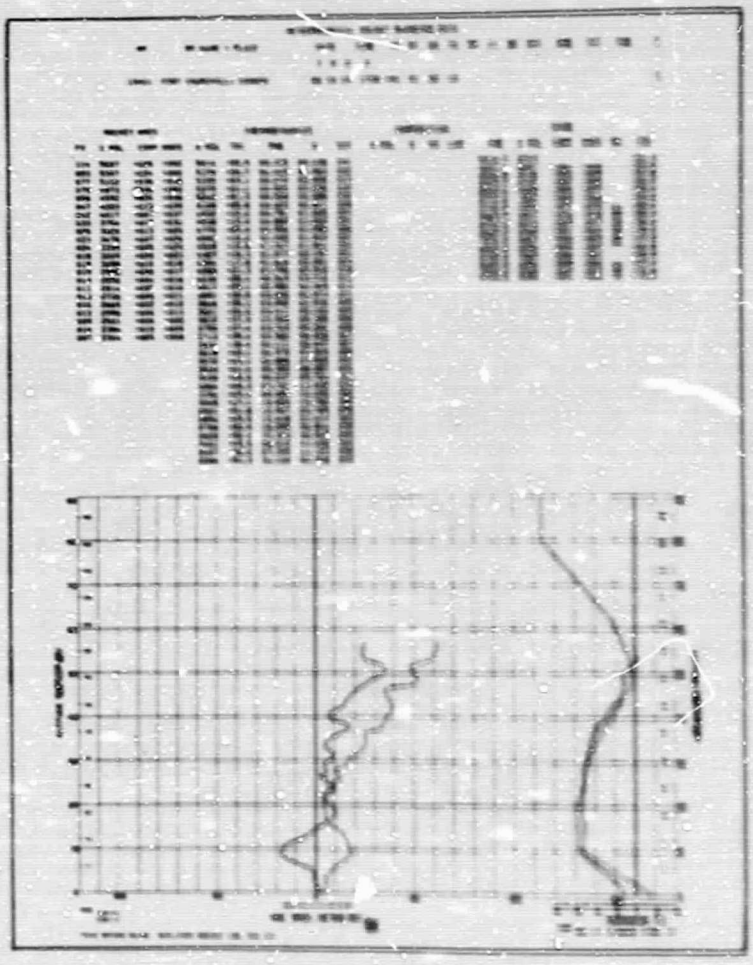
Meteorological Sounding Rocket Data

World Data Center A for Meteorology has published monthly Data Reports of Meteorological Rocket Firings for the period January 1964 through December 1968. Each report contains the wind and temperature measurements from all available meteorological sounding rocket firings for that particular month, (data for altitudes 30-70 km) along with computed values for pressure, density, and speed of sound. It also includes the local radiosonde observations nearest the time of firing.

Copies of the WDC-A Data Reports have been sent to the discipline World Data Centers for Meteorology and for Rockets and Satellites. Interested scientists and scientific institutes desiring copies for their use in research should request them from:

World Data Center A
Meteorology
National Weather Records Center
Asheville, North Carolina, USA 28801

A sample page from these monthly reports showing how the data is presented is reproduced below.



B. ARTIFICIAL EARTH SATELLITES AND SPACE PROBES

The summary of satellite and space probe launchings which follows was compiled from information in the national launching announcements, and the reports of satellite and space probe launchings submitted to IUWDS and to the World Data Centers in accordance with the revised "COSPAR Guide to Rocket and Satellite Information and Data Exchange" adopted at the Tenth Meeting of COSPAR, July 1967, London, and Resolution No. 18 adopted at the Eleventh Meeting of COSPAR, May 1968, Tokyo. Shown below is a report on the U.S. solar radiation satellite Explorer 37 which illustrates the type of information in these reports. More detailed narrative descriptions are submitted to COSPAR and published in the COSPAR Information Bulletin when information on spacecraft experiments is available.

REPORT OF SATELLITE OR SPACE PROBE LAUNCHING

COSPAR Designation	Popular Name	Launching Site (include coordinates)	Launching Date	Universal Time
1968-17A	Explorer 37 (SOLRAD)	Wallops Island, Va. 37°50'N 75°29'W	5 March 1968	1828 UT

Initial Orbital Elements	Apogee (km)	Perigee (km)	Period (min)	Inclination (degrees)
5 March 1968	878	522	98.77	59.4

Physical Characteristics
(size, shape, weight)
Nearly cylindrical (12 sides) spin-stabilized satellite, diameter 76 centimeters, height 69 centimeters, weight, 90 kilograms.

Transmitters (Frequency and Power)

Data transmitted continuously on 136.530 and 137.590 Megahertz at 150 milliwatts and on command on 137.410 Megahertz at 500 milliwatts.

Scientific Experiments

Objectives	Instruments	Experimenter(s) and Institution
1. X-ray emissions: To obtain measurements of the intensity of solar X-ray emission in the 0.1 to 0.5 Å, 0.5 to 3Å, 1 to 8 Å, 1 to 20 Å, 8 to 10 Å, 44 to 60 Å wavelength bands.	Scintillation counter, X-ray photometers, X-ray Geiger-Mueller tubes	Dr. Robert W. Kreplin, E. O. Hulburt Center for Space Research, U.S. Naval Research Laboratory
2. Ultra-violet emissions: To obtain measurements of the intensity of solar ultra-violet emissions in the 1060 to 1350 Å and 1225 to 1350 Å wavelength bands.	Ultra-violet photometer	Dr. Robert W. Kreplin, E. O. Hulburt Center for Space Research, U. S. Naval Research Laboratory

Remarks

The measurements are made in different but overlapping X-ray and ultra-violet bands so that comparison of the different photometer outputs can be employed to construct a model of the solar X-ray spectrum and to provide an instantaneous indication of spectral changes with solar activity.

ARTIFICIAL EARTH SATELLITES AND SPACE PROBES

LAUNCHED FOR SCIENTIFIC PURPOSES
1 January - 30 June 1969

COSPAR Designation Popular Name Country Launching Vehicle	Lifetime (Launch-Decay)	Physical Characteristics				Experiments	Initial Orbital Elements				Transmitting Frequencies (MHz)
		Weight (Kg)	Shape	Diameter	Length-Height		Perigee (Km)	Apogee (Km)	Period (min)	Inclin. (degrees)	
1969-1A Venera 5 USSR Not available	1/5/69-5/16/69	1,130	n.a.	n.a.	n.a.	Venus Probe	Landed on Venus 16 May 1969				-----
1969-2A Venera 6 USSR Not available	1/10/69-5/17/69	1,130	n.a.	n.a.	n.a.	Venus Probe	Landed on Venus 17 May 1969				-----
1969-3A Cosmos 261 USSR Not Available	1/12/69-1/20/69	n.a.	n.a.	n.a.	n.a.	Study earth's radiation belts, cosmic rays, solar radiation, geomagnetic fields, cloud distribution, charged particle density, upper atmosphere, meteoric matter.	203	346	89.8	65.4	19.995
1969-4A Soyuz 4 USSR Not available	1/14/69-1/17/69	n.a.	n.a.	n.a.	n.a.	Manned orbital flight; Cosmonaut Shatalov.	173	225	88.25	51.6	20.008
1969-5A Soyuz 5 USSR Not available	1/15/69-1/18/69	n.a.	n.a.	n.a.	n.a.	Manned orbital flight; Cosmonauts: Volynov, Yeliseyev, and Khrunov.	200	250	88.7	51.6	15.008
1969-6A OSO-5 USA Delta	1/22/69	291	Two sections; bottom wheel, top fan	112 cm	95 cm	To measure the frequency and energy of solar emissions, to detect protons and electrons, and to study solar x-rays and gamma rays.	544	568	95.77	32.965	136.29
1969-8A Cosmos 264 USSR Not available	1/23/69-2/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	219	330	89.7	70	19.150
1969-9A ISIS-1 Canada/USA TAI Delta	1/30/69	241	Oblate spheroid	107 to 127 cm		Topside ionosphere sounder and nine other ionospheric experiments.	574	3,522	128.3	88.4	136.08 136.41 136.59 137.95 401.75
1969-11A IntelSat SF-3 USA Delta	2/6/69	284	Cylindrical	142 cm	104 cm	Communications Satellite	In synchronous orbit over the equator, initially over the Pacific at 174°E, moved in June 1969 to a position over the Indian Ocean at 62.5°E				-----
1969-12A Cosmos 265 USSR Not available	2/7/69-5/1/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	283	485	91.9	71	-----
1969-14A Mariner VI USA Atlas-Centaur	2/25/69	413	Octagon	138 cm	46 cm	To study the surface and atmosphere of Mars using television cameras, radar, tracking data and other instruments.	(On trans-Mars trajectory)				2296.85
1969-15A Cosmos 266 USSR Not available	2/25/69-3/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	208	358	89.3	72.9	19.995
1969-16A ESSA-9 USA Delta	2/26/69	150	nearly cylindrical	.07 cm	57 cm	Photography of earth's cloud cover; solar and terrestrial radiation data.	1,421	1,506	115.176	101.777	136.77 1697.5
1969-17A Cosmos 267 USSR Not available	2/26/69-3/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	210	346	89.9	65	19.995
1969-18A Apollo 9 USA Saturn 5	3/3/69-3/13/69	5,627 16,416 16,371	Conical command module Cylindrical service module Conical lunar module & adapter	390 cm 390 cm 6.6 to 3.9 m.	366 cm 671 cm 8.3 m.	Manned orbital flight to test the lunar module. Astronauts: James A. McDivitt, David R. Scott, and Russell Schweickart. Multispectral photography.	190	193	88.9	32.58	2272.5 2282.5 2287.5
1969-20A Cosmos 268 USSR Not available	3/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	219	2,186	109.2	48.4	-----
1969-21A Cosmos 269 USSR Not available	3/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	526	558	95.3	74	-----

COSPAR Designation Popular Name Country Launching Vehicle	Lifetime (Launch-Decay)	Physical Characteristics				Experiments	Initial Orbital Elements				Transmitting Frequencies (MHz)
		Weight (Kg)	Shape	Diameter	Length-Height		Perigee (Km)	Apogee (Km)	Period (min)	Inclin. (degrees)	
1969-22A Cosmos 270 USSR Not available	3/6/69-3/14/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	205	350	89.8	65.4	19.995
1969-23A Cosmos 271 USSR Not available	3/15/69-3/24/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	200	342	89.7	65.4	19.995
1969-24A Cosmos 272 USSR Not available	3/17/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	1,195	1,220	109.35	74	-----
1969-27A Cosmos 273 USSR Not available	3/22/69-3/30/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	205	356	89.9	65.4	19.995
1969-28A Cosmos 274 USSR Not available	3/24/69-4/1/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	213	323	89.6	65	19.995
1969-29A Meteor USSR Not available	3/26/69	n.a.	n.a.	n.a.	n.a.	Meteorological Satellite	644	713	97.9	81.2	-----
1969-30A Mariner VII USA Atlas-Centaur	3/27/69	413	Octagon	138 cm	46 cm	To study the surface and atmosphere of Mars using television cameras, radar, tracking data and other instruments	(On trans-Mars trajectory)				2297.22
1969-31A Cosmos 275 USSR Not available	3/28/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	284	805	95.2	71	-----
1969-32A Cosmos 276 USSR Not available	4/4/69-4/11/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	214	410	90.4	81.4	19.995
1969-33A Cosmos 277 USSR Not available	4/4/69-7/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	280	494	92	71	-----
1969-34A Cosmos 278 USSR Not available	4/9/69 4/17/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	203	338	89.8	65	19.995
1969-35A 11th Molniya 1 USSR Not available	4/11/69	n.a.	n.a.	n.a.	n.a.	Communications Satellite	470	39,700	713	65	-----
1969-37A Nimbus 3 USA Thorad-Agena D	4/14/69	576	Butterfly-shaped	279 cm	254 cm	Meteorological satellite to study spatial and temporal distribution of atmospheric structure and to determine temporal variations in the near UV. APT system.	1,071	1,131	102.291	99.92	136.5 136.950 1702.5 1707.5
1969-38A Cosmos 279 USSR Not available	4/15/69-4/23/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	194	280	89.1	51.8	19.995
1969-40A Cosmos 280 USSR Not available	4/23/69-5/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	206	272	89.1	51.6	19.995
1969-42A Cosmos 281 USSR Not available	5/13/69-5/20/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	194	317	89.4	65.4	19.995
1969-43A Apollo 10 USA Saturn 5	5/18/69-5/26/69	5,569 23 300 15,807	Conical command module Cylindrical service module Conical lunar module & adapter	391 cm 391 cm 6.6 to 3.9 m.	348 cm 749 cm 8.5 m	Manned flight around Moon and return to Earth, with test of lunar module near Moon. Astronauts: Thomas P. Stafford, John W. Young, and Eugene A. Cernan. Photography of Moon.	(Trajectory to Moon and return to Earth)				2272.5 2282.5 2287.5 5765
1969-44A Cosmos 282 USSR Not available	5/20/69-5/28/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	209	343	89.8	65.4	19.995

COSPAR Designation Popular Name Country Launching Vehicle	Lifetime (Launch-Decay)	Physical Characteristics				Experiments	Initial Orbital Elements				Transmitting Frequencies (MHz)
		Weight (Kg)	Shap	Diameter	Length-Height		Perigee (Km)	Apogee (Km)	Period (min)	Inclin. (degrees)	
1969-45A IntelSat 3F-4 USA Delta	5/22/69	284	Cylindrical	142 cm	104 cm	Communications Satellite	In synchronous orbit over the equator and Pacific Ocean at 174° E.				-----
1969-47A Cosmos 283 USSR Not available	5/27/69-6/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	210	1,539	102.1	82	-----
1969-48A Cosmos 284 USSR Not available	5/29/69-6/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	207	308	89.5	51.8	19.995
1969-49A Cosmos 285 USSR Not available	6/3/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	279	518	92.2	71	-----
1969-51A OGO-6 USA Thorad-Agena D	6/5/69	632	Box	Length 183 cm Width 91 cm Height 91 cm		Twenty-five experiments to study the Earth's space environment and its relationship to the Sun.	397	1,098	59.75	82	136.20 400.249 400.848
1969-52A Cosmos 286 USSR Not available	6/15/69-6/23/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	206	349	89.8	65.4	19.995
1969-53A Explorer 41(IMP-7) USA TAT-Delta	6/21/69	79	Cylindrical Base	71 cm	20 cm	Twelve experiments to study solar plasma, magnetic fields and cosmic rays.	343	178,200	3.3 days	87	136.080
1969-54A Cosmos 287 USSR Not available	6/24/69-7/2/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	190	268	89	51.8	19.995
1969-55A Cosmos 288 USSR Not available	6/27/69 7/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	201	281	89.2	51.8	19.995
1969-56A Biosatellite 3 USA Delta	6/29/69-7/7/69	438 250	Adapter Cylindrical Cone Re-entry Vehicle Blunt Cone	102 to 145 cm 102 cm	1.2 m. 1.1 m.	Five experiments to study the effects of weightlessness on the mental, emotional, and physiological processes in a primate.	361	393	92.11	33.56	136.05

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