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Supplement to the December 1974  
Space Investigations Documentation  
System (SIDS) Report

JULY 1975



NATIONAL SPACE SCIENCE DATA CENTER

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

NSSDC 75-05

SUPPLEMENT TO THE DECEMBER 1974 SPACE  
INVESTIGATIONS DOCUMENTATION SYSTEM (SIDS) REPORT

July 1975

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

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## 1. INTRODUCTION

This document updates the December 1974 Space Investigations Documentation System (SIDS) Report to March 31, 1975. Document availability, definitions, abbreviations, and acronyms described in the original report generally apply here.

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

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

All changes to this document should be sent to:

NASA Headquarters  
Office of Space Science  
Space Science Steering  
Committee Secretariat  
Code: SS  
Washington, D.C. 20546

Phone: (202) 755-8393.

Comments must reach the Secretariat by October 14, 1975, to be included in the December 1975 report.

## 2. SUPPLEMENTARY DESCRIPTIONS OF SPACECRAFT AND EXPERIMENTS

In this section, spacecraft and experiment 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 common name is not known, the spacecraft can be found by referring to an alternate name found in the "Index of Spacecraft and Experiments," section 3.

Each spacecraft entry heading contains the spacecraft common name, alternate names, NSSDC ID code, last reported state of the spacecraft, actual or planned launch date, weight, launch site, launch vehicle, sponsoring country and agency, orbit parameters if appropriate, and personnel. For unlaunched satellites, a set of planned orbit parameters is given. For launched orbiting spacecraft, two sets of orbit parameters are given: initial orbit parameters calculated shortly after launch and recent orbit parameters. No orbit parameters are given for lander or fly-by missions. The spacecraft brief description follows each heading.

Each experiment entry heading consists of experiment name, NSSDC ID code, last reported state of the experiment, the Office of Space Science (OSS) division, the relevant SIDS disciplines, and the experiment personnel. The experiment brief description follows each heading.

SUPPLEMENTARY DESCRIPTIONS OF SPACECRAFT AND EXPERIMENTS

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

SPACECRAFT COMMON NAME- AD-A  
ALTERNATE NAMES- EXPLORER 19, 00714  
NSSOC ID- 63-053A

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

LAUNCH DATE- 12/19/53 SPACECRAFT WEIGHT- 7. KG  
LAUNCH SITE- VANDENBERG AFB, UNITED STATES  
LAUNCH VEHICLE- SCOUT

SPONSORING COUNTRY/AGENCY  
UNITED STATES NASA-OSS

INITIAL ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 12/15/63  
ORBIT PERIOD- 115.9 MIN INCLINATION- 78.62 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- 78.9205 DEG  
PERIAPSIS- 874. KM ALT APOAPSIS- 1768. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - C.W. COFFEE, JR. ....NASA-LARC  
HAMPTON, VA  
PS - R.F. FELLOWS ....NASA HEADQUARTERS  
WASHINGTON, DC  
MG - J.R. HOLTZ ....NASA HEADQUARTERS  
WASHINGTON, DC  
SC - E.R. SCHMERLING ....NASA 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 5.1-CM DOTS  
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

NSSOC ID- 63-053A-C1

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- AERONCMY

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

PI - L.G. JACCHIA .....SAO  
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

NSSOC ID- 63-053A-02

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PLANETARY ATMOSPHERES

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

PI - G.M. KEATING .....NASA-LARC  
HAMPTON, VA  
DI - W.J. D'SULLIVAN, JR. ....NASA-LARC  
HAMPTON, VA  
DI - 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  
(0.7680 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-683J, EXPLORER 39  
03337

NSSOC ID- 68-066A

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

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

SPONSORING COUNTRY/AGENCY  
UNITED STATES NASA-OSS

INITIAL ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 08/08/68  
ORBIT PERIOD- 118.1 MIN INCLINATION- 80.691 DEG  
PERIAPSIS- 665.000 KM ALT APOAPSIS- 2526.00 KM ALT

RECENT ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 01/13/74  
ORBIT PERIOD- 115.05 MIN INCLINATION- 80.68 DEG  
PERIAPSIS- 695. KM ALT APOAPSIS- 2223. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - C.W. COFFEE, JR. ....NASA-LARC  
HAMPTON, VA  
PS - R.F. FELLOWS ....NASA HEADQUARTERS  
WASHINGTON, DC  
MG - J.R. HOLTZ ....NASA HEADQUARTERS  
WASHINGTON, DC  
SC - E.R. SCHMERLING ....NASA 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 (NSSOC ID  
68-066B). 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 50 YEARS.

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

EXPERIMENT NAME- NONSYSTEMATIC CHANGES OF AIR DENSITY

NSSOC ID- 68-066A-01

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- AERONCMY

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

PI - L.G. JACCHIA .....SAO  
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 50 YEARS.

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

EXPERIMENT NAME- SYSTEMATIC CHANGES OF AIR DENSITY

NSSOC ID- 68-066A-02

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS

DISCIPLINE(S)- AERONCMY

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

PI - G.M. KEATING .....NASA-LARC HAMPTON, VA
DI - C.W. COFFEE, JR. ....NASA-LARC HAMPTON, VA
DI - 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.

\*\*\*\*\* 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-DMSF

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - W.F. EICHELMAN .....NASA-JSC HOUSTON, TX
MG - F.I. ROBERSON .....NASA HEADQUARTERS WASHINGTON, DC
SC - J.B. HANLEY .....NASA HEADQUARTERS WASHINGTON, DC

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 DUST 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.

OSS DIVISION- LUNAR PROGRAMS DISCIPLINE(S)- CELESTIAL MECHANICS GEODESY AND CARTOGRAPHY

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

PI - C.O. ALLEY .....U 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
049C5, APOLLO 14C
NSSDC ID- 71-008C

LAST REPORTED STATE- LAUNCHED AND OPERATING PARTIALLY AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 02/28/75.

LAUNCH DATE- 01/31/71 SPACECRAFT WEIGHT- 4857. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- SATURN 5

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

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - W.F. EICHELMAN .....NASA-JSC HOUSTON, TX
MG - F.I. ROBERSON .....NASA HEADQUARTERS WASHINGTON, DC
SC - J.B. HANLEY .....NASA HEADQUARTERS WASHINGTON, DC

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 39 MIN 1 SEC S LATITUDE, 17 DEG 27 MIN 55 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 5-6, 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.

OSS DIVISION- LUNAR PROGRAMS DISCIPLINE(S)- CELESTIAL MECHANICS GEODESY AND CARTOGRAPHY

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

PI - J. FALLER .....WESLEYAN 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 FRA MAURO SITE. THIS INSTRUMENT AND THOSE AT APOLLO 11 (TRANQUILITY BASE) AND AT THE APOLLO 15 SITE IN THE HADLEY/APENNINE REGION PROVIDED A NETWORK (WELL-SEPARATED IN LONGITUDE AND LATITUDE) OF STATIONS TO PERMIT A COMPLETE GEOMETRICAL SEPARATION 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 5, 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-OSS

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - W.F. EICHELMAN .....NASA-JSC HOUSTON, TX
MG - F.I. ROBERSON .....NASA HEADQUARTERS WASHINGTON, DC
SC - J.B. HANLEY .....NASA HEADQUARTERS WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION

THE APOLLO 15 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT, A LUNAR ROVING VEHICLE (LRV), AND AN APOLLO LUNAR SURFACE EXPERIMENTS 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 39 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-0E

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

OSS DIVISION- LUNAR PROGRAMS  
DISCIPLINE(S)- CELESTIAL MECHANICS GEODESY AND CARTOGRAPHY

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

PI - J. FALLER .....WESLEYAN 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 AIM-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.

\*\*\*\*\* ATS 5 \*\*\*\*\*

SPACECRAFT COMMON NAME- ATS 5  
ALTERNATE NAMES- PL-LS2B, ATS-E  
0406E

NSSDC ID- 69-069A

LAST REPORTED STATE- LAUNCHED AND OPERATING PARTIALLY AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 06/01/73.

LAUNCH DATE- 09/12/69 SPACECRAFT WEIGHT- 621. KG  
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES  
LAUNCH VEHICLE- ATLAS-AGEN

SPONSORING COUNTRY/AGENCY  
UNITED STATES NASA-OA

INITIAL ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC  
ORBIT PERIOD- 1463. MIN  
PERIAPSIS- 35760.0 KM ALT

EPOCH DATE- 08/23/69  
INCLINATION- 2.6 DEG  
APOAPSIS- 36894.0 KM ALT

RECENT ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC  
ORBIT PERIOD- 1436. MIN  
PERIAPSIS- 35719. KM ALT

EPOCH DATE- 02/23/75  
INCLINATION- 2.34 DEG  
APOAPSIS- 35854. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - D.V. FORCYCE .....NASA-GSFC  
GREENBELT, MD

PS - T.L. AGGSON .....NASA-GSFC  
GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION

ATS 5 WAS AN EQUATORIAL-ORBITING, 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 ATS 5 WAS STABILIZED IN A SPINNING MODE ABOUT SPACECRAFT Z AXIS AT APPROXIMATELY 71 RPM. ALL EXPERIMENTS WHICH DEPENDED 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. ATS 5 WAS POSITIONED AT ABOUT 105 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.

----- ATS 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 03/10/75.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)-

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

PI - A.V. DAROSA .....STANFORD U  
STANFORD, CA

OI - D.K. GARRIOTT .....STANFORD U  
STANFORD, CA

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT CONSISTED OF PHASE-COHERENT RADIO FREQUENCIES CONTINUOUSLY TRANSMITTED AT 137.350 AND 412.050 MHZ (3RD HARMONIC). 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.

----- ATS 5, MCILWAIN -----

EXPERIMENT NAME- OMNIDIRECTIONAL HIGH-ENERGY PARTICLE DETECTOR

NSSDC ID- 69-069A-03

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 08/00/72.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

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

PI - C.E. MCILWAIN .....U OF CALIF, SAN DIEGO  
SAN DIEGO, CA

EXPERIMENT BRIEF DESCRIPTION

THREE PLASTIC SCINTILLATOR DETECTORS, EACH WITH A 2-PI SOLID ANGLE FIELD OF VIEW, MEASURED ELECTRONS IN 12 INTERVALS IN THE ENERGY RANGE 0.5 TO 5 MEV. SOLAR COSMIC RAYS WITH ENERGIES GREATER THAN 12, 16, AND 24 MEV WERE ALSO MEASURED. THE DETECTORS HAVE FUNCTIONED NORMALLY FROM LAUNCH TO AUGUST 1972 AFTER WHICH TIME THE DATA ACQUISITION WAS LIMITED TO SELECTED TIMES. THE SPACECRAFT SPIN DID NOT DEGRADE THE EXPERIMENT DATA.

----- ATS 5, MCILWAIN -----

EXPERIMENT NAME- BIDIRECTIONAL LOW-ENERGY PARTICLE DETECTOR

NSSDC ID- 69-069A-11

LAST REPORTED STATE- LAUNCHED AND OPERATING PARTIALLY AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 08/00/73.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

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

PI - C.E. MCILWAIN .....U OF CALIF, SAN DIEGO  
SAN DIEGO, CA

OI - R.W. FILLIUS .....U OF CALIF, SAN DIEGO  
SAN DIEGO, CA

OI - S. DEFOREST .....U OF CALIF, SAN DIEGO  
SAN DIEGO, CA

EXPERIMENT BRIEF DESCRIPTION

THIS DETECTOR MEASURED ELECTRONS AND PROTONS IN 62 LOGARITHMICALLY EQUISPACED INTERVALS IN THE ENERGY RANGE 50 EV TO 50 KEV. FOUR CURVED-PLATE ELECTROSTATIC ANALYZERS AND CHANNELTRON MULTIPLIERS WERE USED. TWO APERTURES WITH 5 X 8 DEG VIEW ANGLES LOOKED PARALLEL TO, AND PERPENDICULAR TO, THE SPACECRAFT SPIN AXIS. THE DEFLECTION VOLTAGE WAS PROGRAMMED FOR EITHER A SCAN MODE (ONE STEP PER FRAME) OR A PEAK TRACKING MODE. IN THE SCAN MODE, A COMPLETE SEQUENCE (62 STEPS) WAS OBTAINED IN 20.5 SEC.

----- ATS 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 03/10/75.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)-

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

PI - F.S. MOZER .....U OF CALIF, BERKELEY  
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 165 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 SPECIES ANALYSIS WAS PERFORMED BY A THREE-CHANNEL PULSE-HEIGHT ANALYZER, AND PARTICLE COUNTS WERE TELEMETERED 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 5.12 SEC, DEPENDING ON A COMMANDABLE READOUT MODE. FOR FURTHER INFORMATION CONSULT -- 'DEVELOPMENT OF A DOUBLE-LAYERED SCINTILLATOR FOR SEPARATING AND DETECTING LOW-ENERGY PROTONS AND ELECTRONS.' BY F. S. MOZER, F. H. BOGOTT, AND C. W. BATES, JR., IEEE TRANS, ON NUCL. SCI., VOL NS-15, P 144, 1965.

----- ATS 5, SHARP -----

EXPERIMENT NAME- PROTON ELECTRON DETECTOR

NSSDC ID- 69-069A-05

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT A SUBSTANDARD DATA ACQUISITION RATE SINCE 03/10/75.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS DISCIPLINE(S)-

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

PI - R.D. SHARP .....LCKKHEED PALO ALTO PALO ALTO, CA
OI - J.B. REGAN .....LCKKHEED 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 BETWEEN 0.5 TO 50 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 ATS-5 WAS SPIN STABILIZED, THIS DETECTOR WAS COMPLETELY REDUNDANT. THE REMAINDER OF THE EXPERIMENT CONTINUES TO PERFORM NORMALLY (MARCH, 1971).

----- ATS 5, SUGIURA -----

EXPERIMENT NAME- MAGNETIC FIELD MONITOR

NSSDC ID- 69-069A-13

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS DISCIPLINE(S)- PARTICLES AND FIELDS

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

PI - M. SUGIURA .....NASA-GSFC GREENBELT, MD
OI - R.A. LANGEL .....NASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS DESIGNED TO STUDY THE PROCESSES TAKING PLACE ON THE AURORAL MAGNETIC SHELLS. IT WAS ALSO INTENDED TO PROVIDE CORRELATIVE DATA FOR THE OTHER EXPERIMENTS ON THE SATELLITE. THE EXPERIMENT WAS PART OF THE MAGNETIC STABILIZATION SYSTEM THAT WAS THE BACKUP FOR THE GRAVITY-GRADIENT STABILIZATION SYSTEM. THE SENSOR SYSTEM CONSISTED OF A TRIAXIAL FLUXGATE MAGNETOMETER. THE SYSTEM MEASURED THE MAGNETIC FIELD ALONG THREE AXES BY COMBINING A FINE RANGE (PLUS AND MINUS 25 GAMMAS) AND A COARSE RANGE OF 32 INCREMENTS (32.8 GAMMAS EACH) TO GIVE THE TOTAL RANGE OF PLUS AND MINUS 500 GAMMAS. THE FINE AND COARSE READINGS WERE SAMPLED ON THE PFM TELEMETRY AT 5.12-SEC INTERVALS. THE FINE READINGS ONLY WERE RECORDED ON THE PCM TELEMETRY AT 2.97-SEC INTERVALS. THE PCM COARSE READINGS WERE SUBCOMMUTATED AT 95-SEC INTERVALS. A 10-GAMMA CALIBRATION PULSE WAS INITIATED TWICE A DAY FOR 5.6 MIN. THE FAST SPIN RATE OF THE SATELLITE, THE SLOW SAMPLE RATE OF THE DATA, AND THE RESULTING ALIASING PROBLEMS DEGRADED THE DATA IN THE SPIN PLANE. THE MAGNETOMETER ITSELF HAD OPERATED SATISFACTORILY SINCE LAUNCH AND HAD ABOUT A 50 PERCENT COVERAGE UP TO THE TIME WHEN REGULARLY SCHEDULED DATA ACQUISITION WAS DISCONTINUED.

\*\*\*\*\* ATS 6 \*\*\*\*\*

SPACECRAFT COMMON NAME- ATS 6
ALTERNATE NAMES- PL-721A, ATS-F, ATS-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- 530. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- TITAN 3C

SPCNSCRING COUNTRY/AGENCY
UNITED STATES NASA-DA

INITIAL ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 05/30/74
ORBIT PERIOD- 1440. MIN INCLINATION- 1.82 DEG
PERIAPSIS- 42157. KM ALT APOAPSIS- 42168. KM ALT

RECENT ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 02/23/75
ORBIT PERIOD- 1436.1 MIN INCLINATION- 1.127 DEG
PERIAPSIS- 35763.4 KM ALT APOAPSIS- 35808.1 KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)
PM - A.H. SABELHAUS .....NASA-GSFC GREENBELT, MD
PS - E.A. WOLFF .....NASA-GSFC GREENBELT, MD

SPACECRAFT BRIEF DESCRIPTION
THE PRIMARY OBJECTIVES OF ATS-6 (APPLICATIONS TECHNOLOGY SATELLITE) WERE TO ERECT 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 ATS-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 HUSING 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 PRIME MEANS FOR TORQUING THE SPACECRAFT, WITH BOTH HYDRAZINE AND AMMONIA MULTIJET 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 94.41 DEG W LONGITUDE.

----- ATS 6, COLEMAN, JR. -----

EXPERIMENT NAME- MAGNETOMETER EXPERIMENT

NSSDC ID- 74-039A-02

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS DISCIPLINE(S)- PARTICLES AND FIELDS

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

PI - P.J. COLEMAN, JR. .....U OF CALIF, LA LOS ANGELES, CA
OI - W.D. CUMMINGS .....GRAMBLING COLLEGE GRAMBLING, LA

EXPERIMENT BRIEF DESCRIPTION
THE MAGNETIC FIELD AT SYNCHRONOUS ALTITUDE WAS MEASURED WITH THREE ORTHOGONAL FLUXGATE MAGNETOMETERS MOUNTED SYMMETRICALLY WITH RESPECT TO THE SOLAR PANELS ON A 5-M BOOM. SINCE THE SPACECRAFT DIMENSIONS INCLUDING THE ANTENNA AND SOLAR PANELS WERE LARGER THAN THE BOOM DIMENSIONS, IT WAS EXPECTED THAT THE MAGNETOMETER RESIDED IN A SIGNIFICANT SPACECRAFT FIELD. THE INSTRUMENT OPERATED BY PROVIDING BIASING COILS TO NULL THE MAGNETIC FIELD TO WITHIN PLUS OR MINUS 32 GAMMA, AND THE REMAINING FIELD WAS DIGITIZED TO 1/16 GAMMA. EIGHT VECTOR SAMPLES WERE TELEMETERED PER SEC. THE INSTRUMENT OPERATED WITH A LOWPASS DIGITAL FILTER TO REMOVE THE ALIASING EFFECT. THE 20DB POINT OF THE FILTER WAS VARIABLE BY GROUND COMMAND AND WAS 1, 4, OR 12 HZ. THERE WAS ALSO AN INFLIGHT CALIBRATION MECHANISM. THE INSTRUMENT HAS PERFORMED ADEQUATELY SINCE LAUNCH (11/11/74).

----- ATS 6, DAVIES -----

EXPERIMENT NAME- RADIO BEACON

NSSDC ID- 74-039A-09

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 10/01/74.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS DISCIPLINE(S)- IONOSP. + RADIO PHYSIC

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

PI - K. DAVIES .....NOAA-ERL BOULDER, CO

OI - R.B. FRITZ .....NOAA-ERL  
BOULDER, CO  
CI - R.N. GRUBB .....NOAA-ERL  
BOULDER, CO

EXPERIMENT BRIEF DESCRIPTION  
THE PURPOSE OF THIS EXPERIMENT WAS TO STUDY VARIATIONS OF IONOSPHERIC PARAMETERS (TOTAL ELECTRON CONTENT, SCINTILLATION, IREGLARITIES, AND ABSORPTION) WITH TIME AND SOLAR AND MAGNETIC ACTIVITY, AND TO STUDY THE RELATION OF THESE VARIATIONS TO IONOSPHERIC PROCESSES. THE RADIC BEACON EXPERIMENT PROVIDES THREE COHERENT CARRIER FREQUENCIES (40.0160 MHZ, 140.056 MHZ AND 360.1440 MHZ) FOR INVESTIGATION OF PARTICLES AFFECTING RADIO PROPAGATION. THE BEACON WAS DESIGNED FOR SEVERAL TYPES OF MEASUREMENTS, PRINCIPALLY FARADAY ROTATION, DIFFERENTIAL PHASE (DCPLER), PHASE AND AMPLITUDE SCINTILLATION, AND SIGNAL AMPLITUDE (ABSORPTION). THE 40-MHZ CARRIER WAS AMPLITUDE STABILIZED TO ENABLE ACCURATE ABSORPTION MEASUREMENTS TO BE MADE. DIFFERENTIAL FARADAY MEASUREMENTS WERE POSSIBLE WITH CARRIERS AND SIDEBANDS. THE MODE OF OPERATION CALLED FOR CONTINUOUS EMISSION ON ALL FREQUENCIES. RESEARCH ORGANIZATIONS FROM A NUMBER OF COUNTRIES CONDUCTED STUDIES OF THE RADIC BEACON USING GROUND RECEIVERS BASED ON A UNIT DESIGNED BY THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. GROUND STATIONS RANGING FROM COMPUTER-CONTROLLED UNITS TO SIMPLE MANUAL UNITS WERE LOCATED AT POINTS IN NORTH AND SOUTH AMERICA, EUROPE, THE MIDDLE EAST, INDIA, AND AFRICA. MANY OF THE UNITS WERE MOBILE AND MOVED FROM CONTINENT TO CONTINENT TO KEEP THE SPACECRAFT IN SIGHT WHEN ITS ORBIT SHIFTED ALONG THE EQUATOR. INITIAL OPERATION OF THIS EXPERIMENT WAS NOMINAL.

----- ATS 6, FRITZ -----

EXPERIMENT NAME- MEASUREMENT OF LOW-ENERGY PROTONS  
NSSDC ID- 74-039A-01

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 06/10/74.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER  
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)  
PI - T.A. FRITZ .....NOAA-ERL  
BOULDER, CO  
OI - A. KONRADI .....NASA-JSC  
HOUSTON, TX  
OI - D.J. WILLIAMS .....NOAA-ERL  
BOULDER, CO

EXPERIMENT BRIEF DESCRIPTION  
SOLID-STATE DETECTORS MEASURED THE DIRECTIONAL FLUXES OF PROTONS IN THE RANGE OF 20- TO 300-KEV IN SIX ENERGY STEPS.

----- ATS 6, MASLEY -----

EXPERIMENT NAME- SOLAR COSMIC RAYS AND GEOMAGNETICALLY TRAPPED RADIATION  
NSSDC ID- 74-039A-06

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 06/14/74.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER  
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)  
PI - A.J. MASLEY .....MCDONNELL-DCUGLAS CORP  
HUNTINGTON BEACH, CA  
OI - P.R. SATTEBELCH .....MCDONNELL-DCUGLAS CORP  
HUNTINGTON BEACH, CA

EXPERIMENT BRIEF DESCRIPTION  
TWO SOLID-STATE TELESCOPES, ONE DIRECTED PERPENDICULAR TO AND THE OTHER DIRECTED PARALLEL TO THE LOCAL MAGNETIC FIELD DIRECTION. EACH MEASURED PROTONS FROM 0.2 TO 300 MEV IN 12 ENERGY INTERVALS AND ALPHA PARTICLES FROM 1.2 TO 180 MEV IN 10 ENERGY INTERVALS. TWO MAGNETIC ELECTRON SPECTROMETERS, ORIENTED PARALLEL TO THE TWO TELESCOPES, WILL MEASURE ELECTRONS FROM 50 TO 800 KEV IN FOUR ENERGY INTERVALS.

----- ATS 6, MCILWAIN -----

EXPERIMENT NAME- AURORAL PARTICLES EXPERIMENT  
NSSDC ID- 74-039A-05

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 06/15/74.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER  
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)  
PI - C.E. MCILWAIN .....U OF CALIF, SAN DIEGO  
SAN DIEGO, CA  
OI - R.W. FILLIUS .....U OF CALIF, SAN DIEGO  
SAN DIEGO, CA

EXPERIMENT BRIEF DESCRIPTION  
A QUADRISPHERICAL ELECTROSTATIC ANALYZER AND ASSOCIATED CHANNELTRON MEASURED ELECTRONS AND PROTONS FROM THERMAL

ENERGIES TO 80 KEV IN 62 OVERLAPPING STEPS OVER A RANGE OF DIFFERENT PITCH ANGLES.

----- ATS 6, PAULIKAS -----

EXPERIMENT NAME- OMNIDIRECTIONAL SPECTROMETER  
NSSDC ID- 74-039A-07

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 06/14/74.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER  
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)  
PI - G.A. PAULIKAS .....AEROSPACE CORP  
EL SEGUNDO, CA  
OI - J.B. BLAKE .....AEROSPACE CORP  
EL SEGUNDO, CA

EXPERIMENT BRIEF DESCRIPTION  
THE PURPOSE OF THIS EXPERIMENT WAS TO MEASURE THE OMNIDIRECTIONAL FLUXES AND SPECTRA OF ELECTRONS AND PROTONS. FOUR DETECTORS COUNTED PROTONS FROM 2 OR 3 TO 10 MEV, 10 TO 21 MEV, 20 TO 40 MEV, AND 40 TO 80 MEV. THEY ALSO COUNTED, RESPECTIVELY, ELECTRONS OF ENERGIES GREATER THAN 80 KEV AND 250 KEV, 600 KEV, 1.2 MEV, AND 4 MEV.

----- ATS 6, WINCKLER -----

EXPERIMENT NAME- PARTICLE ACCELERATION MECHANISMS AND DYNAMICS OF THE OUTER TRAPPING REGION  
NSSDC ID- 74-039A-04

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 06/14/74.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- PARTICLES AND FIELDS

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER  
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)  
PI - J.R. WINCKLER .....U OF MINNESOTA  
MINNEAPOLIS, MN  
OI - G.K. PARKS .....U OF WASHINGTON  
SEATTLE, WA

EXPERIMENT BRIEF DESCRIPTION  
THIS EXPERIMENT INVESTIGATED THE ORIGIN OF THE VAN ALLEN TRAPPED RADIATION. IT CONSISTED OF A MAGNETIC DEFLECTION SEPARATION SYSTEM AND A SOLID-STATE PARTICLE COUNTER SYSTEM. THE PARTICLE COUNTERS HAD DIRECTIONAL CAPABILITIES SO THAT PARTICLE PITCH ANGLES COULD BE DETERMINED. THE SYSTEM RESPONDED TO PROTONS IN THE RANGES 20 TO 50 KEV, 50 TO 150 KEV, AND 150 TO 500 KEV, AND TO ELECTRONS IN THE RANGES 20 TO 40 KEV, 100 TO 200 KEV, AND 1.0 TO 1.5 MEV.

\*\*\*\*\* EGRET \*\*\*\*\*

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- 1819. KG  
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES  
LAUNCH VEHICLE- SHUTTLE

SPONSORING COUNTRY/AGENCY  
UNITED STATES NASA-OSS

PLANNED ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC  
ORBIT PERIOD- 70. MIN INCLINATION- 28.5 DEG  
PERIAPSIS- 6874. KM ALT APOAPSIS- 6874. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)  
PM - F.J. CEPOLLINA .....NASA-GSFC  
GREENBELT, MD  
PS - C. FICHEL .....NASA-GSFC  
GREENBELT, MD  
MG - J. HOLTZ .....NASA HEADQUARTERS  
WASHINGTON, DC  
SC - A. OPP .....NASA HEADQUARTERS  
WASHINGTON, DC

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 25 TO 3E4 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- 00/00/75 SPACECRAFT WEIGHT- KG
LAUNCH SITE-
LAUNCH VEHICLE-

SPONSORING COUNTRY/AGENCY
UNITED STATES NASA-CSS

PLANNED ORBIT PARAMETERS

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

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)
PM - D.W. GRIMES .....NASA-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 BIT 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.

\*\*\*\*\* HAWKEYE 1 \*\*\*\*\*

SPACECRAFT COMMON NAME- HAWKEYE 1
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
UNITED STATES NASA-OSS

INITIAL ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/03/74
ORBIT PERIOD- 3022. MIN INCLINATION- 89.78 DEG
PERIAPSIS- 6848. KM ALT APOAPSIS- 131948. KM ALT

RECENT ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC EPOCH DATE- 02/25/75
ORBIT PERIOD- 3076.6 MIN INCLINATION- 89.7 DEG
PERIAPSIS- 2998. KM ALT APOAPSIS- 124388. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)
PM - J.E. ROGERS .....U OF IOWA
IOWA CITY, IA

PM - C.W. COFFEE, JR. ....NASA-LARC
HAMPTON, VA
PS - J.A. VAN ALLEN .....U OF IOWA
IOWA CITY, IA

MG - J.R. HOLTZ .....NASA HEADQUARTERS
WASHINGTON, DC
SC - L.D. KAVANAGH .....NASA HEADQUARTERS
WASHINGTON, DC

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 6 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.

\*\*\*\*\* HELIOS-A \*\*\*\*\*

SPACECRAFT COMMON NAME- HELIOS-A
ALTERNATE NAMES- HELIO-A, PL-741A
NSSDC ID- 74-097A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 12/10/74.

LAUNCH DATE- 12/10/74 SPACECRAFT WEIGHT- 210. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- TITAN-CENT

SPONSORING COUNTRY/AGENCY
FED REP OF GERMANY BMWF
UNITED STATES NASA-OSS

INITIAL ORBIT PARAMETERS

ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 01/16/75
ORBIT PERIOD- 190.2 DAYS INCLINATION- 0.02 DEG
PERIAPSIS- 0.3095 AU RAD APOAPSIS- 0.985 AU RAD

RECENT ORBIT PARAMETERS

ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 01/16/75
ORBIT PERIOD- 190.2 DAYS INCLINATION- 0.02 DEG
PERIAPSIS- 0.3095 AU RAD APOAPSIS- 0.985 AU RAD

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)
PM - A. KUTZER .....GES FUR WELTRAUMFORSCH
BDNN, FED REP OF GERMANY

PM - G.W. GUSLEY .....NASA-GSFC
GREENBELT, MD
PS - H. PORSCHKE .....ORG FOR SPACE RES
MUNICH, FED REP OF GERMANY

PS - J.H. TRAINOR .....NASA-GSFC
GREENBELT, MD
MG - F.D. KOCHENDORFER .....NASA HEADQUARTERS
WASHINGTON, DC

SC - A.G. OPP .....NASA HEADQUARTERS
WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION

THE HELIOS-A SPACECRAFT IS DESIGNED AS A SOLAR PROBE TO CARRY SCIENTIFIC EXPERIMENTS ON AN INTERPLANETARY MISSION APPROACHING TO ABOUT 0.3 AU OF THE SUN. THE EXPERIMENTS WILL BE PROVIDED BY A GROUP OF GERMAN AND AMERICAN SCIENTISTS, WITH NASA SUPPLYING THE TITAN CENTAUR LAUNCH VEHICLE AND THE FEDERAL REPUBLIC OF GERMANY SUPPLYING THE SPACECRAFT.

----- HELIOS-A, GURNETT -----

EXPERIMENT NAME- RADIO FREQUENCY ELECTRIC FIELDS IN SOLAR PLASMA

NSSDC ID- 74-097A-13

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY
AT THE STANDARD DATA ACQUISITION RATE SINCE 12/10/74.

OSS DIVISION- PLANETARY PROGRAMS PARTICLES AND FIELDS
DISCIPLINE(S)- IONOSPHERES

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

PI - D.A. GURNETT .....U OF IOWA
IOWA CITY, IA

OI - S.J. BAUER .....NASA-GSFC
GREENBELT, MD

OI - P.S. KELLOGG .....U OF MINNESOTA
MINNEAPOLIS, MN

OI - R.G. STONE .....NASA-GSFC
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT MEASURED THE SPECTRUM OF THE ELECTRIC FIELD IN 16 CHANNELS IN THE PLASMA FREQUENCY RANGE (10 HZ TO 100 KHZ) AND CONTINUOUSLY IN THE RADIO FREQUENCY RANGE (50 KHZ TO 2 MHZ). THE OBJECTIVES OF THIS EXPERIMENT WERE TO ANALYZE (1) THE SPATIAL AND TEMPORAL VARIATIONS IN ELECTRIC FIELD FLUCTUATIONS ALONG THE TRAJECTORY OF THE PROBE, (2) THE RELATIONSHIP OF THE FREQUENCY AND CHARACTERISTICS OF THE PLASMA NOISE WITH SOLAR WIND CHARACTERISTICS AND CORONA ACTIVITIES, AND (3) TO OBSERVE SOLAR RADIO-NOISE BURSTS AND TO CORRELATE THEM WITH SOLAR COSMIC RAYS. A DIPOLE ANTENNA PERPENDICULAR TO THE SPIN AXIS OF THE PROBE PROVIDED THE COUPLING TO THE PLASMA. THE ELECTRIC FIELD SIGNAL WAS PROCESSED BY TWO SPECTRUM ANALYZERS AND A DUAL SWEEP-FREQUENCY RADIOMETER.

\*\*\*\*\* HELIOS-B \*\*\*\*\*

SPACECRAFT COMMON NAME- HELIOS-B
ALTERNATE NAMES- HELIO-B, PL-751A
NSSDC ID- HELIO-B

LAST REPORTED STATE- AN APPROVED MISSION

LAUNCH DATE- JAN. 76 SPACECRAFT WEIGHT- 210. KG
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES
LAUNCH VEHICLE- TITAN-CENT

SPONSORING COUNTRY/AGENCY  
FED REP OF GERMANY BMWF  
UNITED STATES NASA-CSS

PLANNED ORBIT PARAMETERS  
ORBIT TYPE- HELIOCENTRIC  
ORBIT PERIOD- 162. DAYS INCLINATION- 0. DEG  
PERIAPSIS- 0.3 AU RAD APDAPSIS- AU RAD

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)  
PM - A. KUTZER .....GES FUR WELTRAUMFORSCH  
BONN, FED REP OF GERMANY  
PH - G.W. OUSLEY .....NASA-GSFC  
GREENBELT, MD  
PS - H. PORSCHE .....CRG FOR SPACE RES  
MUNICH, FED REP OF GERMANY  
PS - J.H. TRAINOR .....NASA-GSFC  
GREENBELT, MD  
MG - F.D. KOCHENDORFER .....NASA HEADQUARTERS  
WASHINGTON, DC  
SC - A.G. OPP .....NASA HEADQUARTERS  
WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION  
THE HELIOS-B SPACECRAFT IS DESIGNED AS A SOLAR PROBE TO  
CARRY SCIENTIFIC EXPERIMENTS ON AN INTERPLANETARY MISSION  
APPROACHING TO ABOUT 0.3 AU OF THE SUN. THE EXPERIMENTS WILL  
BE PROVIDED BY A GROUP OF GERMAN AND U.S. SCIENTISTS, WITH  
NASA SUPPLYING THE TITAN CENTAUR LAUNCH VEHICLE AND THE  
FEDERAL REPUBLIC OF GERMANY SUPPLYING THE SPACECRAFT.

----- HELIOS-B, GURNEIT -----

EXPERIMENT NAME- RADIO FREQUENCY ELECTRIC FIELDS IN SOLAR  
PLASMA

NSSDC ID- HELIO-B-13  
LAST REPORTED STATE- APPROVED

OSS DIVISION- PLANETARY PROGRAMS  
DISCIPLINE(S)- IONOSPHERES PARTICLES AND FIELDS  
PARTICLES AND FIELDS IONOSPHERES

EXPERIMENT PERSONNEL (PI=PRINCIPAL INVESTIGATOR, TL=TEAM LEADER  
OI=OTHER INVESTIGATOR, TM=TEAM MEMBER)  
PI - D.A. GURNEIT .....U OF IOWA  
IOWA CITY, IA  
OI - S.J. BAUER .....NASA-GSFC  
GREENBELT, MD  
OI - P.S. KELLOGG .....U OF MINNESOTA  
MINNEAPOLIS, MN  
OI - R.G. STONE .....NASA-GSFC  
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION  
THIS EXPERIMENT MEASURED THE SPECTRUM OF THE ELECTRIC  
FIELD IN 16 CHANNELS IN THE PLASMA FREQUENCY RANGE (10 HZ TO  
100 KHZ) AND CONTINUOUSLY IN THE RADIO FREQUENCY RANGE (50 KHZ  
TO 2 MHZ). THE OBJECTIVES OF THIS EXPERIMENT WERE TO ANALYZE  
(1) THE SPATIAL AND TEMPORAL VARIATIONS IN ELECTRIC FIELD  
FLUCTUATIONS ALONG THE TRAJECTORY OF THE PROBE, (2) THE  
RELATIONSHIP OF THE FREQUENCY AND CHARACTERISTICS OF THE  
PLASMA NOISE WITH SOLAR WIND CHARACTERISTICS AND CORONA  
ACTIVITIES, AND (3) TO OBSERVE SOLAR RADIO-NOISE BURSTS AND TO  
CORRELATE THEM WITH SOLAR COSMIC RAYS. A DIPOLE ANTENNA  
PERPENDICULAR TO THE SPIN AXIS OF THE PROBE PROVIDED THE  
COUPLING TO THE PLASMA. THE ELECTRIC FIELD SIGNAL WAS  
PROCESSED BY TWO SPECTRUM ANALYZERS AND A DUAL SWEEP-FREQUENCY  
RADIOMETER.

\*\*\*\*\* ONE METER UV TELESCOPE \*\*\*\*\*

SPACECRAFT COMMON NAME- ONE METER UV TELESCOPE  
ALTERNATE NAMES- SPACELAB ASTRONOMY MISS, SPACELAB IM UV TELESC  
NSSDC ID- DMUVEL

LAST REPORTED STATE- A PROPOSED MISSION

LAUNCH DATE- 1982 SPACECRAFT WEIGHT- KG  
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES  
LAUNCH VEHICLE- SHUTTLE

SPONSORING COUNTRY/AGENCY  
UNITED STATES NASA-CSS

PLANNED ORBIT PARAMETERS  
ORBIT TYPE- GEOCENTRIC  
ORBIT PERIOD- 90. MIN INCLINATION- 25. DEG  
PERIAPSIS- 300. KM ALT APDAPSIS- 300. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)  
PM - D.S. LECKRONE .....NASA-GSFC  
GREENBELT, MD  
SC - J.D. ROSENDAHL .....NASA HEADQUARTERS  
WASHINGTON, DC

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 IM  
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, HENIZE -----

EXPERIMENT NAME- INSTRUMENT DEFINITION TEAM

NSSDC ID- CMUVEL-01

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- ASTRONOMY

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

TL - K.G. HENIZE .....NASA-JSC  
HOUSTON, TX  
TM - A.M. SMITH .....NASA-GSFC  
GREENBELT, MD  
TM - C.M. ANDERSON .....U OF WISCONSIN  
MADISON, WI  
TM - R.W. O'CONNELL .....U OF VIRGINIA  
CHARLOTTESVILLE, VA  
TM - E.B. JENKINS .....PRINCETON U  
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,  
IM 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.

\*\*\*\*\* PIONEER 10 \*\*\*\*\*

SPACECRAFT COMMON NAME- PIONEER 10  
ALTERNATE NAMES- PIONEER-F, PL-7230  
05860  
NSSDC ID- 72-012A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY  
AT THE STANDARD DATA ACQUISITION RATE SINCE 03/03/72.

LAUNCH DATE- 03/03/72 SPACECRAFT WEIGHT- 231. KG  
LAUNCH SITE- CAPE CANAVERAL, UNITED STATES  
LAUNCH VEHICLE- ATLAS-CENT

SPONSORING COUNTRY/AGENCY  
UNITED STATES NASA-OSS

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - C.F. HALL .....NASA-ARC  
MOFFETT FIELD, CA  
PS - J.H. WOLFE .....NASA-ARC  
MOFFETT FIELD, CA  
MG - F.D. KOCHENDORFER .....NASA HEADQUARTERS  
WASHINGTON, DC  
SC - A.G. OPP .....NASA HEADQUARTERS  
WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION

PIONEER 10 WAS THE FIRST OF TWO 258-KG, SPIN-STABILIZED  
(AT 4.8 RPM), EARTH-POINTING SPACECRAFT DESIGNED TO PROVIDE  
INFORMATION ON THE INTERPLANETARY MEDIUM, THE ASTEROID BELT,  
AND JUPITER AND ITS ENVIRONMENT. THE SPACECRAFT COMPLEMENT OF  
11 EXPERIMENTS INCLUDED PLASMA AND ENERGETIC PARTICLE  
DETECTORS, A MAGNETOMETER, METEOROID DETECTORS, AN IMAGING  
PHOTOPOLARIMETER, A UV PHOTOMETER AND AN IR RADIOMETER.  
PASSIVE IONOSPHERIC OCCULTATION AND CELESTIAL MECHANICS  
STUDIES WERE ALSO CARRIED OUT. POWER WAS PROVIDED BY FOUR  
BCCM-MOUNTED RADIOISOTOPE THERMOELECTRIC GENERATORS. EIGHT BIT  
RATES (8 TO 2048 BPS) WERE AVAILABLE. DURING JOVIAN ENCOUNTER  
THE BIT RATE WAS 1024 BPS. PIONEER 10 CROSSED THE JOVIAN BOW  
SHOCK AT ABOUT 108 PLANETARY RADII ON NOVEMBER 26, 1973.  
ALMOST 21 MONTHS AFTER LAUNCH AND AFTER SURVIVING ITS TRANSIT  
OF THE ASTEROID BELT WITH NO DAMAGE. CLOSEST APPROACH  
OCCURRED ON DECEMBER 4, 1973, AT 130,000 KM (1.8 PLANETARY  
RADII) ABOVE THE CLOUD TOPS. FINAL EXIT FROM THE JOVIAN  
MAGNETOSHEATH OCCURRED AT ABOUT 240 PLANETARY RADII. DESPITE  
THE INTENSE FLUXES OF VERY ENERGETIC PARTICLES, THE SPACECRAFT  
SYSTEMS (EXCEPT THE SPACECRAFT STELLAR REFERENCE ASSEMBLY) AND  
EXPERIMENTS (EXCEPT FOR THE ASTEROID-METEOROID DETECTOR)  
SURVIVED THE JOVIAN ENCOUNTER WELL. THE SPACECRAFT IS NOW ON  
A TRAJECTORY OF ESCAPE FROM THE SOLAR SYSTEM. IT IS EXPECTED

TO TRANSMIT DATA UNTIL 1977, WHEN THE SPACECRAFT WILL BE ABOUT 20 AU AWAY.

----- PIONEER 10, GEHRELS -----

EXPERIMENT NAME- HIGH RESOLUTION PHOTO-IMAGING OF JUPITERS CLOUD COVER

NSSDC ID- 72-012A-15

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 03/03/72.

OSS DIVISION- PLANETARY PROGRAMS DISCIPLINE(S)- ASTRONOMY PLANETARY ATMOSPHERES PLANETOLOGY

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

PI - T. GEHRELS .....U OF ARIZONA TUCSON, AZ
OI - D.L. COFFEEN .....NASA-GISS NEW YORK, NY
OI - J. HAMEEN-ANTTILA .....U OF ARIZONA TUCSON, AZ
OI - W. SWINDELL .....U OF ARIZONA TUCSON, AZ
OI - R.F. HUMMER .....SANTA BARBARA RES CTR GOLETA, CA
OI - C.E. KENKNIGHT .....U OF ARIZONA TUCSON, AZ
OI - J.L. WEINBERG .....DUDLEY OBS ALBANY, NY

EXPERIMENT BRIEF DESCRIPTION THE OBJECTIVES OF THIS EXPERIMENT WERE TO CONDUCT A HIGH-RESOLUTION PHOTOIMAGING INVESTIGATION OF JUPITER'S CLOUD SURFACE, TO DETERMINE THE AMOUNT OF GAS ABOVE THE CLOUDS, AND TO STUDY THE ZODIACAL LIGHT AND ASTEROIDAL MATERIAL DURING THE FLIGHT TO JUPITER. AN IMAGING PHOTOPOLARIMETER SPIN SCANNED THE SKY DURING THE INTERPLANETARY TRAJECTORY TO MEASURE BRIGHTNESS AND POLARIZATION. A WOLLASTON PRISM MEASURED POLARIMETRY, WHILE BLUE AND RED FILTERS PROVIDED TWO-COLOR IMAGES. AN EYEBALL ON THE TELESCOPE ENABLED THE INSTRUMENT TO TRACK THE PLANET THROUGH 90 DEG DURING ENCOUNTER.

\*\*\*\*\* PIONEER 11 \*\*\*\*\*

SPACECRAFT COMMON NAME- PIONEER 11 ALTERNATE NAMES- PIONEER-G, PL-733C 6421 NSSDC ID- 73-019A

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 04/06/73.

LAUNCH DATE- 04/06/73 SPACECRAFT WEIGHT- 231. KG LAUNCH SITE- CAPE CANAVERAL, UNITED STATES LAUNCH VEHICLE- ATLAS-CENT

SPONSORING COUNTRY/AGENCY UNITED STATES NASA-CSS

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - C.F. HALL .....NASA-ARC MOFFETT FIELD, CA
PS - J.H. WOLFE .....NASA-ARC MOFFETT FIELD, CA
MG - F.D. KOCHENDORFER .....NASA HEADQUARTERS WASHINGTON, DC
SC - A.G. OPP .....NASA HEADQUARTERS WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION PIONEER 11 WAS THE SECOND OF TWO 231-KG, SPIN-STABILIZED EARTH-POINTING SPACECRAFT DESIGNED TO PROVIDE INFORMATION ON THE INTERPLANETARY MEDIUM, THE ASTEROID BELT AND THE NEAR-JUPITER ENVIRONMENT. THIS JUPITER FLY-BY SPACECRAFT WAS POWERED BY A RADIOISOTOPE THERMOELECTRIC GENERATOR AND A BATTERY. THE SPACECRAFT INSTRUMENTATION STUDIED THE INTERPLANETARY AND POSSIBLE JOVIAN MAGNETIC FIELDS, THE SOLAR WIND AND JOVIAN BCW SHOCK AND MAGNETOPAUSE BOUNDARIES, SOLAR AND GALACTIC COSMIC RAYS, INTERPLANETARY CHARGED PARTICLES AND POSSIBLE JOVIAN TRAPPEC RADIATION, JOVIAN THERMAL ENERGY FLUX, ZODIACAL LIGHT, ASTEROIDS AND METEORIDS, AND INTERPLANETARY AND JOVIAN ULTRAVIOLET RADIATION. AN S-BAND OCCULTATION EXPERIMENT AND A JUPITER IMAGING AND PHOTOPOLARIZATION EXPERIMENT WERE PERFORMED. THE SPACECRAFT EXPERIENCED CLOSEST JUPITER APPROACH (0.6 PLANETARY RADII FROM SURFACE) ON DECEMBER 3, 1974 WITH MINIMAL RADIATION DAMAGE. THE SPACECRAFT IS NOW APPROACHING A SEPT. 1979 SATURN ENCOUNTER.

----- PIONEER 11, GEHRELS -----

EXPERIMENT NAME- HIGH RESOLUTION PHOTO-IMAGING OF JUPITERS CLOUD COVER

NSSDC ID- 73-019A-16

LAST REPORTED STATE- LAUNCHED AND OPERATING NORMALLY AT THE STANDARD DATA ACQUISITION RATE SINCE 04/06/73.

OSS DIVISION- PLANETARY PROGRAMS DISCIPLINE(S)- ASTRONOMY PLANETARY ATMOSPHERES

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

PI - T. GEHRELS .....U OF ARIZONA TUCSON, AZ
OI - D.L. COFFEEN .....NASA-GISS NEW YORK, NY
OI - J. HAMEEN-ANTTILA .....U OF ARIZONA TUCSON, AZ
OI - W. SWINDELL .....U OF ARIZONA TUCSON, AZ
OI - R.F. HUMMER .....SANTA BARBARA RES CTR GOLETA, CA
OI - C.E. KENKNIGHT .....U OF ARIZONA TUCSON, AZ
OI - J.L. WEINBERG .....DUDLEY OBS ALBANY, NY

EXPERIMENT BRIEF DESCRIPTION THE OBJECTIVES OF THIS EXPERIMENT WERE TO CONDUCT A HIGH-RESOLUTION PHOTOIMAGING INVESTIGATION OF JUPITER'S CLOUD SURFACE, TO DETERMINE THE AMOUNT OF GAS ABOVE THE CLOUDS, AND TO STUDY THE ZODIACAL LIGHT AND ASTEROIDAL MATERIAL DURING THE FLIGHT TO JUPITER. AN IMAGING PHOTOPOLARIMETER SPIN-SCANNED THE SKY DURING THE INTERPLANETARY TRAJECTORY TO MEASURE BRIGHTNESS AND POLARIZATION. A WOLLASTON PRISM MEASURED POLARIMETRY WHILE BLUE AND RED FILTERS PROVIDED TWO-COLOR IMAGES. AN EYEBALL ON THE TELESCOPE ENABLED THE INSTRUMENT TO TRACK THE PLANET THROUGH 90 DEG DURING ENCOUNTER.

\*\*\*\*\* RAE-B \*\*\*\*\*

SPACECRAFT COMMON NAME- RAE-B ALTERNATE NAMES- RADIO ASTRONOMY EXPLORER, PL-693B EXPLORER 49, 06686 6686

NSSDC 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-OSS

INITIAL ORBIT PARAMETERS ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 06/21/73 ORBIT PERIOD- 221.17 MIN INCLINATION- 55.7 DEG PERIAPSIS- 1052.98 KM ALT APOAPSIS- 1063.84 KM ALT

RECENT ORBIT PARAMETERS ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 02/24/75 ORBIT PERIOD- 221.9 MIN INCLINATION- 67.1 DEG PERIAPSIS- 1044. KM ALT APOAPSIS- 1085. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

PM - J.T. SHEA .....NASA-GSFC GREENBELT, MD
PS - R.G. STONE .....NASA-GSFC GREENBELT, MD
MG - J.R. HOLTZ .....NASA HEADQUARTERS WASHINGTON, DC
SC - N.G. ROMAN .....NASA HEADQUARTERS WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION THE RAE-B SPACECRAFT MEASURED WITH DIRECTIVITY THE INTENSITY OF CELESTIAL RADIO SOURCES AS A FUNCTION OF TIME, DIRECTION, AND FREQUENCY (0.03 TO 13 MHZ). THREE RAPID-BURST RECEIVERS, TWO RYLE-VONBERG RECEIVERS, AND AN IMPEDANCE PROBE CONNECTED TO TWO 229-M LONG 'V' ANTENNAS AND A 37-M LONG DIPOLE 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.

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS DISCIPLINE(S)- ASTRONOMY PLANETARY ATMOSPHERES SOLAR PHYSICS

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

PI - R.G. STONE .....NASA-GSFC GREENBELT, MD
OI - J.K. ALEXANDER, JR. ....NASA-GSFC GREENBELT, MD
OI - J. FAINBERG .....NASA-GSFC GREENBELT, MD
OI - J.F. CLARK .....NASA-GSFC GREENBELT, MD
OI - H. MALITSON .....NASA-GSFC GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION

A 32-CHANNEL STEP FREQUENCY RADIOMETER WAS CONNECTED TO EACH ANTENNA (2 'V' ANTENNAE, 225-M LONG, 1 DIPOLE, 39-M LONG) AND MEASURED THE AMPLITUDES, RATES OF CHANGE OF FREQUENCY, AND DECAY TIMES OF SOLAR BURSTS AND OTHER RAPIDLY VARYING NOISE IN THE 0.025 TO 13 MHZ BAND. OPERATING IN THE SENSITIVITY MODES, THESE RECEIVERS MEASURED SIGNALS UP TO 60 DB ABOVE THE COSMIC BACKGROUND LEVEL. THE 32 CHANNELS WERE SAMPLED EVERY 7.68 SEC ON THE 'V' ANTENNAE AND EVERY 3.84 SEC ON THE DIPOLE ANTENNAE.

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

EXPERIMENT NAME- CAPACITANCE PRBCE

NSSDC ID- 73-035A-02

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

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS DISCIPLINE(S)- ASTRONOMY IONOSPHER. + RADIC PHYSIC

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

- PI - R.G. STONE .....NASA-GSFC GREENBELT, MD
OI - J.L. DONLEY .....NASA-GSFC GREENBELT, MD
OI - J.E. GUTHRIE .....NASA-GSFC GREENBELT, MD
OI - J.A. KANE .....NASA-GSFC GREENBELT, MD
OI - R.C. SOMERLOCK .....NASA-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- SMM

NSSDC ID- SMM

LAST REPORTED STATE- A PROPOSED MISSION

LAUNCH DATE- MID 1978 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- 28. DEG
PERIAPSIS- 6828. KM ALT APOAPSIS- 6828. KM ALT

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST, MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)

- PS - K.J. FROST .....NASA-GSFC GREENBELT, MD
MG - M.E. MCDONALD .....NASA HEADQUARTERS WASHINGTON, DC
SC - S.D. JORDAN .....NASA-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 SMM SPACECRAFT WILL BE DESIGNED SO THAT IT CAN BE RETRIEVED BY AN EARLY SHUTTLE FLIGHT, RETURNED TO EARTH, REPAIRISHED AND FITTED WITH AN UPDATED PAYLOAD, AND RETURNED TO ORBIT FOR ANOTHER SOLAR ORIENTED MISSION. AT PRESENT (MARCH, 1975) THE SMM 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- SCFT X-RAY SPECTROMETER

NSSDC ID- SMM -07

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS

DISCIPLINE(S)- SOLAR PHYSICS

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

- PI - L. ACTON .....LOCKHEED PALC ALTO PALO ALTO, CA
OI - R.C. CATURA .....LOCKHEED PALC ALTO PALO ALTO, CA
OI - C. WOLFSON .....LOCKHEED PALC ALTO PALO ALTO, CA

- CI - B.B. JONES .....CULHAM LAB ABINGDON, ENGLAND
OI - C. JORDAN .....CULHAM LAB ABINGDON, ENGLAND
OI - B. FAWCETT .....CULHAM LAB ABINGDON, ENGLAND
OI - A. GABRIEL .....CULHAM LAB ABINGDON, ENGLAND
OI - R.L.F. BOYD .....U COLLEGE LONDON LONDON, ENGLAND
OI - C. RAPLEY .....U COLLEGE LONDON LONDON, ENGLAND
CI - J.L. CULHANE .....U COLLEGE LONDON LONDON, ENGLAND
CI - J. PARKINSON .....U COLLEGE LONDON LONDON, ENGLAND

EXPERIMENT BRIEF DESCRIPTION

THE INSTRUMENT WILL CONSIST OF TWO SETS OF 7 FLAT CRYSTAL AND 8 BENT CRYSTAL SPECTROMETERS (FCS AND BCS, RESPECTIVELY). THE FCS 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 5 ARC-SEC STEPS. THE BCS SYSTEM OBTAINS HIGH-SPECTRAL AND TIME-RESOLVED SPECTRA (0.05 A AND 1.0 SEC, TYPICALLY) OVER A 6 X 6 ARC-MIN FOV. BOTH SYSTEMS WILL BE OPTIMIZED TO PROVIDE 7 SIMULTANEOUS SPECTROHELIOGRAMS (SPECTRA) SPANNING THE 1.38-19.48 A WAVELENGTH RANGE. THESE, IN TURN, WILL INCLUDE MANY STRONG LINES COVERING A TEMPERATURE RANGE OF ABOUT 1.E6 TO 1.E8 K FOR ACTIVE REGION AND FLARE STUDIES. THE FCS MODE OF OPERATION IS INTENDED FOR STUDIES OF CORONAL 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- SMM -03

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS

DISCIPLINE(S)- SOLAR PHYSICS

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

- PI - R. BONNET .....CNRS-LPSP PARIS, FRANCE
OI - J. CHARRA .....CNRS-LPSP PARIS, FRANCE
OI - J. LEIBACKER .....CNRS-LPSP PARIS, FRANCE
OI - P. LEMAIRE .....CNRS-LPSP PARIS, FRANCE
CI - M. MALINOVSKY .....CNRS-LPSP PARIS, FRANCE
OI - D. SAMAIN .....CNRS-LPSP PARIS, FRANCE
CI - J. STENFLO .....U 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, MG II H AND K, CAII K AND 2000 A. HALF-WAVE PLATES WILL PERMIT CIRCULAR POLARIZATION STUDIES, USING THE LY AND MG II H AND K 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 450 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- SMM -13

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS

DISCIPLINE(S)- SOLAR PHYSICS

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

- PI - E. CHUPP .....U OF NEW HAMPSHIRE DURHAM, NH
OI - D. FORREST .....U OF NEW HAMPSHIRE DURHAM, NH
OI - K. PINKAU .....MPI MUNICH, FED REP OF GERMANY
OI - C. REPPIN .....MPI MUNICH, FED REP OF GERMANY

01 - A. JACOBSON .....NASA-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 SIX 7.6 X 7.6 CM NA1 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 0.662 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 2.5 KEV FWHM AND TIME RESOLUTION OF 0.5 SEC. (3) A HIGH-ENERGY, 10-160 MEV SYSTEM USING THE SIX NA1 DETECTORS AND A CSI BACK-DETECTOR OPERATING TOGETHER. RESOLUTION IS E/E 1.0 WITH 1 SEC TIME RESOLUTION.

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

EXPERIMENT NAME- HARD X-RAY IMAGING SPECTROMETER

NSSDC ID- SMM -08

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

PI - C. DE JAGER .....SPACE RESEARCH LAB  
UTRECHT, NETHERLANDS  
OI - H. VAN BEEK .....SPACE RESEARCH LAB  
UTRECHT, NETHERLANDS  
OI - L. DE FEITEN .....SPACE 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 8 X 8 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- HARD X-RAY SPECTROMETER

NSSDC ID- SMM -10

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

PI - K. FROST .....NASA-GSFC  
GREENBELT, MD  
OI - B. DENNIS .....NASA-GSFC  
GREENBELT, MD  
OI - L. DRWIG .....NASA-GSFC  
GREENBELT, MD

EXPERIMENT BRIEF DESCRIPTION  
THE OBJECTIVE OF THIS EXPERIMENT WILL BE TO MEASURE, WITH VERY HIGH TEMPORAL RESOLUTION, THE SPECTRUM OF HARD SOLAR X-RAY FLARES. THE INSTRUMENT WILL BE AN UPDATED VERSION OF THE SUCCESSFUL OSO-5 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, IMHOF -----

EXPERIMENT NAME- HIGH RESOLUTION GAMMA-RAY SCLIC STATE DETECTOR

NSSDC ID- SMM -11

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

PI - W. IMHOF .....LOCKHEED PALC ALTO  
PALO ALTO, CA  
OI - G. NAKANO .....LOCKHEED PALO ALTO  
PALO ALTO, CA  
OI - J. REAGAN .....LOCKHEED PALC ALTO  
PALO ALTO, CA

EXPERIMENT BRIEF DESCRIPTION  
THE INSTRUMENT WILL CONSIST OF A PASSIVELY COOLED SYSTEM OF THREE 80 CC GERMANIUM DETECTORS, COVERING THE 0.1-4.5 MEV RANGE WITH A RESOLUTION OF 2 KEV FWHM AND TIME RESOLUTION OF 1 SEC FOR A DATA RATE OF 325 BPS. 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-POSITON ANNIHILATION LINE AT 511 KEV, A POSITIVE IDENTIFICATION OF THE HYDROGEN NEUTRON CAPTURE LINE AT 2.23 MEV, AND A SEARCH FOR SEVERAL NEW NUCLEAR DEEXCITATION LINES IN THE ENERGY RANGE COVERED AND PREDICTED BY THEORETICAL WORK.

----- SOLAR MAXIMUM MISSION, KOONEN -----

EXPERIMENT NAME- WHITE LIGHT CORONAGRAPH

NSSDC ID- SMM -02

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

PI - M. KOCMEN .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
OI - J. BOHLIN .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
OI - R. HOWARD .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
OI - D. MICHELS .....US 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 USING A SEC VIDICON PHOTOCATHODE. IT WILL PROVIDE A FOV RANGING FROM 2 TO 10 SOLAR RADII, WITH A 512 LINE RASTER WHICH COVERS A 320 ARC-MIN TOTAL FIELD. READOUT AT 765 BPS 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- BROAD RANGE GAMMA-RAY SPECTROMETER

NSSDC ID- SMM -12

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

PI - J. KURFESS .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
OI - W.N. JOHNSON .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
OI - R. KINZER .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
OI - G. SHAU .....US 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 30.5 X 12.7 CM NA1 CRYSTAL MOUNTED IN A 30.5 X 5.1 CM CSI SHIELD-LIGHT PIPE IN A PHOSWICH CONFIGURATION AND SURROUNDED BY A 5.1 CM THICK CSI ANNULUS FOR ADDITIONAL SHIELDING. PULSE-SHAPE DISCRIMINATION IS USED TO DIFFERENTIATE BETWEEN EVENTS OCCURRING ONLY IN NA1, 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 0.661 MEV AND 3.2 PERCENT AT 4.4 MEV. THE 20-150 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- SMM -01

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

PI - R. MACQUEEN .....HIGH ALTITUDE OBS  
BOULDER, CO  
OI - M. ALTSCHULER .....HIGH ALTITUDE OBS  
BOULDER, CO  
OI - H. SCHMIDT .....HIGH ALTITUDE OBS  
BOULDER, CO



PLANNED ORBIT PARAMETERS

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

SPACECRAFT PERSONNEL (PM=PROJECT MANAGER, PS=PROJECT SCIENTIST,  
MG=PROGRAM MANAGER, SC=PROGRAM SCIENTIST)  
PS - W. NEUPERT .....NASA-GSFC  
GREENBELT, MD  
SC - A.F. TIMOTHY .....NASA HEADQUARTERS  
WASHINGTON, DC

SPACECRAFT BRIEF DESCRIPTION

THE EUROPEAN SPACE RESEARCH ORGANIZATION (ESRO) IS DEVELOPING SPACELAB, AN ARRAY OF INTERCHANGEABLE COMPONENTS (PRESSURIZED MANNEC 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.

----- SPACELAB-SCLAR, ACTON -----

EXPERIMENT NAME- SPECIAL PURPOSE FACILITY DEFINITION TEAM

NSSDC ID- SPLBSOL-04

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

TL - L. ACTON .....LOCKHEED PALO ALTO  
PALO ALTO, CA  
TM - C. WOLFSON .....LOCKHEED PALO ALTO  
PALO ALTO, CA  
TM - R.S. WHITE .....U OF CALIF, RIVERSIDE  
RIVERSIDE, CA  
TM - E. CHUPP .....U OF NEW HAMPSHIRE  
DURHAM, NH  
TM - R. MACQUEEN .....HIGH ALTITUDE OBS  
BOULDER, CO  
TM - J. BECKERS .....SACRAMENTO PEAK OBS  
SUNSPOT, NM  
TM - R. BLAKE .....LCS ALAMOS SCI LAB  
LOS 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 LOW-COST FLIGHT OF EXISTING SATELLITE EXPERIMENTS AND OF EXISTING AND NEW SOUNDING ROCKET CLASS PAYLOADS.

----- SPACELAB-SCLAR, DUNN -----

EXPERIMENT NAME- ONE METER SOLAR TELESCOPE FACILITY  
DEFINITION TEAM

NSSDC ID- SPLBSOL-01

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

TL - R. DUNN .....SACRAMENTO PEAK OBS  
SUNSPOT, NM  
TM - R. FISHER .....SACRAMENTO PEAK OBS  
SUNSPOT, NM  
TM - P. LEMAIRE .....CNRS-LPSP  
VERRIERES LE BUISSON, FRANCE  
TM - R. SMITHSON .....LOCKHEED PALO ALTO  
PALO ALTO, CA  
TM - J. HARVEY .....KITT PEAK NATL OBS  
TUCSON, AZ  
TM - R. MILKEY .....KITT 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-SCLAR, PETERSON -----

EXPERIMENT NAME- SCLAR HARD X-RAY FACILITY DEFINITION  
TEAM

NSSDC ID- SPLBSOL-03

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

TL - L. PETERSON .....U OF CALIF, SAN DIEGO  
LA JOLLA, CA  
TM - G. GARMIRE .....CALIF INST OF TECH  
PASADENA, CA  
TM - R. LIN .....U OF CALIF, BERKELEY  
BERKELEY, CA  
TM - Z. SVETKA .....ASAE, INC  
CAMBRIDGE, MA  
TM - H. VAN BEEK .....SPACE 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

NSSDC ID- SPLBSOL-02

LAST REPORTED STATE- APPROVED CONDITIONALLY

OSS DIVISION- PHYSICS AND ASTRONOMY PROGRAMS  
DISCIPLINE(S)- SOLAR PHYSICS

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

TL - G. WITHBROE .....HARVARD COLLEGE OBS  
CAMBRIDGE, MA  
TM - J.G. TIMOTHY .....HARVARD COLLEGE OBS  
CAMBRIDGE, MA  
TM - W. BEHRING .....NASA-GSFC  
GREENBELT, MD  
TM - W. NEUPERT .....NASA-GSFC  
GREENBELT, MD  
TM - G. ERUECKNER .....US NAVAL RESEARCH LAB  
WASHINGTON, DC  
TM - A. GABRIEL .....APPLETON LAB  
SLOUGH, U.K.  
TM - A. KRIEGER .....AS+E, INC  
CAMBRIDGE, MA  
TM - A.B.C. WALKER .....STANFORD 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.

### 3. INDEX OF SPACECRAFT AND EXPERIMENTS

This index sorts all spacecraft and experiment names described in section 2 of this supplement and the December 1974 report. Spacecraft are listed alphabetically by common and alternate names. Alternate names are printed with a reference to the NSSDC spacecraft common name. Next to the common name are printed the sponsoring country and agency, launch date, orbit type, NSSDC ID code, and status.

For launched spacecraft, the epoch date, status, and spacecraft or experiment data rate are listed under the CURRENT STATE heading. Unlaunched spacecraft are designated either PROPOSED or APPROVED; each of their experiments is designated APPROVED or APPROVED CONDITIONALLY. Current state values for launched spacecraft and experiments became effective on the date shown in the EPOCH date column and are current as of March 31, 1975. Appendix A of the December 1974 report contains explanations of the terms used in these columns.

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 the experiment status are also given for each experiment. Finally, each name is followed by a page number referencing the spacecraft or experiment description in the December 1974 report (pages 5-99) or in this supplement (pages 1005-1016).

INDEX OF SPACECRAFT AND EXPERIMENTS

SPACECRAFT NAME	COUNTRY AND AGENCY	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-OSS 12/19/63	GEOCENTRIC	63-053A	12/19/63	PARTIAL	SUBS	1005
JACCHIA	NONSYSTEMATIC CHANGES OF AIR DENSITY			63-053A-01	12/19/63	NORMAL	SUBS	1005
KEATING	SYSTEMATIC CHANGES OF AIR DENSITY			63-053A-02	12/19/63	NORMAL	SUBS	1005
AD-C	UNITED STATES	NASA-CSS 08/08/68	GEOCENTRIC	68-066A	06/00/71	PARTIAL	SUBS	1005
JACCHIA	NONSYSTEMATIC CHANGES OF AIR DENSITY			68-066A-01	12/03/74	PARTIAL	SUBS	1005
KEATING	SYSTEMATIC CHANGES OF AIR DENSITY			68-066A-02	12/03/74	PARTIAL	SUBS	1005
AE-C	UNITED STATES	NASA-CSS 12/16/73	GEOCENTRIC	73-101A	12/16/73	NORMAL	STD	5
BARTH	ULTRAVIOLET NITRIC-OXIDE EXPERIMENT			73-101A-13	12/16/73	NORMAL	STD	6
BRACE	ELECTRON TEMPERATURE AND CONCENTRATION			73-101A-01	12/16/73	NORMAL	STD	6
BRINTON	BENNETT ION-MASS SPECTROMETER			73-101A-11	12/16/73	NORMAL	STD	6
CHAMPION	ATMOSPHERIC DRAG			73-101A-02	12/17/73	NORMAL	STD	6
DOERING	PHOTOELECTRON SPECTROMETER			73-101A-03	12/16/73	NORMAL	STD	7
HANSON	ION TEMPERATURE			73-101A-04	12/16/73	NORMAL	STD	7
HAYS	AIRGLOW PHOTOMETER			73-101A-14	12/16/73	NORMAL	STD	7
HEATH	SOLAR EUV FILTER PHOTOMETER			73-101A-05	03/10/75	PARTIAL	STD	7
HINTEREGGER	SOLAR EUV SPECTROPHOTOMETER			73-101A-06	03/10/75	PARTIAL	STD	7
HOFFMAN	MAGNETIC ION-MASS SPECTROMETER			73-101A-10	12/16/73	NORMAL	STD	8
HOFFMAN	LOW-ENERGY ELECTRONS			73-101A-12	12/16/73	NORMAL	STD	8
NIER	OPEN SOURCE NEUTRAL MASS SPECTROMETER			73-101A-07	12/16/73	NORMAL	STD	8
RICE	COLD CATHODE ION GAUGE			73-101A-15	12/16/73	NORMAL	STD	8
RICE	CAPACITANCE MANOMETER			73-101A-16	12/16/73	NORMAL	STD	9
SPENCER	NEUTRAL GAS TEMPERATURE AND CONCENTRATION			73-101A-09	03/10/75	PARTIAL	STD	9
AE-D	UNITED STATES	NASA-OSS SEPT. 75	GEOCENTRIC	AE-D		APPROVED		9
BARTH	ULTRAVIOLET NITRIC-OXIDE EXPERIMENT			AE-D -11		APPROVED		9
BRACE	ELECTRON TEMPERATURE AND CONCENTRATION			AE-D -01		APPROVED		10
CHAMPION	ATMOSPHERIC DRAG			AE-D -02		APPROVED		10
DOERING	PHOTOELECTRON SPECTROMETER			AE-D -03		APPROVED		10
HANSON	ION TEMPERATURE			AE-D -04		APPROVED		10
HAYS	AIRGLOW PHOTOMETER			AE-D -13		APPROVED		10
HINTEREGGER	SOLAR EUV SPECTROPHOTOMETER			AE-D -06		APPROVED		11
HOFFMAN	ION COMPOSITION AND CONCENTRATION			AE-D -10		APPROVED		11
HOFFMAN	LOW-ENERGY ELECTRONS			AE-D -12		APPROVED		11
NIER	OPEN SOURCE NEUTRAL MASS SPECTROMETER			AE-D -07		APPROVED		11
PELZ	CLOSED SOURCE NEUTRAL MASS SPECTROMETER			AE-D -08		APPROVED		12
RICE	CAPACITANCE MANOMETER			AE-D -14		APPROVED		12
RICE	COLD CATHODE ION GAUGE			AE-D -15		APPROVED		12
SPENCER	NEUTRAL GAS TEMPERATURE AND CONCENTRATION			AE-D -09		APPROVED		13
AE-E	UNITED STATES	NASA-OSS SEPT. 75	GEOCENTRIC	AE-E		APPROVED		13
BRACE	ELECTRON TEMPERATURE AND CONCENTRATION			AE-E -01		APPROVED		13
BRINTON	ION COMPOSITION AND CONCENTRATION			AE-E -10		APPROVED		13
CHAMPION	ATMOSPHERIC DRAG			AE-E -02		APPROVED		14
DOERING	PHOTOELECTRON SPECTROMETER			AE-E -03		APPROVED		14
HANSON	ION TEMPERATURE			AE-E -04		APPROVED		14
HAYS	AIRGLOW PHOTOMETER			AE-E -11		APPROVED		14
HEATH	SOLAR EUV FILTER PHOTOMETER			AE-E -05		APPROVED		14
HINTEREGGER	SOLAR EUV SPECTROPHOTOMETER			AE-E -06		APPROVED		15
NIER	OPEN SOURCE NEUTRAL MASS SPECTROMETER			AE-E -07		APPROVED		15
PELZ	CLOSED SOURCE NEUTRAL MASS SPECTROMETER			AE-E -08		APPROVED		15
RICE	CAPACITANCE MANOMETER			AE-E -12		APPROVED		16
RICE	COLD CATHODE ION GAUGE			AE-E -13		APPROVED		16
SPENCER	NEUTRAL GAS TEMPERATURE AND CONCENTRATION			AE-E -09		APPROVED		16
AEROS 2	FED REP OF GERMANY	GFW 07/16/74	GEOCENTRIC	74-055A	08/06/74	PARTIAL	SUBS	16
	UNITED STATES	NASA-USS						
KRANKOWSKY	MASS SPECTROMETER (MS)			74-055A-01	08/06/74	NORMAL	SUBS	17
NESKE	ELECTRON CONCENTRATION IN THE IONOSPHERE			74-055A-03	08/06/74	NORMAL	SUBS	17
ROEMER	ATMOSPHERIC DRAG ANALYSIS			74-055A-06	08/06/74	NORMAL	SUBS	17
SCHMIDTKE	FLUX AND SPECTRAL DISTRIBUTION OF SOLAR EUV RADIATION AND THEIR TEMP AND SPATIAL VAR			74-055A-04	08/06/74	NORMAL	SUBS	17
SPENCER	NEUTRAL ATMOSPHERE TEMPERATURE EXPERIMENT			74-055A-05	08/06/74	NORMAL	SUBS	17
SPENNER	ENERGY DISTRIBUTION OF IONS AND ELECTRONS			74-055A-02	08/06/74	NORMAL	SUBS	17
AEROS-B	SEE AEROS 2							
ALOUETTE 2	CANADA	CRC 11/29/65	GEOCENTRIC	65-098A	03/01/73	PARTIAL	SUBS	18
	UNITED STATES	NASA-CSS						
BELFUSE	VLF RECEIVER			65-098A-02	03/01/73	NORMAL	SUBS	18
BRACE	CYLINDRICAL ELECTROSTATIC PROBE			65-098A-05	03/01/73	NORMAL	SUBS	18
HARTZ	COSMIC RADIO NOISE			65-098A-03	03/01/73	NORMAL	SUBS	18
MCDERMID	ENERGETIC PARTICLE DETECTORS			65-098A-04	03/03/73	NORMAL	SUBS	18
WHITKOFF	SWEEP FREQUENCY SOUNDER			65-098A-01	03/01/73	NORMAL	SUBS	19
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							

* SPACECRAFT NAME	COUNTRY AND AGENCY	LAUNCH DATE	ORBIT TYPE	* NSSOC ID	*****CURRENT STATE*****	DATA RATE	PAGE NO.
* PRINC. INVEST. NAME	EXPERIMENT NAME						
ALSEP 15	SEE APOLLO 15 LM/ALSEP						
ALSEP 16	SEE APOLLO 16 LM/ALSEP						
ALSEP 17	SEE APOLLO 17 LM/ALSEP						
AMPS	UNITED STATES NASA-OSS STUDY		GEOCENTRIC	AMPS	PROPOSED		19
ANS	NETHERLANDS NIVR	08/30/74	GEOCENTRIC	74-070A	08/30/74	NORMAL	SUBS 19
BRINKMAN	UNITED STATES NASA-OSS			74-070A-02	08/30/74	NORMAL	SUBS 19
GURSKY	LOW-ENERGY X-RAY EXPERIMENT			74-070A-03	08/30/74	NORMAL	SUBS 19
VANDUINEN	HIGH ANGULAR AND SPECTRAL RESOLUTION OBSERVATIONS OF COSMIC X-RAY SOURCES			74-070A-01	08/30/74	NORMAL	SUBS 20
APOLLO 11 LM	SEE APOLLO 11 LM/EASEP						
APOLLO 11 LM/EASEP ALLEY	UNITED STATES NASA-QMSF LASER RANGING RETROREFLECTOR	07/16/69	LUNAR LANDER	69-059C	12/14/69	INOPERABLE	ZERO 1006
				69-059C-04	07/20/69	NORMAL	STD 1006
APOLLO 12 LM/ALSEP	UNITED STATES NASA-OSS	11/14/69	LUNAR LANDER	69-099C	11/19/69	NORMAL	STD 20
FREEMAN	UNITED STATES NASA-OSS			69-099C-05	12/03/74	PARTIAL	SUBS 20
LATHAM	SUPRATHERMAL ION DETECTOR			69-099C-03	11/19/69	PARTIAL	STD 20
SNYDER	PASSIVE SEISMIC			69-099C-02	11/05/71	PARTIAL	STD 20
APOLLO 12C	SEE APOLLO 12 LM/ALSEP						
APOLLO 14 LM/ALSEP	UNITED STATES NASA-QMSF	01/31/71	LUNAR LANDER	71-008C	02/28/75	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 21
FREEMAN	SUPRATHERMAL ION DETECTOR			71-008C-07	04/15/73	PARTIAL	SUBS 21
JOHNSON	COLD CATHODE ION GAUGE EXPERIMENT			71-008C-05	12/07/73	PARTIAL	SUBS 21
KOVACH	ACTIVE SEISMIC			71-008C-04	03/20/72	PARTIAL	SUBS 21
LATHAM	PASSIVE SEISMIC			71-008C-08	06/06/71	PARTIAL	SUBS 21
O'BRIEN	CHARGED PARTICLE LUNAR ENVIRONMENT						
APOLLO 14C	SEE APOLLO 14 LM/ALSEP						
APOLLO 15 LM/ALSEP	UNITED STATES NASA-QMSF	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 22
BATES	LUNAR DUST DETECTOR			71-063C-08	07/30/71	NORMAL	STD 1007
FALLER	LASER RANGING RETROREFLECTOR			71-063C-05	09/13/73	PARTIAL	SUBS 22
FREEMAN	SUPRATHERMAL ION DETECTOR			71-063C-07	02/22/73	PARTIAL	SUBS 22
JOHNSON	COLD CATHODE ION GAUGE EXPERIMENT			71-063C-06	08/07/71	PARTIAL	STD 22
LANGSETH	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-QMSF	04/16/72	LUNAR LANDER	72-031C	04/21/72	NORMAL	STD 23
	UNITED STATES NASA-OSS			72-031C-03	08/17/73	NORMAL	STD 23
DYAL	LUNAR SURFACE MAGNETOMETER			72-031C-02	12/03/74	PARTIAL	SUBS 23
KOVACH	ACTIVE SEISMIC			72-031C-01	04/21/72	NORMAL	STD 23
LATHAM	PASSIVE SEISMIC						
APOLLO 16C	SEE APOLLO 16 LM/ALSEP						
APOLLO 17 LM/ALSEP	UNITED STATES NASA-QMSF	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 24
BERG	LUNAR EJECTA AND METEORITES			72-096C-06	12/03/74	PARTIAL	SUBS 24
KOVACH	LUNAR SEISMIC PROFILING EXPERIMENT			72-096C-01	12/11/72	NORMAL	STD 24
LANGSETH	HEAT FLOW			72-096C-09	12/12/72	PARTIAL	SUBS 24
WEBER	LUNAR SURFACE GRAVIMETER						
APOLLO 17C	SEE APOLLO 17 LM/ALSEP						
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-CA	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 1007
MCILWAIN	BIDIRECTIONAL LOW-ENERGY PARTICLE DETECTOR			69-069A-11	08/00/73	PARTIAL	SUBS 1007
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 1008
SUGIURA	MAGNETIC FIELD MONITOR			69-069A-13	06/10/73	PARTIAL	SUBS 1008
ATS 6	UNITED STATES NASA-CA	05/30/74	GEOCENTRIC	74-039A	05/30/74	NORMAL	STD 1008
COLEMAN, JR.	MAGNETOMETER EXPERIMENT			74-039A-02	05/30/74	NORMAL	STD 1008
DAVIES	RADIO BEACON			74-039A-09	10/01/74	NORMAL	STD 1008
FRITZ	MEASUREMENT OF LOW-ENERGY PROTONS			74-039A-01	06/10/74	NORMAL	STD 1009
MASLEY	SCLAR COSMIC RAYS AND GEOMAGNETICALLY TRAPPED RADIATION			74-039A-06	06/14/74	NORMAL	STD 1009
MCILWAIN	AUGURAL PARTICLES EXPERIMENT			74-039A-05	06/15/74	NORMAL	STD 1009
PAULIKAS	OMNIDIRECTIONAL SPECTROMETER			74-039A-07	06/14/74	NORMAL	STD 1009
WINCKLER	PARTICLE ACCELERATION MECHANISMS AND DYNAMICS OF THE OUTER TRAPPING REGION			74-039A-04	06/14/74	NORMAL	STD 1009

SPACECRAFT NAME	COUNTRY AND AGENCY	LAUNCH DATE	ORBIT TYPE	NSSDC ID	EPOCH MDDYY	STATUS	DATA RATE	PAGE NO.
ATSE-E	SEE ATSE 5							
ATSE-F	SEE ATSE 6							
AUTO-LUNAR POLAR ORBITER	SEE LUNAR POLAR ORBITER-DAUGHTER							
AUTO-LUNAR POLAR ORBITER	SEE LUNAR POLAR ORBITER-MOTHER							
COPERNICUS	SEE OAC 3							
DAD	SEE DADE-A							
DAD	SEE DADE-B							
DADE-A	UNITED STATES	NASA-CSS	NOV. 75	GEOCENTRIC	DADE-A	APPROVED		25
KEATING	ATMOSPHERIC DRAG DENSITY				DADE-A -01	APPROVED		25
NIER	ATMOSPHERIC COMPOSITION MASS SPECTROMETER				DADE-A -02	APPROVED		25
DADE-B	UNITED STATES	NASA-CSS	NOV. 75	GEOCENTRIC	DADE-B	APPROVED		25
KEATING	ATMOSPHERIC DRAG DENSITY				DADE-B -01	APPROVED		25
NIER	ATMOSPHERIC COMPOSITION MASS SPECTROMETER				DADE-B -02	APPROVED		26
DAUGHTER	SEE ISEE-B							
DUAL AIR DENSITY EXPL-A	SEE DADE-A							
DUAL AIR DENSITY EXPL-B	SEE DADE-B							
EGRET	UNITED STATES	NASA-CSS	00/00/79	GEOCENTRIC	EGRET	PROPOSED		1009
ELECTRODYNAMICS EXPLORER	UNITED STATES	NASA-CSS	00/00/79		EE	PROPOSED		1010
EXPLORER 19	SEE AD-A							
EXPLORER 39	SEE AD-C							
EXPLORER 44	SEE SCLRAO 10							
EXPLORER 47	SEE IMP-H							
EXPLORER 49	SEE RAE-E							
EXPLORER 50	SEE IMP-J							
EXPLORER 51	SEE AE-C							
EXPLORER 52	SEE HA*KEYE 1							
GAMMA-RAY EXPLORER	SEE EGRET							
GP-A	UNITED STATES	NASA-CSS	1975	GEOCENTRIC	GRAVR-A	APPROVED		26
VESSOT	GRAVITATIONAL POTENTIAL AS A FUNCTION OF TIME				GRAVR-A-01	APPROVED		26
GRAVITATIONAL REDSHIFT P	SEE GP-A							
GRAVR-A	SEE GP-A							
HA*KEYE 1	UNITED STATES	NASA-CSS	06/03/74	GEOCENTRIC	74-040A	06/03/74	NORMAL	STD 1010
FRANK	LOW-ENERGY PARTICLES AND ELECTRONS				74-040A-02	06/03/74	NORMAL	STD 26
GURNETT	ELF/VLF RECEIVERS				74-040A-03	06/03/74	NORMAL	STD 26
VAN ALLEN	TRIAXIAL FLUXGATE MAGNETOMETER				74-040A-01	06/03/74	NORMAL	STD 27
HEAD-A	UNITED STATES	NASA-CSS	1HALF 77	GEOCENTRIC	HEAD-A		APPROVED	27
BOLDT	COSMIC X-RAY EXPERIMENT				HEAD-A -02		APPROVED	27
FRIEDMAN	LARGE AREA COSMIC X-RAY SURVEY				HEAD-A -01		APPROVED	27
GURSKY	X-RAY SCANNING MODULATION COLLIMATOR				HEAD-A -03		APPROVED	27
PETERSON	LOW-ENERGY GAMMA-RAY AND HARD X-RAY SKY SURVEY				HEAD-A -04		APPROVED	28
HEAD-B	UNITED STATES	NASA-CSS	2HALF 78	GEOCENTRIC	HEAD-B		APPROVED	28
BOLDT	SOLID-STATE X-RAY DETECTOR				HEAD-B -05		APPROVED	28
CLARK	A CURVED-CRYSTAL BRAGG X-RAY SPECTROMETER				HEAD-B -03		APPROVED	28
GIACCONI	MONITOR PROPORTIONAL COUNTER				HEAD-B -01		APPROVED	28
GIACCONI	HIGH RESOLUTION IMAGER				HEAD-B -02		APPROVED	29
GURSKY	IMAGING PROPORTIONAL COUNTER				HEAD-B -04		APPROVED	29
HEAD-C	UNITED STATES	NASA-CSS	2HALF 79	GEOCENTRIC	HEAD-C		APPROVED	29
ISRAEL	HEAVY NUCLEI EXPERIMENT				HEAD-C -03		APPROVED	29
JACOBSON	GAMMA-RAY LINE SPECTROMETER				HEAD-C -01		APPROVED	29
KOCH	ISOTOPIC COMPOSITION OF COSMIC RAYS				HEAD-C -04		APPROVED	29
HELIOCENTRIC	SEE ISEE-C							
HELIUS-A	FED REP OF GERMANY	BMWF	12/10/74	HELIOCENTRIC	74-097A	12/10/74	NORMAL	STD 1010
FECHTIG	UNITED STATES	NASA-CSS			74-097A-12	12/10/74	NORMAL	STD 30
GURNETT	MICROMETEOROID DETECTOR AND ANALYZER				74-097A-13	12/10/74	NORMAL	STD 1010
KEPLER	RADIO FREQUENCY ELECTRIC FIELDS IN SOLAR PLASMA				74-097A-10	12/10/74	NORMAL	STD 31
KUNDT	ENERGETIC ELECTRON DETECTOR				74-097A-14	12/10/74	NORMAL	STD 31
KUNDT	CELESTIAL MECHANICS				74-097A-07	12/10/74	NORMAL	STD 31
KUNDT	COSMIC-RAY PARTICLES							

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*****PRINC. INVEST. NAME*****	*****EXPERIMENT NAME*****							
LEINERT	ZODIACAL LIGHT PHOTOMETER			74-097A-11	12/10/74	NORMAL	STD	31
NESS	FLUXGATE MAGNETOMETER FOR AVERAGE FIELDS			74-097A-02	12/10/74	NORMAL	STD	31
NEUBAUER	FLUXGATE MAGNETOMETER FOR FIELD FLUCTUATIONS			74-097A-01	12/10/74	NORMAL	STD	31
NEUBAUER	SEARCH COIL MAGNETOMETER			74-097A-03	12/10/74	NORMAL	STD	31
ROSENBAUER	PLASMA DETECTORS			74-097A-09	12/10/74	NORMAL	STD	32
TRAINOR	GALACTIC AND SOLAR COSMIC RAYS			74-097A-08	12/10/74	NORMAL	STD	32
HELIOS-B	FED REP OF GERMANY BMWF UNITED STATES NASA-CSS	JAN. 76	HELIOCENTRIC	HELIO-B		APPROVED		1010
FECHTIG	MICROMETEORIC DETECTOR AND ANALYZER			HELIO-B-12		APPROVED		32
GURNETT	RADIO FREQUENCY ELECTRIC FIELDS IN SOLAR PLASMA			HELIO-B-13		APPROVED		1011
KEPLER	ENERGETIC ELECTRON DETECTOR			HELIO-B-10		APPROVED		33
KUNDT	CELESTIAL MECHANICS			HELIO-B-14		APPROVED	CONDITIONALLY	33
KUNOW	COSMIC-RAY PARTICLES			HELIO-B-07		APPROVED		33
LEINERT	ZODIACAL LIGHT PHOTOMETER			HELIO-B-11		APPROVED		33
NESS	FLUXGATE MAGNETOMETER FOR AVERAGE FIELDS			HELIO-B-02		APPROVED		33
NEUBAUER	FLUXGATE MAGNETOMETER FOR FIELD FLUCTUATIONS			HELIO-B-01		APPROVED		33
NEUBAUER	SEARCH COIL MAGNETOMETER			HELIO-B-03		APPROVED		34
ROSENBAUER	PLASMA DETECTORS			HELIO-B-09		APPROVED		34
TRAINOR	GALACTIC AND SOLAR COSMIC RAYS			HELIO-B-08		APPROVED		34
IME-D	SEE ISEE-E							
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-CSS	09/23/72	GEOCENTRIC	72-073A	09/23/72	NORMAL	STD	34
BAME	MEASUREMENT OF SOLAR PLASMA			72-073A-10	09/23/72	NORMAL	STD	34
BRIDGE	MEASUREMENT OF SOLAR PLASMA			72-073A-02	12/11/73	PARTIAL	STD	35
CLINE	STUDY OF COSMIC-RAY, SOLAR, AND MAGNETOSPHERIC ELECTRONS			72-073A-13	10/13/72	NORMAL	STD	35
FRANK	MEASUREMENT OF LOW-ENERGY PROTONS AND ELECTRONS			72-073A-04	09/23/72	NORMAL	STD	35
GLOECKLER	IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			72-073A-03	11/25/72	PARTIAL	STD	35
KRIMIGIS	CHARGED PARTICLE MEASUREMENTS EXPERIMENT			72-073A-08	12/11/73	PARTIAL	STD	35
MCDONALD	SOLAR AND COSMIC-RAY PARTICLES			72-073A-09	09/26/72	NORMAL	STD	35
OGILVIE	SOLAR WIND ION COMPOSITION			72-073A-12	09/24/72	NORMAL	STD	36
SCARF	PLASMA WAVE EXPERIMENT			72-073A-11	09/24/72	NORMAL	SUBS	36
SIMPSON	SOLAR FLARE HIGH-Z/LOW-E AND LOW-Z ISOTOPE EXPERIMENT			72-073A-07	12/03/74	PARTIAL	STD	36
STONE	ELECTRONS AND HYDROGEN AND HELIUM ISOTOPES			72-073A-06	09/23/72	NORMAL	STD	36
WILLIAMS	ENERGETIC ELECTRONS AND PROTONS			72-073A-05	09/26/72	NORMAL	STD	36
IMP-J	UNITED STATES NASA-CSS	10/26/73	GEOCENTRIC	73-078A	10/26/73	NORMAL	STD	37
AGGSON	ELECTROSTATIC FIELDS			73-078A-11	10/26/73	NORMAL	STD	37
BAME	MEASUREMENT OF SOLAR PLASMA			73-078A-10	10/26/73	NORMAL	STD	37
BRIDGE	MEASUREMENT OF SOLAR PLASMA			73-078A-02	10/26/73	NORMAL	STD	37
FRANK	MEASUREMENT OF LOW-ENERGY PROTONS AND ELECTRONS			73-078A-04	10/26/73	NORMAL	STD	37
GLOECKLER	SOLIC-STATE DETECTORS			73-078A-03	10/26/73	NORMAL	STD	37
GURNETT	ELECTROSTATIC WAVES AND RADIO NOISE			73-078A-12	10/26/73	NORMAL	STD	38
KRIMIGIS	CHARGED PARTICLE MEASUREMENTS EXPERIMENT			73-078A-08	12/03/74	NORMAL	STD	38
MCDONALD	SOLAR AND COSMIC-RAY PARTICLES			73-078A-09	10/26/73	NORMAL	STD	38
NESS	MAGNETIC FIELD EXPERIMENT			73-078A-01	10/26/73	NORMAL	STD	38
SIMPSON	SOLAR FLARE HIGH-Z/LOW-E AND LOW-Z EXPERIMENTS			73-078A-07	10/26/73	NORMAL	STD	38
STONE	ELECTRONS AND HYDROGEN AND HELIUM ISOTOPES			73-078A-06	10/26/73	NORMAL	STD	39
WILLIAMS	ENERGETIC ELECTRONS AND PROTONS			73-078A-05	10/26/73	NORMAL	STD	39
IMP-K	SEE ISEE-A							
IMP-K PRIME	SEE ISEE-E							
INJUN-F	SEE HAWKEYE 1							
INT ULTRAVIOLET EXPL	SEE IUE							
INTA SATELLITE	SEE INTASAT							
INTASAT	SPAIN CNIE-INTA UNITED STATES NASA-OSS	11/15/74	GEOCENTRIC	74-089C	11/15/74	NORMAL	STD	39
SAGREDO	IONOSPHERIC BEACON			74-089C-01	11/15/74	NORMAL	STD	39
ISEE-A	UNITED STATES NASA-OSS INTERNATIONAL ESQ	2HALF 77	GEOCENTRIC	MOTHER		APPROVED		39
ANDERSON	ENERGETIC ELECTRONS AND PROTONS			MOTHER -10		APPROVED	CONDITIONALLY	40
BAME	50-EV TO 40-KEV PROTON AND 5-EV TO 20-KEV ELECTRON PLASMA PROBES			MOTHER -01		APPROVED	CONDITIONALLY	40
FRANK	HCT PLASMA			MOTHER -03		APPROVED	CONDITIONALLY	40
GURNETT	10-HZ TO 10-KHZ MAGNETIC AND 10-HZ TO 200-KHZ ELECTRIC FIELD TRIAXIAL PROBES			MOTHER -07		APPROVED	CONDITIONALLY	40
HARVEY	ACTIVE PLASMA EXPERIMENT			MOTHER -08		APPROVED	CONDITIONALLY	40
HELLWELL	VLF WAVE INJECTION			MOTHER -13		APPROVED	CONDITIONALLY	41
HEPPNER	DC ELECTRIC FIELDS			MOTHER -11		APPROVED	CONDITIONALLY	41

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*PRINC. INVEST. NAME	EXPERIMENT NAME									
HOVESTADT	LOW-ENERGY COSMIC-RAY COMPOSITION			MOTHER -05		APPROVED	CONDITIONALLY	41		
MOZEP	DC TO 12-KHZ ELECTRIC FIELD PROBES			MOTHER -06		APPROVED	CONDITIONALLY	41		
OGILVIE	THREE-DIMENSIONAL (SIX AXES), 6-EV TO 10-KEV ELECTRON SPECTROMETER			MOTHER -02		APPROVED	CONDITIONALLY	41		
RUSSELL	MAGNETIC FIELDS			MOTHER -04		APPROVED	CONDITIONALLY	42		
SHARP	PLASMA COMPOSITION			MOTHER -12		APPROVED	CONDITIONALLY	42		
SIMPSON	MEDIUM-ENERGY COSMIC RAYS			MOTHER -14		APPROVED	CONDITIONALLY	42		
WILLIAMS	ENERGETIC ELECTRONS AND PROTONS			MOTHER -09		APPROVED	CONDITIONALLY	42		
ISEE-5	UNITED STATES	NASA-CSS	2HALF 77	GEOCENTRIC		DAUGHTR	APPROVED	42		
ANDERSON	INTERNATIONAL	ESRC				DAUGHTR-08	APPROVED	CONDITIONALLY	43	
OGIDI	ENERGETIC ELECTRONS AND PROTONS					DAUGHTR-02	APPROVED	CONDITIONALLY	43	
FRANK	50-EV TO 25-KEV ION AND 35-EV TO 7-KEV ELECTRON PLASMA PROBES					DAUGHTR-03	APPROVED	CONDITIONALLY	43	
GURNEY	HCT PLASMA					DAUGHTR-05	APPROVED	CONDITIONALLY	43	
HARVEY	10-HZ TO 10-KHZ MAGNETIC AND 10-HZ TO 200-KHZ ELECTRIC FIELD MONAXIAL PROBES					DAUGHTR-06	APPROVED	CONDITIONALLY	43	
KESSLER	RADIO PROPAGATION RECEIVER					DAUGHTR-07	APPROVED	CONDITIONALLY	44	
PASCHMANN	ENERGETIC ELECTRONS AND PROTONS					DAUGHTR-01	APPROVED	CONDITIONALLY	44	
RUSSELL	50-EV TO 40-KEV PROTON AND 5-EV TO 20-KEV ELECTRON PLASMA PROBES					DAUGHTR-04	APPROVED	CONDITIONALLY	44	
ISEE-C	UNITED STATES	NASA-CSS	2HALF 78	HELIOCENTRIC		HELOCTR	APPROVED	44		
ANDERSON	X RAYS AND ELECTRONS					HELOCTR-09	APPROVED	CONDITIONALLY	44	
BAME	150-EV TO 7-KEV PROTON AND 5-EV TO 2.5-KEV ELECTRON PLASMA PROBE					HELOCTR-01	APPROVED	CONDITIONALLY	45	
DEFFITER	ENERGETIC PROTONS					HELOCTR-08	APPROVED	CONDITIONALLY	45	
HECKMAN	HIGH-ENERGY COSMIC RAYS					HELOCTR-05	APPROVED	CONDITIONALLY	45	
HOVESTADT	LOW-ENERGY COSMIC-RAY COMPOSITION					HELOCTR-03	APPROVED	CONDITIONALLY	45	
MEYER	COSMIC-RAY ELECTRONS AND NUCLEI					HELOCTR-06	APPROVED	CONDITIONALLY	45	
OGILVIE	MASS SPECTROMETER FOR 470 TO 10,500 EV PER CHARGE AND 1 TO 5.6 AMU PER CHARGE					HELOCTR-11	APPROVED	CONDITIONALLY	46	
SCARF	20-KHZ TO 1-KHZ MAGNETIC AND 20-HZ TO 100-KHZ ELECTRIC FIELD DETECTORS					HELOCTR-07	APPROVED	CONDITIONALLY	46	
SMITH	MAGNETIC FIELDS					HELOCTR-02	APPROVED	CONDITIONALLY	46	
STEINBERG	20-KHZ TO 3-MHZ RADIO MAPPING					HELOCTR-10	APPROVED	CONDITIONALLY	46	
STONE	COSMIC-RAY COMPOSITION					HELOCTR-12	APPROVED	CONDITIONALLY	46	
VON ROSENBERG	SOLAR AND GALACTIC ENERGETIC PARTICLES					HELOCTR-04	APPROVED	CONDITIONALLY	46	
WILCOX	SOLAR AND INTERPLANETARY MAGNETIC FIELDS (CORRELATIVE STUDY)					HELOCTR-13	APPROVED	CONDITIONALLY	47	
ISIS 1	CANADA	CRC	01/20/69	GEOCENTRIC	69-009A	01/30/70	PARTIAL	SUBS	47	
BARRINGTON	UNITED STATES	NASA-CSS								
BRACE	VLF RECEIVER					69-009A-03	01/30/70	NORMAL	SUBS	47
CALVERT	CYLINDRICAL ELECTROSTATIC PROBE					69-009A-07	01/30/70	NORMAL	SUBS	47
FORSYTH	FIXED FREQUENCY SOUNDER					69-009A-02	01/30/70	NORMAL	SUBS	48
HARTZ	RADIO BEACON					69-009A-09	03/10/75	PARTIAL	ZERO	48
MCDIARMID	COSMIC RADIO NOISE					69-009A-10	01/30/70	NORMAL	SUBS	48
SAGALYN	ENERGETIC PARTICLE DETECTORS					69-009A-04	01/30/70	NORMAL	SUBS	48
WHITTEKER	SPHERICAL ELECTROSTATIC ANALYZER					69-009A-08	01/30/70	NORMAL	SUBS	48
	SWEEP FREQUENCY SOUNDER					69-009A-01	01/30/70	NORMAL	SUBS	49
ISIS 2	CANADA	CRC	04/01/71	GEOCENTRIC	71-024A	10/02/74	NORMAL	SUBS	49	
ANGER	UNITED STATES	NASA-CSS								
BARRINGTON	J914- TO 5577-A PHOTOMETER					71-024A-11	02/04/73	NORMAL	SUBS	49
BRACE	VLF RECEIVER					71-024A-03	02/04/73	NORMAL	SUBS	50
CALVERT	CYLINDRICAL ELECTROSTATIC PROBE					71-024A-07	02/04/73	NORMAL	SUBS	50
FORSYTH	FIXED FREQUENCY SOUNDER					71-024A-02	02/04/73	NORMAL	SUBS	50
HARTZ	RADIO BEACON					71-024A-09	03/10/75	PARTIAL	ZERO	50
HEIKKILA	COSMIC RADIO NOISE					71-024A-10	02/04/73	NORMAL	SUBS	50
HOPFMAN	SOFT-PARTICLE SPECTROMETER					71-024A-05	02/04/72	PARTIAL	STD	50
MAIER	ION MASS SPECTROMETER					71-024A-06	02/04/73	NORMAL	SUBS	51
MCDIARMID	RETARDING POTENTIAL ANALYZER					71-024A-08	02/04/73	NORMAL	SUBS	51
SHEPHERD	ENERGETIC PARTICLE DETECTORS					71-024A-04	02/04/72	PARTIAL	STD	51
WHITTEKER	500-A PHOTOMETER					71-024A-12	02/04/73	NORMAL	SUBS	51
	SWEEP FREQUENCY SOUNDER					71-024A-01	02/04/73	NORMAL	SUBS	51
ISIS-A	SEE ISIS 1									
ISIS-B	SEE ISIS 2									
ISIS-X	SEE ALCLETTE 2									
IUE	UNITED STATES	NASA-CSS	DEC. 76	GEOCENTRIC	SAS-D		APPROVED	52		
	INTERNATIONAL	ESRC								
	UNITED KINGDOM	SRG								
NONE ASSIGNED	LOW/HIGH RESOLUTION, ULTRAVIOLET SPECTROGRAPH PACKAGE				SAS-D -01		APPROVED	52		
LARGE SPACE TELESCOPE	SEE LST									
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	52		
LUNAR POLAR ORB-DAUGHTER	UNITED STATES	NASA-CSS	FREPSD79	SELENOCENTRIC	LPO-D		PROPOSED	53		

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PRINC. INVEST. NAME	EXPERIMENT NAME				NSSDC ID	EPOCH MDOY	STATUS	DATA RATE	PAGE NO.
LUNAR POLAR ORB-MOTHER	UNITED STATES	NASA-CSS	PROPSC79	SELENOCENTRIC	LPO-M		PROPOSED		53
MARINER 10	UNITED STATES	NASA-CSS	11/03/73	VENUS FLYBY	73-085A	11/03/73	NORMAL	STD	53
BRIDGE	MEASUREMENT OF PLASMA ENVIRONMENT				73-085A-03	03/10/75	PARTIAL	STD	53
BROADFOOT	EUV SPECTROSCOPY				73-085A-05	11/03/73	NORMAL	STD	54
CHASE, JR.	TWO-CHANNEL IR RADIOMETER				73-085A-06	04/00/74	NORMAL	ZERO	54
HOWARD	S- AND X-BAND RADIC PROPGATION				73-085A-02	11/03/73	NORMAL	STD	54
MURRAY	TELEVISION PHOTOGRAHY				73-085A-01	03/17/75	NORMAL	ZERO	54
NESS	FLUXGATE MAGNETMETERS				73-085A-04	11/03/73	NORMAL	STD	55
SIMPSON	ENERGETIC PARTICLES				73-085A-07	11/03/73	NORMAL	STD	55
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								
MJS 77A	UNITED STATES	NASA-CSS	08/00/77	JUPITER FLYBY	MARN77A		APPROVED		55
BRIDGE	PLASMA				MARN77A-06		APPROVED		55
BROADFOOT	ULTRAVIOLET SPECTROSCOPY				MARN77A-04		APPROVED		55
ESHLEMAN	RADIO SCIENCE TEAM				MARN77A-02		APPROVED		55
HANEL	INFRARED SPECTROSCOPY AND RADICMETRY				MARN77A-03		APPROVED		56
KRIMIGIS	LOW-ENERGY CHARGED PARTICLE ANALYZER AND TELESCOPE				MARN77A-07		APPROVED		56
LILLIE	MULTIFILTER PHOTOPOLARIMETER, 2200-7300 A				MARN77A-11		APPROVED		56
NESS	TRIAXIAL FLUXGATE MAGNETOMETERS				MARN77A-05		APPROVED		56
SCARF	PLASMA WAVE				MARN77A-13		APPROVED	CONDITIONALLY	57
SMITH	TV PHOTOGRAPHY				MARN77A-01		APPROVED		57
VOGT	HIGH- AND MODERATELY LOW-ENERGY COSMIC-RAY TELESCOPE				MARN77A-08		APPROVED		57
WARWICK	PLANETARY RADIO ASTRONOMY				MARN77A-10		APPROVED		57
MJS 77B	UNITED STATES	NASA-CSS	08/00/77	JUPITER FLYBY	MARN77B		APPROVED		58
BRIDGE	PLASMA				MARN77B-06		APPROVED		58
BROADFOOT	ULTRAVIOLET SPECTROSCOPY				MARN77B-04		APPROVED		58
ESHLEMAN	RADIO SCIENCE TEAM				MARN77B-02		APPROVED		58
HANEL	INFRARED SPECTROSCOPY AND RADICMETRY				MARN77B-03		APPROVED		58
KRIMIGIS	LOW-ENERGY CHARGED PARTICLE ANALYZER AND TELESCOPE				MARN77B-07		APPROVED		59
LILLIE	MULTIFILTER PHOTOPOLARIMETER, 2200-7300 A				MARN77B-11		APPROVED		59
NESS	TRIAXIAL FLUXGATE MAGNETOMETERS				MARN77B-05		APPROVED		59
SCARF	PLASMA WAVE				MARN77B-13		APPROVED	CONDITIONALLY	59
SMITH	TV IMAGING				MARN77B-01		APPROVED		59
VOGT	HIGH- AND MODERATELY LOW-ENERGY COSMIC-RAY TELESCOPE				MARN77B-08		APPROVED		60
WARWICK	PLANETARY RADIO ASTRONOMY				MARN77B-10		APPROVED		60
MOTHER	SEE ISEE-A								
NEUTRAL POINT EXPLORER	SEE HAWKEYE 1								
OAO 3	UNITED STATES	NASA-CSS	08/21/72	GEOCENTRIC	72-065A	08/21/72	NORMAL	STD	60
BOYD	STELLAR PHOTOMETRY				72-065A-02	06/00/73	PARTIAL	STD	60
SPITZER	HIGH RESOLUTION TELESCOPES				72-065A-01	08/21/72	NORMAL	STD	61
OAO-C	SEE OAO 3								
ONE METER UV TELESCOPE	UNITED STATES	NASA-CSS	1982	GEOCENTRIC	OMUVTEL		PROPOSED		1011
HENIZE	INSTRUMENT DEFINITION TEAM				OMUVTEL-01		APPROVED	CONDITIONALLY	1011
OSO 5	UNITED STATES	NASA-CSS	01/22/69	GEOCENTRIC	69-006A	07/15/74	PARTIAL	STD	61
BLAMONT	MEASUREMENT OF THE SELF REVERSAL OF THE SOLAR LYMAN ALPHA LINE				69-006A-06	07/15/74	NORMAL	STD	61
BOYD	X RAY SPECTROHELIOGRAPH				69-006A-01	07/15/74	NORMAL	STD	62
NEY	ZODIACAL LIGHT MONITOR				69-006A-07	03/27/75	PARTIAL	STD	62
OSO-EYE	SEE OSO-I								
OSO-F	SEE OSO 5								
OSO-I	UNITED STATES	NASA-CSS	MAY 1975	GEOCENTRIC	OSO-I		APPROVED		62
ACTON	MAPPING X-RAY HELIOMETER				OSO-I -04		APPROVED		62
BOLDT	COSMIC X-RAY SPECTROSCOPY				OSO-I -06		APPROVED		62
BONNET	CHROMOSPHERE FINE STRUCTURE STUDY				OSO-I -02		APPROVED		63
BRUNER, JR.	HIGH RESOLUTION ULTRAVIOLET SPECTROMETER MEASUREMENTS				OSO-I -01		APPROVED		63
FROST	HIGH-ENERGY CELESTIAL X RAYS				OSO-I -07		APPROVED		63
KRAUSHAAR	SOFT X-RAY BACKGROUND RADIATION INVESTIGATION				OSO-I -05		APPROVED		63
NOVICK	HIGH-SENSITIVITY GRAPHITE CRYSTAL SPECTROSCOPY OF STELLAR AND SOLAR X RAYS				OSO-I -03		APPROVED		63
WELLER, JR.	EUV FROM EARTH AND SPACE				OSO-I -08		APPROVED		63
OUTER PLANETS A	SEE MJS 77A								
OUTER PLANETS B	SEE MJS 77B								

LAUNCHED SUCCESSFULLY  
06/21/75

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*PRINC. INVEST. NAME	EXPERIMENT NAME							
PIONEER 6	UNITED STATES	NASA-CSS	12/16/65	HELIOCENTRIC	65-105A	02/07/71	NORMAL	SUBS 64
BRIDGE	SCALAR WIND PLASMA FARADAY CUP				65-105A-02	12/03/74	PARTIAL	SUBS 64
ESHLEMAN	TWO-FREQUENCY BEACON RECEIVER				65-105A-04	02/07/71	NORMAL	SUBS 64
FAN	COSMIC-RAY TELESCOPE				65-105A-03	12/03/74	NORMAL	SUBS 64
MCCRACKEN	COSMIC-RAY ANISOTROPY				65-105A-05	12/03/74	PARTIAL	SUBS 65
PIONEER 7	UNITED STATES	NASA-CSS	08/17/66	HELIOCENTRIC	66-075A	02/09/69	PARTIAL	SUBS 65
MCCRACKEN	COSMIC-RAY ANISOTROPY				66-075A-05	01/01/71	PARTIAL	SUBS 65
SIMPSON	COSMIC-RAY TELESCOPE				66-075A-06	12/03/74	NORMAL	SUBS 66
WOLFE	ELECTROSTATIC ANALYZER				66-075A-03	02/16/69	PARTIAL	SUBS 66
PIONEER 8	UNITED STATES	NASA-CSS	12/13/67	HELIOCENTRIC	67-123A	05/02/71	NORMAL	SUBS 66
BERG	COSMIC DUST DETECTOR				67-123A-04	01/25/71	NORMAL	SUBS 67
ESHLEMAN	TWO-FREQUENCY BEACON RECEIVER				67-123A-03	01/25/71	NORMAL	SUBS 67
MCCRACKEN	COSMIC-RAY ANISOTROPY				67-123A-05	05/02/71	NORMAL	SUBS 67
NESS	SINGLE-AXIS MAGNETOMETER				67-123A-01	05/02/71	NORMAL	SUBS 67
WEBBER	COSMIC-RAY GRADIENT DETECTOR				67-123A-06	12/03/74	PARTIAL	SUBS 68
WOLFE	ELECTROSTATIC ANALYZER				67-123A-02	01/25/71	PARTIAL	SUBS 68
PIONEER 9	UNITED STATES	NASA-CSS	11/08/68	HELIOCENTRIC	68-100A	05/19/69	NORMAL	SUBS 68
BERG	COSMIC DUST DETECTOR				68-100A-04	05/19/69	NORMAL	SUBS 69
ESHLEMAN	TWO-FREQUENCY BEACON RECEIVER				68-100A-03	12/03/74	NORMAL	STD 69
MCCRACKEN	COSMIC-RAY ANISOTROPY				68-100A-05	05/19/69	NORMAL	SUBS 69
SCARF	PLASMA WAVE DETECTOR				68-100A-07	05/19/69	NORMAL	SUBS 69
SONETT	TRIAXIAL MAGNETOMETER				68-100A-01	05/19/69	NORMAL	SUBS 69
WEBBER	COSMIC-RAY TELESCOPE				68-100A-06	05/19/69	NORMAL	SUBS 70
WOLFE	ELECTROSTATIC ANALYZER				68-100A-02	12/03/74	NORMAL	SUBS 70
PIONEER 10	UNITED STATES	NASA-CSS	03/03/72	JUPITER FLYBY	72-012A	03/03/72	NORMAL	STD 1011
ANDERSON	CELESTIAL MECHANICS				72-012A-09	03/03/72	NORMAL	STD 70
FILLIUS	JOVIAN TRAPPED RADIATION				72-012A-05	03/03/72	NORMAL	STD 71
GERRELS	HIGH RESOLUTION PHOTO-IMAGING OF JUPITERS CLOUD COVER				72-012A-15	03/03/72	NORMAL	STD 1012
JUDGE	ULTRAVIOLET PHOTOMETRY				72-012A-06	03/03/72	NORMAL	STD 71
KINARD	METEOROID DETECTORS				72-012A-04	03/03/72	NORMAL	STD 71
KLIDRE	S-BAND OCCULTATION				72-012A-10	03/03/72	NORMAL	STD 71
MCDONALD	COSMIC-RAY SPECTRA				72-012A-12	03/03/72	NORMAL	STD 71
SIMPSON	CHARGED PARTICLE COMPOSITION				72-012A-02	03/03/72	NORMAL	STD 72
SMITH	MAGNETIC FIELDS				72-012A-01	03/03/72	NORMAL	STD 72
SOBERMAN	ASTEROID/METEOROID ASTRONOMY				72-012A-03	03/03/72	NORMAL	STD 72
VAN ALLEN	JOVIAN CHARGED PARTICLES EXPERIMENT				72-012A-11	03/03/72	NORMAL	STD 72
WOLFE	PLASMA EXPERIMENT				72-012A-13	03/03/72	NORMAL	STD 73
PIONEER 11	UNITED STATES	NASA-CSS	04/06/73	JUPITER FLYBY	73-019A	04/06/73	NORMAL	STD 1012
ANDERSON	CELESTIAL MECHANICS				73-019A-09	04/06/73	NORMAL	STD 73
FILLIUS	JOVIAN TRAPPED RADIATION				73-019A-05	04/06/73	NORMAL	STD 73
GERRELS	HIGH RESOLUTION PHOTO-IMAGING OF JUPITERS CLOUD COVER				73-019A-16	04/06/73	NORMAL	STD 1012
JUDGE	ULTRAVIOLET PHOTOMETRY				73-019A-06	04/06/73	NORMAL	STD 74
KINARD	METEOROID DETECTORS				73-019A-04	04/06/73	NORMAL	STD 74
KLIDRE	S-BAND OCCULTATION				73-019A-10	04/06/73	NORMAL	STD 74
MCDONALD	COSMIC-RAY SPECTRA				73-019A-12	04/06/73	NORMAL	STD 74
MUNCH	INFRARED RADIOMETER				73-019A-08	04/06/73	NORMAL	ZERO 74
NESS	JOVIAN MAGNETIC FIELD				73-019A-14	04/06/73	NORMAL	SUBS 75
SIMPSON	CHARGED PARTICLE COMPOSITION				73-019A-02	04/06/73	NORMAL	STD 75
SMITH	MAGNETIC FIELDS				73-019A-01	04/06/73	NORMAL	STD 75
SOBERMAN	ASTEROID/METEOROID ASTRONOMY				73-019A-03	04/06/73	NORMAL	STD 75
VAN ALLEN	JOVIAN CHARGED PARTICLES EXPERIMENT				73-019A-11	04/06/73	NORMAL	STD 75
WOLFE	PLASMA EXPERIMENT				73-019A-13	04/06/73	NORMAL	STD 76
PIONEER VENUS 1978	SEE PIONEER VENUS PROBE BUS							
PIONEER VENUS 1978	SEE PIONEER VENUS PROBE LRG							
PIONEER VENUS 1978	SEE PIONEER VENUS PROBE SM1							
PIONEER VENUS 1978	SEE PIONEER VENUS PROBE SM2							
PIONEER VENUS 1978	SEE PIONEER VENUS PROBE SM3							
PIONEER VENUS 1978 ORBIT	SEE PIONEER VENUS ORBITER							
PIONEER VENUS ORBITER	UNITED STATES	NASA-CSS	MAY 1978	VENUSCENTRIC	PI0780R		APPROVED	76
BRACE	LANGMUIR PROBE				PI0780R-01		APPROVED	76
BROWN	RADAR ALTIMETER				PI0780R-02		APPROVED	76
CRIFT	RADIO SCIENCE TEAM				PI0780R-03		APPROVED	76
DONAHUE	PARTICIPATING THEORIST DONAHUE				PI0780R-04		APPROVED	77
EVANS	TRANSIENT GAMMA-RAY SOURCES				PI0780R-05		APPROVED	77
HANSEN	CLOUD PHOTOPOLARIMETER				PI0780R-06		APPROVED	77
KNUDSEN	RETARDING POTENTIAL ANALYZER				PI0780R-07		APPROVED	77
MASURSKY	PARTICIPATING THEORIST MASURSKY				PI0780R-08		APPROVED	77
MCGILL	PARTICIPATING THEORIST MCGILL				PI0780R-09		APPROVED	77
NAGY	PARTICIPATING THEORIST NAGY				PI0780R-10		APPROVED	77
NIEMANN	NEUTRAL PARTICLE MASS SPECTROMETER				PI0780R-11		APPROVED	78
RUSSELL	TRIAXIAL FLUXGATE MAGNETOMETER				PI0780R-12		APPROVED	78
SCARF	ELECTRIC FIELD DETECTOR				PI0780R-13		APPROVED	78
SCHUBERT	PARTICIPATING THEORIST SCHUBERT				PI0780R-14		APPROVED	78
STEWART	PROGRAMMABLE ULTRAVIOLET SPECTROMETER				PI0780R-15		APPROVED	78
TAYLOR	RADIOMETRIC TEMPERATURE SCUNDING EXPERIMENT				PI0780R-16		APPROVED	79
TAYLOR, JR.	ION MASS SPECTROMETER				PI0780R-17		APPROVED	79
WOLFE	SCALAR WIND PLASMA DETECTOR				PI0780R-18		APPROVED	79
PIONEER VENUS PROBE BUS	UNITED STATES	NASA-CSS	AUG. 78	VENUS FLYBY	PI078PA		APPROVED	79
BAUER	PARTICIPATING THEORIST BAUER				PI078PA-08		APPROVED	79

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DONAHUE	PARTICIPATING THEORIST DONAHUE			PI078PA-09		APPROVED		80	
GOODY	PARTICIPATING THEORIST GOODY			PI078PA-10		APPROVED		80	
HUNTEN	PARTICIPATING THEORIST HUNTEN			PI078PA-11		APPROVED		80	
PETTENGILL	DIFFERENTIAL VERY-LONG-BASELINE INTERFEROMETRIC TRACKING			PI078PA-06		APPROVED		80	
PETTENGILL	RADIO SCIENCE TEAM			PI078PA-07		APPROVED		80	
POLLACK	PARTICIPATING THEORIST POLLACK			PI078PA-12		APPROVED		80	
SPENCER	PARTICIPATING THEORIST SPENCER			PI078PA-13		APPROVED		80	
TAYLOR, JR.	ION MASS SPECTROMETER			PI078PA-02		APPROVED		81	
VON ZAHN	NEUTRAL PARTICLE MASS SPECTROMETER			PI078PA-03		APPROVED		81	
PIONEER VENUS PROBE LFG	UNITED STATES	NASA-CSS	AUG. 78	VENUS LANDER	PI078PE	APPROVED		81	
BOESE	INFRARED RADICMETER			PI078PE-05		APPROVED		81	
HOFFMAN	NEUTRAL PARTICLE MASS SPECTROMETER			PI078PE-06		APPROVED		81	
KNOLLENBERG	CLOUD PARTICLE SIZE SPECTROMETER			PI078PE-03		APPROVED		81	
OYAMA	GAS CHROMATOGRAPH			PI078PE-04		APPROVED		82	
PETTENGILL	DIFFERENTIAL VERY-LONG-BASELINE INTERFEROMETRIC TRACKING			PI078PE-09		APPROVED		82	
RAGENT	CLOUD EXTENT, STRUCTURE, AND DISTRIBUTION			PI078PE-02		APPROVED		82	
SEIFF	ATMOSPHERE STRUCTURE			PI078PE-01		APPROVED		82	
TOMASKO	SCALAR ENERGY PENETRATION INTO THE ATMOSPHERE			PI078PE-07		APPROVED		82	
PIONEER VENUS PROBE SM1	UNITED STATES	NASA-CSS	AUG. 78	VENUS LANDER	PI078PC	APPROVED		82	
PETTENGILL	DIFFERENTIAL VERY-LONG-BASELINE INTERFEROMETRIC TRACKING			PI078PC-03		APPROVED		83	
RAGENT	CLOUD EXTENT, STRUCTURE, AND DISTRIBUTION			PI078PC-02		APPROVED		83	
SEIFF	ATMOSPHERE STRUCTURE			PI078PC-01		APPROVED		83	
SUOMI	INFRARED RADICMETER			PI078PC-04		APPROVED		83	
PIONEER VENUS PROBE SM2	UNITED STATES	NASA-CSS	AUG. 78	VENUS LANDER	PI078PD	APPROVED		83	
PETTENGILL	DIFFERENTIAL VERY-LONG-BASELINE INTERFEROMETRIC TRACKING			PI078PD-03		APPROVED		84	
RAGENT	CLOUD EXTENT, STRUCTURE, AND DISTRIBUTION			PI078PD-02		APPROVED		84	
SEIFF	ATMOSPHERE STRUCTURE			PI078PD-01		APPROVED		84	
SUOMI	INFRARED RADICMETER			PI078PD-04		APPROVED		84	
PIONEER VENUS PROBE SM3	UNITED STATES	NASA-CSS	AUG. 78	VENUS LANDER	PI078PE	APPROVED		84	
PETTENGILL	DIFFERENTIAL VERY-LONG-BASELINE INTERFEROMETRIC TRACKING			PI078PE-03		APPROVED		84	
RAGENT	CLOUD EXTENT, STRUCTURE, AND DISTRIBUTION			PI078PE-02		APPROVED		85	
SEIFF	ATMOSPHERE STRUCTURE			PI078PE-01		APPROVED		85	
SUOMI	INFRARED RADICMETER			PI078PE-04		APPROVED		85	
PIONEER-A	SEE PIONEER 6								
PIONEER-B	SEE PIONEER 7								
PIONEER-C	SEE PIONEER 8								
PIONEER-D	SEE PIONEER 9								
PIONEER-F	SEE PIONEER 10								
PIONEER-G	SEE PIONEER 11								
RADIO ASTRONOMY EXPLORER	SEE RAE-E								
RAE-B	UNITED STATES	NASA-CSS	06/10/73	SELENCENTRIC	73-039A	06/10/73	NORMAL	STD	1012
STONE	STEP FREQUENCY RADICMETERS				73-039A-01	06/10/73	NORMAL	STD	85
STONE	RAPID-BURST RECEIVERS				73-039A-02	06/10/73	NORMAL	SUBS	1012
STONE	CAPACITANCE PROBE				73-039A-03	06/10/73	NORMAL	STD	1013
RELATIVITY	SEE GP-A								
ROVER 15	SEE APCLLC 15 LM/ALSEP								
ROVER 16	SEE APCLLC 16 LM/ALSEP								
ROVER 17	SEE APCLLC 17 LM/ALSEP								
S 6C	SEE AE-C								
S 6D	SEE AE-D								
S 6E	SEE AE-E								
S 27B	SEE ALCCLETTE 2								
SAN MARCO 4	UNITED STATES	NASA-CSS	02/12/74	GEOCENTRIC	74-005A	02/12/74	PARTIAL	STD	86
NEWTON	ITALY	CRA			74-009A-02	02/12/74	NORMAL	STD	86
SPENCER	NEUTRAL ATMOSPHERE COMPOSITION				74-005A-03	02/12/74	NORMAL	STD	86
SAN MARCO C-2	SEE SAN MARCO 4								
SAS-C	UNITED STATES	NASA-CSS	MAY 1975	GEOCENTRIC	SAS-C		APPROVED		87
CLARK	ANALYSIS OF EXTRAGALACTIC X-RAY SOURCES				SAS-C -01		APPROVED		87
CLARK	ANALYSIS OF GALACTIC X-RAY SOURCES				SAS-C -02		APPROVED		87
CLARK	CONTINUOUS X-RAY FLUCTUATION MONITOR OF SCRRPIC X-1				SAS-C -03		APPROVED		87
CLARK	X-RAY ABSORPTION COUNTS OF THE GALAXY				SAS-C -04		APPROVED		88

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SAS-D	SEE IUE								
SE-C	SEE SCLRAD 10								
SMM	SEE SCLAR MAXIMLM MISSION								
SOLAR EXPLORER-C	SEE SCLRAD 10								
SOLAR MAXIMUM MISSION	UNITED STATES	NASA-CSS	MID 1978	GEOCENTRIC	SMM	PROPOSED	1013		
ACTON	SOFT X-RAY SPECTROMETER				SMM -07	APPROVED CONDITIONALLY	1013		
BONNET	HIGH RESOLUTION UV SPECTROMETER				SMM -03	APPROVED CONDITIONALLY	1013		
CHUPP	BROAD RANGE GAMMA-RAY EXPERIMENT				SMM -13	APPROVED CONDITIONALLY	1013		
DE JAGER	HARD X-RAY IMAGING SPECTROMETER				SMM -08	APPROVED CONDITIONALLY	1014		
FROST	HARD X-RAY SPECTROMETER				SMM -10	APPROVED CONDITIONALLY	1014		
IMHOF	HIGH RESOLUTION GAMMA-RAY SOLID STATE DETECTOR				SMM -11	APPROVED CONDITIONALLY	1014		
KOENEN	WHITE LIGHT CORONAGRAPH				SMM -02	APPROVED CONDITIONALLY	1014		
KURPES	BROAD RANGE GAMMA-RAY SPECTROMETER				SMM -12	APPROVED CONDITIONALLY	1014		
MACQUEEN	WHITE LIGHT CORONAGRAPH				SMM -01	APPROVED CONDITIONALLY	1014		
NEUPERT	XUV SPECTROMETER				SMM -06	APPROVED CONDITIONALLY	1015		
NOVICK	HARD X-RAY POLARIMETER				SMM -09	APPROVED CONDITIONALLY	1015		
REEVES	XUV SPECTROMETER				SMM -05	APPROVED CONDITIONALLY	1015		
TANBERG-HANSEN	HIGH RESOLUTION UV SPECTROMETER				SMM -04	APPROVED CONDITIONALLY	1015		
SOLFAD 10	UNITED STATES	NASA-CSS	07/08/71	GEOCENTRIC	71-058A	07/00/73	NORMAL	SUBS	88
KREPLIN	UNITED STATES	DDC-NAVY			71-058A-01	12/03/74	PARTIAL	SUBS	89
SOLRAD-C	SEE SCLRAD 10								
SPACE SHUTTLE	UNITED STATES	NASA-CMSF	12/00/78	GEOCENTRIC	SHUTTLE		APPROVED		89
SPACELAB	INTERNATIONAL	ESRO	11/00/80	GEOCENTRIC	SPACELAB		APPROVED		89
SPACELAB AMPS MODULE	SEE AMPS								
SPACELAB ASTROCNCKY MISS	SEE ONE METER UV TELESCOPE								
SPACELAB 1M UV TELESCOPE	SEE ONE METER UV TELESCOPE								
SPACELAB-SOLAR	UNITED STATES	NASA-CSS	N/A		SPLBSOL		PROPOSED		1015
ACTON	SPECIAL PURPOSE FACILITY DEFINITION TEAM				SPLBSOL-04		APPROVED CONDITIONALLY		1016
DUNN	ONE METER SOLAR TELESCOPE FACILITY DEFINITION TEAM				SPLBSOL-01		APPROVED CONDITIONALLY		1016
PETERSON	SCLAR HARD X-RAY FACILITY DEFINITION TEAM				SPLBSOL-03		APPROVED CONDITIONALLY		1016
WITBROE	SOLAR EUV-XUV-SOFT X-RAY TELESCOPE DEFINITION TEAM				SPLBSOL-02		APPROVED CONDITIONALLY		1016
STP PROBE	SEE ISEE-C								
TD 1	SEE TD 1A								
TD 1A	INTERNATIONAL	ESRO	03/12/72	GEOCENTRIC	72-014A	02/14/73	NORMAL	SUBS	90
DE JAGER	SCLAR X-RAY MONITOR				72-014A-06	02/14/73	NORMAL	SUBS	90
KAMPERMAN	UV STELLAR SPECTROMETER				72-014A-02	02/14/73	NORMAL	SUBS	90
LABEYRIE	SPECTROMETRY OF PRIMARY CHARGED PARTICLES				72-014A-03	02/14/73	NORMAL	SUBS	90
LABEYRIE	SPECTROMETRY OF EXTRATERRESTRIAL X RAYS				72-014A-04	07/02/73	NORMAL	SUBS	90
LABEYRIE	GAMMA-RAY MEASUREMENT				72-014A-07	02/14/73	NORMAL	SUBS	91
MDFILS	STELLAR UV RADIATION EXPERIMENT				72-014A-01	02/14/73	NORMAL	SUBS	91
OCCHIALINI	SCLAR GAMMA RAYS IN THE 50- TO 500-MEV ENERGY RANGE				72-014A-05	02/14/73	NORMAL	SUBS	91
UK 5	UNITED KINGDOM	SRC	10/15/74	GEOCENTRIC	74-077A	10/18/74	NORMAL	STD	91
BOYD	UNITED STATES	NASA-CSS			74-077A-01	10/18/74	NORMAL	STD	91
BOYD	0.3- TO 20-KEV COSMIC X RAY WITH A ROTATION COLLIMATOR				74-077A-03	10/31/74	NORMAL	STD	91
ELLIOT	HIGH RESOLUTION SOURCE SPECTRA				74-077A-05	10/18/74	NORMAL	STD	92
HOLT	HIGH-ENERGY COSMIC X-RAY SPECTRA				74-077A-06	10/18/74	NORMAL	STD	92
POUNDS	ALL-SKY MONITOR				74-077A-02	12/03/74	PARTIAL	STD	92
POUNDS	2- TO 10-KEV SKY SURVEY				74-077A-04	10/18/74	NORMAL	STD	92
POUNDS	POLARIMETER/SPECTROMETER								
UNITED KINGDOM 5	SEE UK 5								
VIKING-A LANDER	UNITED STATES	NASA-CSS	3 QTR 75	MARS LANDER	VIKING-AL		APPROVED		92
ANDERSON	SEISMOLOGY				VIKING-AL-08		APPROVED		93
BIENANN	MOLECULAR ANALYSIS				VIKING-AL-04		APPROVED		93
MARGRAVES	MAGNETIC PROPERTIES				VIKING-AL-10		APPROVED		93
HESS	METEOROLOGY EXPERIMENT				VIKING-AL-07		APPROVED		93
KLEIN	BIOLOGY INVESTIGATION				VIKING-AL-03		APPROVED		93
MICHAEL, JR.	RADIO SCIENCE				VIKING-AL-11		APPROVED		94
MUTCH	FACSIMILE CAMERA				VIKING-AL-06		APPROVED		94
NIER	ENTRY-ATMOSPHERIC STRUCTURE				VIKING-AL-02		APPROVED		94
NIER	ENTRY-ATMOSPHERIC COMPOSITION				VIKING-AL-12		APPROVED		94
SHRTHILL	PHYSICAL PROPERTIES INVESTIGATION				VIKING-AL-01		APPROVED		95
TJULMIN, 3RD	X-RAY FLUORESCENCE SPECTROMETER				VIKING-AL-13		APPROVED		95
VIKING-A ORBITER	UNITED STATES	NASA-CSS	3 QTR 75	MARSCENTRIC	VIKING-A		APPROVED		95
CARR	ORBITER IMAGING				VIKING-A -01		APPROVED		95
FAMER	IR SPECTROMETER -- WATER VAPOR MAPPING				VIKING-A -03		APPROVED		95
KIEFFER	IR RADIOMETRY -- THERMAL MAPPING				VIKING-A -02		APPROVED		96

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*PRINC. INVEST. NAME	EXPERIMENT NAME							
VIKING-B LANDER	UNITED STATES	NASA-CSS	3 CTR 75 MARS LANDER	VIKG-BL		APPROVED		96
ANDERSON	SEISMOLOGY			VIKG-BL-08		APPROVED		96
BIEMANN	MOLECULAR ANALYSIS			VIKG-BL-04		APPROVED		96
HARGRAVES	MAGNETIC PROPERTIES			VIKG-BL-10		APPROVED		96
HESS	METEOROLGY EXPERIMENT			VIKG-BL-07		APPROVED		97
KLEIN	BIOLOGY INVESTIGATION			VIKG-BL-03		APPROVED		97
MICHAEL, JR.	RADIO SCIENCE			VIKG-BL-11		APPROVED		97
MUTCH	FACSIMILE CAMERA			VIKG-BL-06		APPROVED		97
NIER	ENTRY-ATMOSPHERIC STRUCTURE			VIKG-BL-02		APPROVED		97
NIER	ENTRY-ATMOSPHERIC COMPOSITION			VIKG-BL-12		APPROVED		98
SHORTHILL	PHYSICAL PROPERTIES INVESTIGATION			VIKG-BL-01		APPROVED		98
TOULMIN, 3RD	X-RAY FLUORESCENCE SPECTROMETER			VIKG-BL-13		APPROVED		98
VIKING-B ORBITER	UNITED STATES	NASA-CSS	3 CTR 75 MARS CENTRIC	VIKG-B		APPROVED		98
CARR	ORBITER IMAGING			VIKG-B -01		APPROVED		98
FARMER	IR SPECTROMETER -- WATER VAPOR MAPPING			VIKG-B -03		APPROVED		99
KIEFFER	IR RADIOMETRY -- THERMAL MAPPING			VIKG-B -02		APPROVED		99