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Supplement to the 1975 Report on

Active and Planned Spacecraft and Experiments

JULY 1975

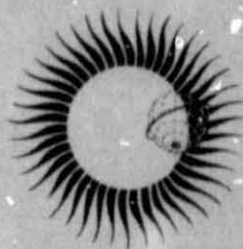


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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

SUPPLEMENT TO THE 1975 REPORT ON
ACTIVE AND PLANNED SPACECRAFT AND EXPERIMENTS

Edited by

Richard Horowitz
and
Leo R. Davis

July 1975

National Space Science Data Center/
World Data Center A for Rockets and Satellites
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

PREFACE

This Supplement to the January 1975 Report on Active and Planned Spacecraft and Experiments provides descriptions of spacecraft and experiments that were not listed in that report or that have changed significantly since it was published. It also updates the operational status or planned launch dates for all spacecraft and experiments, active or planned, as of March 31, 1975.

We would like to acknowledge the cooperation of the acquisition scientists and others at the National Space Science Data Center (NSSDC) in obtaining information and offering suggestions for this supplement. We are most appreciative of the efforts of PMI Facilities Management Corporation, the onsite contractor at NSSDC, in preparing this document for publication. Also, the cooperation of the project offices and experimenters in supplying current documentation of their spacecraft and experiments is gratefully acknowledged. We are particularly pleased with the many constructive comments and corrections we have received from interested readers.

NSSDC plans to publish another cumulative report in January 1976.

July 1975

Richard Horowitz
Leo R. Davis

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1. INTRODUCTION

This document updates the January 1975 Report on Active and Planned Spacecraft and Experiments to March 31, 1975. Document availability, definitions, abbreviations, and acronyms described in the original report generally apply here.

Section 2, "Supplementary Descriptions of Active and Planned Spacecraft and Experiments," contains descriptions of spacecraft and experiments that have become known to NSSDC since the original report or that have changed significantly.

Section 3, "Cumulative Index of Active and Planned Spacecraft and Experiments," is an alphabetical listing by spacecraft name, including both common and alternate names, of all spacecraft and experiments described in section 2 of this document and the original report. It also updates status of operation and launch dates to March 31, 1975.

Supplementary Descriptions of Active and Planned Spacecraft and Experiments

1602

2. SUPPLEMENTARY DESCRIPTIONS OF ACTIVE AND PLANNED SPACECRAFT AND EXPERIMENTS

This section describes spacecraft and experiments that have become known to NSSDC or significantly changed since the January 1975 report.

Descriptions are sorted by spacecraft common name. Within each spacecraft listing, experiments are sorted by the principal investigator's (PI) or team leader's (TL) last name. If the spacecraft NSSDC common name is not known, it can be found in section 3 by checking an alternate name.

For information on the contents of descriptions, refer to page 5 of the January 1975 report.

SUPPLEMENTARY DESCRIPTIONS OF ACTIVE AND PLANNED SPACECRAFT AND EXPERIMENTS

***** AD-A *****

SPACECRAFT COMMON NAME= AC-A
ALTERNATE NAMES= EXPLORER 19, 00714
NSSDC ID= 63-053A

LAST REPORTED STATE= LAUNCHED AND OPERATING PARTIALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 12/19/63.

LAUNCH DATE= 12/19/63 SPACECRAFT WEIGHT= 7. KG
LAUNCH SITE= VANDENBERG AFB, UNITED STATES
LAUNCH VEHICLE= SCOUT

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-CSC

INITIAL ORBIT PARAMETERS
ORBIT TYPE= GEOCENTRIC EPOCH DATE= 12/19/63
ORBIT PERIOD= 112.9 MIN INCLINATION= 76.62 DEG
PERIAPSIS= 749.000 KM ALT APOAPSIS= 2022.00 KM ALT

RECENT ORBIT PARAMETERS
ORBIT TYPE= GEOCENTRIC EPOCH DATE= 01/27/72
ORBIT PERIOD= 112.02 MIN INCLINATION= 76.9205 DEG
PERIAPSIS= 874. KM ALT APOAPSIS= 1768. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM = C.W. COFFEE, JR.NASA-LARC
HAMPTON, VA
PS = R.F. FELLOWSNASA HEADQUARTERS
WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION
EXPLORER 19 WAS THE SECOND IN A SERIES OF 3.66-M INFLATABLE SPHERES PLACED INTO ORBIT TO DETERMINE ATMOSPHERIC DENSITIES. EXPLORER 19 WAS LAUNCHED WHILE EXPLORER 9, THE FIRST SATELLITE IN THE SERIES, WAS STILL ACTIVE, SO THAT DENSITIES IN TWO DIFFERENT PORTIONS OF THE ATMOSPHERE COULD BE SAMPLED SIMULTANEOUSLY. THE SATELLITE CONSISTED OF ALTERNATING LAYERS OF ALUMINUM FOIL AND PLASTIC FILM, UNIFORMLY DISTRIBUTED OVER THE ALUMINUM OUTER SURFACE WERE 9.1-CM DISCS OF WHITE PAINT FOR THERMAL CONTROL. A 136.620-MHZ TRACKING BEACON, WHICH WAS POWERED BY FOUR SOLAR CELLS AND WAS MOUNTED ON THE SPACECRAFT SKIN, USED THE ELECTRICALLY SEPARATED HEMISPHERES OF THE BALLOON AS AN ANTENNA. THE SPACECRAFT WAS SUCCESSFULLY ORBITED, BUT ITS APOGEE WAS LOWER THAN PLANNED. THE BEACON DID NOT HAVE SUFFICIENT POWER TO BE RECEIVED BY GROUND TRACKING STATIONS, MAKING IT NECESSARY TO RELY SOLELY ON THE SAO BAKER-NUNN CAMERA NETWORK FOR TRACKING. EXPLORER 19 IS EXPECTED TO REMAIN IN ORBIT AND USEFUL FOR PASSIVE DENSITY TRACKING OBSERVATIONS UNTIL 1976.

----- AD-A, JACCHIA -----

EXPERIMENT NAME= NONSYSTEMATIC CHANGES OF AIR DENSITY

NSSDC ID= 63-053A-01

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 12/19/63.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = L.G. JACCHIASIO
CAMBRIDGE, MA

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS DESIGNED TO DETERMINE NONSYSTEMATIC CHANGES OF UPPER ATMOSPHERIC DENSITY BY CONDUCTING STUDIES OF THE DRAG ON A 3.6-M DIAMETER, LOW-DENSITY SPHERE CAUSED BY SHORT-TERM VARIATIONS IN SOLAR ACTIVITY. DENSITY VALUES NEAR PERIGEE WERE DEDUCED FROM SEQUENTIAL OBSERVATIONS OF THE SPACECRAFT POSITION USING OPTICAL (BAKER-NUNN CAMERA NETWORK) AND RADIO/RADAR TRACKING TECHNIQUES. THE GENERAL TECHNIQUES USED TO DEDUCE DENSITY VALUES FROM SATELLITE DRAG DATA CAN BE FOUND IN SMITHSONIAN ASTROPHYSICAL OBSERVATORY SPECIAL REPORT NO. 100 BY JACCHIA AND SLOWEY.

----- AD-A, KEATING -----

EXPERIMENT NAME= SYSTEMATIC CHANGES OF AIR DENSITY

NSSDC ID= 63-053A-02

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 12/19/63.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = G.M. KEATINGNASA-LARC
HAMPTON, VA
OI = W.J. O'SULLIVAN, JR.NASA-LARC
HAMPTON, VA
OI = C.W. COFFEE, JR.NASA-LARC
HAMPTON, VA

EXPERIMENT BRIEF DESCRIPTION
THE OBJECTIVE OF THIS EXPERIMENT WAS TO DETERMINE ATMOSPHERIC DENSITY AS A FUNCTION OF ALTITUDE, LATITUDE, AND TIME BY MEASURING ATMOSPHERIC DRAG ON A LOW MASS-TO-AREA RATIO (0.7660 KG PER SQUARE METER) SPHERICAL SATELLITE. THE ORBIT WAS SUN SYNCHRONIZED SO THAT NEAR-POLAR DENSITIES WOULD ALWAYS BE OBTAINED ALONG NOON AND MIDNIGHT MERIDIANS.

***** AD-C *****

SPACECRAFT COMMON NAME= AD-C
ALTERNATE NAMES= PL-643J, EXPLORER 39
03337
NSSDC ID= 68-066A

LAST REPORTED STATE= LAUNCHED AND OPERATING PARTIALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 06/00/71.

LAUNCH DATE= 06/08/68 SPACECRAFT WEIGHT= 9.4 KG
LAUNCH SITE= VANDENBERG AFB, UNITED STATES
LAUNCH VEHICLE= SCOUT

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-DSS

INITIAL ORBIT PARAMETERS
ORBIT TYPE= GEOCENTRIC EPOCH DATE= 06/08/68
ORBIT PERIOD= 118.1 MIN INCLINATION= 80.691 DEG
PERIAPSIS= 668.000 KM ALT APOAPSIS= 2826.00 KM ALT

RECENT ORBIT PARAMETERS
ORBIT TYPE= GEOCENTRIC EPOCH DATE= 01/13/74
ORBIT PERIOD= 116.05 MIN INCLINATION= 80.68 DEG
PERIAPSIS= 691. KM ALT APOAPSIS= 2233. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM = C.W. COFFEE, JR.NASA-LARC
HAMPTON, VA
PS = R.F. FELLOWSNASA HEADQUARTERS
WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION
EXPLORER 39 WAS AN INFLATABLE SPHERE, 3.66 M IN DIAMETER. IT WAS ORBITED TO MAKE DENSITY ATMOSPHERE DETERMINATIONS. THE SPACECRAFT WAS SUCCESSFULLY LAUNCHED INTO A NEARLY POLAR, HIGHLY ELLIPTICAL ORBIT. IT WAS FOLDED AND CARRIED INTO ORBIT, TOGETHER WITH EJECTION AND INFLATION EQUIPMENT, AS PART OF THE PAYLOAD OF EXPLORER 40 (NSSDC ID 68-066D). TWO DENSITY EXPERIMENTS WERE PERFORMED. ONE INVOLVED THE STUDY OF SYSTEMATIC DENSITY VARIATION, AND THE OTHER WAS CONCERNED WITH NONSYSTEMATIC DENSITY CHANGES. THE UPPER ATMOSPHERIC DENSITIES WERE DERIVED FROM SEQUENTIAL OBSERVATIONS OF THE SPHERE BY USE OF AN ATTACHED 136.620-MHZ RADIO TRACKING BEACON AND BY OPTICAL TRACKING. THE RADIO BEACON CEASED TRANSMITTING IN JUNE 1971, SINCE THAT TIME IT HAS BEEN NECESSARY TO RELY SOLELY ON THE SAO BAKER-NUNN CAMERA NETWORK FOR TRACKING. EXPLORER 39 HAS AN EXPECTED ORBITAL LIFETIME OF 80 YEARS.

----- AD-C, JACCHIA -----

EXPERIMENT NAME= NONSYSTEMATIC CHANGES OF AIR DENSITY

NSSDC ID= 68-066A-01

LAST REPORTED STATE= LAUNCHED AND OPERATING PARTIALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 12/03/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = L.G. JACCHIASIO
CAMBRIDGE, MA

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS DESIGNED TO DETERMINE NON-SYSTEMATIC UPPER ATMOSPHERIC DENSITY CHANGES. THE DATA IS DERIVED FROM STUDIES OF THE DRAG ON A 3.6-METER DIAMETER LOW-DENSITY SPHERE CAUSED BY SHORT-TERM DIFFERENCES IN SOLAR ACTIVITY. DENSITY VALUES NEAR PERIGEE WERE DEDUCED FROM SEQUENTIAL OBSERVATIONS OF THE SPACECRAFT POSITION USING OPTICAL (BAKER-NUNN CAMERA NETWORK) AND RADIO AND/OR RADAR TRACKING TECHNIQUES. THE GENERAL TECHNIQUES USED TO DEDUCE DENSITY VALUES FROM SATELLITE DRAG DATA CAN BE FOUND IN SMITHSONIAN ASTROPHYSICAL OBSERVATORY SPECIAL REPORT NO. 100, BY JACCHIA AND SLOWEY. THIS EXPERIMENT HAS DETERMINED REASONABLE DENSITY VALUES, AND IS CAPABLE OF YIELDING LONG-TERM ATMOSPHERIC DENSITY VALUES, AS EXPLORER 39 HAS AN EXPECTED ORBITAL LIFETIME OF 80 YEARS.

----- AD-C, KEATING -----

EXPERIMENT NAME= SYSTEMATIC CHANGES OF AIR DENSITY

NSSDC ID= 68-066A-02

LAST REPORTED STATE= LAUNCHED AND OPERATING PARTIALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 12/03/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = G.M. KEATINGNASA-LARC
HAMPTON, VA
OI = C.W. COFFEE, JR.NASA-LARC
HAMPTON, VA
OI = W.J. O'SULLIVAN, JR.NASA-LARC
HAMPTON, VA

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS DESIGNED TO DETERMINE SYSTEMATIC CHANGES OF AIR DENSITY AS A FUNCTION OF ALTITUDE, LATITUDE, AND TIME OF DAY, BY MEASURING THE DRAG ON A 3.6-METER DIAMETER LOW-DENSITY SPHERE WITH GROUND TRACKING.

ORIGINAL PAGE IS
OF POOR QUALITY

***** APOLLO 11 LM/EASEP *****

SPACECRAFT COMMON NAME- APOLLO 11 LM/EASEP
ALTERNATE NAMES- 04041, APOLLO 11 LM
NSSDC ID- 69-059C

LAST REPORTED STATE- INOPERABLE
SINCE 12/14/69

LAUNCH DATE- 07/16/69 SPACECRAFT WEIGHT- 4240. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- SATURN 5

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-CMSF

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - W.F. EICHELMANNASA-JSC
HOUSTON, TX

SPACECRAFT BRIEF DESCRIPTION
THE LUNAR MODULE (LM) WAS A TWO-STAGE VEHICLE DESIGNED FOR SPACE OPERATIONS NEAR AND ON THE MOON. THE LM STOOD 7 M HIGH AND WAS 9.4 M WIDE (DIAGONALLY ACROSS THE LANDING GEAR). THE ASCENT AND DESCENT STAGES OF THE LM OPERATED AS A UNIT UNTIL STAGING, WHEN THE ASCENT STAGE FUNCTIONED AS A SINGLE SPACECRAFT FOR RENDEZVOUS AND DOCKING WITH THE COMMAND MODULE (CM). INCLUDED IN THE DESCENT STAGE WERE THE EARLY APOLLO SCIENTIFIC EXPERIMENT PACKAGE (EASEP) EXPERIMENTS, WHICH WERE SELF CONTAINED. ALSO CARRIED ON THE LM WERE THE LUNAR SURFACE SOLAR WIND COMPOSITION, THE SOIL MECHANICS, AND THE SAMPLE COLLECTION EXPERIMENTS. THE EASEP EXPERIMENTS INCLUDED THE PASSIVE SEISMOGRAPH, THE CUST DETECTOR, AND THE LASER RANGING RETROREFLECTOR. THE LM LANDED ON THE LUNAR SURFACE ON JULY 20, 1969. THE EASEP EXPERIMENTS FUNCTIONED NORMALLY FOR ONE LUNATION AFTER WHICH THE EASEP POWER FAILED. THE NON-POWERED LASER RETROREFLECTOR CONTINUES TO BE USEFUL. THE LM WAS ON THE LUNAR SURFACE JULY 20-21, 1969.

***** APOLLO 11 LM/EASEP, ALLEY *****

EXPERIMENT NAME- LASER RANGING RETROREFLECTOR

NSSDC ID- 69-059C-04

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 07/20/69,

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - C.O. ALLEYU OF MARYLAND
COLLEGE PARK, MD

EXPERIMENT BRIEF DESCRIPTION
THE LASER RANGING RETROREFLECTOR (LRRR) WHICH WAS LEFT ON THE LUNAR SURFACE BY THE APOLLO 11 CREW WAS A RETROREFLECTOR ARRAY WITH A FOLDING SUPPORT STRUCTURE FOR AIMING AND ALIGNING THE ARRAY TOWARD EARTH. THE ARRAY WAS BUILT OF CUBES OF FUSED SILICA. LASER RANGING BEAMS FROM EARTH WERE REFLECTED BACK TO THEIR POINT OF ORIGIN FOR PRECISE MEASUREMENT OF EARTH-MOON DISTANCES, MOTION OF THE MOON'S CENTER OF MASS, LUNAR RADIUS, AND EARTH GEOPHYSICAL INFORMATION. THIS REFLECTOR HAS OPERATED FOR A NUMBER OF YEARS, AND HAS RETURNED GOOD RESULTS TO DATE (APRIL 1975).

***** APOLLO 14 LM/ALSEP *****

SPACECRAFT COMMON NAME- APOLLO 14 LM/ALSEP
ALTERNATE NAMES- ALSEP 14, LEM 14
04908, APOLLO 14C
NSSDC ID- 71-008C

LAST REPORTED STATE- LAUNCHED AND OPERATING PARTIALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 02/25/75.

LAUNCH DATE- 01/31/71 SPACECRAFT WEIGHT- 4257. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- SATURN 5

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-DMSF
UNITED STATES NASA-CSS

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - W.F. EICHELMANNASA-JSC
HOUSTON, TX

SPACECRAFT BRIEF DESCRIPTION
THE APOLLO 14 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT AND AN APOLLO LUNAR SURFACE EXPERIMENT PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE LUNAR SURFACE AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE LUNAR HIGHLANDS (3 DEG 30 MIN 1 SEC S LATITUDE, 17 DEG 27 MIN 58 SEC W LONGITUDE). THE NUCLEAR-POWERED ALSEP WAS DEPLOYED AT THE LANDING SITE AND INCLUDED EXPERIMENTS TO STUDY THE SEISMIC WAVES, MAGNETIC FIELDS, SOLAR WIND COMPOSITION AND INTERACTION WITH THE MOON, LUNAR ATMOSPHERE, AND IONIC ENVIRONMENT. THE LM ITSELF WAS ON THE LUNAR SURFACE FEBRUARY 5-8, 1971. IN FEBRUARY, 1975 UPLINK COMMAND CAPABILITY WAS LOST. ENGINEERING AND HOUSE-KEEPING DATA ARE STILL BEING RECEIVED AS OF APRIL 17, 1975.

***** APOLLO 14 LM/ALSEP, FALLER *****

EXPERIMENT NAME- LASER RANGING RETROREFLECTOR

NSSDC ID- 71-008C-09

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 02/05/71.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - J. FALLERWESLEYAN U
MIDDLETOWN, CT

EXPERIMENT BRIEF DESCRIPTION
THE PURPOSE OF THIS EXPERIMENT WAS TO PERMIT GROUND-BASED STATIONS TO CONDUCT SHORT-PULSE LASER RANGING TO A CORNER REFLECTOR ARRAY ON THE LUNAR SURFACE AT THE PHA MAURO SITE. THIS INSTRUMENT AND THOSE AT APOLLO 11 (TRANQUILITY BASE) AND AT THE APOLLO 15 SITE IN THE HADLEY/APERLINE REGION PROVIDED A NETWORK (WELL-SEPARATED IN LONGITUDE AND LATITUDE) OF STATIONS TO PERMIT A COMPLETE GEOMETRICAL DETERMINATION OF THE LUNAR LIBRATIONS. THE REFLECTORS PERMITTED A DISCRIMINATION OF THE 3-YR PHYSICAL LIBRATIONS. THEY ALSO PROVIDED INFORMATION ABOUT THE EARTH AND ITS CONTINENTAL DRIFT MOTIONS AS WELL AS VERY ACCURATE DETERMINATIONS OF THE EARTH-MOON DISTANCE AND THE MOON'S ORBITAL MOTIONS. THE EARTH'S NORTH POLE POSITION COULD BE DETERMINED TO PLUS OR MINUS 15 CM. THE INSTRUMENT WAS AN ARRAY OF 100 SMALL FUSED-SILICA CORNER CUBES EACH 3.8 CM IN DIAMETER. IT WAS DEPLOYED ON THE FIRST EVA, 30 M WEST OF THE CENTRAL STATION (200 M WEST OF THE LM), WAS LEVELLED, AND WAS FACED TOWARD THE EARTH. EACH CORNER CUBE REFLECTED LIGHT PARALLEL TO THE INCIDENT DIRECTION, ENSURING THAT THE REFLECTED LASER PULSE RETURNED TO ITS PLACE OF ORIGIN ON THE EARTH. SUCCESSFUL RANGE MEASURES WERE FIRST OBTAINED FROM THE MCDONALD OBSERVATORY IN TEXAS ON FEBRUARY 9, 1971. THE DAY THE EXPERIMENT WAS DEPLOYED, NO DEGRADATION WAS SUFFERED FROM THE LM LIFTOFF.

***** APOLLO 15 LM/ALSEP *****

SPACECRAFT COMMON NAME- APOLLO 15 LM/ALSEP
ALTERNATE NAMES- APOLLO 15C, ALSEP 15
LEM 15, ROVER 15
05366
NSSDC ID- 71-063C

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 07/30/71.

LAUNCH DATE- 07/26/71 SPACECRAFT WEIGHT- 12700. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- SATURN 5

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-DMSF
UNITED STATES NASA-CSS

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - W.F. EICHELMANNASA-JSC
HOUSTON, TX

EXPERIMENT BRIEF DESCRIPTION
THE APOLLO 15 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT, A LUNAR ROVING VEHICLE (LRV), AND AN APOLLO LUNAR SURFACE EXPERIMENT PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE MOON AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE NORTH CENTRAL PART OF THE MOON (26 DEG 4 MIN 54 SEC N LATITUDE, 3 DEG 30 MIN 30 SEC E LONGITUDE), AT THE FOOT OF THE APENNINE MOUNTAIN RANGE. THE ALSEP WAS DEPLOYED AT THE LANDING SITE. THE LRV WAS USED DURING THE EXTRAVEHICULAR ACTIVITIES (EVA) TO EXTEND THE RANGE OF MANNED LUNAR EXPLORATION. THE NUCLEAR-POWERED ALSEP CONTAINED SEISMIC, MAGNETIC FIELDS, LUNAR ATMOSPHERIC COMPOSITION, ION COMPOSITION, LUNAR DUST, SOLAR WIND COMPOSITION, HEAT LOSS, AND SOLAR CELL RADIATION DAMAGE EXPERIMENTS. THE LM ITSELF WAS ON THE LUNAR SURFACE JULY 30-AUGUST 2, 1971.

***** APOLLO 15 LM/ALSEP, FALLER *****

EXPERIMENT NAME- LASER RANGING RETROREFLECTOR

NSSDC ID- 71-063C-08

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 07/30/71.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - J. FALLERWESLEYAN U
MIDDLETOWN, CT

EXPERIMENT BRIEF DESCRIPTION
THE LASER RANGING RETROREFLECTOR EXPERIMENT (LRRR), PART OF THE ALSEP PACKAGE, WAS A CORNER REFLECTOR FOR LASER RANGING FROM EARTH. THE RANGING DATA OBTAINED INCLUDED INFORMATION ON LUNAR MOTION, LUNAR LIBRATIONS, AND EARTH ROTATION. THE LRRR EXPERIMENT CONSISTED OF A FOLDED PANEL STRUCTURE INCORPORATING 300 INDIVIDUAL FUSED-SILICA OPTICAL CORNER REFLECTORS, A SIMPLE ALIGNMENT/LEVELING DEVICE, AND AN AIR-HANDLE MECHANISM. THE LUNAR ROVING VEHICLE (LRV) WAS USED TO CARRY THE LRRR TO THE HADLEY RILL SITE. THE LRRR BECAME PASSIVE AFTER DEPLOYMENT. A HASSELBLAD ELECTRIC DATA CAMERA (60-MM LENS) WAS USED TO PHOTOGRAPH THE EXPERIMENT. THE LRRR CAN BE USED INDEFINITELY AND WILL PROVIDE DATA THAT, WHEN USED IN CONJUNCTION WITH DATA FROM THE APOLLO 11 AND 14 LRRR EXPERIMENTS, WILL PERMIT MORE REFINED DISTANCE MEASUREMENTS THAN WERE PREVIOUSLY AVAILABLE. NOW THAT SMALLER TELESCOPES CAN BE USED, THE EXPERIMENT IS PROVIDING GREATER QUANTITIES OF MORE ACCURATE DATA.

ORIGINAL PART IS
OF POOR QUALITY

***** ATB 5 *****

SPACECRAFT COMMON NAME- ATB 5
ALTERNATE NAMES- PL-4928, ATB-E
04068
NSSDC ID- 69-099A

LAST REPORTED STATE- LAUNCHED AND OPERATING PARTIALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 08/01/73.

LAUNCH DATE- 08/12/65 SPACECRAFT WEIGHT- 821. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- ATLAS-A/CEN

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-OA

INITIAL ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 08/23/69
ORBIT PERIOD- 1463. MIN INCLINATION- 2.6 DEG
PERIAPSIS- 38760.6 KM ALT APCAPSIS- 38894.0 KM ALT

RECENT ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 02/23/78
ORBIT PERIOD- 1436. MIN INCLINATION- 2.3A DEG
PERIAPSIS- 38719. KM ALT APCAPSIS- 38864. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - D.V. FORDYCENASA-GSPC GREENBELT, MD
PS - T.L. AGGSONNASA-GSPC GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
ATB 5 WAS AN EQUATORIAL-ORBITTING, SYNCHRONOUS-ALTITUDE TECHNOLOGY SATELLITE. INTENDED TO TEST VARIOUS COMMUNICATIONS AND EARTH OBSERVATIONAL SYSTEMS, ALSO INCLUDED ON BOARD WERE PARTICLE, ELECTRIC FIELD, AND MAGNETIC FIELD EXPERIMENTS. BECAUSE OF A MALFUNCTION, THE INTENDED GRAVITY GRADIENT STABILIZATION MECHANISM COULD NOT BE DEPLOYED. AND ATB 5 WAS STABILIZED IN A SPINNING MODE ABOUT SPACECRAFT Z AXIS AT APPROXIMATELY 71 RPM. ALL EXPERIMENTS WHICH DEPEND ON THE PLANNED GRAVITY GRADIENT STABILIZATION WERE ADVERSELY AFFECTED TO VARYING DEGREES, AND THE MISSION WAS DECLARED A FAILURE. HOWEVER, SOME OF THE SCIENCE EXPERIMENTS, INCLUDING THE MAGNETIC FIELD MONITOR AND THE PARTICLE EXPERIMENTS, RETURNED USABLE DATA DURING THE OPERATIONAL LIFETIME OF THE MISSION. ATB 5 WAS POSITIONED AT ABOUT 108 DEG W LONGITUDE OVER THE PACIFIC OCEAN. DATA WERE RECORDED ABOUT 60 PERCENT OF THE TIME THROUGH MOST OF THE SPACECRAFT'S OPERATIONAL LIFETIME, WHICH EXTENDED TO JUNE 1, 1973, AFTER WHICH THE ACQUISITION RATE DECREASED FURTHER.

***** ATB 5, DAROSA *****

EXPERIMENT NAME- RADIO BEACON

NSSDC ID- 69-069A-12

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 03/10/78.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - A.V. DAROSASTANFORD U
OI - O.K. GARRIOTTSTANFORD, CA
TM -STANFORD U

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT CONSISTED OF PHASE-COHERENT RADIO FREQUENCIES CONTINUOUSLY TRANSMITTED AT 137.380 AND 412.050 MHZ (3RD HARMONIC) TO THE TOTAL ELECTRON CONTENT ALONG THE PROPAGATION PATH WAS CALCULATED BY ANALYSIS OF THE FARADAY ROTATION ANGLE MEASUREMENTS ON THE LOWER FREQUENCY, OR ANALYSIS OF DIFFERENTIAL DOPPLER FREQUENCY RECORDINGS OF BOTH FREQUENCIES. IONOSPHERIC IRREGULARITIES AND SCINTILLATION WAS ALSO OBSERVED.

***** ATB 5, MOZER *****

EXPERIMENT NAME- TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR

NSSDC ID- 69-069A-04

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 03/10/78.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - J.S. MOZERU OF CALIF, BERKELEY
TM -BERKELEY, CA

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT CONSISTED OF THREE ESSENTIALLY IDENTICAL SCINTILLATION PHOTOMULTIPLIER DETECTORS, EACH INTENDED TO MEASURE (SEPARATELY) ELECTRONS AND PROTONS IN THREE ENERGY WINDOWS CENTERED RESPECTIVELY AT 40, 75, AND 120 KEV AND 60, 120, AND 185 KEV. TWO DETECTORS, LOOKING IN OPPOSITE DIRECTIONS, WERE TILTED BY 12 DEG FROM THE SATELLITE Z AXIS AND ONE WAS ORIENTED PERPENDICULAR TO THIS CONFIGURATION. OVER MOST OF ITS DATA COLLECTING LIFETIME, THE SATELLITE WAS SPINNING ABOUT ITS Z AXIS, WITH A SPIN PERIOD OF 0.78 SEC. DUE TO AN UNPLANNED SPACECRAFT SPIN SOON AFTER LAUNCH, A SHUTTER SYSTEM WAS ACTIVATED THAT RENDERED THE PERPENDICULAR DETECTOR INEFFECTIVE. THEREFORE, MEASUREMENTS WERE MADE ONLY IN

DIRECTIONS APPROXIMATELY PARALLEL AND ANTIPARALLEL TO THE LOCAL MAGNETIC FIELD. THE SPECTRA ANALYSIS WAS PERFORMED BY A THREE-CHANNEL PULSE-HEIGHT ANALYZER, AND PARTICLE COUNTS WERE TELEMETRED IN BOTH ANALOG AND DIGITAL MODES. THE INTEGRATION TIME FOR EACH CHANNEL WAS 0.01 SEC, WHILE THE READOUT RATE FOR ANY ONE CHANNEL VARIED FROM 0.2 TO 9.12 SEC, DEPENDING ON A COMMANDABLE READOUT MODE. FOR FURTHER INFORMATION CONSULT -- DEVELOPMENT OF A COUPLE-LAYERED SCINTILLATOR FOR SEPARATING AND DETECTING LOW-ENERGY PROTONS AND ELECTRONS, BY P. S. MOZER, F. H. HODGITT, AND C. W. BATES, JR., TECH TRANS, ON NUCL. SCI., VOL. 45-16, P 144, 1968.

***** ATB 5, SHARP *****

EXPERIMENT NAME- PROTON ELECTRON DETECTOR

NSSDC ID- 69-099A-05

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 03/10/78.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - R.D. SHARPLOCKHEED PALO ALTO
PALO ALTO, CA
OI - J.W. REGANLOCKHEED PALO ALTO
PALO ALTO, CA

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT PACKAGE CONSISTS OF 11 INDIVIDUAL DETECTORS WITH CONTINUOUS CHANNEL MULTIPLIERS AS THE SENSING ELEMENTS. FOUR OF THE DETECTORS MAGNETICALLY ANALYZE ELECTRONS IN SELECTED CONTIGUOUS ENERGY INTERVALS FROM 0.8 TO 80 KEV. ONE PROTON DETECTOR PROVIDES A MAGNETICALLY ANALYZED DIFFERENTIAL ENERGY GROUP CENTERED AT 1 KEV. FOUR DETECTORS MEASURE INTEGRAL PROTON FLUXES ABOVE 5, 20, 60, AND 1000 KEV. THE TENTH DETECTOR MEASURES PROTONS ABOVE 5 KEV. THE ELEVENTH IS A MATCHED DETECTOR MEASURING BOTH ELECTRONS AND PROTONS. THE FIRST 9 DETECTORS ADMIT FLUXES FROM A DIRECTION 11 DEG REMOVED FROM THE SPACECRAFT AXIS OF SYMMETRY, WHILE THE LAST TWO DETECTORS ARE PLACED AT 22 DEG WITH RESPECT TO THE OTHERS. ON JULY 14, 1970 THE DETECTOR MEASURING PROTON FLUXES ABOVE 20 KEV FAILED. AT THAT TIME, ANOTHER DETECTOR FAILED BUT SINCE ATB-5 WAS SPIN STABILIZED, THIS DETECTOR WAS COMPLETELY REDUNDANT. THE REMAINDER OF THE EXPERIMENT CONTINUES TO PERFORM NORMALLY (MARCH, 1971).

***** ATB 6 *****

SPACECRAFT COMMON NAME- ATB 6
ALTERNATE NAMES- PL-721A, ATB-F, ATB-F
NSSDC ID- 74-039A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

LAUNCH DATE- 05/30/74 SPACECRAFT WEIGHT- 930. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- TITAN 3C

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-OA

INITIAL ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 05/30/74
ORBIT PERIOD- 1440. MIN INCLINATION- 1.82 DEG
PERIAPSIS- 42157. KM ALT APCAPSIS- 42160. KM ALT

RECENT ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 02/23/78
ORBIT PERIOD- 1436.1 MIN INCLINATION- 1.127 DEG
PERIAPSIS- 38763.4 KM ALT APCAPSIS- 38806.1 KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - A.H. SABELHAUSNASA-GSPC GREENBELT, MD

PS - E.A. WOLFFNASA-GSPC GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

THE PRIMARY OBJECTIVES OF ATB-6 (APPLICATIONS TECHNOLOGY SATELLITE) WERE TO ERRECT IN ORBIT A LARGE HIGH-GAIN STEERABLE ANTENNA STRUCTURE CAPABLE OF PROVIDING A GOOD QUALITY TV SIGNAL TO A GROUND-BASED RECEIVER AND TO MEASURE AND EVALUATE THE PERFORMANCE OF SUCH AN ANTENNA. A SECONDARY OBJECTIVE WAS TO DEMONSTRATE NEW CONCEPTS IN SPACE TECHNOLOGY IN THE AREAS OF AIRCRAFT CONTROL, LASER COMMUNICATIONS, AND VISUAL AND INFRARED MAPPING OF THE EARTH/ATMOSPHERE SYSTEM. THE SPACECRAFT WAS ALSO CAPABLE OF (1) MEASURING RADIO FREQUENCY INTERFERENCE IN SHARED FREQUENCY BANDS AND PROPAGATION CHARACTERISTICS OF MILLIMETER WAVES, (2) PERFORMING SPACECRAFT-TO-SPACECRAFT COMMUNICATION AND TRACKING EXPERIMENTS, AND (3) MAKING PARTICLE AND RADIATION MEASUREMENTS OF THE GEOSYNCHRONOUS ENVIRONMENT. CONFIGURED SOMEWHAT LIKE AN OPEN PARASOL, THE ATB-6 SPACECRAFT CONSISTED OF FOUR MAJOR ASSEMBLIES -- (1) A 9.15-M-DIAM DISH ANTENNA, (2) TWO SOLAR CELL PADDLES MOUNTED AT RIGHT ANGLES TO EACH OTHER ON OPPOSITE SIDES OF AN UPPER EQUIPMENT MODULE, (3) AN EARTH-VIEWING EQUIPMENT MODULE (EVM) CONNECTED BY A TUBULAR MAST TO THE UPPER EQUIPMENT MODULE, AND (4) AN ATTITUDE CONTROL AND STABILIZATION SYSTEM. THE EVM, IN ADDITION TO HOUSING THE EARTH-VIEWING EXPERIMENTS, PROVIDED SUPPORT FOR THE PROPULSION SYSTEM AND TANKS, BATTERIES, A MULTIFREQUENCY TRANSPONDER, AND THE TELEMETRY, COMMAND, AND THERMAL CONTROL SYSTEMS. THE UPPER EQUIPMENT MODULE PROVIDED A PLATFORM FOR THE SPACE-VIEWING EXPERIMENTS. INERTIA WHEELS WILL BE THE

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OF POOR QUALITY

PRIME MEANS FOR TOWLING THE SPACECRAFT, WITH BOTH HYDRAZINE AND AMMONIA MULTI-JET THRUSTER SYSTEMS INCLUDED TO PROVIDE THE NECESSARY TORQUES FOR UNLOADING THE WHEELS. ALSO INCLUDED IS A SMALL ENVIRONMENT MEASUREMENT PACKAGE CONTAINING A MAGNETOMETER AND SEVERAL PARTICLE EXPERIMENTS. OPERATION OF THE SPACECRAFT HAS BEEN SUCCESSFUL FROM LAUNCH. THE SATELLITE IS LOCATED AT 44.41 DEG N LONGITUDE.

----- ATS 6, DUNKERLY -----
EXPERIMENT NAME- SOLAR CELL RADIATION DAMAGE EXPERIMENT

NSSDC ID- 74-039A-10

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - V. DUNKERLYUGHES AIRCRAFT CO
EL SEGUNDO, CA

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS PLANNED TO ISOLATE THE DOMINANT DEGRADATION MECHANISMS ASSOCIATED WITH PRESENTLY USED SOLAR CELLS, AND TO ELIMINATE ANOMALOUS DATA THROUGH INCREASED DATA POINTS AND IMPROVED INSTRUMENTATION ACCURACY. A TOTAL OF 80 SOLAR CELLS WERE INDIVIDUALLY MONITORED ON THE FLIGHT EXPERIMENT. TWELVE CURRENT-VOLTAGE POINTS AND TEMPERATURE DATA FOR EACH SOLAR CELL WERE TRANSMITTED TO GROUND ON A REAL-TIME BASIS. FIVE SOLAR CELLS OF 16 TYPES HAVE BEEN INCLUDED TO PROVIDE A STATISTICALLY MEANINGFUL SAMPLE SIZE. A SOLAR ASPECT SENSOR ENSURED THAT THE SUN IS NORMAL TO THE TEST CELLS AT THE TIME OF THE MEASUREMENTS.

----- ATS 6, GHAISS -----
EXPERIMENT NAME- POSITION, LOCATION AND AIRCRAFT COMMUNICATION EXPERIMENT

NSSDC ID- 74-039A-19

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - A.F. GHAISSNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE POSITION LOCATION AND AIRCRAFT COMMUNICATION EXPERIMENT (PLACE) WAS USED TO DETERMINE THE OPERATIONAL FEASIBILITY OF AIR TRAFFIC CONTROL AND MARITIME SATELLITE SYSTEMS OPERATING IN THE AERONAUTICAL L-BAND. THE FIRST OBJECTIVE WAS TO PROVE THE FEASIBILITY OF TWO-WAY COMMUNICATIONS RELAYED BY SATELLITE BETWEEN GROUND TERMINALS AND AIRCRAFT OR SHIPS, INCLUDING -- 1) THE USE OF ATS 6 AS A SYNCHRONOUS SATELLITE FOR RELAYING COMMUNICATIONS, 2) THE USE OF THE AERONAUTICAL L-BAND FOR SATELLITE/AIRCRAFT AND SATELLITE/SHIP LINKS, 3) THE USE OF BOTH VOICE AND DIGITAL TWO-WAY COMMUNICATION, AND 4) THE USE OF A SATELLITE FOR AIRCRAFT/GROUND AND SHIP/SHORE MULTIPLE ACCESS COMMUNICATIONS. THE SECOND OBJECTIVE WAS TO INVESTIGATE THE FEASIBILITY AND TO EVALUATE THE ABSOLUTE AND RELATIVE ACCURACIES OF SEVERAL POSITION LOCATION TECHNIQUES USING SATELLITES. THESE TECHNIQUES RELAY VARIOUS SIGNALS FROM THE AIRCRAFT OR SHIP VIA THE SATELLITE TO THE CONTROL CENTER FOR DATA PROCESSING AND POSITION DETERMINATION.

----- ATS 6, HENRY -----
EXPERIMENT NAME- RADIO FREQUENCY INTERFERENCE EXPERIMENT

NSSDC ID- 74-039A-11

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - V.F. HENRYNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE RADIO FREQUENCY INTERFERENCE (RFI) EXPERIMENT PROVIDED REALISTIC DATA ON MUTUAL RF INTERFERENCE IN THE C-BAND SPECTRUM SHARED BETWEEN SATELLITE AND TERRESTRIAL TELECOMMUNICATIONS SYSTEMS. THE EXPERIMENT MEASURED AND EVALUATED THE EFFECTS OF RFI IN THE SHARED COMMON-CARRIER OF FREQUENCY BAND, 5922 TO 6425 MHz. THE TECHNICAL OBJECTIVES OF THE C-BAND RFI EXPERIMENT WERE TO -- DETERMINE THE FLUX DENSITY OF THE 6-GHZ INTERFERENCE POWER AT THE SATELLITE, ESTABLISH PRACTICAL GAIN-TO-NOISE RATIO LIMITS FOR THE SATELLITE, ESTABLISH REALISTIC SATELLITE PROTECTION RATIOS, DETERMINE BOTH GEOGRAPHICAL AND FREQUENCY DISTRIBUTION OF TERRESTRIAL RF NOISE SOURCES, AND TO INVESTIGATE THE FEASIBILITY OF ESTABLISHING MATHEMATICAL MODELS FOR PREDICTING RFI.

----- ATS 6, HUNTER -----
EXPERIMENT NAME- CESIUM BOMBARDMENT ION ENGINE EXPERIMENT
NSSDC ID- 74-039A-14

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - R.E. HUNTERNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE ATS 6 ION ENGINE EXPERIMENT WAS PLANNED TO DEMONSTRATE NORTH-SOUTH STATIONKEEPING OF A GEOSYNCHRONOUS SPACECRAFT. THE ION ENGINE EXPERIMENT PERFORMED ATTITUDE MANEUVERS AND UNLOADED MOMENTUM WHEELS USING ITS THRUST VECTORING CAPABILITY TO DEVELOP TORQUES ABOUT THE SPACECRAFT'S CENTER-OF-MASS. THE TWO ION ENGINE SYSTEMS ON THE SPACECRAFT HAD THE THRUSTER SUBSYSTEMS MOUNTED ON THE NORTH AND SOUTH FACES OF THE Earth-Viewing Module. THE THRUSTERS WERE INTEGRATED INTO THE SPACECRAFT SO THE THRUST VECTOR MADE A 30-DEG ANGLE WITH THE YAW AXIS IN THE ROLL-ROTATION PLANE AND PASSED THROUGH THE SPACECRAFT CENTER OF MASS. THE ION ENGINE SYSTEM CONSISTED OF THE THRUSTER SUBSYSTEM AND THE CONTROL LOGIC AND POWER CONDITIONING SUBSYSTEM. TO HOLD THE CHANGE IN THE SPACECRAFT'S ORBIT INCLINATION TO ZERO, EACH OF THE TWO ION THRUSTERS WERE OPERATED ALTERNATELY SO THEIR THRUST COMPONENTS, NORMAL TO THE ORBITAL PLANE, WERE SYMMETRICALLY APPLIED ABOUT THE NODAL CROSSINGS. THE CESIUM-BOMBARDMENT ION THRUSTER USED A MAGNETOELECTROSTATIC PLASMA CONFINEMENT PRINCIPLE.

----- ATS 6, HYDE -----
EXPERIMENT NAME- COMBAT PROPAGATION EXPER (13-AND 18-GHZ)

NSSDC ID- 74-039A-21

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - G. HYDECOMMUN SATELLITE CORP
CLARKSBURG, MD

EXPERIMENT BRIEF DESCRIPTION
THE PURPOSE OF THE EXPERIMENT WAS TO COLLECT SUFFICIENT LONG-TERM DATA ON PROPAGATION ATTENUATION CAUSED BY PRECIPITATION FOR A LARGE NUMBER OF LOCATIONS IN THE U.S. THIS WILL PERMIT DETERMINATION OF MINIMUM-POWER MARKINGS NEEDED IN SPACECRAFT COMMUNICATIONS SYSTEMS OPERATING AT FREQUENCIES ABOVE 10 GHz. THE EXPERIMENT WILL INVOLVE ANALYSIS OF DATA PROVIDED FROM 10 WIDELY SEPARATED DUAL-FREQUENCY STATIONS, AND PROVIDE THE UNIQUE CAPABILITY OF MAKING INSTANTANEOUS CORRELATIONS ON SIGNALS BETWEEN ANY NUMBER OF STATIONS. THE EXPERIMENTAL SYSTEM CONSISTED OF THREE MAIN PARTS -- (1) 10 SMALL WIDELY SEPARATED (GREATER THAN 100 MILES APART) EARTH STATIONS, EACH TRANSMITTING AT APPROXIMATELY 13 AND 18 GHz, AND 18 GHz CLOSELY SPACED (LESS THAN 25 MILES APART) 18-GHz TRANSMITTING TERMINALS; (2) A SPACECRAFT TRANSponder RECEIVING FROM THE SMALL-EARTH TRANSMITTING TERMINALS AT APPROXIMATELY 13 AND 18 GHz, AND RETRANSMITTING THESE SIGNALS AT ABOUT 4 GHz, AND (3) ONE 4-GHz EARTH STATION FOR RECEIVING AND RECORDING THE PROPAGATION DATA FROM THIS EXPERIMENT.

----- ATS 6, IPPOLITO -----
EXPERIMENT NAME- MILLIMETER WAVE PROPAGATION EXPERIMENT

NSSDC ID- 74-039A-13

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - L.J. IPPOLITONASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE ATS 6 MILLIMETER WAVE (MMW) PROPAGATION EXPERIMENT EVALUATED THE PROPAGATION CHARACTERISTICS OF SPACE-EARTH LINKS CENTERED AT 20 AND 30 GHz DURING MEASURED METEOROLOGICAL CONDITIONS. THE OBJECTIVES OF THIS EXPERIMENT WERE TO -- PROVIDE ENGINEERING DATA ON SPACE-EARTH COMMUNICATIONS LINKS OPERATING AT 20 AND 30 GHz, INVESTIGATE TECHNIQUES FOR PREDICTING MMW PROPAGATION EFFECTS FROM INDIRECT MEASUREMENTS SUCH AS METEOROLOGICAL SKY TEMPERATURE AND RADAR BACKSCATTER, AND ESTABLISH A MODEL FOR THE MMW CHANNEL UNDER DEFINED METEOROLOGICAL CONDITIONS.

----- ATS 6, ISLEY -----
EXPERIMENT NAME- SPACECRAFT ATTITUDE CONTROL EXPERIMENT

NSSDC ID- 74-039A-20

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - W.C. ISLEYNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE SPACECRAFT ATTITUDE PRECISION POINTING AND SLEWING ADAPTIVE CONTROL EXPERIMENT (SAPPSAC) OBJECTIVES WERE TO DEMONSTRATE -- (1) THE ABILITY TO MAINTAIN PRECISE ATTITUDE STABILIZATION OF A GIVEN SPACECRAFT POINTING VECTOR (SUCH AS

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THE ANTENNA IN A FIXED DIRECTION, FOR AN EXTENDED PERIOD OF TIME IN THE PRESENCE OF ALL DISTURBING INPUTS, SUCH USING THE GROUND ATTITUDE CONTROL COMMAND LINK WITH AUTOMATIC EXECUTION. (2) RELATIVE COMMAND AND TELEMETRY LINK RELIABILITIES FOR AN EXTENDED PERIOD OF TIME; (3) THE RELATIVE ATTITUDE MEASUREMENT CAPABILITIES FOR THE AVAILABLE SENSORS DURING EXTENDED TERM PRECISION ATTITUDE STABILIZATION OF THE SPACECRAFT; (4) THE ABILITY TO PERFORM A SINGLE-ATTITUDE BLENDING MANUEVER BETWEEN TWO REFERENCE GROUND LOCATIONS IN A MANNER DESCRIBED (SUCH AS MANUEVER TIME, REACTION JET-PROPPELLANT EXPENDITURE, MOMENTUM-BEVEL, SPEED CHANGES, MAXIMUM ALLOWABLE ATTITUDE RATES, OR IN VARIOUS COMBINATIONS); (5) THE ABILITY TO GENERATE PRESCRIBED GROUND PATTERNS, SUCH AS ANTENNA SWEEPING AT A GROUND STATION OR FIXED GROUND TRACK GENERATION; (6) THE ABILITY TO TRACK ANOTHER OBJECT IN FLIGHT IN A MANNER THAT MINIMIZES JET-PROPPELLANT EXPENDITURE OR ANGEL-BESED VARIATIONS; (7) THE USE OF APPROP FOR POSTLAUNCH DIAGNOSTICS, SUCH AS VERIFICATION OF SOLAR-TONGUE PROFILES, REACTION-JET BEHAVIOR, MOMENTUM-BEVEL BEHAVIOR, L-CO-FREQUENCY JITTER, AND SENSOR BEHAVIOR; AND (8) THE ABILITY OF COMBINED TWO-STATION INTERFEROMETER AND EARTH SENSOR (OR THREE-STATION INTERFEROMETER) GROUND TELEMETRY TO DETERMINE REAL-TIME ORBIT STATE.

----- ATS 6, KAMPINSKY -----

EXPERIMENT NAME= R.F. INTERFEROMETER SUBSYSTEM
NSSDC ID= 74-039A-20

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = A. KAMPINSKYNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE RADIO FREQUENCY INTERFEROMETER (RFI), WHEN USED IN CONJUNCTION WITH TWO GROUND TRANSMITTERS, PROVIDES THE MEANS OF DETERMINING SPACECRAFT ATTITUDE IN ROLL, PITCH, AND COMPUTED YAW TO AN ACCURACY OF PLUS OR MINUS 0.015 DEGREE, WITHIN A 12.5-DEG CONICAL FOV AND TO PLUS OR MINUS 0.020 DEG WITHIN A 30-DEG CONICAL FOV CENTERED ON THE SPACECRAFT Z-AXIS. THE INTERFEROMETER CONTAINED -- (1) AN ANTENNA ARRAY, WHICH CONSISTED OF THE ORTHOGONAL BASELINES WAS MOUNTED ON THE EARTH-VIEWING SURFACE OF THE EARTH VIEWING MODULE, (2) A TWO-CHANNEL RECEIVER, ONE FOR REFERENCE SIGNAL AND ONE FOR COMPARISON SIGNAL, (3) A SPACECRAFT DATA CONVERTER, WHICH MEASURED THE PHASE RELATIONSHIP OF THE RECEIVER OUTPUT SIGNALS WITH RESPECT TO A COHERENT REFERENCE SIGNAL, AND WHICH CONVERTED THESE MEASUREMENTS TO DIGITAL FORM, WHICH CAN BE TELEMETRED TO GROUND OR CONNECTED TO THE ATTITUDE CONTROL SYSTEM (A COMPLETE MEASUREMENT CAN BE MADE EVERY 230 MSEC AND TELEMETRED ONCE EVERY 3 SEC), AND (4) AN INTERFEROMETER HIGH-SPEED DATA LINK, WHICH WAS THE RESULTANT OUTPUT OF THE DIGITAL CONVERTER PHASE-COUNT GATE AND A 4-MHZ OSCILLATOR.

----- ATS 6, KIRKPATRICK -----

EXPERIMENT NAME= ADVANCED THERMAL CONTROL FLIGHT EXPER
NSSDC ID= 74-039A-22

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = J. KIRKPATRICKNASA-APC
MOFFETT FIELD, CA

EXPERIMENT BRIEF DESCRIPTION
THE OBJECTIVES OF THE ADVANCED THERMAL CONTROL FLIGHT EXPERIMENT (ATFE) WERE -- (1) TO EVALUATE, IN SPACE, THE PERFORMANCE OF AN ACTIVE, FEEDBACK-CONTROLLED, VARIABLE-CONDUCTANCE HEAT PIPE, A THERMAL DIODE (ONE-WAY HEAT PIPE), AND A PHASE-CHANGE HEAT RESERVOIR OR THERMAL ACCUMULATOR; (2) TO DEMONSTRATE THE EFFECTIVENESS OF THESE RECENTLY DEVELOPED THERMAL CONTROL DEVICES IN STABILIZING THE TEMPERATURE OF SPACECRAFT COMPONENTS WHICH UNDERGO MARKED CHANGES IN POWER DISSIPATION AND/OR THERMAL ENVIRONMENT, TO AVOID THE USE OF SPACECRAFT POWER TO PROVIDE HEAT INPUT; THE EXPERIMENT INCLUDED A SOLAR ABSORBER PANEL AND A THERMAL DIODE, THE SOLAR ABSORBER WAS ORIENTED SO, IN SYNCHRONOUS ORBIT, IT WILL BE EXPOSED TO ONE FULL DAILY RANGE OF INSOLATION.

----- ATS 6, HATTSON -----

EXPERIMENT NAME= SPACECRAFT VIBRATION ACCELEROMETER
NSSDC ID= 74-039A-30

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = R.A. HATTSONNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THREE IN-FLIGHT SPACECRAFT VIBRATION ACCELEROMETERS WERE MOUNTED ON THE SPACECRAFT IN THE HUB AREA. TWO ACCELEROMETERS SENSED IN A LATERAL DIRECTION AND ONE SENSED IN A VERTICAL

DIRECTION. IN ADDITION, AN ACCELEROMETER WAS MOUNTED IN THE TRANSVERSE TO SENSE IN THE VERTICAL DIRECTION. THESE ACCELEROMETERS PROVIDED DATA FOR VERIFYING BASIC SPACECRAFT MODE SHAPES AND FREQUENCIES DURING FLIGHT. THE DATA WILL BE USED TO UPDATE THE ANALYTIC MODEL OF THE SPACECRAFT, AND PROVIDE FAILURE MODE DETECTION AND DIAGNOSTIC INFORMATION ON ANY IN-FLIGHT ANOMALIES. ALL THE DATA FROM THE SPACECRAFT ACCELEROMETERS WERE TELEMETRED VIA THE LAUNCH VEHICLE S-BAND TELEMETRY SYSTEM.

----- ATS 6, MILLER -----

EXPERIMENT NAME= SATELLITE INSTRUCTIONAL TV EXPERIMENT
NSSDC ID= 74-039A-17

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT ZERO DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = J.E. MILLERNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE GENERAL OBJECTIVE OF THE EXPERIMENT WERE -- (1) TO GAIN EXPERIENCE IN THE DEVELOPING, TESTING, AND MANAGING OF A SATELLITE-BASED INSTRUCTIONAL TV SYSTEM, PARTICULARLY IN RURAL AREAS AND TO DETERMINE OPTIMAL SYSTEM PARAMETERS; (2) TO DEMONSTRATE THE POTENTIAL VALUE OF SATELLITE TECHNOLOGY IN THE RAPID DEVELOPMENT OF EFFECTIVE MASS COMMUNICATIONS IN DEVELOPING COUNTRIES; (3) TO DEMONSTRATE THE POTENTIAL VALUE OF SATELLITE BROADCAST TV IN THE PRACTICAL INSTRUCTION OF VILLAGER INHABITANTS; AND (4) TO STIMULATE NATIONAL DEVELOPMENT IN INDIA, WITH IMPORTANT MANAGERIAL, ECONOMIC, TECHNOLOGICAL, AND SOCIAL IMPLICATIONS. THE SPACECRAFT WAS POSITIONED AT APPROXIMATELY 35-DEG E LONGITUDE, A FREQUENCY MODULATED TV CARRIER AT 6 GHz WAS TRANSMITTED TO THE ATS 6 EARTH-COVERAGE ANTENNA FROM ONE OF TWO EARTH STATIONS -- AHMEDABAD OR DELHI. THE SIGNAL WAS PROCESSED AND RE-TRANSMITTED AT BOTH 6 GHz AND 860 MHz. THE 860-MHZ DOWNLINK TESTED THE CONCEPT OF A HYBRID SYSTEM INVOLVING BOTH DIRECT RECEPTION BY LOW-COST AUGMENTED TV RECEIVERS AS WELL AS HIGHER SENSITIVITY EARTH STATIONS FOR REBROADCAST AT VHF TO CONVENTIONAL TV RECEIVERS. ABOUT 2000 DIRECT RECEPTION AND 2000 CONVENTIONAL SETS WERE LOCATED IN 6000 VILLAGES. THE DIRECT RECEPTION TERMINALS WERE LOCATED IN CLUSTERS OF ABOUT 400 EACH IN SIX STATES OF INDIA, WHILE THE CONVENTIONAL SETS WERE LOCATED IN VILLAGES NEAR EXISTING OR PLANNED VHF TV TRANSMITTERS.

----- ATS 6, MILLER -----

EXPERIMENT NAME= TELEVISION RELAY USING SMALL TERMINALS
NSSDC ID= 74-039A-28

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = J.E. MILLERNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE PURPOSE OF THE TELEVISION RELAY USING SMALL TERMINALS (TRUST) EXPERIMENT WAS TO ADVANCE AND PROMOTE THE TECHNOLOGY OF WIDE-BAND SATELLITE COMMUNICATIONS TO SMALL GROUND TERMINALS, BY DEVELOPING AND DEMONSTRATING A PILOT SYSTEM USING THE ATS 6 SPACECRAFT WITH ITS HIGH-GAIN PARABOLIC REFLECTOR. SPECIFIC GOALS WERE -- (1) TO TEST AND EVALUATE AN EXPERIMENTAL SYSTEM FOR FM RELAY OF BLACK AND WHITE AND COLOR TV SIGNALS (AND ASSOCIATED SOUND) BETWEEN THE ATS 6 SPACECRAFT AND A UHF RECEIVING FACILITY; (2) TO EVALUATE THE PERFORMANCE OF THE PILOT SYSTEM RELATIVE TO EXPERIMENT DESIGN OBJECTIVES AND INTERNATIONALLY RECOGNIZED AND ACCEPTED STANDARDS FOR TV-TRANSMISSION SYSTEMS; (3) TO OBSERVE THE EFFECTS OF IONOSPHERIC DISPERSION ON SYSTEM PERFORMANCE AS A FUNCTION OF ELECTRON DENSITY, GROUND STATION LOCATION, AND OTHER SYSTEM VARIABLES; AND COMPARE WITH THEORETICAL PREDICTIONS; AND (4) TO PROVIDE INTERESTED UNDERDEVELOPED COUNTRIES AN OPPORTUNITY TO PARTICIPATE IN TESTS AND DEMONSTRATIONS OF A HIGH EFFECTIVE ISOTROPIC RADIATIVE POWER (IRIP) SATELLITE SUITABLE FOR NATIONAL EDUCATION TV USING INEXPENSIVE RECEIVERS. THE BASIC EXPERIMENT SYSTEM CONSISTED OF A HIGH-POWER MICROWAVE TRANSMITTING TERMINAL FOR EARTH-TO-SATELLITE COMMUNICATIONS, THE SPACECRAFT WITH A MICROWAVE-TO-UHF COMMUNICATIONS REPEATER, AND A PILOT MOBILE UHF GROUND RECEIVING FACILITY.

----- ATS 6, PATTERSON -----

EXPERIMENT NAME= TELEVISION CAMERA
NSSDC ID= 74-039A-31

LAST REPORTED STATE= LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI = G.C. PATTERSONNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
A SUBMINIATURE TV CAMERA WAS MOUNTED INSIDE THE EARTH VIEWING MODULE WITH THE LENS ATTACHED THROUGH A HOLE IN THE PRIME-FOCUS FEED PLATE TO VIEW THE 30-FT PARABOLIC REFLECTOR.

ITS PRIMARY PURPOSE WAS TO VERIFY PROPER REFLECTOR DEPLOYMENT AND TO INDICATE POSSIBLE ANOMALIES SUCH AS TEARS, HILES, FOLDS, AND OTHER DISTORTIONS. ITS SECONDARY PURPOSE WAS TO PERIODICALLY DETERMINE ANY CHANGE IN THE STATUS OF THE REFLECTOR. THIS INFORMATION WAS USED IN OPERATING AND ANALYZING THE COMMUNICATIONS SYSTEM. THE TV CAMERA USED THE COMMUNICATIONS SUBSYSTEM WIDE-BAND DATA UNIT TO TRANSMIT PICTURES TO THE GROUND.

----- ATS 6; NOGEM -----

EXPERIMENT NAME- QUARTZ CRYSTAL MICRO BALANCE

NSSDC ID- 74-039A-23

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 08/30/74.

EXPERIMENT PERSONNEL (PI-PRINCIPAL INVESTIGATOR; TL-TEAM LEADER; OI-OTHER INVESTIGATOR; IM-TEAM MEMBER)
PI - J.F. NOGEMNASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THE QUARTZ CRYSTAL MICROBALANCE CONTAMINATION MONITOR SEARCHED FOR POSSIBLE SPACECRAFT CONTAMINANTS. THE INSTRUMENT USED WAS A QUARTZ CRYSTAL MICROBALANCE THAT MEASURED EXTREMELY SMALL MASS ACCRETIONS. THE SENSOR WAS MOUNTED ON A FACE WHICH VIEWED SPACE, AND RAN AT TEMPERATURES NEAR 200-DEG K. SOURCES OF POSSIBLE CONTAMINANTS ON THE SPACECRAFT IN ADDITION TO GENERAL OUTGASSING, INCLUDED THE EJECTA FROM THE SPACECRAFT PROPELLSION SUBSYSTEMS AND PROPELLSION EXPERIMENT. THE EXPERIMENT FLIGHT HARDWARE CONSISTED OF TWO PARTS -- A SENSOR ASSEMBLY MOUNTED EXTERNALLY ON THE NORTH FACE OF THE EARTH VIEWING MODULE, AND THE ELECTRONIC UNIT MOUNTED INTERNALLY ON THE SAME FACE. THE SENSOR ASSEMBLY CONTAINED THE SENSING AND REFERENCE OSCILLATING QUARTZ CRYSTALS, HEATERS, AND THE ELECTRONIC DRIVING CIRCUITRY FOR THE CRYSTALS. THE DESIGN GOAL TEMPERATURE OF 200-DEG K FOR THE CRYSTALS WAS OBTAINED BY USING OPTICAL SOLAR REFLECTORS FOR EXTERNAL THERMAL CONTROL, AND THERMAL INSULATORS FOR MOUNTING STRUCTURES. THE ELECTRONIC UNIT CONTAINED THE SIGNAL PROCESSING, TEMPERATURE CONTROL, AND COMMAND CIRCUITRY.

----- ATS 6; TRUDELL -----

EXPERIMENT NAME- TRACKING AND DATA RELAY EXPERIMENT

NSSDC ID- 74-039A-18

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI-PRINCIPAL INVESTIGATOR; TL-TEAM LEADER; OI-OTHER INVESTIGATOR; IM-TEAM MEMBER)
PI - U.J. TRUDELLNASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT DEMONSTRATED EXPERIENCE AND INFORMATION USED IN DESIGNING TRACKING AND DATA RELAY SYSTEMS. THE SPECIFIC OBJECTIVES WERE TO -- (1) ESTABLISH THE ORBIT OF A LOW-ORBITING SPACECRAFT FROM A HIGHER ORBITING SPACECRAFT, AND (2) DEMONSTRATE THE TECHNOLOGY OF COMMAND AND TELEMETRY DATA TRANSMISSION BETWEEN A LOW-ALTITUDE SATELLITE AND A GROUND STATION USING A GEOSYNCHRONOUS SATELLITE AS A COMMUNICATIONS RELAY. THIS EXPERIMENT USED THE ATS 6 AS A REPEATER FOR INFORMATION TRANSMISSION BETWEEN EARTH AND A SECOND SATELLITE, SUCH AS NIMBUS. IT WAS A DUPLEX LINK THAT REQUIRED THE TRANSDUCER TO TRANSMIT AND RECEIVE ON TWO CHANNELS SIMULTANEOUSLY. SEVERAL SATELLITE-TO-SATELLITE EXPERIMENTS WERE PLANNED USING ATS 6, WHICH WAS IN A GEOSYNCHRONOUS-EQUATORIAL ORBIT AND THE GEODETIC EARTH ORBITING SATELLITE-C (GEOS 3), WHICH IS IN A NEAR-EARTH, NEAR-CIRCULAR ORBIT.

----- ATS 6; WHALEN -----

EXPERIMENT NAME- HEALTH AND EDUCATION TELECOMMUNICATIONS EXPERIMENT

NSSDC ID- 74-039A-24

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 05/30/74.

EXPERIMENT PERSONNEL (PI-PRINCIPAL INVESTIGATOR; TL-TEAM LEADER; OI-OTHER INVESTIGATOR; IM-TEAM MEMBER)
PI - A.A. WHALENNASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THE S-BAND HEALTH, EDUCATION, TELECOMMUNICATIONS (HET) EXPERIMENT WAS FLOWN TO EVALUATE THE PERFORMANCE AND EFFECTIVENESS OF SATELLITE RELAY OF EDUCATIONAL PROGRAMMING AND HEALTH CARE DELIVERY TO FACILITIES SUCH AS SCHOOLS, NEW LEARNING CENTERS, HOSPITALS, CLINICS, AND COMMUNITY ANTENNA TELEVISION DISTRIBUTION SYSTEMS. THE SPACECRAFT WAS EQUIPPED WITH A TWO-CHANNEL TV TRANSMITTING CAPABILITY IN THE 2.0- TO 2.69-GHZ BAND. THE HET EXPERIMENT PROVIDED THE FIRST OPPORTUNITY TO USE SATELLITE COMMUNICATIONS FOR THE TRANSMISSION OF TV AND MULTIPLE VOICE CHANNELS TO LOW-COST EARTH STATIONS. THE SPACECRAFT INCLUDED A PRIME-FOCUS FEED COMPLEX HAVING A CROSSED-ARRAY OF SWITCHABLE BROADBAND S-BAND FEED ELEMENTS. TWO OF THESE FEED ELEMENTS WERE USED FOR THE HET EXPERIMENT. SIX EXPERIMENT COMPONENTS REQUIRING SEVEN DIFFERENT SPACECRAFT POINTINGS ARE INVOLVED IN THIS

EXPERIMENT. THE SIX COMPONENTS ARE -- (1) APPALACHIAN REGIONAL COMMISSION EXPERIMENTS; (2) THE VETERANS ADMINISTRATION EXPERIMENTS; (3) SATELLITE TECHNOLOGY DEMONSTRATION; (4) WASHINGTON, ALASKA, MONTANA, IDAHO EXPERIMENTS; (5) ALASKA HEALTH SERVICES EXPERIMENTS; AND (6) ALASKA EDUCATION EXPERIMENTS.

----- CORSA -----

SPACECRAFT COMMON NAME- CORSA
ALTERNATE NAMES- COSMIC RADIATION SAT.
NSSDC ID- CORSA

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 02/00/76 SPACECRAFT HEIGHT- 98.46
LAUNCH SITE- KAGOSHIMA, JAPAN
LAUNCH VEHICLE- M-JC

SPONSORING COUNTRY/AGENCY
JAPAN ISAS

PLANNED ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 100. M/H INCLINATION- 30. DEG
PERIAPSIS- 300. KM ALT APQAPSIS- 600. KM ALT

SPACECRAFT PERSONNEL (PM-PROJECT MANAGER; PS-PROJECT SCIENTIST)
PM - M. ODAU OF TOKYO TOKYO, JAPAN
PS - S. HAYAKAWANAGOYA U NAGOYA, JAPAN

SPACECRAFT BRIEF DESCRIPTION

THE COSMIC RADIATION SATELLITE, CORSA, WILL HAVE THE SHAPE OF AN OCTAGONAL RIGHT PRISM WITH A MAXIMUM SIZE OF 80 CM AND A HEIGHT OF 80 CM. THE SPACECRAFT WILL BE SPIN STABILIZED AND CAPABLE OF BEING POINTED TOWARD ANY INTERESTING OBJECT IN THE SKY. THREE KINDS OF X-RAY DETECTORS WILL LOOK PARALLEL AND PERPENDICULAR TO THE SPIN AXIS OF THE SATELLITE. WITH THESE DETECTORS, X-RAY SOURCES CAN BE OBSERVED OVER A WIDE-BAND ENERGY RANGE AND A SHORT TIME RESOLUTION. A CORE MEMORY OF 4000 WORDS WILL STORE THE DATA DURING THE TIME WHEN THE SATELLITE IS NOT IN CONTACT WITH A TELEMETRY STATION.

----- CORSA, MAKINO -----

EXPERIMENT NAME- VERY SOFT X-RAY DETECTORS

NSSDC ID- CORSA -01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI-PRINCIPAL INVESTIGATOR; TL-TEAM LEADER; OI-OTHER INVESTIGATOR; IM-TEAM MEMBER)

PI - F. MAKINONAGOYA U NAGOYA, JAPAN
OI - Y. TANAKAU OF TOKYO TOKYO, JAPAN
OI - S. HAYAKAWANAGOYA U NAGOYA, JAPAN

EXPERIMENT BRIEF DESCRIPTION

TWO SETS OF VERY-SOFT X-RAY PROPORTIONAL COUNTERS, WHICH COVER THE ENERGY RANGE OF 0.2 TO 3 KEV, WILL BE PLACED PERPENDICULAR TO THE SPIN AXIS, WHILE OTHERS WILL BE DIRECTED ALONG THE SPIN AXIS. THESE CAN DETECT INTENSITIES OF LOW-ENERGY COMPONENTS OF X RAYS AND TIME VARIATION FROM INTERESTING X-RAY STARS.

----- CORSA, MIYAMOTO -----

EXPERIMENT NAME- SOFT AND HARD X-RAY DETECTORS

NSSDC ID- CORSA -02

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI-PRINCIPAL INVESTIGATOR; TL-TEAM LEADER; OI-OTHER INVESTIGATOR; IM-TEAM MEMBER)

PI - S. MIYAMOTOU OF TOKYO TOKYO, JAPAN
OI - M. MATSUOKAU OF TOKYO TOKYO, JAPAN
OI - Y. OGAWARAU OF TOKYO TOKYO, JAPAN
OI - M. ODAU OF TOKYO TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION

TWO SETS OF SOFT X-RAY PROPORTIONAL COUNTERS, OPERATING OVER THE ENERGY RANGE OF 2 TO 30 KEV, WILL BE PLACED SO ONE SET LOOKS PERPENDICULAR FROM THE SPIN AXIS AND THE OTHER SET LOOKS ALONG THE SPIN AXIS. A HARD X-RAY SCINTILLATION COUNTER THAT IS SENSITIVE FOR THE ENERGY RANGE OF 10 TO 100 KEV WILL BE PLACED TO LOOK ALONG THE SPIN AXIS. THESE CAN DETECT X-RAY INTENSITIES WITH A TIME RESOLUTION OF 1.3 MICROSECONDS.

----- CORSA, NAKAGAWA -----

EXPERIMENT NAME- HEAVY PRIMARY COSMIC RAY DETECTOR

NSSDC ID- CORSA -03

ORIGINAL PAGE IS OF POOR QUALITY

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - S. NAKAGABARIKKYO U TOKYO, JAPAN
DI - N. YOSHIMORIRIKKYO U TOKYO, JAPAN
DI - H. MURAKAMIRIKKYO U TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION

A COSMIC-RAY TELESCOPE WITH SOLID-STATE DETECTORS WILL BE USED TO MEASURE NUCLEAR-CHARGED PARTICLES WITH HIGH RESOLUTION. THE INTEGRAL ENERGY SPECTRUM BETWEEN 3 AND 6 GeV CAN BE OBSERVED.

SPACECRAFT COMMON NAME- EGRET
ALTERNATE NAMES- GAMMA-RAY EXPLORER
NSSDC ID- EGRET

LAST REPORTED STATE- A PROPOSED MISSION

LAUNCH DATE- 00/00/79 SPACECRAFT WEIGHT- 1019. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- SHUTTLE

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-OS5

PLANNED ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 70. MIN INCLINATION- 28.6 DEG
PERIAPSIS- 6874. KM ALT APOAPSIS- 6874. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - F.J. CEPOLLINANASA-GSFC GREENBELT, MD
PS - G. FICHELNASA-GSFC GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

THE EXPLORER GAMMA-RAY EXPERIMENT TELESCOPE (EGRET) WILL PERFORM GAMMA-RAY OBSERVATIONS AT HIGHER SENSITIVITY, OF BETTER SPATIAL AND SPECTRAL RESOLUTION, AND WITH IMPROVED LEVEL OF GAMMA-RAY IDENTIFICATION THAN PREVIOUSLY ATTAINED. A SINGLE INSTRUMENTATION PACKAGE WILL BE UTILIZED. THIS UNIT WILL BE A COMPOUND SPARK CHAMBER ASSEMBLY CAPABLE OF DETECTING GAMMA-RAYS OF ENERGIES FROM 20 TO 300 MeV. THE PRIMARY MISSION OBJECTIVES ARE: (1) A STUDY OF THE GALACTIC PLANE STRUCTURE WITH HIGH STATISTICAL ACCURACY, GOOD ENERGY RESOLUTION OVER A WIDE RANGE, AND GOOD ANGULAR ACCURACY, (2) MEASUREMENT OF THE INTENSITY AND ENERGETIC SPECTRUM OF THE DIFFUSE RADIATION FROM REGIONS OTHER THAN THE GALACTIC PLANE, (3) A FULL SKY SURVEY FOR DISCRETE SOURCES AND MEASUREMENT OF THEIR FLUX, ENERGY SPECTRUM, AND LOCATION, (4) SEARCH FOR SHORT INTENSE BURSTS OF GAMMA RAYS, AND, (5) SEARCH FOR PERIODIC GAMMA RAY EMISSIONS.

***** ELECTRODYNAMICS EXPLORER *****

SPACECRAFT COMMON NAME- ELECTRODYNAMICS EXPLORER
ALTERNATE NAMES-
NSSDC ID- EE

LAST REPORTED STATE- A PROPOSED MISSION

LAUNCH DATE- 00/00/79 SPACECRAFT WEIGHT- KG
LAUNCH SITE-
LAUNCH VEHICLE-

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-OS5

PLANNED ORBIT PARAMETERS

ORBIT TYPE-
ORBIT PERIOD- DEG
PERIAPSIS- INCLINATION- APOAPSIS-

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - D.W. GRIMESNASA-GSFC GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

THE PURPOSE OF THE ELECTRODYNAMICS EXPLORER MISSION WILL BE TO STUDY THE BASIC ELECTRODYNAMICS OF THE EARTH'S MAGNETOSPHERE-IONOSPHERE SYSTEM. THE SYSTEM'S DRIVING FORCES (VECTOR ELECTRIC FIELDS AND NEUTRAL WINDS), DRIVEN QUANTITIES (CURRENTS, PLASMAS, SUPRATHERMAL PARTICLES, WAVES, AND NEUTRAL GASES) AND GRID (THE VECTOR MAGNETIC FIELD) WILL BE MEASURED. IT HAS BEEN PROPOSED THAT THE MISSION CONSIST OF A PAIR OF SPACECRAFT, ONE ATTITUDE CONTROLLED IN A LOW ALTITUDE POLAR ORBIT AND THE OTHER OF UNDEFINED STABILIZATION REQUIREMENTS IN A POLAR ECCENTRIC ORBIT WITH APOGEE VARIABLE BETWEEN 3 AND 6 EARTH RADII. KNOWLEDGE OF SPACECRAFT ATTITUDE MUST BE GOOD TO WITHIN 0.1 DEGREE. ONBOARD PROPULSION WILL BE USED TO ALLOW THE CHANGING OF ORBIT PARAMETERS. THE TWO SPACECRAFT WILL BE COPLANAR, WITH MANY SIMULTANEOUS FIELD-LINE CROSSINGS THAT WILL BE PARTICULARLY USEFUL IN THE STUDY OF CURRENTS, PARTICLE ACCELERATIONS, ETC. THE SPACECRAFT WILL HAVE SELECTABLE ORBIT RATES AND DATA FORMATS TO OPTIMIZE THE UTILITY OF THE RETURNED DATA. IT IS ENVISIONED THAT EXCEPT FOR THE DETAILS OF THE

DETECTOR COMPLEMENT, THE SPACECRAFT WILL RESEMBLE THE ATMOSPHERIC EXPLORER (AE) SPACECRAFT. THE TEAM APPROACH OF THE AE SERIES WILL PROBABLY BE UTILIZED FOR DATA HANDLING, WITH REMOTE TERMINALS AT EXPERIMENTER'S INSTITUTIONS AND WITH DATA FROM ALL EXPERIMENTS BEING ACCESSIBLE TO EACH EXPERIMENTER. THIS INFORMATION IS BASED ON AN INFORMAL GSFC STUDY. A FORMAL MISSION STUDY HAS NOT YET BEEN APPROVED BY NASA HEADQUARTERS.

***** EXOS-A *****

SPACECRAFT COMMON NAME- EXOS-A
ALTERNATE NAMES- EXOSPHERIC SAT. A
NSSDC ID- EXOS-A

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 01/00/78 SPACECRAFT WEIGHT- 96. KG
LAUNCH SITE- KAGOSHIMA, JAPAN
LAUNCH VEHICLE- M-3H

SPONSORING COUNTRY/AGENCY
JAPAN TOKYO U

PLANNED ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- MIN INCLINATION- 0. DEG
PERIAPSIS- 350. KM ALT APOAPSIS- 4500. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - K. MIRAQU OF TOKYO TOKYO, JAPAN

SPACECRAFT BRIEF DESCRIPTION

THIS SATELLITE WILL BE PART OF JAPAN'S CONTRIBUTION TO THE INTERNATIONAL MAGNETOSPHERIC STUDY. THE OBJECTIVES WILL BE TO STUDY THE POLAR AURORA AND IONOSPHERE. THE PAYLOAD WILL CONSIST OF AN AURORAL EUV TELEVISION CAMERA AND PLASMA PROBES DESIGNED TO STUDY THE ELECTRON AND ION DENSITY/TEMPERATURE AND ION COMPOSITION. THERE WILL ALSO BE ENERGETIC PARTICLE DETECTORS DESIGNED TO STUDY THE FLUX OF ELECTRONS IN THE IONOSPHERE, ELECTROSTATIC WAVES, VLF EMISSIONS, GEODROMA EMISSIONS, AND UV ALBEDO EMISSIONS WILL ALSO BE OBSERVED.

***** EXOS-A, KANEDA *****

EXPERIMENT NAME- UV AURORAL TV IMAGING

NSSDC ID- EXOS-A -03

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - E. KANEDAU OF TOKYO TOKYO, JAPAN
DI - N. NIWAU OF TOKYO TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT WILL OBSERVE UV AURORAL EMISSIONS OF THE POLAR IONOSPHERE BY USING TELEVISION.

***** EXOS-A, MUKAI *****

EXPERIMENT NAME- ENERGETIC PARTICLE DETECTORS

NSSDC ID- EXOS-A -02

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - T. MUKAIU OF TOKYO TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT IS DESIGNED TO MEASURE THE FLUX OF ELECTRONS AND PROTONS IN THE MAGNETOSPHERE, USING ENERGETIC PARTICLE DETECTORS, ESPECIALLY IN THE POLAR REGIONS.

***** EXOS-A, NAKAMURA *****

EXPERIMENT NAME- UV GLOW SPECTROPHOTOMETER

NSSDC ID- EXOS-A -05

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - M. NAKAMURAUNKNOWN UNKNOWN
DI - T. TOHMATSUU OF TOKYO TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION

ULTRAVIOLET GLOW FROM THE THERMOSPHERE, MAGNETOSPHERE, AND INTERPLANETARY SPACE WILL BE OBSERVED WITH A SPECTROPHOTOMETER.

ORIGINAL PAGE IS OF POOR QUALITY

----- EXOS-A, OYAMA -----

EXPERIMENT NAME- IONOSPHERIC PROBES

NSDOC ID- EXOS-A -01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - K. OYAMAU OF TOKYO
TOKYO, JAPAN
DI - I. IWAMOTORADIO RESEARCH LAB
TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
IONOSPHERIC PROBES WILL OBSERVE ELECTRON DENSITY AND
TEMPERATURE IN ADDITION TO ION DENSITY, COMPOSITION AND
TEMPERATURE.

----- EXOS-A, YOSHINO -----

EXPERIMENT NAME- PLASMA WAVE DETECTOR

NSDOC ID- EXOS-A -04

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - Y. YOSHINOELECTRO-COMMUNICATIONS U
TOKYO, JAPAN
DI - Y. HAKAMURAU OF TOKYO
TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT IS DESIGNED TO MEASURE ELECTROSTATIC
WAVES AND VLF EMISSIONS EXCITED IN THE POLAR REGIONS.

----- EXOS-B -----

SPACECRAFT COMMON NAME- EXOS-B
ALTERNATE NAMES- EXOSPHERIC SAT. B
NSDOC ID- EXOS-B

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 08/00/72 SPACECRAFT WEIGHT- 86 KG
LAUNCH SITE- KAGOSHIMA, JAPAN
LAUNCH VEHICLE- M-3S

SPONSORING COUNTRY/AGENCY
JAPAN (SAS)

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 420 MIN INCLINATION- 30 DEG
PERIAPSIS- 300 KM ALT APOAPSIS- 30000 KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - T. OYAYASHIU OF TOKYO
TOKYO, JAPAN
PS - N. KAWASHIMAU OF TOKYO
TOKYO, JAPAN
PS - H. OYATOHOKU U
SENDAI, JAPAN

SPACECRAFT BRIEF DESCRIPTION
THIS SATELLITE WILL BE PART OF THE JAPANESE CONTRIBUTION
TO THE INTERNATIONAL MAGNETOSPHERIC STUDY. THE SATELLITE WILL
STUDY THE PLASMASPHERE UP TO GEOCENTRIC DISTANCES OF 30,000
KM. ITS PLASMA EXPERIMENTS WILL STUDY THE ELECTRON ION
DENSITY AND WAVE PARTICLE INTERACTIONS. THE SPACECRAFT WILL
CARRY ENERGETIC PARTICLE DETECTORS TO STUDY THE ELECTRON AND
PROTON FLUX IN THE ENERGY RANGE 50 TO 20,000 EV. IT WILL ALSO
CARRY ELECTROMAGNETIC FIELD FLUCTUATION DETECTORS.

----- EXOS-B, AOYAMA -----

EXPERIMENT NAME- FLUXGATE MAGNETOMETER

NSDOC ID- EXOS-B -0E

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - I. AOYAMATOKAI U
TOKYO, JAPAN
DI - A. NISHIDATOKYO U
TOKYO, JAPAN
DI - F. TOYAMATOKAI U
TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
MAGNETIC FIELD INTENSITIES WILL BE MEASURED USING A
FLUXGATE MAGNETOMETER WITH ACCURACY OF SEVERAL GAMMAS. PC-1
FLUCTUATION ACROSS THE PLASMAPAUSE WILL BE STUDIED.

----- EXOS-B, KAWASHIMA -----

EXPERIMENT NAME- ENERGY SPEC. OF ELEC.-PROT. (1.0E-20KEV)

NSDOC ID- EXOS-B -06

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - N. KAWASHIMATOKYO U
TOKYO, JAPAN
DI - T. MUKAITOKYO U
TOKYO, JAPAN
DI - T. ARAKAWATOKYO U
TOKYO, JAPAN
DI - M. EJIRITOKYO U
TOKYO, JAPAN
DI - H. KUBOTOKYO U
TOKYO, JAPAN
DI - T. KIBUNETOKYO U
TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
THE ELECTRON AND PHOTON ENERGY SPECTRUM WILL BE MEASURED
IN AN ENERGY RANGE FROM 50 EV TO 20 KEV. THE RESOLUTION WILL
BE CONTROLLABLE. THE FINE STRUCTURE OF TIME VARIATION OF THE
ENERGY SPECTRUM WILL BE DETECTED AS A COOPERATING OPERATION
WITH THE STIMULATED PLASMA-WAVE EXPERIMENT.

----- EXOS-B, KAWASHIMA -----

EXPERIMENT NAME- WAVE-PARTICLE INTERACTIONS

NSDOC ID- EXOS-B -07

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - N. KAWASHIMATOKYO U
TOKYO, JAPAN
DI - M. EJIRITOKYO U
TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
EJECTION OF THE ELECTRON BEAM IN AN ENERGY RANGE FROM 3
TO 200 EV INTO THE SPACE PLASMA IS DESIGNED FOR THE CONTROLLED
GENERATION OF THE WAVE-PARTICLE INTERACTION.

----- EXOS-B, KIMURA -----

EXPERIMENT NAME- ELECTROMAGNETIC FIELD FLUCTUATION
DETECTORS

NSDOC ID- EXOS-B -03

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - I. KIMURAKYOTO U
KYOTO, JAPAN
DI - K. HASHIMOTOKYOTO U
KYOTO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
THE PHASE SHIFT OF THE VLF WAVES TRANSMITTED FROM THE
EARTH'S STATIONS WILL BE DETECTED FOR MEASUREMENT OF THE
PLASMA DENSITY AND TEMPERATURE. DUCT FORMATION AND MOVEMENT
IN THE PLASMASPHERE WILL ALSO BE MONITORED BY THIS EXPERIMENT.

----- EXOS-B, OYAYASHI -----

EXPERIMENT NAME- IMPEDANCE AND ELECTRIC FIELD

NSDOC ID- EXOS-B -04

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - T. OYAYASHITOKYO U
TOKYO, JAPAN
DI - M. EJIRITOKYO U
TOKYO, JAPAN
DI - K. TSURUDATOKYO U
TOKYO, JAPAN
DI - T. OGAWAKYOTO U
KYOTO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
IMPEDANCE OF A DIPOLE ANTENNA WILL BE MEASURED IN A WIDE
FREQUENCY RANGE FROM 3 KHZ TO 10 MHZ TO OBTAIN AN ACCURATE
DETERMINATION OF PLASMA DENSITY. THE ELECTRIC FIELD WILL BE
MEASURED BY A LONG DIPOLE ANTENNA (120 M TIP TO TIP) IN A
FREQUENCY RANGE FROM DC TO 300 HZ.

----- EXOS-B, OYA -----

EXPERIMENT NAME- MAGNETOSPHERIC PLASMA PROBE

NSDOC ID- EXOS-B -01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - H. OYATOHOKU U
SENDAI, JAPAN

01 - 1. KANADANAGOYA U
 NAGDYA, JAPAN
 01 - 3. MIYATAKEELECTRO-COMMUNICATIONS U
 TOKYO, JAPAN
 01 - 4. MORIOKATENOKU U
 SENDAI, JAPAN
 01 - 4. AIKYOREL,POSTS + TELECOMM
 TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
 THE EXPERIMENT IS DESIGNED TO EXCITE PLASMA WAVES BY TRANSMITTING 400 WATT SIGNALS FROM 120 M (TIP TO TIP) ANTENNA IN A FREQUENCY RANGE FROM 3 KHZ TO 10 KHZ. THE IMPRESSED FREQUENCIES CAN BE CHANGED IN A CONTINUOUS DEEP OR STEPPED THROUGH FIXED FREQUENCIES TO INVESTIGATE THE RF HEATING EFFECT AND GENERATION OF INSTABILITIES. INVESTIGATION OF THE WAVE-WAVE INTERACTIONS AND NONLINEAR WAVE-PARTICLE INTERACTIONS WILL BE ONE OF THE PRINCIPAL PURPOSES OF THIS EXPERIMENT.

----- EXOS-B, OYA -----
 EXPERIMENT NAME- ENERGETIC PARTICLE DETECTORS
 NSSDC ID- EXOS-B -02
 LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
 OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - H. OYATENOKU U
 SENDAI, JAPAN
 OI - H. MATSUMOTOKYOTO U
 KYOTO, JAPAN
 OI - J. OOTSUNAGOYA U
 NAGOYA, JAPAN
 OI - A. IWANAGOYA U
 NAGOYA, JAPAN
 OI - T. YOSHINOELECTRO-COMMUNICATIONS U
 TOKYO, JAPAN
 OI - T. ONOCHIREL,POSTS + TELECOMM
 TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
 THE NATURAL PLASMA WAVES WILL BE MEASURED IN THREE FREQUENCY BANDS -- 3 - 30 KHZ, 30 - 300 KHZ, AND 300 KHZ - 10 MHz, RESPECTIVELY. USING 180 M (TIP TO TIP) DIPOLE AND LOOP ANTENNAS. THIS SYSTEM WILL ALSO BE USED FOR RADIO ASTRONOMICAL PURPOSES.

***** HAWKEYE I *****
 SPACECRAFT COMMON NAME- HAWKEYE I
 ALTERNATE NAMES- INJUN-F, NEUTRAL POINT EXPLORER
 EXPLORER 52
 NSSDC ID- 74-040A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
 AT THE STANDARD DATA ACQUISITION RATE SINCE 06/03/74.

LAUNCH DATE- 06/03/74 SPACECRAFT WEIGHT- 26.1 KG
 LAUNCH SITE- VANDENBERG AFB, UNITED STATES
 LAUNCH VEHICLE- SCOUT

SPONSORING COUNTRY/AGENCY NASA-CSS
 UNITED STATES

INITIAL ORBIT PARAMETERS
 ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/03/74
 ORBIT PERIOD- 3032. MIN INCLINATION- 89.78 DEG
 PERIAPSIS- 8848. KM ALT APOAPSIS- 131548. KM ALT

RECENT ORBIT PARAMETERS
 ORBIT TYPE- GEOCENTRIC EPOCH DATE- 02/25/75
 ORBIT PERIOD- 3076.6 MIN INCLINATION- 89.7 DEG
 PERIAPSIS- 2990. KM ALT APOAPSIS- 124366. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
 PM - J.E. ROGERSU OF IOWA
 IOWA CITY, IA
 PM - C.W. COFFEE, JR.NASA-LARC
 HAMPTON, VA
 PS - J.A. VAN ALLENU OF IOWA
 IOWA CITY, IA

SPACECRAFT BRIEF DESCRIPTION
 HAWKEYE WAS PART OF THE U.S. CONTRIBUTION TO THE INTERNATIONAL MAGNETOSPHERIC STUDY. THE MAIN PURPOSE OF THIS FLIGHT WAS TO STUDY THE NEUTRAL POINT REGION OF THE MAGNETOSPHERE. THE EXPERIMENTS INCLUDED PARTICLE AND FIELD OBSERVATIONS AND LOW-ENERGY PLASMA STUDIES RELEVANT TO THE DYNAMICS OF SOLAR WIND INJECTION INTO THE MAGNETOSPHERE. THE SPACECRAFT WAS SPIN-STABILIZED WITH A SPIN RATE OF ABOUT 0 RPM AND A SPIN VECTOR PARALLEL TO THE EARTH'S EQUATORIAL PLANE. INITIAL APOGEE POSITION WAS OVER THE EARTH'S POLAR CAP IN THE NOON-DUSK QUADRANT. INITIAL SPACECRAFT AND EXPERIMENT PERFORMANCE WAS NORMAL.

***** 155 *****
 SPACECRAFT COMMON NAME- 155
 ALTERNATE NAMES- IONOSPHERE SOUNDING SAT.
 NSSDC ID- 155

LAST REPORTED STATE- AN APPROVED MISSION
 LAUNCH DATE- 02/00/76 SPACECRAFT WEIGHT- 138. KG
 LAUNCH SITE- TANEGASHIMA, JAPAN
 LAUNCH VEHICLE- NU
 SPONSORING COUNTRY/AGENCY NASA
 JAPAN NASDA
 JAPAN NRL

PLANNED ORBIT PARAMETERS
 ORBIT TYPE- GEOCENTRIC
 ORBIT PERIOD- 108. MIN INCLINATION- 70. DEG
 PERIAPSIS- 1000.00 KM ALT APOAPSIS- 1000.00 KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
 PM - K. TADRADIO RESEARCH LAB
 TOKYO, JAPAN

SPACECRAFT BRIEF DESCRIPTION
 THIS IONOSPHERE SOUNDING SATELLITE (ISS) IS BEING DEVELOPED AS A PART OF JAPAN'S CONTRIBUTION TO THE INTERNATIONAL MAGNETOSPHERIC STUDY (IMS). ITS OBJECTIVES WILL BE TO ACCUMULATE DATA FOR STUDY OF THE TOPSIDE IONOSPHERE AND TO SURVEY RADIO NOISE AT FCUJ FREQUENCIES FROM BOTH EARTH AND COSMIC SOURCES. IT IS PLANNED TO PREPARE WORLD-WIDE MAPS OF F2 CRITICAL FREQUENCY FROM THE IONOSPHERE SOUNDING DATA. THE ISS WILL BE A SMALL OBSERVATORY WITH FOUR EXPERIMENTS ON BOARD. THE SPACECRAFT IS A RIGID CYLINDER 22-CM LONG AND 93.5-CM IN DIAMETER. IT WILL BE SPIN STABILIZED AT ABOUT 10 RPM WITH THE SPIN AXIS NORMAL TO THE ECLIPTIC PLANE. TWO PAIRS OF CROSSED DIPOLE ANTENNAS WILL EXTEND FROM THE CENTRAL PART OF THE SATELLITE, AND LIE PERPENDICULAR TO THE SPIN AXIS. THESE ANTENNAS, 36.8, AND 11.4-METERS LONG, TO BE UNFURLED IN ORBIT. WILL BE SHARED BY IONOSPHERIC SOUNDING AND RADIO NOISE EXPERIMENTS. A SPHERICAL RETARDING POTENTIAL TRAP SENSOR WILL BE MOUNTED ON A BOOM PERPENDICULAR TO THE SPIN AXIS. A MAGNETIC ATTITUDE SENSOR WILL BE MOUNTED ON A SIMILAR BOOM ON THE OPPOSITE SIDE OF THE SPACECRAFT. THE REMAINING EXPERIMENT WILL BE A BENNETT-TYPE MASS SPECTROMETER, WITH TWO SENSORS FLUSH MOUNTED ON OPPOSITE ENDS OF THE SPACECRAFT. SPACECRAFT ATTITUDE WILL BE DETERMINED BY MEANS OF A MAGNETOMETER, A SOLAR SENSOR, AND AN EARTH HORIZON SENSOR. SMALL TELEMETRY AND COMMAND ANTENNAS WILL ALSO EXTEND FROM THE SPACECRAFT. THE SPACECRAFT WILL BE POWERED FROM A BATTERY-SOLAR-CELL SYSTEM WITH SOLAR CELLS COVERING MOST OF THE CYLINDRICAL SURFACE. ONE TAPE RECORDER WILL BE ON BOARD THAT PERMITS SPACECRAFT OPERATION IN EITHER A RECORDED (FOR UP TO 112 MIN) OR REAL-TIME MODE. READOUT AND REAL-TIME OPERATION ARE PLANNED TO BE FROM KASHIMA, JAPAN.

----- 156, FUGONO -----
 EXPERIMENT NAME- POSITIVE ION MASS SPECTROMETER (PIC)
 NSSDC ID- 155 -04
 LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
 OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - H. FUGONORADIO RESEARCH LAB
 TOKYO, JAPAN
 OI - I. IWAMOTORADIO RESEARCH LAB
 TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
 THIS EXPERIMENT WILL BE FLOWN TO MEASURE THE POSITIVE ION COMPOSITION OVER THE SPACECRAFT ORBIT. TWO BENNETT-TYPE ION MASS SPECTROMETERS WILL BE FLUSH MOUNTED ON OPPOSITE ENDS OF THE SPACECRAFT TO LOOK IN OPPOSITE DIRECTIONS ALONG THE SPIN AXIS. THE INSIDE DIAMETER OF THESE CYLINDRICAL SENSORS WILL BE 36 MM. THE MASS RANGE COVERED WILL BE 1 TO 20 AMU, AND THE ION CONCENTRATIONS WILL BE MEASURED OVER THE RANGE FROM 100 TO 10E7 IONS PER CC.

----- 156, NATUURA -----
 EXPERIMENT NAME- SWEEP FREQUENCY TOPSIDE IONOSPHERIC
 SOUNDER (TOS)
 NSSDC ID- 155 -01
 LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
 OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - H. NATUURARADIO RESEARCH LAB
 TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
 THE ISS IONOSPHERE WILL BE A PULSED RADIO TRANSMITTER AND RECEIVER WHICH CAN RECORD THE TIME DELAY BETWEEN A TRANSMITTED PULSE AND ITS RETURN. FREQUENCIES BETWEEN 0.3 AND 14.8 MHz CAN BE SAMPLED IN 0.1-MHZ STEPS TO PROVIDE VIRTUAL RANGE (DELAY TIME) OF SIGNAL REFLECTIONS. MORE THAN ONE VIRTUAL RANGE VS. FREQUENCY TRACE WILL OFTEN BE OBSERVED. THESE WILL RESULT FROM GROUND REFLECTIONS, PLASMA RESONANCES, BIREFRINGENCE OF THE IONOSPHERE, NON-VERTICAL PROPAGATION, ETC. VIRTUAL RANGE AT A GIVEN FREQUENCY WILL PRIMARILY BE A FUNCTION OF DISTANCE TRAVERSED BY THE SIGNAL, ELECTRON DENSITY ALONG THE PROPAGATION PATH, AND MODE OF PROPAGATION. THE STANDARD DATA FORM USED TO DISPLAY THESE OBSERVATIONS WILL BE AN IONOGRAM (GRAPH) SHOWING VIRTUAL RANGE AS A FUNCTION OF RADIO PULSE FREQUENCY. TWO OTHER FORMS OF DATA WILL BE

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 OF POOR QUALITY

PREPARED FROM THESE LOGGRAMS. THEY WILL BE DIGITAL (FREQUENCY OR VIRTUAL RANGE) VALUES OF CHARACTERISTIC IONOSPHERIC FEATURES READ DIRECTLY FROM THE LOGGRAM AND COMPUTED PROFILES OF ELECTRON DENSITY. THIS SOUNDING MODE OF OPERATION, CALLED TOP-B, WILL REQUIRE 16 SEC TO SAMPLE ALL FREQUENCIES (ONE LOGGRAM). A TOP-A MODE IS ALSO AVAILABLE. IN THIS MODE, AN ITERATIVE LOGIC IS EMPLOYED WITH THE PULSED TRANSMISSION TO DETERMINE THE F2 REGION CRITICAL FREQUENCY, ITS CORRESPONDING f_oF_2 AND OTHER RELATED SUPPORTING DATA. WITH DATA FROM THIS MODE, WORLD-WIDE MAPS OF CRITICAL FREQUENCY WILL BE PREPARED. FOR BOTH THE TOP-A AND TOP-B MODES, THE COMPLETE CYCLE TIME BETWEEN SUCCESSIVE LOGGRAMS OR SUCCESSIVE CRITICAL FREQUENCY OBSERVATIONS IS 64 SEC.

----- ISS. MIYAZAKI -----
 EXPERIMENT NAME- RETARDING POTENTIAL PROBE
 NSSDC ID- 185 -03
 LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - S. MIYAZAKIRADIO RESEARCH LAB
 TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
 THIS PROBE WILL BE A SPHERICAL RETARDING POTENTIAL TRAP DESIGNED TO OBSERVE AMBIENT ION AND ELECTRON DENSITIES RANGING FROM 10E3 TO 10E6 PER CC. AMBIENT ION AND ELECTRON TEMPERATURES IN THE RANGE 1000- TO 5000-DEG K CAN ALSO BE DETERMINED. AS WITH ALL RETARDING POTENTIAL INSTRUMENTS, THESE PARAMETERS ARE DERIVED FROM INTERPRETATION OF THE CURRENT FLOW MEASUREMENT WITH A GIVEN VOLTAGE SEQUENCE APPLIED TO THE COLLECTOR AND SCREEN GRIDS. THE SENSER WILL BE MOUNTED ON A BOOM EXTENDING PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. IT WILL CONSIST OF A 2-CM DIAMETER COLLECTOR, CONCENTRICALLY ENVELOPED BY 0- AND 10-CM DIAMETER SPHERICAL WIRE GRIDS. THE CURRENT VOLTAGE ANALOG DATA WILL BE TELEMETERED AND SUBSEQUENTLY ANALYZED BY THE EXPERIMENTER.

----- 185. MURANAGA -----
 EXPERIMENT NAME- RADIO NOISE NEAR 2.5-5.0+2E MHZ (RAN)
 NSSDC ID- 185 -02
 LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - K. MURANAGARADIO RESEARCH LAB
 TOKYO, JAPAN

EXPERIMENT BRIEF DESCRIPTION
 THE OBJECTIVES OF THIS EXPERIMENT ARE TO OBSERVE AND STUDY (1) THE GLOBAL DISTRIBUTION OF SPHERICS AND (2) THE TIME VARIATION OF SPHERICS AND COSMIC NOISE. RADIO NOISE IN FOUR FREQUENCY CHANNELS - 2.497, 4.977, 9.977 (OR 10.003), AND 24.994 (OR 25.006) MHZ - WILL BE OBSERVED. CHARACTERISTICS OBSERVED AT EACH FREQUENCY WILL BE NOISE INTENSITY (RESOLUTION OF 1/12.8 SEC) AND OCCURRENCE FREQUENCY OF IMPULSIVE NOISE (G.T. 15 DB ABOVE RESOLVED INTENSITY).

***** ITOS-E2 *****
 SPACECRAFT COMMON NAME- ITOS-E2
 ALTERNATE NAMES-
 NSSDC ID- ITOS-E2

LAST REPORTED STATE- AN APPROVED MISSION
 LAUNCH DATE- 07/18/77 SPACECRAFT WEIGHT- 750. KG
 LAUNCH SITE- VANDENBERG AFB, UNITED STATES
 LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
 UNITED STATES NOAA-NES5
 UNITED STATES NASA-CA

PLANNED ORBIT PARAMETERS
 ORBIT TYPE-
 ORBIT PERIOD- INCLINATION- DEG
 PERIAPSIS- APOAPSIS-

EXPERIMENT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
 PM - G.A. BRANCHFLGWERNASA-GSFC
 GREENBELT, MD
 PS - J.L. JOLDBERGNASA-GSFC
 GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
 ITOS-E2 WILL BE ONE IN A SERIES OF IMPROVED TIROS-N TYPE SATELLITES THAT WILL BE LAUNCHED WITH NEW METEOROLOGICAL SENSORS ON BOARD TO EXPAND THE OPERATIONAL CAPABILITY OF THE ITOS (NOAA) SYSTEM. ITOS-E2 METEOROLOGICAL SATELLITE WILL PROVIDE GLOBAL DAYTIME AND NIGHTTIME DIRECT READOUT CLOUDCOVER DATA ON A DAILY BASIS. THE SUN-SYNCHRONOUS SPACECRAFT WILL ALSO BE CAPABLE OF SUPPLYING GLOBAL ATMOSPHERIC TEMPERATURE SOUNDINGS AND VERY HIGH-RESOLUTION IR CLOUDCOVER DATA OF SELECTED AREAS IN EITHER A DIRECT READOUT OR A TAPE-RECORDER MODE. ITOS-E2 WILL OBTAIN GLOBAL SOLAR PROTON DENSITY DATA ON

A ROUTINE DAILY BASIS. THE PRIMARY SENSORS WILL BE A VERY HIGH-RESOLUTION RADIONETER (VHRR), A VERTICAL TEMPERATURE PROFILE RADIONETER (VTPR), AND A SCANNING RADIONETER (SR). THE VHRR, VTPR, AND SR WILL BE MOUNTED ON THE SATELLITE BASEPLATE WITH THEIR OPTICAL AXES DIRECTED VERTICALLY EARTHWARD. THE NEARLY CUBICAL SPACECRAFT WILL MEASURE 1 BY 1 BY 1/2 M. THE SATELLITE WILL BE EQUIPPED WITH THREE CURVED SOLAR PANELS THAT WILL BE FOLDED DURING LAUNCH AND DEPLOYED AFTER CROIT IS ACHIEVED. EACH PANEL WILL MEASURE OVER 4.2 M IN LENGTH WHEN UNFOLDED AND WILL BE COVERED WITH 3480 SOLAR CELLS. THE ITOS DYNAMICS AND ATTITUDE CONTROL SYSTEM WILL MAINTAIN DESIRED SPACECRAFT ORIENTATION THROUGH GYROSCOPIC PRINCIPLES INCORPORATED INTO THE SATELLITE DESIGN. EARTH ORIENTATION OF THE SATELLITE BODY WILL BE MAINTAINED BY TAKING ADVANTAGE OF THE PRECESSION INDUCED FROM A MOMENTUM FLYWHEEL, SO THAT THE SATELLITE BODY PRECESSION RATE OF ONE REVOLUTION PER ORBIT WILL PROVIDE THE DESIRED 'EARTH LOOKING' ATTITUDE. MINOR ADJUSTMENTS IN ATTITUDE AND ORIENTATION WILL BE MADE BY MEANS OF MAGNETIC COILS AND BY VARYING THE SPEED OF THE MOMENTUM FLYWHEEL.

***** LANDSAT-C *****
 SPACECRAFT COMMON NAME- LANDSAT-C
 ALTERNATE NAMES- EARTH RES TECH SAT.-C, ERTS-C
 NSSDC ID- ERTS-C

LAST REPORTED STATE- AN APPROVED MISSION
 LAUNCH DATE- 09/09/77 SPACECRAFT WEIGHT- 960. KG
 LAUNCH SITE- VANDENBERG AFB, UNITED STATES
 LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
 UNITED STATES NASA-DA

PLANNED ORBIT PARAMETERS
 ORBIT TYPE- GEOCENTRIC
 ORBIT PERIOD- 103. MIN INCLINATION- 99.09 DEG
 PERIAPSIS- 912. KM ALT APOAPSIS- 912. KM ALT

EXPERIMENT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
 PM - J. SARGENTNASA-GSFC
 GREENBELT, MD
 PS - S.C. FREDENNASA-GSFC
 GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
 LANDSAT-C WILL BE A MODIFIED VERSION OF THE Nimbus SATELLITE, WITH THE GENERAL MISSION OBJECTIVES OF EXTENDING THE PERIOD OF SPACE-DATA ACQUISITION FOR EARTH RESOURCES INITIATED BY LANDSAT 1 (FORMERLY ERTS 1) AND CONTINUED BY LANDSAT 2, THE NEAR-POLAR ORBITING SPACECRAFT WILL SERVE AS A 'STABILIZED, EARTH-ORIENTED PLATFORM FOR OBTAINING INFORMATION ON AGRICULTURAL AND FORESTRY RESOURCES, GEOLOGY AND MINERAL RESOURCES, HYDROLOGY AND WATER RESOURCES, GEOGRAPHY, CARTOGRAPHY, ENVIRONMENTAL POLLUTION, OCEANOGRAPHY AND MARINE RESOURCES, AND METEOROLOGICAL PHENOMENA. TO ACCOMPLISH THESE OBJECTIVES THE SPACECRAFT WILL BE EQUIPPED WITH (1) A FIVE-CHANNEL MULTISPECTRAL SCANNER (MSS) AND A TWO-CAMERA RETURN BEAM VIDICON (RBV) TO OBTAIN BOTH VISIBLE AND IR PHOTOGRAPHIC AND RADIOMETRIC IMAGES OF THE EARTH, AND (2) A DATA COLLECTION SYSTEM TO COLLECT INFORMATION FROM REMOTE INDIVIDUALLY EQUIPPED GROUND STATIONS AND TO RELAY THE DATA TO CENTRAL ACQUISITION STATIONS. LANDSAT-C WILL CARRY TWO WIDE-BAND VIDEO TAPE RECORDERS (WVTR) CAPABLE OF STORING UP TO 30 MIN OF SCANNER OR CAMERA DATA TO GIVE THE SPACECRAFT'S SENSORS A NEAR-GLOBAL COVERAGE CAPABILITY. AN ADVANCED ATTITUDE CONTROL SYSTEM CONSISTING OF HORIZON SCANNERS, SUN SENSORS, AND A COMMAND ANTENNA COMBINED WITH A FREON GAS PROPULSION SYSTEM WILL PERMIT THE SPACECRAFT'S ORIENTATION TO BE CONTROLLED TO WITHIN PLUS OR MINUS 1.0 DEG IN ALL THREE AXES. SPACECRAFT COMMUNICATIONS WILL INCLUDE A COMMON SUBSYSTEM OPERATING AT 154.2 AND 2106.4 MHZ AND A PCM NARROW-BAND TELEMETRY SUBSYSTEM, OPERATING AT 2287.8 AND 137.86 MHZ. FOR SPACECRAFT HOUSEKEEPING, ATTITUDE, AND SENSOR PERFORMANCE DATA, VIDEO DATA FROM THE TWO-CAMERA RBV SYSTEM WILL BE TRANSMITTED IN BOTH REAL TIME AND FROM THE WIDE-BAND RECORDER SYSTEM AT 2265.5 MHZ. WHILE INFORMATION FROM THE MSS WILL BE CONSTRAINED TO A 20-MHZ RF BANDWIDTH AT 2229.5 MHZ.

----- LANDSAT-C, PAINTER -----
 EXPERIMENT NAME- DATA COLLECTION SYSTEM (DCS)
 NSSDC ID- ERTS-C -03
 LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - J.E. PAINTERNASA-GSFC
 GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
 THE LANDSAT-C DATA COLLECTION SYSTEM (DCS) WILL PROVIDE USERS WITH NEAR REAL-TIME DATA COLLECTED FROM VARIOUS REMOTE LOCATIONS. THE DCS WILL BE COMPOSED OF -- (1) THE DATA COLLECTION PLATFORMS (DCPS) WHICH MAY BE OCEAN BUOYS, CONSTANT PRESSURE BALLOONS OR AUTOMATIC GROUND STATIONS, (2) THE SATELLITE EQUIPMENT, AND (3) THE GROUND DATA CENTERS INCLUDING REMOTE RECEIVING SITES AND THE GROUND DATA HANDLING SYSTEM AT GSFC. USE OF THE LANDSAT SPACEBORNE DCS WILL PROVIDE A CONTINUAL FLOW OF INFORMATION FOR BETTER MANAGEMENT OF WILDLIFE, MARINE, AGRICULTURE, WATER, AND FORESTRY

RESOURCES AND WILL LEAD TO IMPROVED WEATHER FORECASTS, POLLUTION CONTROL, AND EARTHQUAKE PREDICTION AND WARNING. THE ENVIRONMENTAL SENSORS TO BE MOUNTED ON A DCP WILL BE SELECTED BY INDIVIDUAL INVESTIGATORS TO SATISFY THEIR PARTICULAR REQUIREMENTS. FROM A PLANNED ORBIT OF 912 KM, THE SPACECRAFT WILL BE CAPABLE OF ACQUIRING DATA FROM DCP'S WITHIN A RADIUS OF APPROXIMATELY 3100 KM FROM THE SUBSATELLITE POINT, THUS ALLOWING DATA TO BE OBTAINED FROM ANY REMOTE PLATFORM AT LEAST ONCE EVERY 12 HR. THE DCP'S WILL TRANSMIT AT 401.65 MHZ. THE DCS EQUIPMENT, ESSENTIALLY A RECEIVER, WILL RECEIVE AND RETRANSMIT DATA (AT 2267.5 MHZ) TO SELECTED GROUND RECEIVING STATIONS. THERE WILL BE NO SIGNAL MULTIPLEXING OR DATA PROCESSING ON THE SATELLITE. THE LANDSAT-C DCS WILL ACCOMMODATE UP TO 1000 DCP'S DEPLOYED THROUGHOUT THE CONTINENTAL U.S. DATA FROM THIS EXPERIMENT WILL BE HANDLED AND DISTRIBUTED TO THE VARIOUS PLATFORM INVESTIGATORS BY THE NASA DATA PROCESSING FACILITY, GSFC, GREENBELT, MD.

----- LANDSAT-C; WEINSTEIN -----

EXPERIMENT NAME- RETURN BEAM VIDICON CAMERA (ROV)

NSDDC ID- ERTS-C -01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - D. WEINSTEINNASA-GSFC
GREENBELT, MD
DI - T.M. RAGLANDNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THE LANDSAT-C RETURN BEAM VIDICON (ROV) CAMERA SYSTEM WILL CONTAIN TWO IDENTICAL CAMERAS COVERING THE SPECTRAL BAND FROM 0.53 TO 0.75 MICROMETER. THE TWO EARTH-ORIENTED CAMERAS WILL BE MOUNTED TO A COMMON BASE, STRUCTURALLY ISOLATED FROM THE SPACECRAFT TO MAINTAIN ACCURATE ALIGNMENT. EACH CAMERA WILL CONTAIN AN OPTICAL LENS, A ROV SENSOR, A THERMOELECTRIC COOLER, DEFLECTION AND FOCUS COILS, A MECHANICAL SHUTTER, ERASE LAMPS, AND SENSOR ELECTRONICS. THE CAMERAS WILL BE ALIGNED TO VIEW ADJACENT 94-KM SQUARE GROUND SCENES WHICH OVERLAP SLIGHTLY SO THAT THE TOTAL WIDTH OF THE GROUND SCENE IS 188 KM. THE CAMERAS WILL BE OPERATED EVERY 12.5 SEC TO PRODUCE OVERLAPPING IMAGES ALONG THE DIRECTION OF SPACECRAFT MOTION. AFTER SHUTTERING, THE IMAGE WILL BE SCANNED BY AN ELECTRON BEAM TO PRODUCE A VIDEO OUTPUT SIGNAL. THE TIMING CYCLE WILL BE ARRANGED SO THAT A 3.5-SEC OFFSET IS INTRODUCED BETWEEN THE HEADOUTS OF THE TWO CAMERAS, PERMITTING SEQUENTIAL HEADOUT OF THE CAMERAS, ALLOWING THE SAME TAPE RECORDER AND COMMUNICATIONS CHANNEL TO BE USED. VIDEO DATA FROM THE ROV WILL BE TRANSMITTED (AT 2267.5 MHZ) IN BOTH REAL TIME AND TAPE-RECORDER MODES. FROM A NOMINAL SPACECRAFT ALTITUDE OF 912 KM, THE ROV WILL HAVE A GROUND RESOLUTION OF 40 M (THICE THE LANDSAT I RESOLUTION OF 80 M). DATA FROM THIS EXPERIMENT WILL BE HANDLED BY THE NASA DATA PROCESSING FACILITY, GSFC, GREENBELT, MD, AND WILL BE MADE AVAILABLE TO APPROVED INVESTIGATORS AND AGENCIES THROUGH ITS LANDSAT USER SERVICES SECTION. ALL OTHER INTERESTED INDIVIDUALS WILL BE ABLE TO OBTAIN DATA THROUGH THE EARTH RESOURCES DATA CENTER, DEPARTMENT OF THE INTERIOR, SIOUX FALLS, SD.

***** METEOSAT *****

SPACECRAFT COMMON NAME- METEOSAT
ALTERNATE NAMES- METEOROLOGICAL SATELLITE
NSDDC ID- METOSAT

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 2 QTR 77 SPACECRAFT WEIGHT- 622.2 KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
INTERNATIONAL ESRO

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 1440. MIN INCLINATION- DEG
PERIAPSIS- 36000. KM ALT APCAPSIS- 36000. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - D. LENNERTZESRO-ESTEC
TOULOUSE, FRANCE

SPACECRAFT BRIEF DESCRIPTION
METEOSAT WILL BE A GEOSTATIONARY SPACECRAFT AND WILL SERVE AS PART OF ESRO'S CONTRIBUTION TO GARP. AS PART OF GARP, THE SATELLITE WILL HELP TO SUPPLY DATA REQUIRED FOR GLOBAL DATA SETS TO BE USED IN IMPROVEMENT OF MACHINE WEATHER FORECASTS. IN GENERAL, THE SPACECRAFT DESIGN, INSTRUMENTATION, AND OPERATION WILL BE SIMILAR TO SMS/GCOS. THE SPIN-STABILIZED, SPACECRAFT WILL CARRY (1) A VISIBLE-IR RADIOMETER TO PROVIDE HIGH-QUALITY DAY/NIGHT CLOUDCOVER DATA AND TO TAKE RADIANCE TEMPERATURES OF THE EARTH/ATMOSPHERE SYSTEM. (2) A METEOROLOGICAL DATA COLLECTION SYSTEM TO DISSEMINATE IMAGE DATA TO USER STATIONS, TO COLLECT DATA FROM VARIOUS EARTH-BASED PLATFORMS, AND TO RELAY DATA FROM POLAR ORBITING SATELLITES. THE CYLINDRICALLY-SHAPED SPACECRAFT WILL MEASURE 210 CM IN DIAMETER AND 430 CM IN LENGTH, INCLUDING THE APOGEE BOOST MOTOR, THE PRIMARY STRUCTURAL MEMBERS WILL BE AN EQUIPMENT PLATFORM AND A CENTRAL TUBE. THE RADIOMETER TELESCOPE WILL BE MOUNTED ON THE EQUIPMENT PLATFORM AND WILL

VIEW THE EARTH THROUGH A SPECIAL APERTURE IN THE SPACECRAFT'S SIDC. A SUPPORT STRUCTURE WILL EXTEND RADIALLY OUT FROM THE CENTRAL TUBE AND WILL BE AFFIXED TO THE SOLAR PANELS, WHICH WILL FORM THE OUTER WALLS OF THE SPACECRAFT AND PROVIDE THE PRIMARY SOURCE OF ELECTRICAL POWER. LOCATED IN THE ANNULUS-SHAPED SPACE BETWEEN THE CENTRAL TUBE AND THE SOLAR PANELS WILL BE STATIONKEEPING AND DYNAMICS CONTROL EQUIPMENT AND BATTERIES. PROPER SPACECRAFT ATTITUDE AND SPIN RATE (APPROXIMATELY 100 RPM) WILL BE MAINTAINED BY JET THRUSTERS MOUNTED ON THE SPACECRAFT AND ACTIVATED BY GROUND COMMAND. THE SPACECRAFT WILL USE BOTH UHF-BAND AND S-BAND FREQUENCIES IN ITS TELEMETRY AND COMMAND SUBSYSTEMS. A LOW-POWER VHF TRANSDUCER WILL PROVIDE TELEMETRY AND COMMAND DURING LAUNCH AND THEN WILL SERVE AS A BACKUP FOR THE PRIMARY SUBSYSTEM ONCE THE SPACECRAFT HAS ATTAINED SYNCHRONOUS ORBIT.

----- METEOSAT, UNKNOWN -----

EXPERIMENT NAME- IMAGING RADIOMETER

NSDDC ID- METOSAT-01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - UNKNOWNUNKNOWN

EXPERIMENT BRIEF DESCRIPTION
THE VISIBLE-IR RADIOMETER TO BE FLOWN ON METEOSAT WILL BE CAPABLE OF PROVIDING DAY/NIGHT OBSERVATIONS OF CLOUDCOVER AND EARTH/CLOUD RADIANCE TEMPERATURE MEASUREMENTS FROM A SYNCHRONOUS, SPIN-STABILIZED, SATELLITE FOR USE IN (1) OPERATIONAL WEATHER ANALYSIS AND FORECASTING AND, (2) FOR SUPPORT TO GARP. THE FIVE-CHANNEL INSTRUMENT WILL BE ABLE TO TAKE FULL PICTURES OF THE EARTH'S DISC. THE THREE IR CHANNELS (TWO IN THE 10.5 TO 12.5 MICRON REGION AND ONE IN THE 6.7 TO 7.1 MICRON REGION), AND THE TWO VISIBLE CHANNELS (0.5 TO 0.9 MICRON) WILL USE A COMMON OPTICS SYSTEM. INCOMING RADIATION WILL BE RECEIVED BY A SCAN MIRROR AND COLLECTED BY AN OPTICAL SYSTEM. THE SCAN MIRROR WILL BE SET AT A NOMINAL ANGLE OF 45 DEG TO THE RADIOMETER OPTICAL AXIS, WHICH WILL BE ALIGNED PARALLEL TO THE SPIN AXIS OF THE SPACECRAFT. THE SPINNING MOTION OF THE SPACECRAFT (APPROXIMATELY 100 RPM) WILL PROVIDE A WEST-EAST SCAN MOTION WHEN THE SPIN AXIS OF THE SPACECRAFT IS ORIENTED PARALLEL WITH THE EARTH'S AXIS. THE LATITUODINAL SCAN WILL BE ACCOMPLISHED BY SEQUENTIALLY TILTING THE SCANNING MIRROR AT THE COMPLETION OF EACH SPIN.

----- METEOSAT, UNKNOWN -----

EXPERIMENT NAME- DATA COLLECTION PLATFORM (DCP)

NSDDC ID- METOSAT-02

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - UNKNOWNUNKNOWN

EXPERIMENT BRIEF DESCRIPTION
THE DATA COLLECTION PLATFORM WILL BE DESIGNED TO (1) DISSEMINATE IMAGE DATA TO USER STATIONS, (2) COLLECT DATA FROM VARIOUS EARTH-BASED PLATFORMS, AND (3) PROVIDE FOR A SPACE-TO-SPACE RELAY FOR DATA FROM POLAR ORBITING SATELLITES. THIS EXPERIMENT WILL BE SIMILAR TO THE METEOROLOGICAL DATA COLLECTION AND TRANSMISSION SYSTEM (WEPAX) FLOWN ON SMS I AND SMS 2 AND PLANNED FOR THE GOES SERIES SPACECRAFT. THIS EXPERIMENT WILL OPERATE ON S-BAND FREQUENCIES FOR WEPAX TYPE TRANSMISSIONS AND UHF FOR DATA COLLECTION PLATFORM REPORT AND INTERROGATION.

***** NIMBUS-F *****

SPACECRAFT COMMON NAME- NIMBUS-F
ALTERNATE NAMES- PL-7310
NSDDC ID- NIMBS-F

LAUNCHED SUCCESSFULLY
06/12/75

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- MAY 1976 SPACECRAFT WEIGHT- 585. KG
LAUNCH SITE- VANDENBERG AFB, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-0A

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 108. MIN INCLINATION- 100. DEG
PERIAPSIS- 1100.00 KM ALT APCAPSIS- 1100.00 KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - J. SARGENTNASA-GSFC
GREENBELT, MD
PS - J.S. THEONNASA-GSFC
GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
THE NIMBUS-F R AND D SATELLITE WILL SERVE AS A STABILIZED, EARTH-ORIENTED PLATFORM FOR TESTING ADVANCED SYSTEMS FOR SENSING AND COLLECTING METEOROLOGICAL DATA ON A

ORIGINAL PAGE IN
OF POOR QUALITY

GLOBAL SCALE. THE POLAR-ORBITING SPACECRAFT WILL CONSIST OF THREE MAJOR STRUCTURES -- (1) A HOLLOW TORUS-SHAPED SENSOR MOUNT, (2) SOLAR PADDLES, AND (3) A CONTROL HOUSING UNIT CONNECTED TO THE SENSOR MOUNT BY A TRIPOD TRUSS STRUCTURE. CONFIGURED SOMEWHAT LIKE AN OCEAN BUOY, NIMBUS-F WILL BE NEARLY 3.7 M TALL, 1.6 M IN DIAMETER AT THE BASE, AND ABOUT 3 M WIDE WITH SOLAR PADDLES EXTENDED. THE SENSOR MOUNT THAT FORMS THE SATELLITE BASE WILL HOUSE THE ELECTRONICS EQUIPMENT AND BATTERY MODULES. THE LOWER SURFACE OF THE TORUS WILL PROVIDE MOUNTING SPACE FOR SENSORS AND ANTENNAS. A BOX-BEAM STRUCTURE MOUNTED WITHIN THE CENTER OF THE TORUS WILL SUPPORT THE LARGEST SENSOR EXPERIMENTS. MOUNTED ON THE CONTROL HOUSING UNIT, LOCATED ON TOP OF THE SPACECRAFT, WILL BE SUN SENSORS, HORIZON SCANNERS, AND A COMMAND ANTENNA. AN ADVANCED ATTITUDE CONTROL SYSTEM WILL PERMIT THE SPACECRAFT'S ORIENTATION TO BE CONTROLLED TO WITHIN PLUS OR MINUS 1 DEG IN ALL THREE AXES (PITCH, ROLL, AND YAW). NINE EXPERIMENTS HAVE BEEN SELECTED FOR NIMBUS-F. THEY ARE THE (1) EARTH RADIATION BUDGET (ERB), (2) ELECTRICALLY SCANNING MICROWAVE RADIOMETER (ESMR), (3) HIGH-RESOLUTION INFRARED RADIATION SOUNDER (HIRS), (4) LINE RADIANCE INVERSION RADIOMETER (LIRIR), (5) PRESSURE MODULATED RADIOMETER (PMR), (6) SCANNING MICROWAVE SPECTROMETER (SCANS), (7) TEMPERATURE/HUMIDITY INFRARED RADIOMETER (THIR), (8) SATELLITE TRACKING AND DATA RELAY EXPERIMENT, AND (9) TROPICAL WIND ENERGY CONVERSION AND REFERENCE LEVEL EXPERIMENT (TWERLE). THIS COMPLEMENT OF ADVANCED SENSORS WILL BE CAPABLE OF (1) MEASURING TROPOSPHERIC TEMPERATURE, WATER VAPOR ABUNDANCE, AND CLOUD WATER CONTENT, (2) PROVIDING VERTICAL PROFILES OF TEMPERATURE, CLIMATE, AND WATER VAPOR, (3) TRANSMITTING REAL-TIME DATA TO GEOSTATIONARY SPACECRAFT (ATS 6), AND (4) YIELDING DATA ON THE EARTH'S RADIATION BUDGET.

----- NIMBUS-F, SMITH -----

EXPERIMENT NAME- EARTH RADIATION BUDGET (ERB)

NSDCC ID- NIMBUS-F-08

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER

DI=OTHER INVESTIGATOR, IM=TEAM MEMBER)

PI - W.L. SMITHNOAA-NES

DI - A.J. DRUMMONDEPPLEY LAB, INC

DI - I. RUFFNOAA-NES

DI - J.R. HICKEYEPPLEY LAB, INC

DI - W.J. SCHOLESEPPLEY LAB, INC

DI - D.T. HILLEARYNOAA-NES

DI - SUTLAND, MD

DI - NEWPORT, RI

DI - SUITLAND, MD

DI - SUITLAND, MD

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PLANNED ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC

ORBIT PERIOD- 90. MIN

PERIAPSIS- 300. KM ALT

INCLINATION- 29. DEG

APAPSIS- 300. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)

PM - D.S. LECKRONENASA-GSFC

PS - GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

DURING THE 1980'S, NASA WILL USE THE SPACE SHUTTLE AS ITS PRIMARY TRANSPORTATION SYSTEM FOR CARRYING INSTRUMENTATION INTO NEAR EARTH ORBIT. UNDER THE SPACELAB PROGRAM (DIRECTED BY ESRO) THE SHUTTLE'S PAYLOAD BAY IS BEING CONFIGURED AND EQUIPPED TO ACT AS A GENERALIZED IN-ORBIT LABORATORY. ONE PROPOSED SPACECRAFT MISSION IS TO FLY A ONE METER GENERAL PURPOSE TELESCOPE CAPABLE OF PERFORMING NON-SOLAR ASTRONOMICAL OBSERVATIONS FROM THE VACUUM UV THROUGH THE VISIBLE WAVELENGTH RANGE. THE INITIAL DEFINITION OF THE REQUIREMENTS FOR THIS IN UV-OPTICAL SPACELAB TELESCOPE AND RELATED SUPPORT SYSTEMS BEGAN IN DECEMBER 1974. THE ORGANIZATION AND IMPLEMENTATION OF THE UV-OPTICAL TELESCOPE STUDY WILL BE CARRIED OUT BY AN INSTRUMENT DEFINITION TEAM (IDT) WHOSE MEMBERS HAVE BEEN CHOSEN FROM SCIENTISTS THROUGHOUT THE WORLD ON THE BASIS OF SUBMITTED PROPOSALS. THIS IDT WILL INTERACT WITH NASA THROUGH A NASA STUDY SCIENTIST APPOINTED BY GSFC.

----- ONE METER UV TELESCOPE, MENIZE -----

EXPERIMENT NAME- INSTRUMENT DEFINITION TEAM

NSDCC ID- CMUVEL-01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER

DI=OTHER INVESTIGATOR, IM=TEAM MEMBER)

TL - M.G. MENIZENASA-JSC

DI - HOLSTON, TX

IM - A.M. SMITHNASA-GSFC

IM - GREENBELT, MD

IM - C.W. ANDERSONU OF WISCONSIN

IM - MADISON, WI

IM - R.W. O'CONNELLU OF VIRGINIA

IM - CHARLOTTEVILLE, VA

IM - E.G. JENKINSPRINCETON U

IM - PRINCETON, NJ

EXPERIMENT BRIEF DESCRIPTION

THE SPECIFIC GOAL OF THE INSTRUMENT DEFINITION TEAM (IDT) IS TO ESTABLISH THE SCIENTIFIC MERIT AND APPROVE PRELIMINARY CONCEPTUAL DESIGN OF A FLEXIBLE, GENERAL PURPOSE, IN CLASS UV-OPTICAL FACILITY TELESCOPE FOR SPACELAB ASTRONOMY MISSIONS. THE END PRODUCTS OF THE DEFINITION STUDY WILL INCLUDE (1) A DELINEATION OF BROAD SCIENTIFIC GOALS AND THE DEFINITION OF REPRESENTATIVE OBSERVING PROGRAMS, (2) A THOROUGH STATEMENT OF REQUIREMENTS FOR TELESCOPE AND SUPPORT SYSTEMS PERFORMANCE NECESSARY TO THE FACILITY SCIENTIFIC OBJECTIVES, (3) PRELIMINARY DESCRIPTIONS OF SEVERAL ILLUSTRATIVE FOCAL PLANE INSTRUMENTS, AND (4) A WELL DEVELOPED CONCEPT OF THE TOTAL OPERATING TELESCOPE FACILITY INCLUDING COMMAND AND CONTROL MECHANISMS, DATA HANDLING, GROUND OPERATIONS, USER INVOLVEMENT, ETC. THE ACTIVITIES OF THE IDT ARE EXPECTED TO LAST 1 YEAR, CULMINATING IN THE PREPARATION OF A FINAL REPORT BY DECEMBER 1975.

***** RAE-D *****

SPACECRAFT COMMON NAME- RAE-D

ALTERNATE NAMES- RADIO ASTRONOMY EXPLORER, PL-693U

EXPLORER 49, 06688

6688

NSDCC ID- 73-039A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY

AT THE STANDARD DATA ACQUISITION RATE SINCE 06/10/73.

LAUNCH DATE- 06/10/73

SPACECRAFT WEIGHT- 328. KG

LAUNCH SITE- CAPE CANAVERAL, UNITED STATES

LAUNCH VEHICLE- LT DELTA

SPONSORING COUNTRY/AGENCY

UNITED STATES NASA-DSS

INITIAL ORBIT PARAMETERS

ORBIT TYPE- SELENOCENTRIC

ORBIT PERIOD- 221.17 MIN

PERIAPSIS- 1082.98 KM ALT

EPOCH DATE- 06/21/73

INCLINATION- 55.7 DEG

APAPSIS- 1063.04 KM ALT

RECENT ORBIT PARAMETERS

ORBIT TYPE- SELENOCENTRIC

ORBIT PERIOD- 221.9 MIN

PERIAPSIS- 1044. KM ALT

EPOCH DATE- 02/24/75

INCLINATION- 67.1 DEG

APAPSIS- 1089. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)

PM - J.T. SHEANASA-GSFC

PS - GREENBELT, MD

PS - R.G. STONENASA-GSFC

PS - GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

THE RAE-D SPACECRAFT MEASURED WITH DIRECTIVITY THE

INTENSITY OF CELESTIAL RADIO SOURCES AS A FUNCTION OF TIME,

DIRECTION, AND FREQUENCY (0.03 TO 13 MHz). THREE RADIO-BURST

RECEIVERS, TWO RYLE-VONBERG RECEIVERS, AND AN IMPEDANCE PROBE

CONNECTED TO TWO 221-M LONG 'V' ANTENNAS AND A 37-M LONG

ORIGINAL PAGE IS
OF POOR QUALITY

DIPLOLE ANTENNA WERE USED. THE SPACECRAFT WAS IN A LUNAR ORBIT ENABLING LUNAR OCCULTATIONS TO BE USED TO DETERMINE CELESTIAL SOURCE POSITIONS FROM A LOCATION FAR REMOVED FROM THE TERRESTRIAL NOISE BACKGROUND.

----- RAE-B, STONE -----

EXPERIMENT NAME- RAPID-BURST RECEIVERS

NSSDC ID- 73-039A-02

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 06/10/73.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - R.G. STONENASA-GSFC GREENBELT, MD
DI - J.K. ALEXANDER, JR.NASA-GSFC GREENBELT, MD
DI - J. FAIRBERGNASA-GSFC GREENBELT, MD
DI - J.F. CLARKNASA-GSFC GREENBELT, MD
DI - H. MALITSONNASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

A 32-CHANNEL STEP FREQUENCY RADIOMETER WAS CONNECTED TO EACH ANTENNA (2 1/2' ANIENNAE, 229-M LONG, 1 DIPLOLE, 30-M LONG) AND MEASURED THE AMPLITUDES, RATES OF CHANGE OF FREQUENCY, AND DECAY TIMES OF SOLAR BURSTS AND OTHER RAPIDLY VARIING NOISE IN THE 0.025 TO 13 MHz BAND, OPERATING IN THE SENSITIVITY MODE. THESE RECEIVERS MEASURED SIGNALS UP TO 40 DB ABOVE THE COSMIC BACKGROUND LEVEL. THE 32 CHANNELS WERE SAMPLED EVERY 7.66 SEC ON THE 1/2' ANTENNAE AND EVERY 3.86 SEC ON THE DIPLOLE ANTENNAE.

----- RAE-B, STONE -----

EXPERIMENT NAME- CAPACITANCE PROBE

NSSDC ID- 73-039A-03

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 06/10/73.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - R.G. STONENASA-GSFC GREENBELT, MD
DI - J.L. DONLEYNASA-GSFC GREENBELT, MD
DI - J.E. GUTHRIENASA-GSFC GREENBELT, MD
DI - J.A. KANENASA-GSFC GREENBELT, MD
DI - R.C. SOMERLECKNASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THE ANTENNA AND SPACECRAFT FUNCTIONED AS TWO CAPACITOR PLATES WITH THE AMBIENT PLASMA ACTING AS THE DIELECTRIC. FREQUENCY SHIFTS IN TWO COUPLED OSCILLATORS CONNECTED TO THE ANTENNA INDICATED CHANGES IN ANTENNA CAPACITANCE CAUSED BY VARIATIONS IN THE AMBIENT ELECTRON DENSITY.

***** SOLAR MAXIMUM MISSION *****

SPACECRAFT COMMON NAME- SOLAR MAXIMUM MISSION

ALTERNATE NAMES- SMX

NSSDC ID- SMX

LAST REPORTED STATE- A PROPOSED MISSION

LAUNCH DATE- MID 1974 SPACECRAFT WEIGHT- 1300. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-CSS

PLANNED ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 50. MIN INCLINATION- 20. DEG
PERIAPSIS- 6828. KM ALT APOAPSIS- 6828. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PS - K.J. FROSTNASA-GSFC GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

THE SOLAR MAXIMUM MISSION WILL BE DEDICATED TO COORDINATED OBSERVATIONS ON SPECIFIC SOLAR ACTIVITY AND SOLAR FLARE PROBLEMS. THE SPACECRAFT WILL BE ORIENTED TOWARDS THE SUN DURING THE DAYLIGHT PORTION OF THE ORBIT. THE SPACECRAFT ITSELF WILL NOT PASTER OVER THE SOLAR DISC, ALTHOUGH INDIVIDUAL INSTRUMENTS WILL HAVE THIS CAPABILITY. THE SMX SPACECRAFT WILL BE DESIGNED SO THAT IT CAN BE RETRIEVED BY AN EARLY SHUTTLE FLIGHT, RETURNED TO EARTH, REFURNISHED AND FITTED WITH AN UPDATED PAYLOAD, AND RETURNED TO ORBIT FOR ANOTHER SOLAR ORIENTED MISSION. AT PRESENT (MARCH, 1975) THE SMX IS IN A DEFINITION-STUDY PHASE. THIRTEEN EXPERIMENTS HAVE BEEN INCLUDED IN THIS STUDY PHASE, BUT IT IS ANTICIPATED THAT ONLY SIX TO EIGHT WILL MAKE THE FINAL PAYLOAD.

----- SOLAR MAXIMUM MISSION, ACTON -----

EXPERIMENT NAME- SOFT X-RAY SPECTROMETER

NSSDC ID- SMX -07

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - L. ACTONLOCKHEED PALO ALTO PALO ALTO, CA
DI - R.C. CATURALOCKHEED PALO ALTO PALO ALTO, CA
DI - C. WOLFSONLOCKHEED PALO ALTO PALO ALTO, CA
DI - B.H. JONESCULHAM LAB ABBINGDON, ENGLAND
DI - C. JORDANCULHAM LAB ABBINGDON, ENGLAND
DI - B. FAYCETTCULHAM LAB ABBINGDON, ENGLAND
DI - A. GADJIELCULHAM LAB ABBINGDON, ENGLAND
DI - R.L.F. BOYDCOLLEGE LONDON LONDON, ENGLAND
DI - C. KAPLEYCOLLEGE LONDON LONDON, ENGLAND
DI - J.L. CULHANECOLLEGE LONDON LONDON, ENGLAND
DI - J. PARKINSONCOLLEGE LONDON LONDON, ENGLAND

EXPERIMENT BRIEF DESCRIPTION

THE INSTRUMENT WILL CONSIST OF TWO SETS OF 7 FLAT CRYSTAL AND 6 BENT CRYSTAL SPECTROMETERS (PCS AND BCS, RESPECTIVELY). THE PCS SYSTEM WILL PROVIDE A RASTERING CAPABILITY UP TO A 7 X 7 ARC-MIN FOV IN 10 X 10 ARC-SEC ELEMENTS AT 0.25 SEC PER ELEMENT IN 8 ARC-SEC STEPS. THE BCS SYSTEM OBTAINS HIGH SPECTRAL AND TIME RESOLVED SPECTRA 10.00 S AND 1.0 SEC, TYPICALLY) OVER A 6 X 4 ARC-MIN FOV. BOTH SYSTEMS WILL BE OPTIMIZED TO PROVIDE 7 SIMULTANEOUS SPECTROHELIOGRAMS (SPECTRA) SPANNING THE 1.38-15.48 A WAVELENGTH RANGE. THESE, IN TURN, WILL INCLUDE MANY STRONG LINES COVERING A TEMPERATURE RANGE OF ABOUT 1.6E TO 1.6E K FOR ACTIVE REGION AND FLARE STUDIES. THE PCS MODE OF OPERATION IS INTENDED FOR STUDIES OF CURDINAL ACTIVE REGIONS BEFORE AND AFTER FLARES, TO DETERMINE WHAT CHANGES IN THE PLASMA TEMPERATURES AND DENSITIES ARE ASSOCIATED WITH THE BUILD-UP TO AND RELAXATION FROM THE FLARE. THE BCS MODE WILL PERMIT DETAILED STUDIES OF THE RAPID PHYSICAL CHANGES IN THE PLASMA DURING FLARES.

----- SOLAR MAXIMUM MISSION, BONNET -----

EXPERIMENT NAME- HIGH RESOLUTION UV SPECTROMETER

NSSDC ID- SMX -03

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER, DI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - R. BONNETCNRS-LPSP PARIS, FRANCE
DI - J. CHARRACNRS-LPSP PARIS, FRANCE
DI - J. LEIBACKERCNRS-LPSP PARIS, FRANCE
DI - P. LEMAIRECNRS-LPSP PARIS, FRANCE
DI - M. MALINOVSKYCNRS-LPSP PARIS, FRANCE
DI - D. SAMAINCNRS-LPSP PARIS, FRANCE
DI - J. STENFLOU OF LUND LUND, SWEDEN

EXPERIMENT BRIEF DESCRIPTION

THE OBJECTIVE OF THIS EXPERIMENT WILL BE TO STUDY SPECTRAL LINES SPANNING THE ENTIRE CHROMOSPHERE AND LOWER TRANSITION REGION. THE INSTRUMENT WILL BE A MULTICHANNEL ULTRAVIOLET SPECTROMETER. IT WILL EMPLOY A CASSEGRAIN TELESCOPE TO BOTH INTERNALLY RASTER AND PROVIDE LIGHT TO A PLANE GRATING THAT, IN TURN, REFLECTS THE PHOTONS SIMULTANEOUSLY INTO SIX DETECTORS -- LY ALPHA, LY B, HG II H AND K, CaII K AND 2000 A. HALF WAVE PLATES WILL PERMIT CIRCULAR POLARIZATION STUDIES; USING THE LY AND HG II H CHANNELS. STEPPING THE GRATING WILL PROVIDE SPECTRAL RESOLUTION OF 0.01-0.04 A WITH TIME RESOLUTION OF ABOUT 10 SEC FOR A FULL SPECTRAL LINE SCAN, LESS FOR A PARTIAL (CORE) SCAN, AND SPATIAL RESOLUTION OF 1 X 1 ARC-SEC. THE SPATIAL RESOLUTION, FOV FOR RASTERING, AND SPECTRAL RANGE WILL BE VARIABLE, THE LATTER DEPENDING ON THE DIFFRACTION ORDER. A 40 A SCAN IS PROVIDED BY THE SIX DETECTOR SYSTEM, THROUGH 14TH ORDER IN LY B.

----- SOLAR MAXIMUM MISSION, CHUPP -----

EXPERIMENT NAME- BROAD RANGE GAMMA-RAY EXPERIMENT

NSSDC ID- SMX -13

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - E. CHUPPU OF NEW HAMPSHIRE
DURHAM, NH
OI - D. FORRESTU OF NEW HAMPSHIRE
DURHAM, NH
OI - K. PINKAVMPI
MUNICH, FED REP OF GERMANY
OI - C. NEPPINMPI
MUNICH, FED REP OF GERMANY
OI - A. JACOBSENNASA-JPL
PASADENA, CA

EXPERIMENT BRIEF DESCRIPTION

THE OBJECTIVE OF THIS EXPERIMENT IS TO OBSERVE SOLAR FLARE RELATED GAMMA RAY LINES AND ASSOCIATED CONTINUUM RADIATION. THE INSTRUMENT WILL CONSIST OF A THREE ELEMENT DETECTOR SYSTEM -- (1) A 0.3-9 MEV SYSTEM USING SiA 7.0 X 7.0 CM NAI SCINTILLATOR UNITS CONTINUOUSLY GAIN-STABILIZED TO A COMMON PRESET GAIN SO THE SUMMED OUTPUT OF ALL SIX DETECTORS IS IDENTICAL TO A SINGLE LARGE DETECTOR. THE ENERGY RESOLUTION IS 7.5 PERCENT AT 0.682 MEV WITH 20 SEC TIME RESOLUTION (1.0 SEC FOR SELECTED LINES), (2) A COOLED GE DIODE OF 80 CC, COVERING 0.3-5.2 MEV WITH RESOLUTION OF 7.5 MEV FWHM AND TIME RESOLUTION OF 0.8 SEC, (3) A HIGH ENERGY, 10-160 MEV SYSTEM USING THE SIX NAI DETECTORS AND A CBI BACK DETECTOR OPERATING TOGETHER. RESOLUTION IS 8% AT 1.0 WITH 1 SEC TIME RESOLUTION.

----- SOLAR MAXIMUM MISSION, DE JAGER -----

EXPERIMENT NAME- MARC X-RAY IMAGING SPECTROMETER

NSSDC ID- 5M -02

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - C. DE JAGERSPACE RESEARCH LAB
UTRECHT, NETHERLANDS
OI - H. VAN BEEKSPACE RESEARCH LAB
UTRECHT, NETHERLANDS
OI - L. DE FEITERSPACE RESEARCH LAB
UTRECHT, NETHERLANDS

EXPERIMENT BRIEF DESCRIPTION

THE PRIME OBJECTIVE OF THIS EXPERIMENT WILL BE TO STUDY THE SPECTRAL, AND SPATIAL, EVOLUTION OF HARD X-RAY FLARES. THE INSTRUMENT WILL CONSIST OF AN IMAGING COLLIMATOR, A POSITION SENSITIVE DETECTOR SYSTEM, AND ACCOMPANYING ELECTRONICS. THE MECHANICAL COLLIMATOR FORMS A TWO-DIMENSIONAL 1024 IMAGE ELEMENT ARRAY WITH A TOTAL FOV OF 4.3 X 4.3 ARC-MIN CORRESPONDING TO A SINGLE IMAGE ELEMENT FOV OF 6 X 6 ARC-SEC. THE DETECTOR CONSISTS OF 1024 SEPARATE MINI-PROPORTIONAL COUNTERS. PULSE HEIGHT ANALYSIS PERMITS MEASUREMENTS IN FIVE ENERGY BANDS SIMULTANEOUSLY. THESE ARE CHOSEN IN THE RANGE 3.5-20 KEV, WITH ENERGY RESOLUTION OF 19 PERCENT AT 6 KEV AND TIME RESOLUTION OF 2 SEC.

----- SOLAR MAXIMUM MISSION, FROST -----

EXPERIMENT NAME- MARC X-RAY SPECTROMETER

NSSDC ID- 5M -10

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - K. FROSTNASA-GSFC
GREENBELT, MD
OI - B. DENNISNASA-GSFC
GREENBELT, MD
OI - L. ORWIGNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THE OBJECTIVE OF THIS EXPERIMENT WILL BE TO MEASURE, WITH VERY HIGH TEMPORAL RESOLUTION, THE SPECTRUM OF HARD ECLIPSE X-RAY FLARES. THE INSTRUMENT WILL BE AN UPDATED VERSION OF THE SUCCESSFUL OSO-8 HARD X-RAY SPECTROMETER. IT WILL USE A FLIGHT SPARE DETECTOR WITH NEW PHOTOMULTIPLIER TUBES AND ELECTRONICS. A 16 CHANNEL PULSE HEIGHT SPECTRUM WILL BE OBTAINED EVERY 0.1 SEC OVER THE 20-300 KEV RANGE. THE INSTRUMENT WILL VIEW THE FULL SUN.

----- SOLAR MAXIMUM MISSION, INHOP -----

EXPERIMENT NAME- HIGH RESOLUTION GAMMA-RAY SOLID STATE DETECTOR

NSSDC ID- 5M -11

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - W. INHOPLOCKHEED PALM ALTO
PALO ALTO, CA
OI - G. NAKANOLOCKHEED PALM ALTO
PALO ALTO, CA

CI - J. REAGANLOCKHEED PALM ALTO
PALM ALTO, CA

EXPERIMENT BRIEF DESCRIPTION

THE INSTRUMENT WILL CONSIST OF A PASSIVELY COOLED SYSTEM OF THREE 80 CC GERMANIUM DETECTORS, COVERING THE 0.1-0.8 MEV RANGE WITH A RESOLUTION OF 2 KEV FWHM AND TIME RESOLUTION OF 1 SEC FOR A DATA RATE OF 320 SPS. FOR A HIGHER DATA RATE, HIGHER TIME RESOLUTION, UP TO 0.04 SEC, COULD BE ACHIEVED. SCIENTIFIC OBJECTIVES WILL INCLUDE A DETERMINATION OF FLARE PLASMA TEMPERATURES FROM THERMAL BROADENING OF ELECTRON-POSITIION ANNIHILATION LINE AT 511 KEV, A POSITIVE IDENTIFICATION OF THE HYDROGEN NEUTRON CAPTURE LINE AT 2.223 MEV, AND A SEARCH FOR SEVERAL NEW NUCLEAR DECAY LINES IN THE ENERGY RANGE COVERED AND PREDICTED BY THEORETICAL WORK.

----- SOLAR MAXIMUM MISSION, KOCHEN -----

EXPERIMENT NAME- WHITE LIGHT CORONAGRAPH

NSSDC ID- 5M -02

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
CI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - K. KOCHENUS NAVAL RESEARCH LAB
WASHINGTON, DC
OI - J. BOHLINUS NAVAL RESEARCH LAB
WASHINGTON, DC
OI - R. HOWARDUS NAVAL RESEARCH LAB
WASHINGTON, DC
CI - D. MICHELSUS NAVAL RESEARCH LAB
WASHINGTON, DC

EXPERIMENT BRIEF DESCRIPTION

THE OBJECTIVES OF THIS EXPERIMENT WILL INCLUDE STUDY OF SOLAR ERUPTIONS AND SHOCK WAVES AS THEY PROPAGATE THROUGH THE OUTER CORONA, AND STUDY OF THE SOLAR CORONA ITSELF. THE INSTRUMENT WILL BE A WHITE LIGHT CORONAGRAPH BEING A 90C VIDICON PHOTOCAMERA. IT WILL PROVIDE A FOV RANGING FROM 2 TO 10 SOLAR RADII, WITH A 612 LINE RASTER WHICH COVERS A 320 ARC-MIN TOTAL FIELD. READOUT AT 760 FPS WILL YIELD 1/2 OF A FULL RASTER EVERY 20 MIN, WITH A FASTER RATE POSSIBLE BY INCREASING THE DATA RATE. TWO POLARIZERS WILL BE USED TO DETERMINE PERCENTAGE POLARIZATION IN THE FOV.

----- SOLAR MAXIMUM MISSION, KURFESS -----

EXPERIMENT NAME- BROAC RANGE GAMMA-RAY SPECTROMETER

NSSDC ID- 5M -12

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - J. KURFESSUS NAVAL RESEARCH LAB
WASHINGTON, DC
OI - W.N. JOHNSONUS NAVAL RESEARCH LAB
WASHINGTON, DC
OI - R. KINZERUS NAVAL RESEARCH LAB
WASHINGTON, DC
CI - G. SHAUUS NAVAL RESEARCH LAB
WASHINGTON, DC

EXPERIMENT BRIEF DESCRIPTION

THE OBJECTIVE OF THIS EXPERIMENT WILL BE TO OBSERVE SOLAR FLARE RELATED GAMMA RAY LINES AND ASSOCIATED CONTINUUM RADIATION. THE DETECTOR CONSISTS OF A SINGLE 33.5 X 12.7 CM NAI CRYSTAL MOUNTED IN A 30.5 X 8.1 CM CSI SHIELD-LIGHT PIPE IN A PHOSWICH CONFIGURATION AND SURROUNDED BY A 5.1 CM THICK CBI ANNULES FOR ADDITIONAL SHIELDING. PULSE-SHAPE DISCRIMINATION IS USED TO DIFFERENTIATE BETWEEN EVENTS OCCURRING ONLY IN NAI, ONLY IN CSI, OR EVENTS PRODUCING ENERGY LOSS IN EACH CRYSTAL. TWO MAJOR ENERGY REGIMES WILL BE STUDIED. THE 0.25-10 MEV RANGE PROVIDES AN ENERGY RESOLUTION OF 8 PERCENT FWHM AT 0.681 MEV AND 3.2 PERCENT AT 4.4 MEV. THE 20-180 MEV RANGE PROVIDES A 15 MEV RESOLUTION. TIME RESOLUTION IS 8 SEC FOR NORMAL OPERATION AND 0.1 SEC IN THE FLARE MODE.

----- SOLAR MAXIMUM MISSION, MACQUEEN -----

EXPERIMENT NAME- WHITE LIGHT CORONAGRAPH

NSSDC ID- 5M -01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

PI - R. MACQUEENHIGH ALTITUDE OBS
BOULDER, CO
OI - M. ALTSCHULERHIGH ALTITUDE OBS
BOULDER, CO
OI - H. SCHMIDTHIGH ALTITUDE OBS
BOULDER, CO
OI - K. SHERIDANHIGH ALTITUDE OBS
BOULDER, CO
OI - R. KOPPHIGH ALTITUDE OBS
BOULDER, CO
OI - C. GUERFELDHIGH ALTITUDE OBS
BOULDER, CO

OI - L. HOUBEHIGH ALTITUDE OBS
 BOULDER, CO
 OI - G. BULKHIGH ALTITUDE OBS
 BOULDER, CO
 OI - M. HANSENHIGH ALTITUDE OBS
 BOULDER, CO
 OI - S. WAGEHIGH ALTITUDE OBS
 BOULDER, CO

EXPERIMENT BRIEF DESCRIPTION
 THE OBJECTIVE OF THIS EXPERIMENT WILL BE TO STUDY SOLAR ERUPTIONS AND SHOCK WAVES AS THEY PROPAGATE THROUGH THE OUTER CORONA, AND TO STUDY THE OUTER SOLAR CORONA ITSELF. THE INSTRUMENT IS A WHITE-LIGHT CORONAGRAPH WHICH WILL PROVIDE A FOV RANGING FROM 1.5 TO 10 SOLAR RADII. IT WILL DISCRIMINATE VARIOUS IMPORTANT BAND-PASS RANGES OF THE VISIBLE SPECTRUM FROM 4000-7000 Å. BOTH THE TRANSIENT AND THE FULL SYNCHROTRON OBSERVING PROGRAMS PROPOSED WOULD REQUIRE A 1984 BURS TELEMETRY RATE, BUT A LOWER AND STILL USEFUL RATE IS POSSIBLE. A STOKED POLARIMETER WILL PERMIT DETAILED OUTER CORONAL MAGNETIC FIELD STUDIES.

----- SOLAR MAXIMUM MISSION, NEUPERTY -----
EXPERIMENT NAME- XLV SPECTROHELIOGRAPH
NSDDC ID- 5MM -06
LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER OR OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - S. NEUPERTNASA-GSFC
 GREENBELT, MD
 OI - R. CHAPMANNASA-GSFC
 GREENBELT, MD
 OI - Y. MAKAGAWAHIGH ALTITUDE OBS
 BOULDER, CO
 OI - R. THOMASNASA-GSFC
 GREENBELT, MD
 OI - D. RUSTADPTE, INC
 CAMBRIDGE, MA

EXPERIMENT BRIEF DESCRIPTION
 THE OBJECTIVE WILL BE TO ACQUIRE SPECTROHELIOGRAMS AND SPECTRA FORMED IN THE LOW CORONA, IN ACTIVE REGIONS, AND IN FLARES. THE INSTRUMENT WILL BE A GRAZING INCIDENCE TELESCOPE AND SPECTROMETER, WHICH PROVIDES SPATIAL RESOLUTION OF 5 X 5 ARC-SEC, SPECTRAL RESOLUTION OF 0.5 Å AND TIME RESOLUTION OF 20 SEC FOR A PCV RASTER SCAN OF 1.5 X 1.5 ARC-MIN IN THE NORMAL MODE, NUMEROUS RASTER OPTIONS FROM A 1.5 X 1.5 ARC-MIN TO A 60 X 60 ARC-MIN FOV ARE PROVIDED, WITH VARIABLE SPATIAL RESOLUTION. INDIVIDUAL SPECTRA AS WELL AS SPECTROHELIOGRAMS CAN BE OBTAINED IN THREE LINES SIMULTANEOUSLY IN THE RANGE 90-640 Å.

----- SOLAR MAXIMUM MISSION, NOVICK -----
EXPERIMENT NAME- MARE X-RAY POLARIMETER
NSDDC ID- 5MM -09
LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER OR OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - R. NOVICKCOLUMBIA U
 NEW YORK, NY
 OI - H. MELAYACOLUMBIA U
 NEW YORK, NY
 OI - M. WEISSKOPFCOLUMBIA U
 NEW YORK, NY
 OI - R. WOLFFCOLUMBIA U
 NEW YORK, NY
 OI - L. WOLTERCOLUMBIA U
 NEW YORK, NY

EXPERIMENT BRIEF DESCRIPTION
 THIS EXPERIMENT IS INTENDED TO MEASURE THE POLARIZATION PROPERTIES OF MARE X-RAY FLARES. THE INSTRUMENT CONSISTS OF A TWO-AXIALLY-SYMMETRIC LITHIUM COMPTON SCATTERING TARGETS SURROUNDED, RESPECTIVELY, BY TWO CYLINDRICAL PROPORTIONAL COUNTERS. THE INNER COUNTER HAS A BERYLLIUM WINDOW ON ITS INNER SURFACE WITH ADEQUATE TRANSMISSION TO ALLOW POLARIZATION MEASUREMENTS OF DOWN TO 5 KEV X-RAYS. THE OUTER WINDOW ON THE INNER AND THE INNER WINDOW ON THE OUTER COUNTER ARE ALUMINUM OF 12 KEV TRANSMISSION THICKNESS, ENOUGH TO ELIMINATE A PULSE PILE-UP PROBLEM. THE FULL RANGE OF THE INSTRUMENT IS 5-100 KEV WITH ENERGY RESOLUTION OF 25 PERCENT AT 5 KEV AND 10 PERCENT AT 100 KEV. FULL SUN VIEWING (1 DEGREE FOV) WITH TEMPORAL RESOLUTION IN THE RANGE 10-0.1 SEC DEPENDING ON OPERATING MODE IS PROVIDED.

----- SOLAR MAXIMUM MISSION, REEVES -----
EXPERIMENT NAME- XUV SPECTROHELIOGRAPH
NSDDC ID- 5MM -05
LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER OR OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - E. REEVESHARVARD COLLEGE OBS
 CAMBRIDGE, MA

OI - R. NOYESHARVARD COLLEGE OBS
 CAMBRIDGE, MA
 OI - J.G. TIMOTHYHARVARD COLLEGE OBS
 CAMBRIDGE, MA
 OI - G. WITHBROEHARVARD COLLEGE OBS
 CAMBRIDGE, MA

EXPERIMENT BRIEF DESCRIPTION
 THE OBJECTIVE WILL BE TO ACQUIRE SPECTROHELIOGRAMS AND SPECTRA FORMED IN THE LOW CORONA, IN ACTIVE REGIONS, AND IN FLARES. THE INSTRUMENT WILL CONSIST OF A GRAZING INCIDENCE TELESCOPE AND A GRAZING INCIDENCE SPECTROMETER, WITH A DETECTOR SYSTEM CONSISTING OF 8 CHANNEL ELECTRON MULTIPLIERS WHICH RECEIVE LIGHT FROM THE GRATING THROUGH TWO McVEELEY EXIT SLITS. THE DETECTOR ARRAY CAN BE MOVED ON A ROTLAD CIRCLE INTO THREE PRIMARY POSITIONS, SIMULTANEOUSLY MONITORING 8 KNOWN XUV LINES AND SEVERAL SECONDARY POSITIONS MONITORING 8 LESSER NUMBERS. PRIMARY SPECTRAL RANGE IS 40-630 Å. AT SPATIAL RESOLUTION 4 X 4 ARC-SEC AND SPECTRAL RESOLUTION 0.1 Å, A 1 X 1 ARC-MIN FOV RASTER SCAN WILL TAKE 18 SEC IN THE NORMAL MODE. INDIVIDUAL SPECTRA AT A POINT CAN ALSO BE TAKEN.

----- SOLAR MAXIMUM MISSION, TANDBERG-HANSEN -----
EXPERIMENT NAME- HIGH RESOLUTION UV SPECTROMETER
NSDDC ID- 5MM -04
LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER OR OTHER INVESTIGATOR, TM=TEAM MEMBER)
 PI - E. TANDBERG-HANSENNASA-MSC
 HUNTSVILLE, AL
 OI - R.G. ATHAYHIGH ALTITUDE OBS
 BOULDER, CO
 OI - C. HYDERNASA-GSFC
 GREENBELT, MD
 OI - E. BRUNERU OF COLORADO
 BOULDER, CO
 OI - R. CHAPMANNASA-GSFC
 GREENBELT, MD
 OI - J. BECKERSSACRAMENTO PEAK OBS
 SUNSPOT, NM
 OI - J. BRANDTNASA-GSFC
 GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
 THE OBJECTIVE OF THIS EXPERIMENT WILL BE TO OBSERVE SPECTRAL LINES SPANNING MAINLY THE UPPER CHROMOSPHERE AND TRANSITION REGION. THE INSTRUMENT WILL BE A CASSEGRAIN TELESCOPE TO BOTH INTERNALLY RASTER AND FOCUS LIGHT INTO AN EBERT SPECTROMETER. AN ARRAY OF PHOTOMULTIPLIERS WILL SIMULTANEOUSLY OBTAIN 3 SPECTRAL LINES FROM NUMEROUS SETS IN THE WAVELENGTH RANGE FROM 1100 Å UP TO SOME UPPER LIMIT BETWEEN 2000 AND ABOUT 2800 Å. A POLARIZATION FILTER WHEEL, LOCATED BEHIND THE ENTRANCE SLIT OF THE SPECTROMETER, WILL PROVIDE HALF AND GREATER WAVE PLATES TO SUPPORT MAGNETIC FIELD STUDIES. STOPPING THE GRATING WILL PROVIDE SPECTRAL SCAN. OBSERVATIONS OF 3 X 3 ARC-SEC SPATIAL ELEMENTS AT 0.02-0.03 Å WITH TIME RESOLUTION OF 0.16 SEC FOR A SPECTRAL LINE SCAN ARE PROVIDED, WITH RASTER MODES UP TO 30 X 30 ARC-SEC PLUS ONE OF 15 X 1000 ARC-SEC. MAGNETIC FIELDS OF 100 GAMMA MAY BE MEASURABLE.

***** SPACELAB-SOLAR *****
SPACECRAFT COMMON NAME- SPACELAB-SOLAR
ALTERNATE NAMES-
NSDDC ID- EPLH50L
LAST REPORTED STATE- A PROPOSED MISSION
LAUNCH DATE- N/A **SPACECRAFT WEIGHT-** KG
LAUNCH SITE-
LAUNCH VEHICLE-
SPONSORING COUNTRY/AGENCY
 UNITED STATES NASA-D55

PLANNED ORBIT PARAMETERS
ORBIT TYPE-
ORBIT PERIOD- **INCLINATION-** DEG
PERIAPSE- **APDAPSE-**

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
 PS - W. NEUPERTNASA-GSFC
 GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
 THE EUROPEAN SPACE RESEARCH ORGANIZATION (ESRO) IS DEVELOPING SPACELAB, AN ARRAY OF INTERCHANGEABLE COMPONENTS (PRESSURIZED MANNED LABORATORIES, UNPRESSURIZED PLATFORMS, AND RELATED SUPPORT SYSTEMS) TO BE MOUNTED IN THE SPACE SHUTTLE PAYLOAD BAY. THIS PROJECT CONSISTS OF FACILITY DEFINITION TEAMS WHICH WILL DEFINE A SET OF GENERAL PURPOSE FACILITIES (E.G., BASIC TELESCOPES AND SUPPORT SYSTEMS) APPLICABLE TO A BALANCED PROGRAM OF SOLAR PHYSICS. THESE TEAMS, DRAWN FROM THE SCIENTIFIC COMMUNITY WILL WORK THROUGH A STEERING COMMITTEE, AND WILL DEFINE THE INSTRUMENTATION NEEDED AND THE REQUIREMENTS THESE INSTRUMENTS WILL PLACE ON THE SPACELAB.

ORIGINAL PAGE IS
 OF POOR QUALITY

----- SPACELAB-SOLAR, ACTON -----

EXPERIMENT NAME- SPECIAL PURPOSE FACILITY DEFINITION TEAM

NSDDC ID- SPLBSOL-04

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

TL - L. ACTONLOCKHEED PALO ALTO
PALO ALTO, CA
TM - C. WOLFSONLOCKHEED PALO ALTO
PALO ALTO, CA
TM - R.S. WHITEU OF CALIF, RIVERSIDE
RIVERSIDE, CA
TM - E. CHAPPU OF NEW HAMPSHIRE
DURHAM, NH
TM - R. MACQUEENHIGH ALTITUDE OBS
BOULDER, CO
TM - J. DECKERESACRAMENTO PEAK OBS
SUNSPOT, NM
TM - R. BLAKELGS ALAMOS SCI LAB
LGS ALAMOS, NM

EXPERIMENT BRIEF DESCRIPTION

THIS FACILITY DEFINITION TEAM (FDT) WILL STUDY PROBLEMS ASSOCIATED WITH QUICK REACTION OR SPECIAL PURPOSE INSTRUMENTATION THAT IS NOT EXPENSIVE, NOR OF GENERAL ENOUGH APPLICATION TO BE CONSIDERED AN INDEPENDENT FACILITY. INCLUDED IN THIS TYPE OF INSTRUMENTATION ARE SOLAR GAMMA RAY AND SOLAR NEUTRON DETECTORS AND A CORONAGRAPH. A STANDARD INTERFACE WILL BE DEFINED WHICH WILL ALLOW THE LOG-COST FLIGHT OF EXISTING SATELLITE EXPERIMENTS AND OF EXISTING AND NEW SOUNDING ROCKET CLASS PAYLOADS.

----- SPACELAB-SOLAR, DUNN -----

EXPERIMENT NAME- ONE METER SOLAR TELESCOPE FACILITY
DEFINITION TEAM

NSDDC ID- SPLBSOL-01

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

TL - R. DUNNSACRAMENTO PEAK OBS
SUNSPOT, NM
TM - R. FISHERSACRAMENTO PEAK OBS
SUNSPOT, NM
TM - P. LEMAIRECNRS-LRSP
VERRIERES LE QUISSON, FRANCE
TM - R. SMITHSONLOCKHEED PALO ALTO
PALO ALTO, CA
TM - J. HARVEYKITT PEAK NATL OBS
TUCSON, AZ
TM - R. MILKEYKITT PEAK NATL OBS
TUCSON, AZ

EXPERIMENT BRIEF DESCRIPTION

THIS FACILITY DEFINITION TEAM WILL STUDY PROBLEMS ASSOCIATED WITH A 1-METER, DIFFRACTION-LIMITED SOLAR TELESCOPE FACILITY.

----- SPACELAB-SOLAR, PETERSON -----

EXPERIMENT NAME- SOLAR HARD X-RAY FACILITY DEFINITION
TEAM

NSDDC ID- SPLBSOL-03

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

TL - L. PETERSONU OF CALIF, SAN DIEGO
LA JOLLA, CA
TM - G. GARMIRECALIF INST OF TECH
PASADENA, CA
TM - R. LINU OF CALIF, BERKELEY
BERKELEY, CA
TM - Z. SVESTKAAS+E, INC
CAMBRIDGE, MA
TM - H. VAN BEEKSPACE RESEARCH LAB
UTRECHT, NETHERLANDS

EXPERIMENT BRIEF DESCRIPTION

THIS FACILITY DEFINITION TEAM WILL STUDY PROBLEMS ASSOCIATED WITH HARD X-RAY (20-100 KEV) COLLIMATOR FACILITY. THIS FACILITY WILL BE CAPABLE OF ARC-SEC RESOLUTION AND WILL ALLOW VARIOUS INSTRUMENTS (E.G., SPECTROMETERS AND POLARIMETERS) TO BE MOUNTED BEHIND IT.

----- SPACELAB-SOLAR, WITHBROE -----

EXPERIMENT NAME- SOLAR EUV-XUV-SOFT X-RAY TELESCOPE
DEFINITION TEAM

NSDDC ID- SPLBSOL-02

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)

TL - G. WITHBROEHARVARD COLLEGE OBS
CAMBRIDGE, MA
TM - J.G. TIMOTHYHARVARD COLLEGE OBS
CAMBRIDGE, MA
TM - W. BEHRINGNASA-GSFC
GREENBELT, MD
TM - W. NEUPERTNASA-GSFC
GREENBELT, MD
TM - G. BRUECKNERUS NAVAL RESEARCH LAB
WASHINGTON, DC
TM - A. GABRIELAPPLETON LAB
SLOUGH BUCKS, ENGLAND
TM - A. KRIEGERAS+E, INC
CAMBRIDGE, MA
TM - A.G.C. WALKERSTANFORD U
STANFORD, CA

EXPERIMENT BRIEF DESCRIPTION

THIS FACILITY DEFINITION TEAM WILL STUDY PROBLEMS ASSOCIATED WITH EUV, X-RAY-ULTRAVIOLET (XUV), AND SOFT X-RAY FACILITIES OPERATING BETWEEN 4 A AND 1200 A. IT WILL CONSIDER BOTH NORMAL INCIDENCE AND GRAZING INCIDENCE OPTICS AND BOTH GRATING AND CRYSTAL SPECTROMETERS.

***** SYMPHONIE-B *****

SPACECRAFT COMMON NAME- SYMPHONIE-B
ALTERNATE NAMES-
NSDDC ID- SYMPH-B

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 09/00/78 SPACECRAFT WEIGHT- 400. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
FED REP OF GERMANY GFR
FRANCE CHES

PLANNED ORBIT PARAMETERS

ORBIT TYPE-	ORBIT PERIOD-	INCLINATION-	DEG
PERIAPSIS-	APDAPSIS-		

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - U. PFEIFFERGES FUR WELTRAUMFORSCH
BOHN, FED REP OF GERMANY
PM - P. VIELLARDCNES
BREITIGNY, FRANCE

EXPERIMENT BRIEF DESCRIPTION

SYMPHONIE B WILL BE A FRENCH-GERMAN, GEOSTATIONARY, EQUATORIAL, EXPERIMENTAL COMMUNICATIONS SATELLITE. THE SATELLITE BODY WILL BE A RIGHT HEXAGONAL PRISM, 1.45-M MAXIMUM DIAMETER AND 0.8-M HIGH. SEVERAL ANTENNAS AND OTHER APPENDAGES WILL BE MOUNTED ON THE ENDS AND THREE SETS OF SYMMETRICALLY PLACED SOLAR PANELS WILL EXTEND OUTWARD A DISTANCE OF 2.0 M FROM ALTERNATE EDGES OF THE SPACECRAFT. A FLYWHEEL OPERATED ATTITUDE CONTROL SYSTEM WILL MAINTAIN ATTITUDE ALONG THREE AXES. A POSITIVE ORBIT CONTROL SYSTEM WILL PLACE THE SPACECRAFT AT A DESIRED LONGITUDE AND WILL BE USED TO MAINTAIN THAT POSITION. IT WILL PROVIDE 1200 DATA, EIGHT VOICE AND TWO COLOR TV CHANNELS WHICH OPERATE BETWEEN 4 AND 6 GHz.

***** TORSS-A *****

SPACECRAFT COMMON NAME- TORSS-A
ALTERNATE NAMES- TRACK/DATA RELAY SAT SYS
NSDDC ID- TORSS-A

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 03/00/79 SPACECRAFT WEIGHT- KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-OTDA

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 1440. MIN
PERIAPSIS- 36000. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - G.G. CLARKNASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THE TRACKING AND DATA RELAY SATELLITE SYSTEM (TORSS) IS A CONCEPT UTILIZING COMMUNICATION SATELLITE TECHNOLOGY TO IMPROVE AND ECONOMIZE THE SATELLITE TRACKING AND TELEMETRY OPERATION. THREE GEOSYNCHRONOUS SATELLITES (ONE A STANDBY) WILL TRACK AND RECEIVE DATA FROM SATELLITES FOR RELAY TO A GROUND STATION. THE TWO ACTIVE SATELLITES WILL BE SEPARATED IN ORBIT BY AT LEAST 130-DEG LONGITUDE. SPACECRAFT SERVICED BY TORSS WILL REQUIRE ONLY ONE COMMUNICATIONS SYSTEM SINCE GROUND-BASED TELEMETRY STATIONS WILL BE COMPATIBLE WITH TORSS EQUIPMENT. TORSS IS INTENDED TO SUPPORT SATELLITES WITH APOGEE BELOW 12,000 KM. ONE SYSTEM WILL BE USED FOR SATELLITES WITH APOGEE BELOW 2000 KM (THE GREAT MAJORITY OF

SATELLITES), AND ANOTHER FOR THOSE WITH HIGHER APOGEE. USE OF OPERATING FREQUENCIES NEAR 2160 (PLUS OR MINUS 180) MHz AND NEAR 14.3 (PLUS OR MINUS 0.9) GHz ARE PRESENTLY ANTICIPATED.

***** TDRSS-B *****

SPACECRAFT COMMON NAME- TDRSS-B
ALTERNATE NAMES- TRACK+DATA RELAY SAT SYS
NSSDC ID- TDRSS-B

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 08/00/76 SPACECRAFT WEIGHT- KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-CTDA

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 1440. MIN INCLINATION- DEG
PERIAPSIS- 36000. KM ALT APOAPSIS- 36000. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - G.O. CLARKNASA-GSFC
GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
THE TRACKING AND DATA RELAY SATELLITE SYSTEM (TDRSS) IS A CONCEPT UTILIZING COMMUNICATION SATELLITE TECHNOLOGY TO IMPROVE AND ECONOMIZE THE SATELLITE TRACKING AND TELEMETRY OPERATION. THREE GEOSYNCHRONOUS SATELLITES (ONE A STANDBY) WILL TRACK AND RECEIVE DATA FROM SATELLITES FOR RELAY TO A GROUND STATION. THE TWO ACTIVE SATELLITES WILL BE SEPARATED IN ORBIT BY AT LEAST 120-DEG LONGITUDE. ADDITIONAL DETAILS OF THIS SYSTEM MAY BE FOUND UNDER TDRSS-A, OR IN THE 'PROJECT PLAN FOR TDRSS'.

***** TDRSS-C *****

SPACECRAFT COMMON NAME- TDRSS-C
ALTERNATE NAMES- TRACK+DATA RELAY SAT SYS
NSSDC ID- TDRSS-C

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 10/00/76 SPACECRAFT WEIGHT- KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- DELTA

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-CTDA

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 1440. MIN INCLINATION- DEG
PERIAPSIS- 36000. KM ALT APOAPSIS- 36000. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - G.O. CLARKNASA-GSFC
GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
THE TRACKING AND DATA RELAY SATELLITE SYSTEM (TDRSS) IS A CONCEPT UTILIZING COMMUNICATION SATELLITE TECHNOLOGY TO IMPROVE AND ECONOMIZE THE SATELLITE TRACKING AND TELEMETRY OPERATION. THREE GEOSYNCHRONOUS SATELLITES (ONE A STANDBY) WILL TRACK AND RECEIVE DATA FROM SATELLITES FOR RELAY TO A GROUND STATION. THE TWO ACTIVE SATELLITES WILL BE SEPARATED IN ORBIT BY AT LEAST 120-DEG LONGITUDE. ADDITIONAL DETAILS OF THIS SYSTEM MAY BE FOUND UNDER TDRSS-A OR IN THE 'PROJECT PLAN FOR TDRSS'.

***** TIP 1 *****

SPACECRAFT COMMON NAME- TIP 1
ALTERNATE NAMES- TRIAD 1; TRIAD OT 1X
01172, 06173
NSSDC ID- 72-069A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 12/00/74.

LAUNCH DATE- 09/02/72 SPACECRAFT WEIGHT- 94. KG
LAUNCH SITE- VANDENBERG AFB, UNITED STATES
LAUNCH VEHICLE- SCOUT

SPONSORING COUNTRY/AGENCY
UNITED STATES DOD-NAVY

INITIAL ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 09/04/72
ORBIT PERIOD- 100.6 MIN INCLINATION- 90.14 DEG
PERIAPSIS- 716. KM ALT APOAPSIS- 863. KM ALT

RECENT ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 09/04/72
ORBIT PERIOD- 100.6 MIN INCLINATION- 90.14 DEG
PERIAPSIS- 716. KM ALT APOAPSIS- 863. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - J. BASSOULASAPPLIED PHYSICS LAB
SILVER SPRING, MD
PS - R.E. FISCHELLAPPLIED PHYSICS LAB
SILVER SPRING, MD

SPACECRAFT BRIEF DESCRIPTION
TRIAD 1 IS A THREE-BODY SPACECRAFT CONNECTED BY BOOMS WHICH SERVE AS GRAVITY GRADIENT STABILIZERS IN THE RADIAL DIRECTION. A MOMENTUM WHEEL WAS USED FOR STABILIZATION IN ROLL AND YAW. THE PRIMARY FUNCTION OF THE SPACECRAFT WAS TO TEST VARIOUS CONCEPTS FOR IMPROVING THE USM TRANSIT NAVIGATION SYSTEM. THE POWER WAS SUPPLIED BY A RADIO ISOTOPE THERMAL ELECTRIC GENERATOR (RTG).

***** TIP 1; ARMSTRONG *****

EXPERIMENT NAME- TRIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 72-069A-01

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 09/02/72.

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - J.C. ARMSTRONGAPPLIED PHYSICS LAB
SILVER SPRING, MD
OI - A.J. ZMUDAAPPLIED PHYSICS LAB
SILVER SPRING, MD

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT CONSISTED OF A TRIAXIAL FLUXGATE MAGNETOMETER DESIGNED TO MEASURE VECTOR FIELDS WITH MAGNITUDES UP TO 50,000 GAMMAS. MEASUREMENTS WERE MADE BY SAMPLING EACH AXIS SEQUENTIALLY AT A RATE OF 2.25 SAMPLES/SEC. DIGITIZATION RESOLUTION WAS ABOUT 10 GAMMAS AS GIVEN BY A 13 BIT ANALOG TO DIGITAL CONVERTER, BUT ZERO LEVEL DRIFTS WERE NOT READILY CHECKED. AS SUCH, THE EXPERIMENT WAS MOST USEFUL IN STUDIES OF MAGNETIC FLUCTUATIONS. DUE TO THE REAL-TIME DATA TRANSMISSION AND THE LOCATIONS OF THE TRACKING STATIONS, MOST OF THE DATA OBTAINED RELATED TO NORTHERN AND SOUTHERN HEMISPHERE HIGH LATITUDES. PERFORMANCE CONTINUED NORMALLY IN DECEMBER 1974.

***** TIROS-N *****

SPACECRAFT COMMON NAME- TIROS-N
ALTERNATE NAMES-
NSSDC ID- TIROS-N

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- 3 QTR 77 SPACECRAFT WEIGHT- 1274.4 KG
LAUNCH SITE- VANDENBERG AFB, UNITED STATES
LAUNCH VEHICLE- ATLAS F

SPONSORING COUNTRY/AGENCY
UNITED STATES NOAA-NESS

PLANNED ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 102. MIN INCLINATION- 96.77 DEG
PERIAPSIS- 834. KM ALT APOAPSIS- 834. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST)
PM - G.A. BRANCHFLOWERNASA-GSFC
GREENBELT, MD
PS - A. ARKINGNASA-GSFC
GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
TIROS-N WILL BE THE PROTOTYPE FOR THE THIRD-GENERATION SPACECRAFT IN THE NATIONAL OPERATIONAL METEOROLOGICAL SATELLITE SYSTEM (NOMAS). THE SATELLITE WILL BE DESIGNED TO SERVE AS AN ECONOMICAL AND STABLE SUN-SYNCHRONOUS PLATFORM FOR TESTING ADVANCED OPERATIONAL SUBSYSTEMS FOR USE IN WEATHER ANALYSIS AND FORECASTING. PRIMARY SENSORS WILL INCLUDE AN ADVANCED VERY HIGH RESOLUTION RADIOMETER (AVHRR) FOR OBSERVING DAYTIME AND NIGHTTIME GLOBAL CLOUDCOVER AND A TIROS OPERATIONAL VERTICAL SOUNDER (TOVS) FOR OBTAINING TEMPERATURE AND WATER VAPOR PROFILES THROUGH THE EARTH'S ATMOSPHERE. SECONDARY EXPERIMENTS WILL BE A SPACE ENVIRONMENT MONITOR (SEM) WHICH WILL MEASURE THE PROTON AND ELECTRON FLUX NEAR THE EARTH, AND A DATA COLLECTION AND PLATFORM LOCATION SYSTEM (DCPL) WHICH WILL PROCESS AND RELAY TO CENTRAL DATA ACQUISITION STATIONS VARIOUS METEOROLOGICAL DATA RECEIVED FROM FREE-FLOATING BALLOONS AND OCEAN BUOYS DISTRIBUTED AROUND THE GLOBE. THE SATELLITE WILL BE ABLE TO MAINTAIN AN EARTH-POINTING ACCURACY OF BETTER THAN PLUS OR MINUS 1 DEG IN ALL THREE AXES, WITH ROTATION RATES OF LESS THAN 0.036 DEG/SEC.

***** TIROS-N; BOSTROM *****

EXPERIMENT NAME- SPACE ENVIRONMENT MONITOR

NSSDC ID- TIROS-N-04

LAST REPORTED STATE- PRELAUNCH

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)
PI - C.O. BOSTROMAPPLIED PHYSICS LAB
SILVER SPRING, MD

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WILL BE AN EXTENSION OF THE SOLAR PROTON MONITORING EXPERIMENT FLOWN ON THE TIOS SPACECRAFT SERIES. THE EXPERIMENT PACKAGE WILL CONSIST OF FOUR DETECTOR SYSTEMS AND A DATA PROCESSING UNIT. THE LOW-ENERGY PROTON ALPHA TELESCOPE (LEPAT) WILL SEPARATELY MEASURE IN FIVE ENERGY RANGES BOTH PROTONS BETWEEN 150 KEV AND 40 MEV AND ALPHA PARTICLES BETWEEN 150 KEV/N AND 25 MEV/N. THERE WILL BE TWO

LEPATS VIEWING IN THE ANTI-SUN AND ANTI-EARTH DIRECTIONS WITH
63-DEG VIEWING CONES. THE PROTON OMNIDIRECTIONAL DETECTOR
(POD) WILL MEASURE PROTONS ABOVE 10, 30, AND 60 MEV, ELECTRONS
ABOVE 140 KEV, AND PROTONS AND ELECTRONS (INSEPARABLE) ABOVE
750 KEV. THE HIGH-ENERGY PROTON ALPHA TELESCOPE (HEPAT) WILL
HAVE A 60-DEG VIEWING CONE, VIEW IN THE ANTI-EARTH DIRECTION,
AND MEASURE PROTONS ABOVE 400 MEV AND PROTONS AND ALPHA
PARTICLES ABOVE 600 AND 1000 MEV/N. THE TOTAL ENERGY DETECTOR
(TED) WILL MEASURE TOTAL ENERGY ABOVE 1 KEV.

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OF POOR QUALITY

Cumulative Index of Active and Planned Spacecraft and Experiments

3. CUMULATIVE INDEX OF ACTIVE AND PLANNED SPACECRAFT AND EXPERIMENTS

This section lists spacecraft and experiments, active or planned, as of March 31, 1975. Spacecraft are listed alphabetically by both common and alternate names. Alternate names are printed with a reference to the NSSDC spacecraft common name. Next to NSSDC spacecraft common name are printed the sponsoring country and agency, launch date, orbit type, NSSDC ID code, and status. The epoch date, status, and data rate of all launched spacecraft and experiments are listed under the CURRENT STATE heading. For prelaunch spacecraft entries, only status will be shown under this heading; there will be no information for prelaunch spacecraft experiments in this column. Status and data rate usually reflect values as of March 31, 1975; however, a few changes subsequent to this date may appear. This status and data rate became effective on the date shown in the EPOCH column. Definitions of terms used in these columns may be found in the January 1975 report. Experiments are listed following the associated spacecraft common name and are ordered alphabetically by the principal investigator's (PI) or team leader's (TL) last name. The experiment name, NSSDC ID code, and experiment status are also given for each experiment. The last column contains the page number referencing the spacecraft or experiment description in either the January 1975 report (pages 7-148) or in this supplement (pages 1005-1022).

CUMULATIVE INDEX OF ACTIVE AND PLANNED SPACECRAFT AND EXPERIMENTS

SPACECRAFT NAME *PRINC. INVEST. NAME	COUNTRY AND AGENCY EXPERIMENT NAME	LAUNCH DATE	ORBIT TYPE	NSSDC ID	EPOCH MDDYY	STATUS	DATA RATE	PAGE NO.
AD-1	SEE DADE-A							
AD-2	SEE DADE-B							
AD-A	UNITED STATES NASA-085 NONSYSTEMATIC CHANGES OF AIR DENSITY SYSTEMATIC CHANGES OF AIR DENSITY	12/19/63	GEOCENTRIC	63-083A 63-083A-01 63-083A-02	12/19/63 12/19/63 12/19/63	PARTIAL NORMAL NORMAL	SUBS SUBS SUBS	1008 1008 1008
AD-C	UNITED STATES NASA-085 NONSYSTEMATIC CHANGES OF AIR DENSITY SYSTEMATIC CHANGES OF AIR DENSITY	08/08/68	GEOCENTRIC	68-066A 68-066A-01 68-066A-02	06/00/71 12/03/74 12/03/74	PARTIAL PARTIAL PARTIAL	SUBS SUBS SUBS	1005 1005 1005
AE-C	UNITED STATES NASA-085 ULTRAVIOLET NITRIC-OXIDE EXPERIMENT ELECTRON TEMPERATURE AND CONCENTRATION BENNETT ION-MASS SPECTROMETER ATMOSPHERIC DRAG PHOTOELECTRON SPECTROMETER ION TEMPERATURE AIRGLOW PHOTOMETER SOLAR EUV FILTER PHOTOMETER SOLAR EUV SPECTROPHOTOMETER MAGNETIC ION-MASS SPECTROMETER LOW-ENERGY ELECTRONS OPEN SOURCE NEUTRAL MASS SPECTROMETER CLOSED SOURCE NEUTRAL MASS SPECTROMETER CAPACITANCE MANOMETER COLD CATHODE ION GAUGE NEUTRAL GAS TEMPERATURE AND CONCENTRATION	12/16/73	GEOCENTRIC	73-101A 73-101A-13 73-101A-01 73-101A-11 73-101A-02 73-101A-03 73-101A-04 73-101A-14 73-101A-05 73-101A-06 73-101A-10 73-101A-08 73-101A-12 73-101A-07 73-101A-11 73-101A-16 73-101A-09	12/16/73 12/16/73 12/16/73 12/16/73 12/17/73 12/16/73 12/16/73 12/16/73 03/10/78 03/10/78 03/10/78 12/16/73 12/16/73 12/16/73 12/16/73 12/16/73 03/10/78	NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL PARTIAL PARTIAL PARTIAL NORMAL NORMAL NORMAL NORMAL NORMAL PARTIAL	STD STD STD STD STD STD STD STD STD STD STD STD STD STD STD STD STD	7 8 8 8 8 8 9 9 9 9 9 9 10 10 10 10 10 11
AE-D	UNITED STATES NASA-085 ULTRAVIOLET NITRIC-OXIDE EXPERIMENT ELECTRON TEMPERATURE AND CONCENTRATION ATMOSPHERIC DRAG PHOTOELECTRON SPECTROMETER ION TEMPERATURE AIRGLOW PHOTOMETER SOLAR EUV SPECTROPHOTOMETER ION COMPOSITION AND CONCENTRATION LOW-ENERGY ELECTRONS OPEN SOURCE NEUTRAL MASS SPECTROMETER CLOSED SOURCE NEUTRAL MASS SPECTROMETER CAPACITANCE MANOMETER COLD CATHODE ION GAUGE NEUTRAL GAS TEMPERATURE AND CONCENTRATION	SEPT. 78	GEOCENTRIC	AE-D AE-D -11 AE-D -01 AE-D -02 AE-D -03 AE-D -04 AE-D -13 AE-D -06 AE-D -10 AE-D -12 AE-D -07 AE-D -08 AE-D -14 AE-D -15		APPROVED		11 11 11 12 12 12 12 12 12 13 13 13 14 14 14
AE-E	UNITED STATES NASA-085 ELECTRON TEMPERATURE AND CONCENTRATION ION COMPOSITION AND CONCENTRATION ATMOSPHERIC DRAG PHOTOELECTRON SPECTROMETER ION TEMPERATURE AIRGLOW PHOTOMETER SOLAR EUV FILTER PHOTOMETER SOLAR EUV SPECTROPHOTOMETER OPEN SOURCE NEUTRAL MASS SPECTROMETER CLOSED SOURCE NEUTRAL MASS SPECTROMETER CAPACITANCE MANOMETER COLD CATHODE ION GAUGE NEUTRAL GAS TEMPERATURE AND CONCENTRATION	SEPT. 78	GEOCENTRIC	AE-E AE-E -01 AE-E -10 AE-E -02 AE-E -03 AE-E -04 AE-E -11 AE-E -05 AE-E -06 AE-E -07 AE-E -08 AE-E -12 AE-E -13 AE-E -09		APPROVED		14 15 15 15 15 15 16 16 16 16 17 17 17 17
AEROS 2	FED REP OF GERMANY GFW UNITED STATES NASA-085 MASS SPECTROMETER (MS) ELECTRON CONCENTRATION IN THE IONOSPHERE ATMOSPHERIC DRAG ANALYSIS FLUX AND SPECTRAL DISTRIBUTION OF SOLAR EUV RAD AND THEIR TEMP AND SPATIAL VAR NEUTRAL ATMOSPHERE TEMPERATURE EXPERIMENT ENERGY DISTRIBUTION OF IONS AND ELECTRONS	07/16/74	GEOCENTRIC	74-055A 74-055A-01 74-055A-03 74-055A-06 74-055A-04 74-055A-05 74-055A-02	08/06/74 08/06/74 08/06/74 08/06/74 08/06/74 08/06/74 08/06/74	PARTIAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL	SUBS SUBS SUBS SUBS SUBS SUBS SUBS	18 18 18 18 18 18 19
AEROS-B	SEE AEROS 2							
ALOUETTE 2	CANADA UNITED STATES CRC NASA-085 VLF RECEIVER CYLINDRICAL ELECTROSTATIC PROBE COSMIC RADIO NOISE ENERGETIC PARTICLE DETECTORS SWEEP FREQUENCY SOUNDER	11/29/68	GEOCENTRIC	65-098A 65-098A-02 65-098A-26 65-098A-03 65-098A-04 65-098A-01	03/01/73 03/01/73 03/01/73 03/01/73 03/03/73 03/01/73	PARTIAL NORMAL NORMAL NORMAL NORMAL NORMAL	SUBS SUBS SUBS SUBS SUBS SUBS	19 19 19 19 20 20
ALOUETTE-B	SEE ALOUETTE 2							
ALPO	SEE LUNAR POLAR ORB-DAUGHTER							
ALPO	SEE LUNAR POLAR ORB-MOTHER							
ALSEP 12	SEE APOLLO 12 LM/ALSEP							
ALSEP 14	SEE APOLLO 14 LM/ALSEP							

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SPACECRAFT NAME	COUNTRY AND AGENCY	LAUNCH DATE	CREDIT TYPE	NSRDC ID	EPOCH MDDYY	STATUS	DATA RATE	PAGE NO.
ALSEP 15	SEE APOLLO 15 LM/ALSEP							
ALSEP 16	SEE APOLLO 16 LM/ALSEP							
ALSEP 17	SEE APOLLO 17 LM/ALSEP							
ANPS	UNITED STATES NASA-OSS	STUDY	GEOCENTRIC	ANPS		PROPOSED		20
ANS	THE NETHERLANDS NIVR	08/30/74	GEOCENTRIC	74-070A	08/30/74	NORMAL	SUBS	20
BRINKMAN	UNITED STATES NASA-OSS			74-070A-02	08/30/74	NORMAL	SUBS	20
GURSKY	LOW-ENERGY X-RAY EXPERIMENT			74-070A-03	08/30/74	NORMAL	SUBS	20
VANDUJINEN	HIGH ANGULAR AND SPECTRAL RESOLUTION OBSERVATIONS OF COSMIC X-RAY SOURCES UV TELESCOPE			74-070A-01	08/30/74	NORMAL	SUBS	21
APOLLO 11 LM	SEE APOLLO 11 LM/ALSEP							
APOLLO 11 LM/ALSEP	UNITED STATES NASA-OHSP	07/16/69	LUNAR LANDER	69-059C	12/14/69	INDOPERABLE	ZERO STD	1006
	LASER RANGING RETROREFLECTOR			69-059C-04	07/20/69	NORMAL	STD	1006
APOLLO 12 LM/ALSEP	UNITED STATES NASA-OHSP	11/14/65	LUNAR LANDER	69-099C	11/19/69	NORMAL	STD	21
	UNITED STATES NASA-OSS			69-099C-05	12/03/74	PARTIAL	SUBS	21
FREEMAN	SUPRATHERMAL ION DETECTOR			69-099C-03	11/19/69	PARTIAL	STD	21
LATHAM	PASSIVE SEISMIC			69-099C-02	11/08/71	PARTIAL	STD	21
SNYDER	SCALAR WIND SPECTROMETER							
APOLLO 12C	SEE APOLLO 12 LM/ALSEP							
APOLLO 14 LM/ALSEP	UNITED STATES NASA-OHSP	01/31/71	LUNAR LANDER	71-008C	02/28/78	PARTIAL	SUBS	1006
	UNITED STATES NASA-OSS			71-008C-09	02/05/71	NORMAL	STD	1006
FALLER	LASER RANGING RETROREFLECTOR			71-008C-06	03/29/72	PARTIAL	SUBS	22
FREEMAN	SUPRATHERMAL ION DETECTOR			71-008C-07	04/15/73	PARTIAL	SUBS	22
JOHNSON	COLD CATHODE ION GAUGE EXPERIMENT			71-008C-05	12/07/73	PARTIAL	SUBS	22
KOVACH	ACTIVE SEISMIC			71-008C-04	03/20/72	PARTIAL	SUBS	22
LATHAM	PASSIVE SEISMIC			71-008C-08	06/06/71	PARTIAL	SUBS	22
O'BRIEN	CHARGED PARTICLE LUNAR ENVIRONMENT							
APOLLO 14C	SEE APOLLO 14 LM/ALSEP							
APOLLO 15 LM/ALSEP	UNITED STATES NASA-OHSP	07/26/71	LUNAR LANDER	71-063C	07/30/71	NORMAL	STD	1006
	UNITED STATES NASA-OSS			71-063C-09	07/31/71	NORMAL	STD	23
BATES	LUNAR DUST DETECTOR			71-063C-08	07/30/71	NORMAL	STD	1006
FALLER	LASER RANGING RETROREFLECTOR			71-063C-05	09/13/73	PARTIAL	SUBS	23
FREEMAN	SUPRATHERMAL ION DETECTOR			71-063C-07	02/22/73	PARTIAL	SUBS	23
JOHNSON	COLD CATHODE ION GAUGE EXPERIMENT			71-063C-06	08/07/71	PARTIAL	STD	23
LANGBETH	HEAT FLOW			71-063C-01	07/31/71	NORMAL	STD	23
LATHAM	PASSIVE SEISMIC							
APOLLO 15C	SEE APOLLO 15 LM/ALSEP							
APOLLO 16 LM/ALSEP	UNITED STATES NASA-GHSP	04/16/72	LUNAR LANDER	72-031C	04/21/72	NORMAL	STD	24
	UNITED STATES NASA-GSS			72-031C-03	08/17/73	NORMAL	STD	24
DVAL	LUNAR SURFACE MAGNETOMETER			72-031C-02	12/03/74	PARTIAL	SUBS	24
KOVACH	ACTIVE SEISMIC			72-031C-01	04/21/72	NORMAL	STD	24
LATHAM	PASSIVE SEISMIC							
APOLLO 16C	SEE APOLLO 16 LM/ALSEP							
APOLLO 17 LM/ALSEP	UNITED STATES NASA-OHSP	12/07/72	LUNAR LANDER	72-096C	12/11/72	NORMAL	STD	24
	UNITED STATES NASA-OSS			72-096C-05	12/17/72	PARTIAL	SUBS	25
BERG	LUNAR EJECTA AND METEORITES			72-096C-06	12/03/74	PARTIAL	SUBS	25
KOVACH	LUNAR SEISMIC PROFILING EXPERIMENT			72-096C-01	12/11/72	NORMAL	STD	25
LANGBETH	HEAT FLOW			72-096C-09	12/12/72	PARTIAL	SUBS	25
WEBER	LUNAR SURFACE GRAVIMETER							
APOLLO 17C	SEE APOLLO 17 LM/ALSEP							
APOLLO-SOYUZ TEST PROJ	SEE ASTP							
ARIADAT	INDIA ISRO	04/19/75	GEOCENTRIC	75-033A	04/19/75	NORMAL	STD	57
DANIEL	SCALAR NEUTRON AND GAMMA RAYS			75-033A-02	04/19/75	NORMAL	STD	57
RAO	X-RAY ASTRONOMY			75-033A-01	04/19/75	NORMAL	STD	57
SATYAPRAKASH	IONOSPHERIC ELECTRON TRAP AND UV CHAMBERS			75-033A-03	04/19/75	IL	STD	57
ASTP	UNITED STATES NASA-OHSP	07/15/75	GEOCENTRIC	ASTP		APPROVED		25
	U.S.S.R. SAS			ASTP -06				26
ANG	INFLUENCE OF WEIGHTLESSNESS ON THE IMMISCIBILITY OF MONOTECTIC ALLOY SYSTEMS			ASTP -01				26
BOWYER	EXTREME ULTRAVIOLET ASTRONOMY			ASTP -02				26
BOWYER	HELIUM GLOW			ASTP -16				26
BUCKER	BIOSTACK			ASTP -14				26
CRICKELL	EFFECTS OF SPACE FLIGHT ON THE CELLULAR RESPONSE OF MAN			ASTP -03				26
DONAHUE	ULTRAVIOLET ATMOSPHERIC ABSORPTION			ASTP -04				26
FRIEDMAN	SKY-EARTH X-RAY OBSERVATIONS			ASTP -08				26
GATOS	DETERMINATION OF ZERO-GRAVITY EFFECTS ON ELECTRONIC MATERIALS PROCESSING			ASTP -11				26
HANNING	ELECTROPHORESIS			ASTP -07				27
LARSON	ROLE OF CONVECTION IN SOLIDIFICATION			ASTP -13				27
MARTIN	PROCESS IN HIGH COERCIVE STRAIGHT MAGNET POLYMERPHONUCLEAR LEUKOCYTE RESPONSE TO INFECTION			ASTP -05				27
REED	SURFACE TENSION INDUCED CONVECTION IN ENCAPSULATED LIQUID METALS IN ZERO G			ASTP -15				27
TAYLOR	MICRODIAL EXCHANGE TEST							

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IOBIAS	LIGHT FLASHES AND OTHER SENSATIONS FROM COSMIC PARTICLES			ASTP -17				27
WENIGENBACH	SPACECRAFT-TO-SPACECRAFT COMPLEX TRACKING			ASTP -12				27
WIEDEMAYER	CRYSTAL GROWTH FROM THE VAPOR PHASE IN ZERO-GRAVITY ENVIRONMENT			ASTP -09				27
YUC	ZERO-GRAVITY SOLIDIFICATION OF NaCl-LiF EUTECTIC			ASTP -10				27
ASTP-APOLLO	UNITED STATES	NASA-QMSH	07/16/78	GEOCENTRIC	ASTP-A	APPROVED		28
ASTP-SOYUZ	U.S.S.R.	SAS	07/16/78	GEOCENTRIC	AUTP-B	APPROVED		28
ASTRO NETHERLAND SAT.	SEE ANS							
ATMOSPHERE EXPLORER-C	SEE AE-C							
ATMOSPHERE EXPLORER-D	SEE AE-D							
ATMOSPHERE EXPLORER-E	SEE AE-E							
ATS 5	UNITED STATES	NASA-OJ	08/12/69	GEOCENTRIC	69-069A	06/01/73	PARTIAL	SUBS 1007
DAROSA	RADIO BEACON				69-069A-12	03/10/75	NORMAL	SUBS 1007
MCILWAIN	OMNIDIRECTIONAL HIGH-ENERGY PARTICLE DETECTOR				69-069A-03	08/00/72	NORMAL	SUBS 28
MCILWAIN	BIDIRECTIONAL LOW-ENERGY PARTICLE DETECTOR				69-069A-11	08/00/73	PARTIAL	SUBS 28
MOZER	TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR				69-069A-04	03/10/75	NORMAL	SUBS 1007
SHARP	PROTON ELECTRON DETECTOR				69-069A-05	03/10/75	NORMAL	SUBS 1007
SUGIURA	MAGNETIC FIELD MONITOR				69-069A-13	06/10/73	PARTIAL	SUBS 29
ATS 6	UNITED STATES	NASA-0A	08/30/74	GEOCENTRIC	74-039A	05/30/74	NORMAL	STD 1007
COLEMAN, JR.	MAGNETOMETER EXPERIMENT				74-039A-02	05/30/74	NORMAL	STD 29
DAVIES	RADIO BEACON				74-039A-09	10/01/74	NORMAL	STD 29
DUNKERLY	SOLAR CELL RADIATION DAMAGE EXPERIMENT				74-039A-16	05/30/74	NORMAL	STD 1008
FRITZ	MEASUREMENT OF LOW-ENERGY PROTONS				74-039A-01	06/10/74	NORMAL	STD 29
GHATS	POSITION, LOCATION AND AIRCRAFT COMMUNICATION EXPERIMENT				74-039A-19	05/30/74	NORMAL	STD 1008
HENRY	RADIO FREQUENCY INTERFERENCE EXPERIMENT				74-039A-11	05/30/74	NORMAL	STD 1008
HUNTER	CESIUM DOPPLER ENGINE EXPERIMENT				74-039A-14	05/30/74	NORMAL	STD 1008
HYDE	COMSAT PROPAGATION EXPER (13-AND 18-GHZ)				74-039A-21	05/30/74	NORMAL	STD 1008
IPPOLITO	MILLIMETER WAVE PROPAGATION EXPERIMENT				74-039A-13	05/30/74	NORMAL	STD 1008
ISLEY	SPACECRAFT ATTITUDE CONTROL EXPERIMENT				74-039A-20	05/30/74	NORMAL	STD 1008
KAMPINSKY	R.F. INTERFEROMETER SUBSYSTEM				74-039A-22	05/30/74	NORMAL	STD 1009
KIRKPATRICK	ADVANCED THERMAL CONTROL FLIGHT EXPER				74-039A-22	05/30/74	NORMAL	STD 1009
MASLEY	SOLAR COSMIC RAYS AND GEOMAGNETICALLY TRAPPED RADIATION				74-039A-06	06/14/74	NORMAL	STD 29
MATSON	SPACECRAFT VIBRATION ACCELEROMETER				74-039A-30	05/30/74	NORMAL	STD 1009
MCILWAIN	AURORAL PARTICLES EXPERIMENT				74-039A-05	06/15/74	NORMAL	STD 30
MILLER	SATELLITE INSTRUCTIONAL TV EXPERIMENT				74-039A-17	05/30/74	NORMAL	ZERO 1009
MILLER	TELEVISION RELAY USING SMALL TERMINALS				74-039A-20	05/30/74	NORMAL	STD 1009
PATTERSON	TELEVISION CAMERA				74-039A-31	05/30/74	NORMAL	STD 1009
PAULIKAS	OMNIDIRECTIONAL SPECTROMETER				74-039A-07	06/14/74	NORMAL	STD 30
RODGERS	QUARTZ CRYSTAL MICRO BALANCE				74-039A-23	05/30/74	NORMAL	STD 1010
TRUDELL	TRACKING AND DATA RELAY EXPERIMENT				74-039A-18	05/30/74	NORMAL	STD 1010
WHALEN	HEALTH AND EDUCATION TELECOMMUNICATIONS EXPERIMENT				74-039A-24	05/30/74	NORMAL	STD 1010
WINCKLER	PARTICLE ACCELERATION MECHANISMS AND DYNAMICS OF THE OUTER TRAPPING REGION				74-039A-04	06/14/74	NORMAL	STD 30
ATS-E	SEE ATS 5							
ATS-F	SEE ATS 6							
AUTO.LUNAR POLAR ORBITER	SEE LUNAR POLAR ORB-DAUGHTER							
AUTO.LUNAR POLAR ORBITER	SEE LUNAR POLAR ORB-MOTHER							
CANADIAN TECHNOLOGY SAT.	SEE CAS-C							
CAS-C	CANADA UNITED STATES	CRC NASA-0A	4 QTR 75	GEOCENTRIC	CAS-C	APPROVED		30
COOPERATIVE APPLICA SAT.	SEE CAS-C							
COPERNICUS	SEE DAO 3							
CORSA	JAPAN	ISAS	02/00/76	GEOCENTRIC	CORSA	APPROVED		1010
MAKINO	VERY SOFT X-RAY DETECTORS				CORSA -01			1010
MIYAMOTO	SOFT AND HARD X-RAY DETECTORS				CORSA -02			1010
NAKAGAWA	HEAVY PRIMARY COSMIC RAY DETECTOR				CORSA -03			1010
COS-B	INTERNATIONAL	ESRO	JULY 75	GEOCENTRIC	COS-B	APPROVED		31
COSMIC RADIATION SAT.	SEE CORSA							
COSMIC RAY SATELLITE-B	SEE COS-B							
CTS	SEE CAS-C							
DAD	SEE DADE-A							
DAD	SEE DADE-B							
DADE-A	UNITED STATES	NASA-055	NOV. 75	GEOCENTRIC	DADE-A	APPROVED		31

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*PRINC. INVEST. NAME	EXPERIMENT NAME							
KEATING NIER	ATMOSPHERIC DRAG DENSITY ATMOSPHERIC COMPOSITION MASS SPECTROMETER			DADE-A -01 DADE-A -02				31 31
DADE-B KEATING NIER	UNITED STATES NASA-CSS ATMOSPHERIC DRAG DENSITY ATMOSPHERIC COMPOSITION MASS SPECTROMETER	NOV. 78	GEOCENTRIC	DADE-B DADE-B -01 DADE-B -02		APPROVED		31 31 32
DAUGHTER	SEE ISEE-B							
DIAPD	FRANCE	12/00/78	GEOCENTRIC	DIAPD		PROPOSED		32
DUAL AIR DENSITY EXPL-A	SEE DADE-A							
DUAL AIR DENSITY EXPL-B	SEE DADE-B							
DUAL-A	U.S.S.R.	08/00/78		DUAL-A		UNKNOWN		32
DUAL-A1	U.S.S.R.	08/00/78		DUAL-A1		UNKNOWN		32
EARTH OBSERVATORY SAT.	SEE EOS-A							
EARTH RES TECH SAT.-A	SEE LANDSAT 1							
EARTH RES TECH SAT.-B	SEE LANDSAT 2							
EARTH RES TECH SAT.-C	SEE LANDSAT-C							
EGRET	UNITED STATES NASA-CSS	00/00/79	GEOCENTRIC	EGRET		PROPOSED		1011
ELECTRODYNAMICS EXPLORER	UNITED STATES NASA-CSS	00/00/79		EE		PROPOSED		1011
EOS-A	UNITED STATES NASA-CA	1979	GEOCENTRIC	EOS-A		PROPOSED		32
ERS 26	SEE OVS-6							
ERTS-A	SEE LANDSAT 1							
ERTS-B	SEE LANDSAT 2							
ERTS-C	SEE LANDSAT-C							
ESGEO	SEE ESRC GEOS							
ESRO GEOS	INTERNATIONAL ESRO	2 QTR 76	GEOCENTRIC	ESGEO		APPROVED		34
BOYD	THERMAL PLASMA FLOW			ESGEO -02				34
GEISS	LOW-ENERGY ION COMPOSITION			ESGEO -03				35
GENDRIN	ELECTROMAGNETIC WAVE FIELDS			ESGEO -06				35
MULTOUIST	LOW-ENERGY ELECTRON AND PROTON PITCH ANGLE DISTRIBUTION			ESGEO -04				35
MARIANI	TRIAXIAL FLUXGATE MAGNETOMETER			ESGEO -09				35
MELNER	DC ELECTRIC FIELD AND GRADIENT B ELECTRON BEAM DEFLECTION			ESGEO -08				35
PETERSEN	DC FIELDS			ESGEO -07				35
PETIT	ULF FIELD ANTENNA			ESGEO -05				35
PROTZER	ELECTRON AND PROTON PITCH ANGLE DISTRIBUTION			ESGEO -01				35
ESSA 6	UNITED STATES ESSA	12/15/68	GEOCENTRIC	60-114A 60-114A-01	12/15/68 03/00/69	NORMAL PARTIAL	STD SUBS	36 36
NESS STAFF	AUTOMATIC PICTURE TRANSMISSION (APT) SYSTEM							
EUROPEAN X-RAY USS SAT.	SEE HELOS							
EXOS-A	JAPAN TOKYO U	01/00/78	GEOCENTRIC	EXOS-A		APPROVED		1011
KANEDA	UV AURORAL TV IMAGING			EXOS-A -03				1011
MUKAI	ENERGETIC PARTICLE DETECTORS			EXOS-A -02				1011
NAKAMURA	UV GLOW SPECTROPHOTOMETER			EXOS-A -05				1011
OYAMA	IONOSPHERIC PROBES			EXOS-A -01				1012
YOSHINO	PLASMA WAVE DETECTOR			EXOS-A -04				1012
EXOS-B	JAPAN ISAS	08/00/78	GEOCENTRIC	EXOS-B		APPROVED		1012
AQYAMA	FLUXGATE MAGNETOMETER			EXOS-B -05				1012
KAWASHIMA	ENERGY SPEC. OF ELEC.-PROD.(1.05-20KEV)			EXOS-B -06				1012
KAWASHIMA	WAVE-PARTICLE INTERACTIONS			EXOS-B -07				1012
KIMURA	ELECTROMAGNETIC FIELD FLUCTUATION DETECTORS			EXOS-B -03				1012
DBAYASHI	IMPEDANCE AND ELECTRIC FIELD			EXOS-B -04				1012
OYA	MAGNETOSPHERIC PLASMA PROBE			EXOS-B -01				1012
OYA	ENERGETIC PARTICLE DETECTORS			EXOS-B -02				1013
EXOS-C	JAPAN TOKYO U	01/00/78	GEOCENTRIC	EXOS-C		APPROVED		37
UNKNOWN	X-RAY AND GAMMA-RAY ASTRONOMICAL TELESCOPES			EXOS-C -01				37
UNKNOWN	ULTRAVIOLET TELESCOPE			EXOS-C -02				37
UNKNOWN	INFRARED TELESCOPE			EXOS-C -03				37
UNKNOWN	ENERGETIC PARTICLES			EXOS-C -04				37
EXOSAT	SEE HELOS							
EXOSPHERIC SAT. A	SEE EXOS-A							
EXOSPHERIC SAT. B	SEE EXOS-B							
EXOSPHERIC SAT. C	SEE EXOS-C							

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EXPLORER 39	SEE AD-A								
EXPLORER 39	SEE AD-C								
EXPLORER 44	SEE SOLRAD 10								
EXPLORER 46	SEE METEOROID TECHNOLOGY SAT								
EXPLORER 47	SEE IMP-H								
EXPLORER 49	SEE HAE-E								
EXPLORER 50	SEE IMP-J								
EXPLORER 51	SEE AE-C								
EXPLORER 52	SEE HAWKEYE 1								
GAMMA-RAY EXPLORER	SEE EGRET								
GEODETTIC SATELLITE-C	SEE GEDE-C								
GEOS	SEE ESRC GEOS								
GEOS-3	SEE GECS-C								
GOES-C	UNITED STATES	NASA-GA	04/09/75	GEOCENTRIC	75-027A	04/09/75	NORMAL	STD	38
ANDERLE	US NAVY DOPPLER SYSTEM				75-027A-05	04/09/75	NORMAL	STD	39
JACKSON	C-BAND SYSTEM				75-027A-03	04/09/75	NORMAL	STD	38
MURDY	RAOAR ALTIMETER SYSTEM				75-027A-01	04/09/75	NORMAL	STD	38
STEPHANIDES	LASER CUBE SYSTEM				75-027A-04	04/09/75	NORMAL	STD	38
TRUDELL	S-BAND TRANSPONDER SYSTEM				75-027A-02	04/09/75	NORMAL	STD	38
GEOSTATION-METEOROL SAT.	SEE GMS								
GMS	JAPAN	NASDA	7 OCT 75	GEOCENTRIC	GMS		APPROVED		39
JAPAN	JMA								
GOES-A	SEE SMS-C								
GOES-B	UNITED STATES	NOAA-NESS 3	CTR 76	GEOCENTRIC	GOES-B		APPROVED		39
UNITED STATES	NASA-GA								
NESS STAFF	VISIBLE-INFRARED SPIN-SCAN RADIOMETER (VISSR)				GOES-B -01				39
UNKNOWN	METEOROLOGICAL DATA COLLECTION AND TRANSMISSION SYSTEM				GOES-B -05				40
WILLIAMS	ENERGETIC PARTICLE MONITOR				GOES-B -02				40
WILLIAMS	SCALAR X-RAY MONITOR				GOES-B -03				40
WILLIAMS	MAGNETIC FIELD MONITOR				GOES-B -04				40
GOES-C	UNITED STATES	NOAA-NESS 4	CTR 76	GEOCENTRIC	GOES-C		APPROVED		40
UNITED STATES	NASA-GA								
NESS STAFF	VISIBLE-INFRARED SPIN-SCAN RADIOMETER (VISSR)				GOES-C -01				40
UNKNOWN	METEOROLOGICAL DATA COLLECTION AND TRANSMISSION SYSTEM				GOES-C -05				41
WILLIAMS	ENERGETIC PARTICLE MONITOR				GOES-C -02				41
WILLIAMS	SCALAR X-RAY MONITOR				GOES-C -03				41
WILLIAMS	MAGNETIC FIELD MONITOR				GOES-C -04				41
GP-A	UNITED STATES	NASA-055	1975	GEOCENTRIC	GRAVR-A		APPROVED		41
VESSDT	GRAVITATIONAL POTENTIAL AS A FUNCTION OF TIME				GRAVR-A-01				41
GRAVITATIONAL REDSHIFT P	SEE GP-A								
GRAVR-A	SEE GP-A								
HAWKEYE 1	UNITED STATES	NASA-055	06/03/74	GEOCENTRIC	74-040A	06/03/74	NORMAL	STD	1013
FRANK	LOW-ENERGY PROTONS AND ELECTRONS				74-040A-02	06/03/74	NORMAL	STD	42
GURNETT	ELF/VLF RECEIVERS				74-040A-03	06/03/74	NORMAL	STD	42
VAN ALLEN	TRIAXIAL FLUXGATE MAGNETOMETER				74-040A-01	06/03/74	NORMAL	STD	42
HCHM	UNITED STATES	NASA-GA	00/00/77	GEOCENTRIC	AEM-A		APPROVED		42
HOVIS	HEAT CAPACITY MISSION RADIOMETER				AEM-A -01				42
HEAD-A	UNITED STATES	NASA-055	1HALF 77	GEOCENTRIC	HEAD-A		APPROVED		43
BOLDT	CCSMIC X-RAY EXPERIMENT				HEAD-A -02				43
FRIEDMAN	LARGE AREA COSMIC X-RAY SURVEY				HEAD-A -01				43
GURSKY	X-RAY SCANNING MODULATION COLLIMATOR				HEAD-A -03				43
PETERSON	LOW-ENERGY GAMMA-RAY AND HARD X-RAY SKY SURVEY				HEAD-A -04				43
HEAD-B	UNITED STATES	NASA-055	2HALF 78	GEOCENTRIC	HEAD-B		APPROVED		44
BOLDT	SOLID-STATE X-RAY DETECTOR				HEAD-B -05				44
CLARK	A CURVED-CRYSTAL BRAGG X-RAY SPECTROMETER				HEAD-B -03				44
GIACCONI	MONITOR PROPORTIONAL COUNTER				HEAD-B -01				44
GIACCONI	HIGH RESOLUTION IMAGER				HEAD-B -02				44
GURSKY	IMAGING PROPORTIONAL COUNTER				HEAD-B -04				44
HEAD-C	UNITED STATES	NASA-055	2HALF 79	GEOCENTRIC	HEAD-C		APPROVED		44
ISRAEL	HEAVY NUCLEI EXPERIMENT				HEAD-C -03				45
JACOBSON	GAMMA-RAY LINE SPECTROMETER				HEAD-C -01				45
KOCH	ISOTOPIC COMPOSITION OF COSMIC RAYS				HEAD-C -04				45

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HEAT CAPACITY MAP W3H	SEE HCMH								
HELIOCENTRIC	SEE ISEE-C								
HELIOS-A	FED REP OF GERMANY UNITED STATES	DMSP NASA-055	12/10/74	HELIOCENTRIC	74-097A	12/10/74	NORMAL	STD	45
FECHTIG	MICROMETEOROID DETECTOR AND ANALYZER				74-097A-12	12/10/74	NORMAL	STD	45
GURNETT	COARSE FREQUENCY, FINE TIME RESOLUTION SPECTRUM ANALYSIS				74-097A-04	03/10/75	PARTIAL	STD	46
GURNETT	FINE FREQUENCY, COARSE TIME RESOLUTION SPECTRUM ANALYSIS				74-097A-03	03/10/75	PARTIAL	STD	46
GURNETT	50-KHZ TO 2-MHZ RADIO WAVE				74-097A-06	03/10/75	PARTIAL	STD	46
KEPPLER	ENERGETIC ELECTRON DETECTOR				74-097A-10	12/10/74	NORMAL	STD	46
KUNDT	CELESTIAL MECHANICS				74-097A-14	12/10/74	NORMAL	STD	46
KUNOW	COSMIC-RAY PARTICLES				74-097A-07	12/10/74	NORMAL	STD	46
LEINERT	ZODIACAL LIGHT PHOTOMETER				74-097A-11	12/10/74	NORMAL	STD	46
NESS	FLUXGATE MAGNETOMETER FOR AVERAGE FIELDS				74-097A-02	12/10/74	NORMAL	STD	47
NEUDAUER	FLUXGATE MAGNETOMETER FOR FIELD FLUCTUATIONS				74-097A-01	12/10/74	NORMAL	STD	47
NEUDAUER	SEARCH COIL MAGNETOMETER				74-097A-03	12/10/74	NORMAL	STD	47
ROSENBAUER	PLASMA DETECTORS				74-097A-09	12/10/74	NORMAL	STD	47
TRAINOR	GALACTIC AND SOLAR COSMIC RAYS				74-097A-08	12/10/74	NORMAL	STD	47
HELIOS-B	FED REP OF GERMANY UNITED STATES	DMSP NASA-055	JAN. 76	HELIOCENTRIC	HELIO-B		APPROVED		47
FECHTIG	MICROMETEOROID DETECTOR AND ANALYZER				HELIO-B-12				47
GURNETT	COARSE FREQUENCY, FINE TIME RESOLUTION SPECTRUM ANALYSIS				HELIO-B-04				48
GURNETT	FINE FREQUENCY, COARSE TIME RESOLUTION SPECTRUM ANALYSIS				HELIO-B-05				48
GURNETT	50-KHZ TO 2-MHZ RADIO WAVE				HELIO-B-06				48
KEPPLER	ENERGETIC ELECTRON DETECTOR				HELIO-B-10				48
KUNDT	CELESTIAL MECHANICS				HELIO-B-14				48
KUNOW	COSMIC-RAY PARTICLES				HELIO-B-07				48
LEINERT	ZODIACAL LIGHT PHOTOMETER				HELIO-B-11				48
NESS	FLUXGATE MAGNETOMETER FOR AVERAGE FIELDS				HELIO-B-02				49
NEUDAUER	FLUXGATE MAGNETOMETER FOR FIELD FLUCTUATIONS				HELIO-B-01				49
NEUDAUER	SEARCH COIL MAGNETOMETER				HELIO-B-03				49
ROSENBAUER	PLASMA DETECTORS				HELIO-B-09				49
TRAINOR	GALACTIC AND SOLAR COSMIC RAYS				HELIO-B-08				49
HELOS	INTERNATIONAL	ESRO	08/00/79	GEOCENTRIC	HELOS		PROPOSED		49
UNKNOWN	MEDIUM-ENERGY COSMIC X-RAY PACKAGE				HELOS -01				49
UNKNOWN	LOW-ENERGY COSMIC X-RAY PACKAGE				HELOS -02				50
HEOS 1	INTERNATIONAL	ESRO	12/05/68	GEOCENTRIC	68-109A	05/00/72	PARTIAL	SUB5	50
ELLIOT	FLUXGATE MAGNETOMETER				68-109A-02	05/00/72	NORMAL	SUB5	50
HEOS-A	SEE HEOS 1								
HEOS-A1	SEE HEOS 1								
HECCEN LUN OCCULT. SAT.	SEE HELCS								
IK-10	SEE INTERCOSMOS 10								
IME-D	SEE ISEE-B								
IME-H	SEE ISEE-C								
IME-M	SEE ISEE-A								
IMP 7	SEE IMP-H								
IMP 8	SEE IMP-J								
IMP-H	UNITED STATES	NASA-055	09/23/72	GEOCENTRIC	72-073A	09/23/72	NORMAL	STD	50
BAME	MEASUREMENT OF SOLAR PLASMA				72-073A-10	09/23/72	NORMAL	STD	50
BRIDGE	MEASUREMENT OF SOLAR PLASMA				72-073A-02	12/11/73	PARTIAL	STD	50
CLINE	STUDY OF COSMIC-RAY, SOLAR, AND MAGNETOSPHERIC ELECTRONS				72-073A-13	10/13/72	NORMAL	STD	51
FRANK	MEASUREMENT OF LOW-ENERGY PROTONS AND ELECTRONS				72-073A-04	09/23/72	NORMAL	STD	51
GLOECKLER	IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV				72-073A-03	11/25/72	PARTIAL	STD	51
KRIMIGIS	CHARGED PARTICLE MEASUREMENTS EXPERIMENT				72-073A-08	12/11/73	PARTIAL	STD	51
MCDONALD	SOLAR AND COSMIC-RAY PARTICLES				72-073A-09	09/26/72	NORMAL	STD	51
OGILVIE	SOLAR WIND ION COMPOSITION				72-073A-12	09/24/72	NORMAL	STD	51
SCARP	PLASMA WAVE EXPERIMENT				72-073A-11	09/24/72	NORMAL	SUB5	52
SIMPSON	SOLAR FLARE HIGH-Z/LOW-E AND LOW-Z ISOTOPE EXPERIMENT				72-073A-07	12/03/74	PARTIAL	STD	52
STONE	ELECTRONS AND HYDROGEN AND HELIUM ISOTOPES				72-073A-06	09/23/72	NORMAL	STD	52
WILLIAMS	ENERGETIC ELECTRONS AND PROTONS				72-073A-05	09/26/72	NORMAL	STD	52
IMP-J	UNITED STATES	NASA-055	10/26/73	GEOCENTRIC	73-078A	10/26/73	NORMAL	STD	55
AGGSON	ELECTROSTATIC FIELDS				73-078A-11	10/26/73	NORMAL	STD	55
BAME	MEASUREMENT OF SOLAR PLASMA				73-078A-10	10/26/73	NORMAL	STD	55
BRIDGE	MEASUREMENT OF SOLAR PLASMA				73-078A-02	10/26/73	NORMAL	STD	55
FRANK	MEASUREMENT OF LOW-ENERGY PROTONS AND ELECTRONS				73-078A-04	10/26/73	NORMAL	STD	55
GLOECKLER	SOLID-STATE DETECTORS				73-078A-03	10/26/73	NORMAL	STD	56
GURNETT	ELECTROSTATIC WAVES AND RADIO NOISE				73-078A-12	10/26/73	NORMAL	STD	56
KRIMIGIS	CHARGED PARTICLE MEASUREMENTS				73-078A-08	12/03/74	NORMAL	STD	56

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MCDONALD	EXPERIMENT SOLAR AND COSMIC-RAY PARTICLES			73-078A-09	10/26/73	NORMAL	STD	56
NESS	MAGNETIC FIELD EXPERIMENT			73-078A-01	10/26/73	NORMAL	STD	56
SIMPSON	SOLAR FLARE HIGH-Z/LOW-E AND LOW-Z EXPERIMENTS			73-078A-07	10/26/73	NORMAL	STD	57
STONE	ELECTRONS AND HYDROGEN AND HELIUM ISOTOPES			73-078A-06	10/26/73	NORMAL	STD	57
WILLIAMS	ENERGETIC ELECTRONS AND PROTONS			73-078A-05	10/26/73	NORMAL	STD	57
IMP-K	SEE ISEE-A							
IMP-K PRIME	SEE ISEE-E							
INDIAN SCIENTIFIC SAT.	SEE ARIABAT							
INJUN-F	SEE HAWKEYE I							
INT ULTRAVIOLET EXPL	SEE IUE							
INTA SATELLITE	SEE INTABAT							
INTASAT	SPAIN UNITED STATES CNIC-INTA NASA-OSS	11/16/74	GEOCENTRIC	74-089C	11/16/74	NORMAL	STD	57
SAUHEDO	IONOSPHERIC BEACON			74-089C-01	11/16/74	NORMAL	STD	58
INTERCOSMOS 10	U.S.S.R. UNKNOWN	10/30/73	GEOCENTRIC	73-082A	10/30/73	NORMAL	UNKN	58
UNKNOWN	MAGNETIC FIELD MEASUREMENT			73-082A-01	10/30/73	NORMAL	UNKN	58
UNKNOWN	ELECTRIC FIELD MEASUREMENT			73-082A-02	10/30/73	NORMAL	UNKN	58
UNKNOWN	LOW-ENERGY PARTICLES			73-082A-03	10/30/73	NORMAL	UNKN	58
UNKNOWN	VLF EMISSIONS			73-082A-04	10/30/73	NORMAL	UNKN	58
UNKNOWN	ELECTRON CONCENTRATION AND TEMPERATURE			73-082A-05	10/30/73	NORMAL	UNKN	58
IONOSPHERE SOUNDING SAT.	SEE ISS							
ISEE-A	UNITED STATES INTERNATIONAL NASA-OSS ESAC	2HALF 77	GEOCENTRIC	MOTHER		APPROVED		59
ANDERSON	ENERGETIC ELECTRONS AND PROTONS			MOTHER -10				59
BAME	50-EV TO 40-KEV PROTON AND 5-EV TO 20-KEV ELECTRON PLASMA PROBE			MOTHER -01				59
FRANK	HOT PLASMA			MOTHER -03				59
GURNETT	10-HZ TO 10-KHZ MAGNETIC AND 10-HZ TO 200-KHZ ELECTRIC FIELD TRIAXIAL PROBES			MOTHER -07				59
HARVEY	ACTIVE PLASMA EXPERIMENT			MOTHER -08				60
HELLWELL	VLF WAVE INJECTION			MOTHER -13				60
HEPPNER	DC ELECTRIC FIELDS			MOTHER -11				60
HOVESTADT	LOW-ENERGY COSMIC-RAY COMPOSITION			MOTHER -05				60
MUZER	DC TO 12-HZ ELECTRIC FIELD PROBE			MOTHER -06				60
OGILVIE	THREE-DIMENSIONAL (SIX AXES), 5-EV TO 10-KEV ELECTRON SPECTROMETER			MOTHER -02				60
RUSSELL	MAGNETIC FIELDS			MOTHER -04				61
SHARP	PLASMA COMPOSITION			MOTHER -12				61
SIMPSON	MEDIUM-ENERGY COSMIC RAYS			MOTHER -14				61
WILLIAMS	ENERGETIC ELECTRONS AND PROTONS			MOTHER -09				61
ISEE-B	UNITED STATES INTERNATIONAL NASA-OSS ESRO	2HALF 77	GEOCENTRIC	DAUGHTR		APPROVED		61
ANDERSON	ENERGETIC ELECTRONS AND PROTONS			DAUGHTR-08				62
EGIDI	50-EV TO 25-KEV ION AND 35-EV TO 7-KEV ELECTRON PLASMA PROBES			DAUGHTR-02				62
FRANK	HOT PLASMA			DAUGHTR-03				62
GURNETT	10-HZ TO 10-KHZ MAGNETIC AND 10-HZ TO 200-KHZ ELECTRIC FIELD MONOAXIAL PROBES			DAUGHTR-05				62
HARVEY	RADIO PROPAGATION RECEIVER			DAUGHTR-06				62
KESSLER	ENERGETIC ELECTRONS AND PROTONS			DAUGHTR-07				62
PASCHMANN	50-EV TO 40-KEV PROTON AND 5-EV TO 20-KEV ELECTRON PLASMA PROBE			DAUGHTR-01				63
RUSSELL	MAGNETIC FIELDS			DAUGHTR-04				63
ISEE-C	UNITED STATES NASA-OSS	2HALF 78	HELIOCENTRIC	HELICTR		APPROVED		63
ANDERSON	X RAYS AND ELECTRONS			HELICTR-09				63
BAME	150-EV TO 7-KEV PROTON AND 5-EV TO 2-E-KEV ELECTRON PLASMA PROBE			HELICTR-01				63
DE FEITER	ENERGETIC PARTICLES			HELICTR-08				64
HECKMAN	HIGH-ENERGY COSMIC RAYS			HELICTR-05				64
HOVESTADT	LOW-ENERGY COSMIC-RAY COMPOSITION			HELICTR-03				64
MEYER	COSMIC-RAY ELECTRONS AND NUCLEI			HELICTR-06				64
OGILVIE	MASS SPECTROMETER FOR 470 TO 10,600 EV PER CHARGE AND 1 TO 5.6 AMU PER CHARGE			HELICTR-11				64
SCARP	20-HZ TO 1-KHZ MAGNETIC AND 20-HZ TO 100-KHZ ELECTRIC FIELD DETECTORS			HELICTR-07				64
SMITH	MAGNETIC FIELDS			HELICTR-02				65
STEINBERG	20-KHZ TO 3-MHZ RADIO MAPPING			HELICTR-10				65
STONE	COSMIC-RAY COMPOSITION			HELICTR-12				65
VON ROSENWING	SOLAR AND GALACTIC ENERGETIC PARTICLES			HELICTR-04				65
WILCOX	SOLAR AND INTERPLANETARY MAGNETIC FIELDS (CORRELATIVE STUDY)			HELICTR-13				65
ISIS I	CANADA UNITED STATES CRC NASA-OSS	01/30/69	GEOCENTRIC	69-009A	01/30/70	PARTIAL	SUBS	65
BARRINGTON	VLF RECEIVER			69-009A-03	01/30/70	NORMAL	SUBS	66
DRAKE	CYLINDRICAL ELECTROSTATIC PROBE			69-009A-07	01/30/70	NORMAL	SUBS	66
CALVERT	FIXED FREQUENCY SOUNDER			69-009A-02	01/30/70	NORMAL	SUBS	66
FORSYTH	RADIO BEACON			69-009A-09	03/10/75	PARTIAL	ZERO	66
HARTZ	COSMIC RADIO NOISE			69-009A-10	01/30/70	NORMAL	SUBS	67
MCDIARMID	ENERGETIC PARTICLE DETECTORS			69-009A-04	01/30/70	NORMAL	SUBS	67

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SPACECRAFT NAME ***** ***** ***** ***** *****	COUNTRY AND AGENCY ***** ***** ***** ***** *****	LAUNCH DATE	ORBIT TYPE	NSSCC ID	EPOCH MMDDYY	STATUS	DATA RATE	PAGE NO.
SAGALYN WHITTEKER	SPHERICAL ELECTROSTATIC ANALYZER SLEEP FREQUENCY SOUNDER			69-009A-08 69-009A-01	01/30/70 01/30/70	NORMAL NORMAL	SUBS SUBS	67 67
ISIS 2	CANADA UNITED STATES	CRC NASA-OSB	04/01/71	GEOCENTRIC	71-024A	10/02/74	NORMAL	SUBS 67
ANGER	3914- TO 5577-A PHOTOMETER				71-024A-11	02/04/73	NORMAL	SUBS 68
GARRINGTON	V.F. RECEIVER				71-024A-03	02/04/73	NORMAL	SUBS 68
BRACE	CYLINDRICAL ELECTROSTATIC PROBE				71-024A-07	02/04/73	NORMAL	SUBS 68
CALVERT	FIXED FREQUENCY SOUNDER				71-024A-02	02/04/73	NORMAL	SUBS 68
FONSYTH	RADIO BEACON				71-024A-C9	03/10/75	PARTIAL	ZERO 69
HARTZ	COSMIC RADIO NOISE				71-024A-10	02/04/73	NORMAL	SUBS 69
HEIKKILA	SCPT-PARTICLE SPECTROMETER				71-024A-05	02/04/73	NORMAL	STD 69
HOFFMAN	ION MASS SPECTROMETER				71-024A-06	02/04/73	NORMAL	SUBS 69
MAIER	RETARDING POTENTIAL ANALYZER				71-024A-08	02/04/73	NORMAL	SUBS 69
MCDJARMID	ENERGETIC PARTICLE DETECTORS				71-024A-04	02/04/73	PARTIAL	STD 69
SIMPHERD	6300-A PHOTOMETER				71-024A-12	02/04/73	NORMAL	SUBS 69
WHITTEKER	SLEEP FREQUENCY SOUNDER				71-024A-01	02/04/73	NORMAL	SUBS 70
ISIS-A	SEE ISIS 1							
ISIS-B	SEE ISIS 2							
ISIS-X	SEE ALQLEITE 2							
ISS	JAPAN JAPAN	NASDA RHL	02/00/70	GEOCENTRIC	ISS		APPROVED	1013
FUGONO	POSITIVE ION MASS SPECTROMETER (PIC)				ISS -04			1013
KATUURA	SLEEP FREQUENCY TOPSIDE IONOSPHERIC SOUNDER (TOP)				ISS -01			1013
MIYAZAKI	RETARDING POTENTIAL PROBE				ISS -03			1014
MURAHAGA	RADIO NOISE NEAR 2.5 GHz, 10+25 MHz (HAN)				ISS -02			1014
ITOS-D	SEE NOAA 2							
ITOS-E2	UNITED STATES UNITED STATES	NOAA-NESS NASA-0A	07/15/75		ITOS-E2		APPROVED	1014
ITOS-F	SEE NOAA 3							
ITOS-G	SEE NOAA 4							
ITOS-H	UNITED STATES UNITED STATES	NOAA-NESS NASA-0A	4 QTR 76	GEOCENTRIC	ITOS-H		APPROVED	71
NESS STAFF	ADVANCED VERY HIGH RESOLUTION RADIOMETER (AVHRR)				ITOS-H -01			71
NESS STAFF	TIROS OPERATIONAL VERTICAL SOUNDER (TOVS)				ITOS-H -02			71
SHENK	SPACE ENVIRONMENTAL MONITOR (SEM)				ITOS-H -04			71
UNKNOWN	DATA COLLECTION AND PLATFORM LOCATION SYSTEM (DCS)				ITOS-H -03			71
ITOS-I	UNITED STATES UNITED STATES	NOAA-NESS NASA-0A	1 QTR 78	GEOCENTRIC	ITOS-I		APPROVED	72
NESS STAFF	ADVANCED VERY HIGH RESOLUTION RADIOMETER (AVHRR)				ITOS-I -01			72
NESS STAFF	TIROS OPERATIONAL VERTICAL SOUNDER (TOVS)				ITOS-I -02			72
UNKNOWN	DATA COLLECTION AND PLATFORM LOCATION SYSTEM (DCS)				ITOS-I -03			72
UNKNOWN	SPACE ENVIRONMENTAL MONITOR (SEM)				ITOS-I -04			72
ITOS-J	UNITED STATES UNITED STATES	NASA-CA NOAA-NESS	12/01/79	GEOCENTRIC	ITOS-J		APPROVED	72
NESS STAFF	ADVANCED VERY HIGH RESOLUTION RADIOMETER (AVHRR)				ITOS-J -01			73
NESS STAFF	TIROS OPERATIONAL VERTICAL SOUNDER (TOVS)				ITOS-J -02			73
UNKNOWN	DATA COLLECTION AND PLATFORM LOCATION SYSTEM (DCS)				ITOS-J -03			73
UNKNOWN	SPACE ENVIRONMENTAL MONITOR (SEM)				ITOS-J -04			73
IUE	UNITED STATES INTERNATIONAL UNITED KINGDOM	NASA-OS5 ESRO SRC	DEC. 76	GEOCENTRIC	SAS-D		APPROVED	73
NONE ASSIGNED	LOW/HIGH RESOLUTION, ULTRAVIOLET SPECTROGRAPH PACKAGE				SAS-D -01			74
LAGEOS	UNITED STATES	NASA-CA	1 QTR 76	GEOCENTRIC	LAGEOS		APPROVED	74
PLOTKIN	LASER RETROREFLECTORS				LAGEOS -01			74
LANDSAT 1	UNITED STATES	NASA-0A	07/23/72	GEOCENTRIC	72-058A	07/23/72	NORMAL	STD 32
ARLUSKAS	MULTISPECTRAL SCANNER (MSS)				72-058A-02	07/23/72	NORMAL	STD 33
PAINTER	DATA COLLECTION SYSTEM (DCS)				72-058A-03	07/23/72	NORMAL	STD 33
LANDSAT 2	UNITED STATES	NASA-CA	01/22/75	GEOCENTRIC	75-004A	01/22/75	NORMAL	STD 33
ARLUSKAS	MULTISPECTRAL SCANNER (MSS)				75-004A-02	01/27/75	NORMAL	STD 34
PAINTER	DATA COLLECTION SYSTEM (DCS)				75-004A-03	01/23/76	NORMAL	STD 34
LANDSAT-C	UNITED STATES	NASA-0A	09/00/77	GEOCENTRIC	ERTS-C		APPROVED	1014
PAINTER	DATA COLLECTION SYSTEM (DCS)				ERTS-C -03			1014
WEINSTEIN	RETURN BEAM VIDICON CAMERA (RBV)				ERTS-C -01			1015
LARGE SPACE TELESCOPE	SEE LST							
LASER DYNAMIC SAT.	SEE LAGEOS							

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SPACECRAFT NAME ***** SPRINC-INVEST.NAME *****	COUNTRY AND AGENCY ***** EXPERIMENT NAME *****	LAUNCH DATE	ORBIT TYPE	NSSDC ID	EPOCH MDDYY	CURRENT STATE STATUS	DATA RATE	PAGE NO.
LEM 12	SEE APCLLC 12 LM/ALSEP							
LEM 14	SEE APCLLC 14 LM/ALSEP							
LEM 15	SEE APCLLC 15 LM/ALSEP							
LEM 16	SEE APCLLC 16 LM/ALSEP							
LEM 17	SEE APCLLC 17 LM/ALSEP							
LST	UNITED STATES	NASA-CSS	00/00/80	GEOCENTRIC	LST	PROPOSED		74
LUNAR POLAR ORB-DAUGHTER	UNITED STATES	NASA-CSS	PROPS079	SELENGCENTRIC	LPO-D	PROPOSED		75
LUNAR POLAR ORB-MOTHER	UNITED STATES	NASA-CSS	PROPS079	SELENGCENTRIC	LPO-M	PROPOSED		75
MARINER 10	UNITED STATES	NASA-CSS	11/03/73	VENUS FLYBY	73-085A	11/03/73	NORMAL	STD
BRIDGE	MEASUREMENT OF PLASMA ENVIRONMENT				73-085A-03	03/10/75	PARTIAL	STD
BROADFOOT	EUV SPECTROSCOPY				73-085A-05	11/03/73	NORMAL	STD
CHASE, JR.	TWO-CHANNEL IR RADIOMETER				73-085A-06	04/00/74	NORMAL	ZERO
HOWARD	S- AND X-BAND RADIO PROPAGATION				73-085A-02	11/03/73	NORMAL	STD
MURRAY	TELEVISION PHOTOGRAPHY				73-085A-01	03/17/75	NORMAL	ZERO
NESS	FLUXGATE MAGNETOMETERS				73-085A-04	11/03/73	NORMAL	STD
SIMPSON	ENERGETIC PARTICLES				73-085A-07	11/03/73	NORMAL	STD
MARINER 73	SEE MARINER 10							
MARINER 77A	SEE MJS 77A							
MARINER 77B	SEE MJS 77B							
MARINER JUPITER/SATURN A	SEE MJS 77A							
MARINER JUPITER/SATURN B	SEE MJS 77B							
MARINER VENUS/MERCURY 73	SEE MARINER 10							
MARINER-J VENUS/MERCURY	SEE MARINER 10							
METEC	SEE METEOROID TECHNOLOGY SAT							
METEOROID TECHNOLOGY SAT	UNITED STATES	NASA-CAST	08/13/72	GEOCENTRIC	72-061A	08/27/72	PARTIAL	SUBS
HUMBS	METEOROID PENETRATION				72-061A-01	04/17/75	NORMAL	SUBS
METEOROLOGICAL SATELLITE	SEE METEOSAT							
METEOSAT	INTERNATIONAL	ESRC	2 QTR 77	GEOCENTRIC	METOSAT		APPROVED	1018
UNKNOWN	IMAGING RADIOMETER				METOSAT-01			1018
UNKNOWN	DATA COLLECTION PLATFORM (DCP)				METOSAT-02			1018
MJS 77A	UNITED STATES	NASA-CSS	08/00/77	JUPITER FLYBY	MARN77A		APPROVED	77
BRIDGE	PLASMA				MARN77A-06			77
BROADFOOT	ULTRAVIOLET SPECTROSCOPY				MARN77A-04			78
ESHELMAN	RADIO SCIENCE TEAM				MARN77A-02			78
HANEL	INFRARED SPECTROSCOPY AND RADIOMETRY				MARN77A-03			78
KRINIGIS	LOW-ENERGY CHARGED PARTICLE ANALYZER AND TELESCOPE				MARN77A-07			78
LILLIE	MULTIFILTER PHOTOPOLARIMETER, 2200-7300 A				MARN77A-11			78
NESS	TRIAxIAL FLUXGATE MAGNETOMETERS				MARN77A-05			79
SCARF	PLASMA WAVE				MARN77A-13			79
SMITH	TV PHOTOGRAPHY				MARN77A-01			79
VOGT	HIGH- AND MODERATELY LOW-ENERGY COSMIC-RAY TELESCOPE				MARN77A-08			79
WARWICK	PLANETARY RADIO ASTRONOMY				MARN77A-10			79
MJS 77B	UNITED STATES	NASA-CSS	08/00/77	JUPITER FLYBY	MARN77B		APPROVED	80
BRIDGE	PLASMA				MARN77B-06			80
BROADFOOT	ULTRAVIOLET SPECTROSCOPY				MARN77B-04			80
ESHELMAN	RADIO SCIENCE TEAM				MARN77B-02			80
HANEL	INFRARED SPECTROSCOPY AND RADIOMETRY				MARN77B-03			80
KRINIGIS	LOW-ENERGY CHARGED PARTICLE ANALYZER AND TELESCOPE				MARN77B-07			81
LILLIE	MULTIFILTER PHOTOPOLARIMETER, 2200-7300 A				MARN77B-11			81
NESS	TRIAxIAL FLUXGATE MAGNETOMETERS				MARN77B-05			81
SCARF	PLASMA WAVE				MARN77B-13			81
SMITH	TV IMAGING				MARN77B-01			81
VOGT	HIGH- AND MODERATELY LOW-ENERGY COSMIC-RAY TELESCOPE				MARN77B-08			82
WARWICK	PLANETARY RADIO ASTRONOMY				MARN77B-10			82
MOTHER	SEE ISEE-A							
NTS	SEE METEOROID TECHNOLOGY SAT							
NEUTRAL POINT EXPLORER	SEE HAWKEYE 1							
NIMBUS 4	UNITED STATES	NASA-0A	04/08/70	GEOCENTRIC	70-025A	04/08/71	PARTIAL	SUBS
COYE	INTERROGATION, RECORDING, AND LOCATION SYSTEM (IRLS)				70-025A-07	04/08/71	PARTIAL	SUBS
HEATH	BACKSCATTER ULTRAVIOLET (BUV) SPECTROMETER				70-025A-06	06/00/72	NORMAL	SUBS
NIMBUS 5	UNITED STATES	NASA-0A	12/11/72	GEOCENTRIC	72-097A	01/04/73	PARTIAL	STD
HOUGHTON	SELECTIVE CHOPPER RADIOMETER (SCR)				72-097A-02	12/11/72	NORMAL	STD

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* SPRING INVEST. NAME	* EXPERIMENT NAME							
SMITH	INFRARED TEMPERATURE PROFILE RADIOMETER (ITPR)			72-097A-01	01/04/73	PARTIAL	SDS	84
STAELIN WILHEIT, JR.	NIMBUS B MICROWAVE SPECTROMETER (NEMS) ELECTRICALLY SCANNING MICROWAVE RADIOMETER (ESMR)			72-097A-03	12/11/72	NORMAL	STD	84
				72-097A-04	12/11/72	NORMAL	STD	84
NIMBUS-D	SEE NIMBUS 4							
NIMBUS-E	SEE NIMBUS 5							
NIMBUS-F	UNITED STATES NASA-CA MAY 1975 GEOCENTRIC			NIMBUS-F		APPROVED		1015
BANDZEN	TEMPERATURE/HUMIDITY INFRARED RADIOMETER (THIR)			NIMBUS-F-12				83
GILLE	LIMB RADIANCE INVERSIOM RADIOMETER (LRIR)			NIMBUS-F-04				85
HOUGHTON	PRESSURE-MODULATED RADIOMETER (PMR)			NIMBUS-F-09				85
KELLOGG	TROPICAL WIND ENERGY CONVERSION AND REFERENCE LEVEL EXPERIMENT (TWERLE)			NIMBUS-F-01				86
SMITH	HIGH RESOLUTION INFRARED RADIATION SOUNDER (HIRS)			NIMBUS-F-02				86
SMITH	EARTH RADIATION BUDGET (ERB)			NIMBUS-F-05				1016
STAELIN	SCANNING MICROWAVE SPECTROMETER (SCAMS)			NIMBUS-F-10				86
VONBUH	TRACKING AND DATA RELAY			NIMBUS-F-13				86
WILHEIT, JR.	ELECTRICALLY SCANNING MICROWAVE RADIOMETER (ESMR)			NIMBUS-F-03				87
NIMBUS-G	UNITED STATES NASA-CA 4 QTR 78 GEOCENTRIC			NIMBUS-G		APPROVED		87
ALLISON	TEMPERATURE/HUMIDITY INFRARED RADIOMETER (THIR)			NIMBUS-G-10				87
FRASER	STRATOSPHERIC AEROSOL MEASUREMENT-II (SAM-II)			NIMBUS-G-06				87
GLOERSEN	SCANNING (MULTISPECTRAL) MICROWAVE RADIOMETER (SMR)			NIMBUS-G-08				88
HEATH	SOLAR AND BACKSCATTER ULTRAVIOLET/TOTAL OZONE MAPPING SYSTEM (SOLV/TOMS)			NIMBUS-G-09				88
HOUGHTON	STRATOSPHERIC AND MESOSPHERIC SOUNDER (SAMS)			NIMBUS-G-02				88
HOVIS	COASTAL ZONE OCEAN COLOR SCANNER			NIMBUS-G-03				88
JACOBOWITZ	EARTH RADIATION BUDGET (ERB)			NIMBUS-G-07				88
REICHEL, JR.	MEASUREMENT OF AIR POLLUTION FROM SATELLITE (MAPS)			NIMBUS-G-05				89
RUSSELL, 3RD	LOWER ATMOSPHERIC COMPOSITION AND TEMPERATURE EXPERIMENT (LACATE)			NIMBUS-G-01				89
NOAA 2	UNITED STATES NASA-CA 10/16/72 GEOCENTRIC			72-082A	10/16/74	PARTIAL	ZERO	89
BOSTROM NESS STAFF	UNITED STATES NASA-CA SOLAR PROTON MONITOR SCANNING RADIOMETER (SR)			72-082A-01	10/16/74	NORMAL	ZERO	90
				72-082A-02	10/16/74	NORMAL	ZERO	90
NOAA 3	UNITED STATES NOAA-NESS 11/06/73 GEOCENTRIC			73-086A	10/16/74	NORMAL	STD	90
BOSTROM NESS STAFF NESS STAFF	UNITED STATES NASA-CA SOLAR PROTON MONITOR SCANNING RADIOMETER (SR)			73-086A-01	10/16/74	NORMAL	STD	90
				73-086A-02	10/16/74	NORMAL	STD	90
				73-086A-03	12/17/74	NORMAL	ZERO	91
NOAA 4	UNITED STATES NOAA-NESS 11/15/74 GEOCENTRIC			74-089A	12/03/74	NORMAL	UNKN	91
BOSTROM NESS STAFF NESS STAFF NESS STAFF NESS STAFF	UNITED STATES NASA-CA SOLAR PROTON MONITOR SCANNING RADIOMETER (SR)			74-089A-01	12/03/74	NORMAL	UNKN	91
				74-089A-02	12/03/74	NORMAL	UNKN	91
				74-089A-03	12/03/74	NORMAL	UNKN	91
				74-089A-04	12/03/74	NORMAL	UNKN	92
NRL-111	SEE SOLRAD 11A							
NRL-111	SEE SOLRAD 11D							
QAO 3	UNITED STATES NASA-055 08/21/72 GEOCENTRIC			72-065A	08/21/72	NORMAL	STD	92
BOYD SPITZER	STELLAR PHOTOMETRY HIGH RESOLUTION TELESCOPE			72-065A-02	06/00/73	PARTIAL	STD	92
				72-065A-01	08/21/72	NORMAL	STD	92
QAO-C	SEE QAO 3							
OCEAN DYNAMICS SAT.	SEE SEASAT-A							
ONE METER UV TELESCOPE MENIZE	UNITED STATES NASA-055 1982 GEOCENTRIC			OMUVEL		PROPOSED		1016
				OMUVEL-01				1016
OSD 5	UNITED STATES NASA-055 01/22/69 GEOCENTRIC			69-006A	07/15/74	PARTIAL	STD	93
BLAMONT	MEASUREMENT OF THE SELF REVERSAL OF THE SOLAR LYMAN ALPHA LINE			69-006A-05	07/15/74	NORMAL	STD	93
BOYD NEY	X RAY SPECTROHELIOGRAPH ZODIACAL LIGHT MONITOR			69-006A-01	07/15/74	NORMAL	STD	93
				69-006A-07	03/27/75	PARTIAL	STD	93
OSD-EYE	SEE OSC-1							
OSD-F	SEE OSC 5							
OSD-G	UNITED STATES NASA-055 MAY 1978 GEOCENTRIC			OSD-G		APPROVED		94
ACTON BOLDY DONNET BRUNER, JR.	MAPPING X-RAY HELIOMETER COSMIC X-RAY SPECTROSCOPY CHROMOSPHERE FINE STRUCTURE STUDY HIGH RESOLUTION ULTRAVIOLET SPECTROMETER MEASUREMENTS			OSD-G-04				94
				OSD-G-06				94
				OSD-G-02				94
				OSD-G-01				94
FROST KRAUSHAAR	HIGH-ENERGY CELESTIAL X RAYS SCPT X-RAY BACKGROUND RADIATION INVESTIGATION			OSD-G-07				94
				OSD-G-05				94

LAUNCHED SUCCESSFULLY 06/12/75

LAUNCHED SUCCESSFULLY 06/21/75

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*PRINC. INVEST. NAME	EXPERIMENT NAME							
NOVICK	HIGH-SENSITIVITY GRAPHITE CRYSTAL SPECTROSCOPY OF STELLAR AND SOLAR X-RAYS			080-1 -03				95
WELLER, JR.	ELV FROM EARTH AND SPACE			080-1 -06				95
OUTER PLANETS A	SEE MJS 77A							
OUTER PLANETS B	SEE MJS 77B							
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YATES	GEIGER-MUELLER TUBE, SOLAR X-RAY DETECTOR, 2 TO 12 A			69-0460-01	05/23/69	NORMAL	STD	95
YATES	SODIUM IODIDE SCINTILLATOR, GAMMA-RAY DETECTOR, 19 TO 1175 KEV			69-0460-02	05/23/69	NORMAL	STD	95
YATES	PROTON ALPHA PARTICLE TELESCOPE			69-0460-03	05/23/69	NORMAL	STD	95
YATES	LCM-ENERGY ELECTRON DETECTOR			69-0460-05	05/23/69	NORMAL	STD	96
PIONEER 6	UNITED STATES NASA-CSS 12/16/65 HELIOCENTRIC			65-105A	02/07/71	NORMAL	SUN3	96
BRIDGE	SOLAR WIND PLASMA FARADAY CUP			65-105A-02	12/03/74	PARTIAL	SUN3	96
ESHELMAN	100-FREQUENCY BEACON RECEIVER			65-105A-04	02/07/71	NORMAL	SUN3	96
FAN	COSMIC-RAY TELESCOPE			65-105A-03	12/03/74	NORMAL	SUN3	96
MCCRACKEN	COSMIC-RAY ANISOTROPY			65-105A-05	12/03/74	PARTIAL	SUN3	97
PIONEER 7	UNITED STATES NASA-CSS 08/17/66 HELIOCENTRIC			66-075A	02/09/69	PARTIAL	SUN3	97
MCCRACKEN	COSMIC-RAY ANISOTROPY			66-075A-05	01/01/71	PARTIAL	SUN3	97
SIMPSON	COSMIC-RAY TELESCOPE			66-075A-06	12/03/74	NORMAL	SUN3	98
WOLFE	ELECTROSTATIC ANALYZER			66-075A-03	02/10/69	PARTIAL	SUN3	98
PIONEER 8	UNITED STATES NASA-CSS 12/13/67 HELIOCENTRIC			67-123A	05/02/71	NORMAL	SUN3	98
BERG	COSMIC DUST DETECTOR			67-123A-04	01/28/71	NORMAL	SUN3	98
ESHELMAN	100-FREQUENCY BEACON RECEIVER			67-123A-03	01/20/71	NORMAL	SUN3	99
MCCRACKEN	COSMIC-RAY ANISOTROPY			67-123A-05	05/02/71	NORMAL	SUN3	99
NESS	SINGLE-AXIS MAGNETOMETER			67-123A-01	05/02/71	NORMAL	SUN3	99
WEBBER	COSMIC-RAY GRADIENT DETECTOR			67-123A-06	12/03/74	PARTIAL	SUN3	99
WOLFE	ELECTROSTATIC ANALYZER			67-123A-02	01/28/71	PARTIAL	SUN3	100
PIONEER 9	UNITED STATES NASA-CSS 11/08/68 HELIOCENTRIC			68-100A	05/19/69	NORMAL	SUN3	100
BERG	COSMIC DUST DETECTOR			68-100A-04	05/19/69	NORMAL	SUN3	100
ESHELMAN	100-FREQUENCY BEACON RECEIVER			68-100A-03	12/03/74	NORMAL	STD	100
MCCRACKEN	COSMIC-RAY ANISOTROPY			68-100A-05	05/19/69	NORMAL	SUN3	101
SCARF	PLASMA WAVE DETECTOR			68-100A-07	05/19/69	NORMAL	SUN3	101
SUNETT	TRIAXIAL MAGNETOMETER			68-100A-01	05/19/69	NORMAL	SUN3	101
WEBBER	COSMIC-RAY TELESCOPE			68-100A-06	05/19/69	NORMAL	SUN3	101
WOLFE	ELECTROSTATIC ANALYZER			68-100A-02	12/03/74	NORMAL	SUN3	101
PIONEER 10	UNITED STATES NASA-CSS 03/03/72 JUPITER FLYBY			72-012A	03/03/72	NORMAL	STD	102
ANDERSON	CELESTIAL MECHANICS			72-012A-09	03/03/72	NORMAL	STD	102
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GENRELS	IMAGING POLARIMETER			72-012A-07	03/03/72	NORMAL	STD	102
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KINARD	METEOROID DETECTORS			72-012A-04	03/03/72	NORMAL	STD	103
KLIORÉ	S-BAND OCCULTATION			72-012A-10	03/03/72	NORMAL	STD	103
MCDONALD	COSMIC-RAY SPECTRA			72-012A-12	03/03/72	NORMAL	STD	103
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KLIORÉ	S-BAND OCCULTATION			73-019A-10	04/06/73	NORMAL	STD	105
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SIMPSON	CHARGED PARTICLE COMPOSITION			73-019A-02	04/06/73	NORMAL	STD	106
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SOUBERMAN	ASTEROID/METEOROID ASTRONOMY			73-019A-03	04/06/73	NORMAL	STD	106
VAN ALLEN	JOVIAN CHARGED PARTICLES EXPERIMENT			73-019A-11	04/06/73	NORMAL	STD	106
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KREPLIN	0.8- TO 3-A SOLAR X-RAY MONITOR			SRD-118-12				134
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WEEKINS	CONTINUUM (8.8 A) AND MAGNESIUM LINE (9.17 A AND 8.42 A) MONITOR			SRD-118-03				133
WEEKINS	BRAGG X-RAY POLARIMETER			SRD-118-11				133
SMATHERS	X-RAY MONITOR (0.1-1.6 A, 0.8-3 A, 1-4 A)			SRD-118-02				133
VAMPOLA	SOLAR FLARE ELECTRONS			SRD-118-22				133
WELLER, JR.	GEORONAL-EXTRATERRESTRIAL ELV - DETECTOR 1			SRD-118-18				133
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SOLRAD HI-TRIP	SEE SOLRAD 11A							
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SPACELAB ASTRONOMY MISS	SEE ONE METER UV TELESCOPE							
SPACELAB IM UV TELESCOPE	SEE ONE METER UV TELESCOPE							
SPACELAB-SOLAR ACTON DUNN	UNITED STATES	NASA-CSS	N/A	SPECIAL PURPOSE FACILITY DEFINITION TEAM ONE METER SOLAR TELESCOPE FACILITY DEFINITION TEAM	SPLSOL-04 SPLSOL-01	PROPOSED		1019 1020 1020
PETERSON	DEFINITION TEAM			SOLAR HARD X-RAY FACILITY DEFINITION TEAM	SPLSOL-03			1020
WITMBROE	DEFINITION TEAM			SOLAR EUV-XUV-SOFT X-RAY TELESCOPE DEFINITION TEAM	SPLSOL-02			1020
SRATS	JAPAN	ISAS	02/24/75	GEOCENTRIC	75-014A	04/01/68	NORMAL	SUBS 134
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ST 72-2A	SEE RM 20							
STP PROBE	SEE ISEE-C							
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SYNCH METEOROL SATELL B	SEE SMS-B							
TAIYO	SEE SRATS							
TD 1	SEE TD 1A							
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DE JAGER	SOLAR X-RAY MONITOR				72-014A-06	02/14/73	NORMAL	SUBS 135
KAMPERMAN	UV STELLAR SPECTROMETER				72-014A-02	02/14/73	NORMAL	SUBS 136
LABYRIE	SPECTROMETRY OF PRIMARY CHARGED PARTICLES				72-014A-03	02/14/73	NORMAL	SUBS 136
LABYRIE	SPECTROMETRY OF EXTRATERRESTRIAL X RAYS				72-014A-04	07/02/73	NORMAL	SUBS 136
LABYRIE	GAMMA-RAY MEASUREMENT				72-014A-07	02/14/73	NORMAL	SUBS 136
MONFELS	STELLAR UV RADIATION EXPERIMENT				72-014A-01	02/14/73	NORMAL	SUBS 136
OCCHIALINI	SOLAR GAMMA RAYS IN THE 50- TO 500-MEV ENERGY RANGE				72-014A-05	02/14/73	NORMAL	SUBS 136
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TORSS-B	UNITED STATES	NASA-OTDA	08/00/79	GEOCENTRIC	TORSS-B	APPROVED		1021
TORSS-C	UNITED STATES	NASA-OTDA	10/00/79	GEOCENTRIC	TORSS-C	APPROVED		1021
TIP 1	UNITED STATES	DDO-NAVY	09/02/72	GEOCENTRIC	72-069A	12/00/74	NORMAL	STD 1021
ARMSTRONG	TRIAXIAL FLUXGATE MAGNETOMETER				72-069A-01	09/02/72	NORMAL	STD 1021
TIRDS-N	UNITED STATES	NDAA-NESS	3 DTR 77	GEOCENTRIC	TIRDS-N	APPROVED		1021
BOSTROM	SPACE ENVIRONMENT MONITOR				TIRDS-N-04			1021
NESS STAFF	ADVANCED VERY HIGH RESOLUTION RADIOMETER (AVHRR)				TIRDS-N-01			137
NESS STAFF	TIRDS OPERATIONAL VERTICAL SCANDER (TQVS)				TIRDS-N-02			137
UNKNOWN	DATA COLLECTION AND PLATFORM LOCATION SYSTEM (DCS)				TIRDS-N-03			137

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TRACK+DATA RELAY SAT SYS	SEE TORRES-A							
TRACK+DATA RELAY SAT SYS	SEE TORRES-B							
TRACK+DATA RELAY SAT SYS	SEE TORRES-C							
TRIAD 1	SEE TIP 1							
TRIAD 01 1X	SEE TIP 1							
UK B	UNITED KINGDOM SRC	10/18/74	GEOCENTRIC	74-077A	10/18/74	NORMAL	STD	137
BOYD	UNITED STATES NASA-OSB 0.3- TO 30-KEY COSMIC X RAY WITH A ROTATION COLLIMATOR			74-077A-01	10/18/74	NORMAL	STD	137
BOYD	HIGH RESOLUTION SOURCE SPECTRA			74-077A-03	10/31/74	NORMAL	STD	138
ELLIDT	HIGH-ENERGY COSMIC X-RAY SPECTRA			74-077A-05	10/18/74	NORMAL	STD	138
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POUNDS	2- TO 10-KEY SKY SURVEY			74-077A-02	12/03/74	PARTIAL	STD	138
POUNDS	POLARIMETER/SPECTROMETER			74-077A-04	10/18/74	NORMAL	STD	138
UNITED KINGDOM B	SEE UK B							
VELA 5A	UNITED STATES DOD-USAF	05/23/69	GEOCENTRIC	69-046D	05/23/69	NORMAL	STD	139
BAME	SOLAR WIND EXPERIMENT			69-046D-05	10/01/73	PARTIAL	STD	139
BAME	NEUTRON DETECTOR			69-046D-07	05/23/69	NORMAL	STD	139
CHANDERS	SOLAR X-RAY DETECTORS, 0.5 TO 3.0 A. 1 TO 8 A, 1 TO 16 A, 44 TO 60 A			69-046D-02	05/00/74	NORMAL	STD	139
KLEBSADEL	GAMMA-RAY ASTRONOMY			69-046D-06	05/23/69	NORMAL	STD	139
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VELA 5B	UNITED STATES DOD-USAF	05/23/69	GEOCENTRIC	69-046E	05/23/69	NORMAL	STD	139
BAME	SOLAR WIND EXPERIMENT			69-046E-05	01/00/74	PARTIAL	SUBS	140
BAME	NEUTRON DETECTOR			69-046E-07	01/00/74	NORMAL	SUBS	140
CONNOR	COSMIC X RAYS			69-046E-06	01/00/74	NORMAL	SUBS	140
SINGER	SOLAR PARTICLE TELESCOPES			69-046E-03	01/00/74	NORMAL	SUBS	140
SINGER	ELECTRON DETECTORS			69-046E-04	01/00/74	NORMAL	SUBS	140
VELA 5B (USAF)	SEE VELA 5B							
VELA 6A	UNITED STATES DOD-USAF	04/08/70	GEOCENTRIC	70-027A	04/08/70	NORMAL	STD	140
BAME	SOLAR WIND EXPERIMENT			70-027A-05	04/12/72	PARTIAL	SUBS	141
BAME	NEUTRON DETECTOR			70-027A-07	04/08/70	NORMAL	STD	141
CHANDERS	SOLAR X-RAY DETECTORS, 0.5 TO 3.0 A. 1 TO 8 A, 1 TO 16 A, 44 TO 60 A			70-027A-02	04/08/70	NORMAL	STD	141
KLEBSADEL	GAMMA-RAY ASTRONOMY			70-027A-08	04/08/70	NORMAL	STD	141
SINGER	SOLAR PARTICLE TELESCOPES			70-027A-03	04/08/70	NORMAL	STD	141
SINGER	ELECTRON DETECTORS			70-027A-04	04/08/70	NORMAL	STD	141
VELA 6A (USAF)	SEE VELA 6A							
VELA 6B	UNITED STATES DOD-USAF	04/08/70	GEOCENTRIC	70-027B	04/08/70	NORMAL	STD	141
BAME	NEUTRON DETECTOR			70-027B-07	04/08/70	NORMAL	STD	142
KLEBSADEL	GAMMA-RAY ASTRONOMY			70-027B-06	04/08/70	NORMAL	STD	142
SINGER	SOLAR PARTICLE TELESCOPES			70-027B-03	04/08/70	NORMAL	STD	142
SINGER	ELECTRON DETECTORS			70-027B-04	04/08/70	NORMAL	STD	142
VELA 6B (USAF)	SEE VELA 6B							
VELA 9 (TRW)	SEE VELA 5A							
VELA 10 (TRW)	SEE VELA 5B							
VELA 11 (TRW)	SEE VELA 6A							
VELA 12 (TRW)	SEE VELA 5B							
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HARGRAVES	MAGNETIC PROPERTIES			VIK-G-AL-10				143
HESS	METEOROLOGY EXPERIMENT			VIK-G-AL-07				143
KLEIN	BIOLOGY INVESTIGATION			VIK-G-AL-03				143
MICHAEL, JR.	RADIO SCIENCE			VIK-G-AL-11				143
MUTCH	FACSIMILE CAMERA			VIK-G-AL-06				144
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NIER	ENTRY-ATMOSPHERIC COMPOSITION			VIK-G-AL-12				144
SHORTILL	PHYSICAL PROPERTIES INVESTIGATION			VIK-G-AL-01				144
TOULMIN, 3RD	X-RAY FLUORESCENCE SPECTROMETER			VIK-G-AL-13				144
VIKING-A ORBITER	UNITED STATES NASA-CSS	3 QTR 76	MARSCENTRIC	VIK-G-A		APPROVED		145
CARR	ORBITER IMAGING			VIK-G-A-01				145
FARMER	IR SPECTROMETER -- WATER VAPOR MAPPING			VIK-G-A-03				145
KIEFFER	IR RADICOMETRY -- THERMAL MAPPING			VIK-G-A-02				145
VIKING-B LANDER	UNITED STATES NASA-CSS	3 QTR 76	MARS LANDER	VIK-G-BL		APPROVED		145
ANDERSON	SEISMOLOGY			VIK-G-BL-00				146
BIEMANN	MOLECULAR ANALYSIS			VIK-G-BL-04				146
HARGRAVES	MAGNETIC PROPERTIES			VIK-G-BL-10				146
HESS	METEOROLOGY EXPERIMENT			VIK-G-BL-07				146
KLEIN	BIOLOGY INVESTIGATION			VIK-G-BL-03				146
MICHAEL, JR.	RADIO SCIENCE			VIK-G-BL-11				146
MUTCH	FACSIMILE CAMERA			VIK-G-BL-06				147

SPACECRAFT NAME	COUNTRY AND AGENCY	LAUNCH DATE	ORBIT TYPE	NEOSC ID	EPOCH MDDYY	STATUS	DATA RATE	PAGE NO.
PRINC.INVEST.NAME	EXPERIMENT NAME							
NIER	ENTRY-ATMOSPHERIC STRUCTURE			VIKING-BL-02				147
NIER	ENTRY-ATMOSPHERIC COMPOSITION			VIKING-BL-12				147
SHORTHILL	PHYSICAL PROPERTIES INVESTIGATION			VIKING-BL-01				147
TOULMIN, 3RD	X-RAY FLUORESCENCE SPECTROMETER			VIKING-BL-13				148
VIKING-B ORBITER	UNITED STATES	NASA-CSS	3 OCT 78	MARS-CENTRIC		APPROVED		146
CARR	ORBITER IMAGING			VIKING-B -01				146
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4. SPACECRAFT AND EXPERIMENTS LAUNCHED OR INACTIVATED
BETWEEN APRIL 1, 1974, AND MARCH 31, 1975

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4.1 SPACECRAFT LAUNCHED

This table of spacecraft successfully launched between April 1, 1974, and March 31, 1975, contains active spacecraft and other spacecraft for which little is known beyond launch date and initial orbit parameters. This second group informs the scientific community of spacecraft launchings that may be relevant to their studies. Some information concerning those lesser known spacecraft is available through the SPACEWARN Bulletin (see the Introduction to the January 1975 report).

Launch dates are listed chronologically along with spacecraft common name, NSSDC ID code, spacecraft funding country, and orbit type. Spacecraft orbit parameters (epoch date, apoapsis, periapsis, inclination, and period) are also included for each spacecraft entry in the table. Distance and time parameters are shown in kilometers of altitude and minutes except for heliocentric orbits, which are shown in AU radial and days.

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SPACECRAFT LAUNCHED

SPACECRAFT NAME	NR005 ID	FUNDING COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	AP02AP13	PERIAP13	INCLINATION	PERIOD
COSMOS 638	74-018A	U.S.S.R.	04/03/74	04/04/74	GEOCENTRIC	225.0	195.0	81.8	89.4
COSMOS 639	74-019A	U.S.S.R.	04/04/74	04/05/74	GEOCENTRIC	238.0	209.0	81.3	89.0
1974-020A	74-020A	UNITED STATES	04/10/74	04/12/74	GEOCENTRIC	285.0	163.0	94.8	88.9
1974-020H	74-020H	UNITED STATES	04/10/74	04/13/74	GEOCENTRIC	830.0	786.0	54.6	101.1
1974-020C	74-020C	UNITED STATES	04/10/74	04/12/74	GEOCENTRIC	831.0	803.0	94.0	95.0
COSMOS 640	74-021A	U.S.S.R.	04/11/74	04/12/74	GEOCENTRIC	236.0	205.0	81.2	88.9
WESTAR 1	74-022A	UNITED STATES	04/13/74	04/14/74	GEOCENTRIC	35092.0	35166.0	0.5	1416.3
MOLNIYA 1/27	74-023A	U.S.S.R.	04/20/74	04/21/74	GEOCENTRIC	40713.0	646.0	62.9	730.0
COSMOS 641	74-024A	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1808.0	1385.0	74.0	114.5
COSMOS 642	74-024B	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1509.0	1385.0	74.0	114.5
COSMOS 643	74-024C	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1808.0	1385.0	74.0	114.5
COSMOS 644	74-024D	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1808.0	1385.0	74.0	114.5
COSMOS 645	74-024E	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1508.0	1385.0	74.0	114.5
COSMOS 646	74-024F	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1508.0	1385.0	74.0	114.5
COSMOS 647	74-024G	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1508.0	1385.0	74.0	114.5
COSMOS 648	74-024H	U.S.S.R.	04/23/74	04/24/74	GEOCENTRIC	1508.0	1385.0	74.0	114.5
METEOR 17	74-025A	U.S.S.R.	04/24/74	04/25/74	GEOCENTRIC	907.0	877.0	81.2	102.6
MOLNIYA 2/9	74-026A	U.S.S.R.	04/26/74	04/27/74	GEOCENTRIC	40890.0	463.0	62.9	737.0
COSMOS 649	74-027A	U.S.S.R.	04/29/74	04/30/74	GEOCENTRIC	320.0	189.0	62.8	89.3
COSMOS 650	74-028A	U.S.S.R.	04/29/74	04/30/74	GEOCENTRIC	1413.0	1380.0	74.0	113.5
COSMOS 651	74-029A	U.S.S.R.	05/15/74	05/16/74	GEOCENTRIC	276.0	256.0	65.0	89.6
COSMOS 652	74-030A	U.S.S.R.	05/15/74	05/16/74	GEOCENTRIC	309.0	196.0	65.0	89.7
COSMOS 653	74-031A	U.S.S.R.	05/15/74	05/16/74	GEOCENTRIC	309.0	196.0	62.8	89.3
COSMOS 654	74-032A	U.S.S.R.	05/17/74	05/18/74	GEOCENTRIC	277.0	261.0	65.0	89.7
SMS-A	74-033A	UNITED STATES	05/17/74	07/07/74	GEOCENTRIC	35841.5	35732.0	1.9	1436.1
INTERCOSMOS 11	74-034A	U.S.S.R.	05/17/74	05/18/74	GEOCENTRIC	526.0	484.0	60.7	94.6
COSMOS 655	74-035A	U.S.S.R.	05/21/74	05/22/74	GEOCENTRIC	549.0	520.0	74.0	95.2
COSMOS 656	74-036A	U.S.S.R.	05/27/74	05/28/74	GEOCENTRIC	354.0	194.0	81.6	89.7
LUNA 22	74-037A	U.S.S.R.	05/29/74	06/02/74	SELENOCENTRIC	221.0	219.0	19.6	130.0
COSMOS 657	74-038A	U.S.S.R.	05/30/74	05/31/74	GEOCENTRIC	317.0	182.0	62.8	89.2
ATS 6	74-039A	UNITED STATES	05/30/74	02/23/75	GEOCENTRIC	35808.1	35763.4	1.1	1436.1
HAWKEYE 1	74-040A	UNITED STATES	06/03/74	02/25/75	GEOCENTRIC	124380.0	2998.0	85.7	3076.6
COSMOS 659	74-041A	U.S.S.R.	06/06/74	06/07/74	GEOCENTRIC	304.0	206.0	65.0	89.4
1974-042A	74-042A	UNITED STATES	06/06/74	06/07/74	GEOCENTRIC	394.0	136.0	110.5	89.8
COSMOS 659	74-043A	U.S.S.R.	06/13/74	06/14/74	GEOCENTRIC	360.0	190.0	62.8	89.7
COSMOS 660	74-044A	U.S.S.R.	06/18/74	06/19/74	GEOCENTRIC	1995.0	409.0	83.0	109.2
COSMOS 661	74-045A	U.S.S.R.	06/21/74	06/22/74	GEOCENTRIC	555.0	513.0	74.0	95.0
SALUTE 3	74-046A	U.S.S.R.	06/26/74	06/26/74	GEOCENTRIC	270.0	219.0	51.6	89.1
COSMOS 662	74-047A	U.S.S.R.	06/26/74	06/29/74	GEOCENTRIC	799.0	276.0	70.9	95.4
COSMOS 663	74-048A	U.S.S.R.	06/27/74	06/30/74	GEOCENTRIC	1007.0	972.0	83.0	104.9
COSMOS 664	74-049A	U.S.S.R.	06/29/74	06/30/74	GEOCENTRIC	341.0	205.0	72.9	90.0
COSMOS 665	74-050A	U.S.S.R.	06/29/74	06/30/74	GEOCENTRIC	39384.0	633.0	62.9	1210.0
SOYUZ 14	74-051A	U.S.S.R.	07/03/74	07/04/74	GEOCENTRIC	277.0	250.0	51.6	89.7
METEOR 18	74-052A	U.S.S.R.	07/09/74	07/10/74	GEOCENTRIC	905.0	877.0	81.2	102.6
COSMOS 666	74-053A	U.S.S.R.	07/12/74	07/13/74	GEOCENTRIC	351.0	191.0	62.8	89.6
1974-054A	74-054A	UNITED STATES	07/14/74	07/22/74	GEOCENTRIC	13767.0	13445.0	126.1	468.4
AEROS 2	74-055A	FED REP OF GERMANY UNITED STATES	07/16/74	08/06/74	GEOCENTRIC	840.2	216.8	97.4	95.2
MOLNIYA 2/10	74-056A	U.S.S.R.	07/23/74	07/24/74	GEOCENTRIC	40900.0	460.0	62.8	737.0
COSMOS 667	74-057A	U.S.S.R.	07/25/74	07/26/74	GEOCENTRIC	342.0	182.0	65.0	89.5
COSMOS 668	74-058A	U.S.S.R.	07/25/74	07/25/74	GEOCENTRIC	519.0	281.0	71.0	92.2
COSMOS 669	74-059A	U.S.S.R.	07/26/74	07/27/74	GEOCENTRIC	230.0	204.0	81.3	88.9
MOLNIYA 1-5	74-060A	U.S.S.R.	07/29/74	07/30/74	GEOCENTRIC	35850.0	35850.0	0.1	1439.0
COSMOS 670	74-061A	U.S.S.R.	08/06/74	08/07/74	GEOCENTRIC	307.0	217.0	50.6	89.5
COSMOS 671	74-062A	U.S.S.R.	08/07/74	08/08/74	GEOCENTRIC	369.0	191.0	62.8	89.7

SPACECRAFT NAME	NSDDC ID	FUNDING COUNTRY	LAUNCH DATE	EPUCH DATE	ORBIT TYPE	APDAPBS	PERIAPBS	INCLINATION	PERIOD
1974-063A	74-063A	UNITED STATES	08/09/74	08/10/74	GEOCENTRIC	872.0	893.0	66.5	101.7
COSMOS 672	74-064A	U.S.S.R.	08/12/74	08/13/74	GEOCENTRIC	235.0	158.0	81.8	88.0
1974-065A	74-065A	UNITED STATES	08/14/74	08/16/74	GEOCENTRIC	402.0	120.0	110.5	89.9
COSMOS 673	74-066A	U.S.S.R.	08/16/74	08/17/74	GEOCENTRIC	648.0	620.0	81.0	97.0
SOYUZ 15	74-067A	U.S.S.R.	08/20/74	08/27/74	GEOCENTRIC	275.0	294.0	81.0	89.0
COSMOS 674	74-068A	U.S.S.R.	08/20/74	08/30/74	GEOCENTRIC	343.0	182.0	68.0	89.0
COSMOS 675	74-069A	U.S.S.R.	08/20/74	08/30/74	GEOCENTRIC	1426.0	1368.0	74.1	113.7
ANS	74-070A	NETHERLANDS UNITED STATES	08/30/74	08/31/74	GEOCENTRIC	1107.0	254.0	90.1	99.0
COSMOS 676	74-071A	U.S.S.R.	09/11/74	09/12/74	GEOCENTRIC	840.0	799.0	74.0	101.0
COSMOS 677	74-072A	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 678	74-072B	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 679	74-072C	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 680	74-072D	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 681	74-072E	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 682	74-072F	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 683	74-072G	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 684	74-072H	U.S.S.R.	09/19/74	09/20/74	GEOCENTRIC	1819.0	1461.0	74.0	115.3
COSMOS 685	74-073A	U.S.S.R.	09/20/74	09/21/74	GEOCENTRIC	303.0	208.0	65.0	89.4
COSMOS 686	74-074A	U.S.S.R.	09/26/74	09/27/74	GEOCENTRIC	515.0	281.0	71.0	92.2
WESTAR 2	74-075A	UNITED STATES	10/10/74	10/14/74	GEOCENTRIC	38000.0	38000.0	0.0	1436.0
COSMOS 687	74-076A	U.S.S.R.	10/11/74	10/12/74	GEOCENTRIC	717.0	292.0	74.0	94.5
UK 5	74-077A	UNITED KINGDOM UNITED STATES	10/15/74	10/16/74	GEOCENTRIC	557.0	512.0	2.9	95.3
COSMOS 688	74-078A	U.S.S.R.	10/18/74	10/19/74	GEOCENTRIC	371.0	188.0	62.8	89.8
COSMOS 689	74-079A	U.S.S.R.	10/19/74	10/20/74	GEOCENTRIC	1032.0	592.0	83.0	105.1
COSMOS 690	74-080A	U.S.S.R.	10/22/74	10/23/74	GEOCENTRIC	389.0	223.0	62.8	90.4
MOLNIYA 1/28	74-081A	U.S.S.R.	10/24/74	10/25/74	GEOCENTRIC	40614.0	656.0	62.8	736.4
COSMOS 691	74-082A	U.S.S.R.	10/25/74	10/26/74	GEOCENTRIC	352.0	180.0	68.0	89.8
METEOR 19	74-083A	U.S.S.R.	10/28/74	10/29/74	GEOCENTRIC	917.0	855.0	81.2	102.5
LUNA 23	74-084A	U.S.S.R.	10/28/74		LUNAR LANDER				
1974-085A	74-085A	UNITED STATES	10/25/74	10/30/74	GEOCENTRIC	271.0	162.0	66.7	88.9
1974-085B	74-085B	UNITED STATES	10/29/74	11/03/74	GEOCENTRIC	535.0	620.0	66.1	95.2
1974-085C	74-085C	UNITED STATES	10/29/74	10/31/74	GEOCENTRIC	3795.0	162.0	57.0	126.0
INTERCOSMOS 12	74-086A	U.S.S.R.	10/31/74	11/01/74	GEOCENTRIC	708.0	264.0	74.1	94.1
COSMOS 692	74-087A	U.S.S.R.	11/01/74	11/02/74	GEOCENTRIC	315.0	201.0	62.8	89.4
COSMOS 693	74-088A	U.S.S.R.	11/04/74	11/05/74	GEOCENTRIC	243.0	219.0	81.3	89.1
NOAA 4	74-089A	UNITED STATES	11/15/74	11/18/74	GEOCENTRIC	1487.7	1443.8	101.7	114.9
OSCAR 6	74-089B	INTERNATIONAL	11/15/74	11/16/74	GEOCENTRIC	1455.0	1450.0	101.7	114.9
INTASAT	74-089C	SPAIN UNITED STATES	11/15/74	11/16/74	GEOCENTRIC	1455.0	1438.0	101.8	114.8
COSMOS 694	74-090A	U.S.S.R.	11/16/74	11/17/74	GEOCENTRIC	344.0	213.0	72.5	89.8
COSMOS 695	74-091A	U.S.S.R.	11/20/74	11/21/74	GEOCENTRIC	493.0	283.0	71.0	92.0
MOLNIYA 3/1	74-092A	U.S.S.R.	11/21/74	11/22/74	GEOCENTRIC	4069.0	650.0	62.0	737.0
INTELSAT 4 F-8	74-093A	UNITED STATES	11/21/74	11/22/74	GEOCENTRIC	35899.1	289.7	26.0	639.8
SKYNET 2B	74-094A	UNITED KINGDOM	11/23/74	11/24/74	GEOCENTRIC	36505.0	38256.0	2.2	899.4
COSMOS 696	74-095A	U.S.S.R.	11/27/74	11/28/74	GEOCENTRIC	345.0	212.0	72.9	89.8
SOYUZ 17	74-096A	U.S.S.R.	12/02/74	12/03/74	GEOCENTRIC	223.0	177.0	51.7	88.4
HELIOS 2	74-097A	FED REP OF GERMANY UNITED STATES	12/10/74	01/16/75	HELIOCENTRIC	1.0	0.3	0.0	190.2
COSMOS 697	74-098A	U.S.S.R.	12/13/74	12/14/74	GEOCENTRIC	418.0	162.0	62.8	90.2
METEOR 20	74-099A	U.S.S.R.	12/17/74	12/18/74	GEOCENTRIC	910.0	861.0	61.2	102.4
COSMOS 698	74-100A	U.S.S.R.	12/18/74	12/19/74	GEOCENTRIC	566.0	515.0	74.0	95.3
SYMPHONIE 1	74-101A	FED REP OF GERMANY FRANCE	12/19/74	12/21/74	GEOCENTRIC	40918.0	30705.0	1.2	1646.0
MOLNIYA 2/11	74-102A	U.S.S.R.	12/21/74	12/22/74	GEOCENTRIC	40675.0	641.0	62.5	737.0
COSMOS 699	74-103A	U.S.S.R.	12/24/74	12/25/74	GEOCENTRIC	454.0	436.0	65.0	92.2
SALYUT 6	74-104A	U.S.S.R.	12/25/74	12/27/74	GEOCENTRIC	270.0	219.0	51.6	89.1

SPACECRAFT LAUNCHED

SPACECRAFT NAME	NO. IN ORBIT	FUNDING COUNTRY	LAUNCH DATE	EPOCH DATE	ORBIT TYPE	APOGEE (KM)	PERIAPOGEE (KM)	INCLINATION (DEG)	PERIOD (HRS)
COSMOS 700	74-102A	U.S.S.R.	12/20/74	12/27/74	GEOCENTRIC	1012.0	976.0	83.0	109.0
COSMOS 701	74-106A	U.S.S.R.	12/27/74	12/28/74	GEOCENTRIC	339.0	210.0	71.4	89.8
BUYUZ 17	75-001A	U.S.S.R.	01/11/75	01/12/75	GEOCENTRIC	384.0	293.0	61.6	91.7
COSMOS 702	75-002A	U.S.S.R.	01/17/75	01/18/75	GEOCENTRIC	334.0	210.0	71.4	89.7
COSMOS 703	75-003A	U.S.S.R.	01/21/75	01/22/75	GEOCENTRIC				
LANDSAT 2	75-004A	UNITED STATES	01/28/75	03/21/75	GEOCENTRIC	918.0	297.4	59.1	103.1
COSMOS 704	75-005A	U.S.S.R.	01/23/75	01/24/75	GEOCENTRIC	329.0	213.0	72.6	89.6
COSMOS 705	75-006A	U.S.S.R.	01/28/75	01/29/75	GEOCENTRIC	824.0	281.0	71.0	92.3
COSMOS 706	75-007A	U.S.S.R.	01/30/75	01/31/75	GEOCENTRIC	39812.0	635.0	62.8	719.0
COSMOS 707	75-008A	U.S.S.R.	02/05/75	02/06/75	GEOCENTRIC	880.0	505.0	74.0	95.2
MULNIYA 2/12	75-009A	U.S.S.R.	02/06/75	02/07/75	GEOCENTRIC	40085.0	640.0	62.8	737.0
STARLETTE	75-010A	FRANCE	02/06/75	02/07/75	GEOCENTRIC	1141.0	807.0	49.8	104.5
SMS-B	75-011A	UNITED STATES	02/06/75	03/15/75	GEOCENTRIC	38800.0	35776.0	1.0	1436.0
COSMOS 708	75-012A	U.S.S.R.	02/12/75	02/13/75	GEOCENTRIC	1423.0	1387.0	69.2	113.6
COSMOS 709	75-013A	U.S.S.R.	02/12/75	02/13/75	GEOCENTRIC	333.0	188.0	62.8	89.4
BRATS	75-014A	JAPAN	02/24/75	04/06/75	GEOCENTRIC	3113.3	263.0	31.1	120.0
COSMOS 710	75-015A	U.S.S.R.	02/26/75	02/27/75	GEOCENTRIC	388.0	180.0	65.0	89.6
COSMOS 711	75-016A	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 712	75-016B	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 713	75-016C	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 714	75-016D	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 715	75-016E	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 716	75-016F	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 717	75-016G	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
COSMOS 718	75-016H	U.S.S.R.	02/28/75	03/01/75	GEOCENTRIC	1830.0	1449.0	74.0	115.5
1975-017A	75-017A	UNITED STATES	03/10/75						
COSMOS 719	75-018A	U.S.S.R.	03/13/75	03/13/75	GEOCENTRIC	329.0	182.0	74.0	89.3
COSMOS 720	75-019A	U.S.S.R.	03/21/75	03/22/75	GEOCENTRIC	280.0	223.0	62.8	89.4
COSMOS 721	75-020A	U.S.S.R.	03/26/75	03/27/75	GEOCENTRIC	241.0	210.0	61.3	88.9
COSMOS 722	75-021A	U.S.S.R.	03/27/75	03/28/75	GEOCENTRIC	389.0	210.0	71.4	89.9
INTERCOSMOS 13	75-023A	U.S.S.R.	03/27/75	03/28/75	GEOCENTRIC	1087.0	284.0	62.9	104.8

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4.2 SPACECRAFT AND EXPERIMENTS THAT BECAME OPERATIONAL OFF

This table identifies spacecraft or experiments placed in an operational-off status between April 1, 1974, and March 31, 1975. The table is ordered alphabetically by spacecraft common name. For each spacecraft listed, the following appears: spacecraft common name, NSSDC ID code, spacecraft funding country, launch date, date the spacecraft was placed in an operational-off mode, orbit type, and spacecraft orbit parameters (epoch date, apoapsis, periapsis, inclination, and period). Distance and time parameters are shown in kilometers of altitude and minutes except for heliocentric orbits, which are shown in AU radial and days.

Experiments that became operational off during this period are listed immediately below their associated spacecraft entry. The experiment NSSDC ID code, experimenter's last name, NSSDC experiment name, and date the experiment was placed in an operational-off mode are given for each experiment. To indicate that a spacecraft was not placed in an operational-off mode, even though some of its experiments were in such a mode, the column indicating spacecraft operational-off mode date is blank.

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SPACECRAFT AND EXPERIMENTS THAT BECAME OPERATIONAL OFF

SPACECRAFT NAME	NSSCC ID	FUNDING COUNTRY	LAUNCH DATE	DATE OFC PLACED ON OFF	SHOOT DATE	ORBIT TYPE	APD-APB16	PERI-ADD16	INCL-NAT16	PERIOD
		EXPERIMENTER	EXPERIMENT NAME				DATE EXP PLACED ON OFF			
1963-03BC	63-03BC	UNITED STATES	05/28/63	11/00/74	04/28/63	GEOCENTRIC	1147.0	1067.0	89.0	107.5
LANDSAT 2	78-004A 78-004A-01	UNITED STATES WEINSTEIN	01/22/70	/ /	03/21/70	GEOCENTRIC RETURN BEAM VIDICCN (RSV) CAMERA SYSTEM	918.0 02/08/70	897.4	99.1	103.1
MARINER 10	73-08EA 73-08EA-01	UNITED STATES MURRAY	11/03/73	/ /		VENUS FLYBY TELEVISION PHOTOGRAPHY	03/24/78			
E-CUBED A	71-096A 71-096A-01 71-096A-02 71-096A-03 71-096A-06 71-096A-07	UNITED STATES HOFFMAN FRITZ WILLIAMS CAHILL, JR. GURNETT	11/16/71	04/30/74	05/06/73	GEOCENTRIC CHANNEL ELECTRON MULTIPLIER WITH ELECTROSTATIC ANALYZERS SOLID-STATE PROTON-ALPHA PARTICLE TELESCOPE SOLID-STATE DETECTORS SEARCH COIL MAGNETOMETER AC ELECTRIC FIELD MEASUREMENT	28178.0 09/30/74 09/30/74 09/30/74 09/30/74 09/30/74	281.3	3.8	438.1

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4.3 SPACECRAFT AND EXPERIMENTS THAT BECAME INOPERABLE

This table identifies spacecraft or experiments that became inoperable between April 1, 1974, and March 31, 1975. The table is ordered alphabetically by spacecraft common name. For each spacecraft listed, the following information appears: spacecraft common name, NSSDC ID code, spacecraft funding country, launch date, date the spacecraft became inoperable, orbit type, and spacecraft orbit parameters (epoch date, apoapsis, periapsis, inclination, and period). Distance and time parameters are shown in kilometers of altitude and minutes except for heliocentric orbits, which are shown in AU radial and days.

Experiments that became inoperable during this period are listed immediately below their associated spacecraft entry. The experiment NSSDC ID code, experimenter's last name, NSSDC experiment name, and date the experiment became inoperable are given for each experiment. To indicate that a spacecraft was not placed in an inoperable mode, even though some of its experiments were in such a mode, the column indicating spacecraft inoperable date is blank.

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SPACECRAFT AND EXPERIMENTS THAT BECAME INOPERABLE

SPACECRAFT NAME	NO. OF ID	FUNDING COUNTRY	LAUNCH DATE	DATE S/C PLACED IN SP	EOCH DATE	ORBIT TYPE	APB= APBID	PERI= APBID	INCL= INCLIN	PERIOD
AE-C	73-101A 73-101A-08	UNITED STATES PELZ	12/10/73	/ /	07/10/74	GEOCENTRIC	3039.4	130.3	80.1	117.6
APOLLO 14 LM/ALSEP	71-008C 71-008C-12	UNITED STATES HAYES	01/31/71	/ /		LUNAR LANCEN LUNAR DUST DETECTOR				
ATS 6	74-036A 74-036A-03 74-036A-08	UNITED STATES ARMSTRONG GEMEK	09/30/74	/ /	02/23/76	GEOCENTRIC	35808.1	30763.4	1.1	1436.1
CSHO 4	72-092A 72-092A-01 72-092A-02 72-092A-03 72-092A-04 72-092A-05	INTERNATIONAL BOUD VON ZAHN MULLQUIST DE JACER	11/22/72	04/15/74	09/07/73	GEOCENTRIC	833.7	230.8	4.1	99.3
HEOS 2	72-008A 72-008A-01 72-008A-02 72-008A-03 72-008A-04 72-008A-05 72-008A-06 72-008A-07	INTERNATIONAL ELLIOT PIZZELLA PETERS PAGE DILBERTH REIBENHAUER PECHTIG	01/31/72	08/05/74	08/17/73	GEOCENTRIC	236429.0	4906.3	87.9	7510.3
IMP-1	71-019A 71-019A-01 71-019A-02 71-019A-03 71-019A-05 71-019A-06 71-019A-07 71-019A-08 71-019A-09 71-019A-11 71-019A-12 71-019A-13 71-019A-15	UNITED STATES NEOS AGGSON GURNETT FRANK ANDERSON GOSTROM MCDONALD SIMPSON RANG KELLOGG HADDICK AGGSON	03/13/71	/ /	09/02/73	GEOCENTRIC	195813.0	5864.9	37.7	8974.5
NIMBUS 5	72-097A 72-097A-08	UNITED STATES MCULLOCH	09/29/71	/ /	09/07/73	GEOCENTRIC	1101.3	1089.4	99.0	107.2
OSO 7	71-083A 71-083A-01 71-083A-02 71-083A-03 71-083A-04 71-083A-05	UNITED STATES NEUPERT TOUSEY PETERSON CLARK PETERSON	09/29/71	07/04/74	09/04/73	GEOCENTRIC	434.7	297.4	33.1	91.8
SAS-A	70-107A 70-107A-01	UNITED STATES GIACCONI	12/12/70	01/07/75	09/06/73	GEOCENTRIC	838.1	800.0	3.0	95.1
SOLRAD 9	68-017A 68-017A-01	UNITED STATES KREBLIN	03/05/68	10/00/74	01/25/73	GEOCENTRIC	766.0	801.0	59.4	98.0

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