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Produced by the NASA Center for Aerospace Information (CASI)
DEFINITIONS OF DISCIPLINES

ASTRONOMY — This category includes all observations of astronomical objects, both outside and within the solar system, made at various wavelengths (i.e., gamma rays through radio waves). Observed objects outside the solar system include stars, nebulae, galaxies, and all other matter. Observed objects within the solar system include zodiacal light sources, meteoroids, asteroids, dust, micrometeorites, and planetary radio emission sources. Other planetary observations (see Planetary Atmospheres, Planetology, or Ionospheric Physics) and solar observations (see Solar Physics) are excluded. Observations of cosmic-ray particles are listed under Particles and Fields. Celestial mechanics measurements are included under Geodesy and Gravimetry.

GEODESY AND GRAVIMETRY — This category includes experiments that measure size, shape, mass, coordinates, altitudes, or gravity fields or experiments concerned with the mapping of a body. It includes the mechanics of orbiting artificial and natural bodies.

IONOSPHERIC PHYSICS — This category includes observations of the ionosphere, which is defined as that region of a planetary atmosphere which contains a significant number of free thermal electrons on a daily basis and which has a free electron density maximum in the vertical direction. Its upper and lower extents are roughly defined as the areas in which densities approach $10^{-4}$ of the peak values. Included are all in situ and remotely sensed observations of ionospheric charged particles with thermal energies. This category is used for remotely sensed propagation experiments that primarily focus on the ionosphere, including very low frequency (VLF) and extremely low frequency (ELF) experiments; for other remotely sensed propagation experiments, an appropriate category, such as Particles and Fields, is used.

METEOROLOGY — This category includes observations made in the Earth's hydrosphere and atmosphere up to the mesopause or D region.

PARTICLES AND FIELDS — The subcategory Particles includes all in situ charged-particle measurements except those of thermal plasma in terrestrial or other planetary ionospheres (see Ionospheric Physics). It includes all neutron measurements and electromagnetic signal propagation experiments designed to measure columnar electron densities (except those in which the most significant portion of the free electrons within the column is within an ionosphere). The subcategory Fields includes all in situ measurements of electric and magnetic fields. It includes VLF and ELF experiments other than those primarily concerned with observing ionospheric properties. It excludes electromagnetic radiation (radio waves through gamma waves) propagating away from remote sources. (In such cases, either Solar Physics or Astronomy is used, as appropriate.)

PLANETARY ATMOSPHERES — This category includes all observations of the gaseous envelope above the surface of a planet. For the Earth the lower limit for observations that belong in this category is about 65 km, the height of the mesopause or D region. (For studies below this altitude, Meteorology is used.) The upper limit is defined as the transition level to the lightest gas. This region overlaps the ionosphere for planets which have an ionosphere; however, ionospheric observations are restricted to observations related to the charge aspects of matter, while Planetary Atmospheres relates to the mass aspects of matter (e.g., composition measurements). For cases in which both atmospheric and ionospheric categories apply, both may be used.

PLANETOLOGY — This category includes experiments for the purpose of deriving and analyzing data from the solid or liquid parts (excluding the oceans of the Earth) of any solar system body. Chemical, physical, and geologic studies of properties of gross or small surface features, materials of the surface, internal properties, magnetic properties, etc., are included. Gravitational and geodetic experiments are excluded from this category (see Geodesy and Gravimetry). When the primary purpose of the study is to measure the residual effects of some external phenomena (such as meteorite or cosmic-ray impacts), the external phenomena should determine the choice of category. If necessary, the experiment may be assigned to more than one category.

SOLAR PHYSICS — This category includes all solar observations regardless of the wavelength being observed. The source region considered here extends outward from the Sun to include that area observed with solar coronagraphs (nominally to 10 solar radii). All in situ measurements of electric or magnetic fields and of particles for which the source is believed to be the Sun are considered to fall in the domain of Particles and Fields.
CATALOG OF VIKING
MISSION DATA

edited by
Robert W. Vostreys

May 1978

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

This document was produced through the efforts of many people. Outstanding among them are the personnel at the National Space Science Data Center (NSSDC), the Viking Project personnel at the Jet Propulsion Laboratory, and those investigators who have provided data. My thanks to all of them.

NSSDC strives to serve the scientific community in a useful manner so that the data deposited can be disseminated for continued and further analysis. Scientists are invited to submit comments or recommendations regarding the format of this Catalog, the data announced herein, and the services provided by NSSDC. Recipients are urged to inform others of its availability.

Robert W. Vostreys
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INTRODUCTION

THE VIKING PROGRAM

The two Viking missions to Mars each consisted of an Orbiter and a Lander. Viking 1 was launched on August 20, 1975, and was inserted into an areocentric orbit on June 19, 1976. The Viking 1 Lander touched down in the Chryse region at a latitude of 22.27°N and a longitude of 47.94°W on July 20, 1976. Viking 2 was launched on September 9, 1975, and was inserted into an areocentric orbit on August 7, 1976. The Viking 2 Lander touched down in the Cydonia region at a latitude of 47.67°N and a longitude of 225.71°W on September 3, 1976. The primary mission for the two Vikings lasted until November 8, 1976, and an extended mission lasted until May 1978 (1 full Martian year). A continued mission is expected to last until March 1, 1979.

Both Vikings carried identical instrumentation and experiments. With the exception of the seismometer on board the Viking 1 Lander, which failed to uncage, all experiments functioned satisfactorily. The Orbiters carried instrumentation for imaging, radio science, thermal mapping, and water vapor detection. The Landers measured characteristics of the Martian atmosphere from the time they separated from the Orbiters until they touched down on the Martian surface. Then, on the surface, Lander instrumentation was utilized for biology, imagery, meteorology, organic and inorganic chemistry, physical properties, magnetic properties, radio science, and seismology investigations.

NSSDC MISSION

The purpose of the National Space Science Data Center (NSSDC) is to be the repository of space science data and the distributor of these data to the scientific community. To organize and systematize the volume of data received, NSSDC has a computerized file that maintains information on spacecraft, experiments flown on the spacecraft, and data stored at NSSDC from those experiments. For filing purposes, these records are each given identification numbers (NSSDC ID's) utilizing a spacecraft/experiment/data set hierarchy. Data are ordered from NSSDC by these numbers.

NSSDC has reproduction services, data viewing resources, and personnel to assist scientists in procuring the desired data products. In order to acquaint the user public with the data products stored at NSSDC, the Data Center publishes catalogs and other types of documents.
CATALOG ORGANIZATION

NSSDC publishes catalogs of data for the disciplines described on the inside front cover. The purpose of this Catalog is to announce the present/expected availability of scientific data acquired by the Viking missions. This Catalog contains descriptions of the Viking spacecraft, experiments, and data sets. An index is included that lists the team leaders and team members for the experiments. There are also two appendixes: information on NSSDC facilities and ordering procedures, and a list of acronyms and abbreviations.
DATA DESCRIPTIONS

This section contains descriptions of the Viking spacecraft, experiments, and data sets obtained from the NSSDC information system. Because NSSDC is receiving Viking data on a continuing basis, experiment and data set descriptions are included where data are scheduled to become available through NSSDC in the future. This Catalog, for the most part, contains descriptions of primary mission data; some extended mission data are also included.

The descriptions are organized by spacecraft in the following order: Viking 1 Orbiter (NSSDC ID 75-075A), Viking 1 Lander (NSSDC ID 75-075C), Viking 2 Orbiter (NSSDC ID 75-083A), and Viking 2 Lander (NSSDC ID 75-083C). As mentioned previously, the NSSDC ID is a code used to identify spacecraft, experiments, and data sets. Spacecraft ID's are appended with an experiment sequence number (e.g., 75-075A-01) and a data set sequence letter (e.g., 75-075A-01A). Each spacecraft, experiment, and data set entry is composed of two parts: a heading and a brief description. The spacecraft heading includes selected orbit parameters for the Viking Orbiter spacecraft. In addition, the heading includes the launch date, spacecraft common name, the NSSDC ID code, and spacecraft personnel. Spacecraft personnel for the Viking missions include the program manager (MG), program scientist (SC), project manager (PM), and project scientist (PS). The experiment heading includes the NSSDC experiment name, the NSSDC ID code, and the names and affiliations of the team leader (TL) and team members (TM) associated with the experiment. The data set heading includes the time period covered by the data (when available and verifiable), the quantity of data and the medium on which they are stored, and an indicator describing the availability of the data. The indicators used to describe the availability status of Viking data are:

- "Data at NSSDC Being Processed" -- identifies data sets for which documentation and verification activities are in process. These data are usually sufficiently documented and verified to satisfy routine requests.
- "Data Identified but not Received" -- identifies data sets that are not yet available at NSSDC, but for which descriptive information is available.
- "Data in Published Reports" -- indicates that the data are contained in a published report or journal, or that the only accessible source of any reduced data from an experiment is the published document.
DATA SET NAME: COLOR PRESS RELEASE PHOTOGRAPHY
NSSDC ID- 75-D75A-010
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 06/12/76 TO 06/25/76
QUANTITY OF DATA- 7 FRAMES

BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF 4- X 5-IN. COLOR NEGATIVES RELEASED BY THE PROJECT FOR PUBLIC DISTRIBUTION. BECAUSE OF COLOR INACCURACIES IN THE PRINTS, THE COLORING CANNOT BE CONSIDERED ACCURATE. AS BEST AS POSSIBLE TO REPRODUCE ACCURATELY THE RED SPECTRAL RANGE THAT WOULD BE PERCEIVED BY THE HUMAN EYE, BECAUSE OF A LACK OF ADEQUATE DATA FOR WAVELENGTHS OF 650 NM.

DATA SET NAME- B/W RECTILINEAR PHOTOGRAPHY
NSSDC ID- 75-D75A-010
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 06/22/76 TO 05/13/77
QUANTITY OF DATA- 1283 FRAMES

BRIEF DESCRIPTION
2 OF THESE DATA, SUPPLIED BY THE ORBITER IMAGING TEAM, ARE ON 5- X 5-IN. B/W FILM AND REPRESENT THE SURFACE AS VIEWED FROM THE ORBITER SCAN PLATFORM UNDER CORRECTIONS FOR OBSCURE VIEWING DISTORTION, MOST IMAGES ARE AVAILABLE IN TWO PROCESSING VERSIONS: (1) THE SHADING CORRECTED (SCR1) VERSION, SUITABLE FOR ALBEDO CONTRAST AND PHOTOGRAMMETRIC STUDIES; AND (2) THE HIGH PASS FILTERED (HPF) VERSION, WHICH PROVIDES MAXIMUM FEATURE DISCRIMINABILITY (AT THE COST OF TRUE ALBEDO CONTRAST). BOTH VERSIONS HAVE BEEN PROCESSED TO REMOVE OR FILL IN TELEMETRY BIT ERRORS, CAMERA BLEMISHES, AND NONUNIFORMITIES IN VISION RESPONSE. CORRECTED DATA ARE THEN LINEARLY STRETCHED IN CONTRAST TO FILL THE DYNAMIC RANGE OF THE FILM, EACH PROCESSED PICTURE HAS A DATA BLOCK CONTAINING ALL PERTINENT INFORMATION FOR THE IMAGE. TO SELECT THESE DATA, USE THE SEARCH (75-D75A-013), THE RECTILINEAR AND ORTHOGRAPHIC PHOTOGRAPHY INDEX (75-D75A-DTP), OR THE 10-6516 BOX INDEX (75-D75A-D12). (IN ORDERING, SPECIFY BOTH THE PICNO AND THE ROLL/FILE NUMBER.)

DATA SET NAME- B/W ORTHOGRAPHIC PHOTOGRAPHY
NSSDC ID- 75-D75A-012
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 07/23/76 TO 05/13/77
QUANTITY OF DATA- 1762 FRAMES

BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE ORBITER IMAGING TEAM, ARE ON 5- X 5-IN. B/W FILM AND ARE A SUBSET OF THE TOTAL IMAGE SET THAT HAS BEEN TRANSFORMED TO AN ORTHOGRAPHIC MAPPING PROJECTION SO THAT THE SCENE APPEARS AS IF VIEWED FROM DIRECTLY OVERHEAD. THE CENTER OF PROJECTION IS THE EARTH'S CENTER, OR THE EARTH IS PROJECTED ONTO THE FRAME TO PRESERVE MAXIMUM DISCRIMINABILITY OF FEATURES, THE SIZE OF THE PROJECTED IMAGE IS 256 MINUTES OF ARC AS LARGE AS POSSIBLE, THE SCALE MISMATCHES (55A PIXELS SQUARE), THEREFORE, THE SCALE WILL VARY FROM IMAGE TO IMAGE IN A SERIES. THIS IS ESPECIALLY EVIDENT IN THOSE SEQUENCES OBTAINED AT PERIAPSIS WHEN THE VIEWING GEOMETRY AND RANGE ARE CHANGING MOST RAPIDLY. THE SCALE OF EACH IMAGE IS GIVEN IN THE DATA BLOCK (UMBER 1200 M/Pixel). A SCALE BAR TO THE RIGHT OF THE IMAGE FACILITATES PHOTOGRAPHIC RECONSTRUCTION OF A SERIES OF IMAGES TO A SIMILAR SCALE, NOT ALL IMAGES ARE AVAILABLE IN THE ORTHOGRAPHIC VERSION. MOST ORTHOGRAPHIC IMAGES AVAILABLE WERE PRODUCED IN THE HSF VERSION AND, THEREFORE, DO NOT PRESENT TRUE ALBEDO CHARACTERISTICS. TO SELECT THESE DATA, USE THE SEARCH (75-D75A-013), THE RECTILINEAR AND ORTHOGRAPHIC PHOTOGRAPHY INDEX (75-D75A-D12), THE QUADRANT, LATITUDE, AND LONGITUDE INDEX (75-D75A-D10), OR THE 10-6516 BOX INDEX (75-D75A-D12), IN ORDERING, SPECIFY BOTH THE PICNO AND THE ROLL/FILE NUMBER.

DATA SET NAME- B/W PRESS RELEASE PHOTOGRAPHY
NSSDC ID- 75-D75A-01A
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 06/23/76 TO 02/20/77
QUANTITY OF DATA- 46 FRAMES

BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF 4- X 5-IN. B/W NEGATIVES THAT WERE RELEASED BY THE PROJECT FOR PUBLIC DISTRIBUTION. SOME INDIVIDUAL IMAGES MAY HIGHLIGHT POTENTIAL LANDMARKS SUCH AS CRATER RIM OR LANDMARKS. SOME NEGATIVES CONTAIN Auan CHANGES IN THE SCENE, WHILE OTHERS SHOW ONLY THE LINTER. THE REST WERE CHOOSE TO SHOW FEATURES OF THE SCENE. DESCRIPTIONS OF EACH PHOTOGRAPH ARE INCLUDED.
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AND LONG. IUDf, ON 16-RM MICROFILM. 
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VERSIONS OF EACH FRAME.
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SUPPLEMENTARY

NSSDC ID- 75-0754-011
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PRIEf OESCRIPTION

QUANTITY Of DATA- 1 LARD(S) Of B/Y 141CROFICHE

NSSDC ID - 75-0754a-014
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MANS APPEARS IN THE PICTURE. 	 A 'LIMP' PICIULf NAS AI LEAS1 ONET.

PORTION OF THE MA AS SURFACE. 	 A 'LIMP' PICIULf NAS AI LEAS1 ONET.

IMAGING TEAM. 	 INE DATA

QUANTITY Of DATA - 306 ERAT

DATA SET NAME- E/W STEREO PAIRS

TIME PERIOD COVERED- 06/23/76 TO 04/22/77
AVAILABILITY Of DATA SET- DATA AT NSSDC BEING PROCESSED

SUMMARY AND INDIA (7S-C7SA-0111 SHOULD dF USED TO SELECT DATA.

MOSAIC. 	 All OF THESE NUMBER! SHOULD BE SPECI FIED WHEN CRDFRING

FOOTPRINT 	 Pi 07	 PROVIDING TNf INDIVIDUAL PICNU AS WELL AS ROLL
FILE AND PICNU AS WELL AS ROLL

COMMENTS (AREA OR FEATURES IN VIEW), PRODUCTION
THE INDEX INCLUDES, PICNU, 	 CENTER 	 LAll IUDf. [INFER

DIFFERENT PROCESSED
versions of each frame.

DATA SET NAME- MOSAIC SUMMARY AND INDEX ON MICROFICHE

NSSDC 1D- 75-077A-014
LONGITUDE INDEX ON MICROFICHE
THE "INDEX" INCLUDES, PICNU, 	 CENTER 	 LAll IUDf. [INFER
IS	 DIVIDED OM 	 1HE	 SFI	 01 USGS 1:5,000,000 SCALE MAPS. 	 1.1
INDEX	 I 	 RECTILINEAR, ORTHOGRAPHIC, AND MOSAIC IMAGES OR D  AID
IMAGES Wnf RE INE INTERCEPT POINT 5 IS ON THE PLANET (EMAS LT 9'
(CENTER 	 Of	 1NAGE)	 ARE	 USED FOR THESE COMPUTATIONS. AND ONLY
IMAGES BY CENTER 	 LAIIIUDf, AND T,IE OIHfA LISS THE IMAGES BT

MANS APPEARS IN THE PICTURE. 	 A 'LIMP' PICIULf NAS AI LEAS1 ONET.

PORTION OF THE MA AS SURFACE. 	 A 'LIMP' PICIULf NAS AI LEAS1 ONET.

IMAGING TEAM. 	 INE DATA

QUANTITY Of DATA - 306 ERAT

DATA SET NAME- E/W STEREO PAIRS

TIME PERIOD COVERED- 06/23/76 TO 04/22/77
AVAILABILITY Of DATA SET- DATA AT NSSDC BEING PROCESSED

SUMMARY AND INDIA (7S-C7SA-0111 SHOULD dF USED TO SELECT DATA.

MOSAIC. 	 All OF THESE NUMBER! SHOULD BE SPECI FIED WHEN CRDFRING

FOOTPRINT 	 Pi 07	 PROVIDING TNf INDIVIDUAL PICNU AS WELL AS ROLL
FILE AND PICNU AS WELL AS ROLL
**INVESTIGATION NAME: INFRARED THERMAL MAPPING (IRTM)**

**NSSDC ID:** 75-DPS4-02

**PERSONNEL**

TL - H.M. KAPERN 
TH - G. KNICH 
TM - O. STIEGERAUER 
CSE - E. E. JR.

**BRIEF DESCRIPTION**

The purpose of the IRTM experiment was to measure the temperatures of the atmosphere and area on the surface of Mars. The amount of sunlight reflected by the planet was also measured. The IRTM was a multi-channel radiometer mounted on the orbiter's scan platform. Four small telescopes, each with seven infrared detectors, were aimed parallel to the visual imaging optical axis and made observations every 1.725 s. The instrument was capable of measuring differences of 1°C throughout a temperature range of -15°C to +5°C. The field of view was circular, 5 milliradians in diameter.

**DATA SET NAME:** DECELERATED INFRAKRED THERMAL MAPPING DATA ON MAGNETIC TAPE

**NSSDC ID:** 75-DPS4-02A

**AVAILABILITY OF DATA SET**

- DATA AT NSSDC BEING PROCESSED

**TIME PERIOD COVERED:** 07/22/76 to 09/09/76

**QUANTITY OF DATA:** 13 REEL(S) OF MAGNETIC TAPE

**BRIEF DESCRIPTION**

The tapes are contained on 9-TRACK, DZ20-05P, 160-BPI magnetic tape supplied by the investigation team. They contain the decelerated values of brightness for every observation and a variety of geometrical parameters to define the area viewed and the pertinent observational parameters. Included are header records specifying the geometry of the orbit and of the spacecraft at the time of the observational sequence, and data records giving the brightness data and the geometric parameters pertaining to each measurement.

**INVESTIGATION NAME:** MARS ATMOSPHERIC WATER DETECTION (MAWD)

**NSSDC ID:** 75-DPS4-05

**PERSONNEL**

TL - T.W. FARMER
TH - D.G. LAROCHE
TM - D. DAVIES
CSE - E. E. JR.

**BRIEF DESCRIPTION**

The MAWD used an infrared grating spectrometer mounted on the orbiter scan platform that was illuminated with the television cameras and the IRTM. The instrument measures solar infrared radiation reflected from the surface through the atmosphere to the spacecraft. Spectral intervals were selected coincident with the wavelength of water vapor absorption lines in the 7–15 μm region. The quantity of water vapor along the line of sight was measured from 1 to 100 micrometers of precipitable water with an accuracy of 5 percent or better. The instantaneous field of view of the instrument was 4.17 by 1.67 milliradians when the MAWD rotated the line of sight through 15 positions to provide a roughly rectangular field of view of 87 by 31 milliradians.

**DATA SET NAME:** MAWD RADIANCE AND GEOMETRY DATA ON TAPE

**NSSDC ID:** 75-DPS4-05A

**AVAILABILITY OF DATA SET**

- DATA AT NSSDC BEING PROCESSED

**TIME PERIOD COVERED:** 06/18/76 to 04/27/77

**QUANTITY OF DATA:** 21 REEL(S) OF MAGNETIC TAPE

**BRIEF DESCRIPTION**

The data are contained on 9-TRACK, DZ20-05P, 160-BPI magnetic tape supplied by the investigation team. They contain the calculated values of the invisible radiance from each observation and a variety of geometrical parameters that define the area viewed. Also included are pertinent observational parameters and each tape record contains all the data from one complete raster (15 consecutive measurements), including the raddiances and the area of the surface viewed, followed by average values for the whole raster as well as pertinent geometrical and timing information.

**INVESTIGATION NAME:** ORBITER RADIO SCIENCE

**NSSDC ID:** 75-DPS4-04

**PERSONNEL**

TL - H.M. MICHAEL, JR.
TM - T. HALL
TH - R. LEWIS
TM - J. DAVIS
TH - D. CASH
TM - M. CROSS
TH - G. TITTON
TH - J. COHLEN
TH - T. TOLSON
TH - C. STELZER
TM - G. BONK
TM - R. HEISENBERG

**BRIEF DESCRIPTION**

There are four distinct sets of Viking Radio Science data. These data use orbital data and one primarily using lander data with calibrations from orbiter data. The orbiter tracking data are contained in the two-way orbiter–lander S-band and X-band radio links. These data consist of Doppler frequencies and time–off–flight range measurements. These determine the position and motion of the orbiters, and can be used to study the Mars gravitational field, the plasma in interplanetary space, and the structure of the solar corona. The occultation data were obtained from these same radio links by analog recording of the signal when a spacecraft was passing into or out of occultation with Mars. The data can be used to produce altitude profiles of the temperature, density, and pressure of the atmosphere (including the ionosphere) and to measure the radius of the planet using a large number of viewing points. The surface properties aspect of this investigation utilized the UHF (55 MHz) signal on which the lander transmitted data to the orbiter. At the beginning of each of a data transmission session, when the orbiter was near the lander's horizon, the strength of the received signal was recorded as a function of time. These signals "fading patterns," resulting from interaction of the radio waves with the Martian surface, contain information about the physical properties of the surface near the landers. The lander tracking data from the two-way direct lander–orbiter S-band link permit determination of the location of the landers and studies of the motion of the planet.

**DATA SET NAME:** RADIO OCULTATION OBSERVATIONS ON MAGNETIC TAPE

**NSSDC ID:** 75-DPS4-04B

**AVAILABILITY OF DATA SET**

- DATA AT NSSDC BEING PROCESSED

**TIME PERIOD COVERED:** 10/06/76 to 11/07/76

**QUANTITY OF DATA:** 7 REEL(S) OF MAGNETIC TAPE

**BRIEF DESCRIPTION**

These data, supplied by the Radio Science team, are contained on 7-TRACK, Z020-05P, 160-BPI magnetic tapes. In one occultation observation several hundred to several thousand measurements of Doppler frequency were made using either the S-band or X-band frequencies, or both. For each measurement there is trajectory information and frequency information. On the tapes, trajectory files give the uncalibrated and axial signal data from lander 1 to orbiter 1 and gain and axial ratio data from lander 2 to orbiter 1.

**DATA SET NAME:** SURFACE ELECTRICAL PROPERTY DATA PLOTS ON MICROFILM

**NSSDC ID:** 75-DPS4-04A

**AVAILABILITY OF DATA SET**

- DATA AT NSSDC BEING PROCESSED

**TIME PERIOD COVERED:** 07/23/76 to 10/04/76

**QUANTITY OF DATA:** 1 REEL(S) OF MICROFILM

**BRIEF DESCRIPTION**

These data are on 14-MN microfilm generated by NSSDC from paper plots supplied by the radio science team. The plots show altitude vs. time of lander telemetry signals received by the orbiters. This is an updated listing of the files received. On the tapes, four distinct sets of Viking radio science data - direct orbit-to-lander occultation data, direct lander-to-orbiter occultation data, and two-way lander-to-orbiter occultation data. These data include multipath information from the sender to the orbiter and back to the sender and to the orbiter. This data is from lander 1 to orbiter 1 and gain and axial ratio data from lander 2 to orbiter 1.

**DATA SET NAME**: ORBITER RADIO SCIENCE TRACKING DATA ON MAGNETIC TAPE  
**NSSDC ID**: 75-075A-040

**AVAILABILITY OF DATA SET**: IDENTIFIED BUT NOT RECEIVED

**BRIEF DESCRIPTION**  
These 7-track, 2000 foot magnetic tapes, supplied by the Radio Science Team, are on a subset of the range points on the tracking tape that were used in the calibration program. The parameters listed are time, Doppler frequency, and range velocity of the spacecraft in various coordinate systems. The data are useful for the design and analysis of various spacecraft tracking systems.

**DATA SET NAME**: DECAIIBRATED RANGE DATA ON MAGNETIC TAPE  
**NSSDC ID**: 75-075A-016

**AVAILABILITY OF DATA SET**: IDENTIFIED BUT NOT RECEIVED

**BRIEF DESCRIPTION**  
These data, supplied by the Radio Science Team, are on 7-track, 2000 foot magnetic tapes for the range points which are a subset of the range points on the tracking tape that were used in the calibration program. The parameters listed are time, Doppler frequency, and range velocity of the spacecraft in various coordinate systems. The data are useful for the design and analysis of various spacecraft tracking systems.

**SCIENTIFIC PAYLOAD**: CHEMICAL COMPOSITION (ORGANIC AND INORGANIC), MINERALOGY, ATMOSPHERIC PROPERTIES, SURFACE APPEARANCE, AND PHYSICAL PROPERTIES OF THE MARTIAN SURFACE AND ATMOSPHERE. 

**ORIGINAL PAGE IS OF POOR QUALITY**
TO DETECT ANY RADIOACTIVE GASES RELEASED FROM THESE NONVOLATILE MATERIALS, A GAS CHROMATOGRAPHIC COLUMN WAS USED TO SEPARATE A MIXTURE OF CO₂, NO₂, CH₄, N₂O, AND O₂ DURING INCUBATION OF A SOIL SAMPLE. THE SAMPLE WAS OBTAINED FROM A DIFFERENT DEGREE OF REFLEXION, THEN DETERMINED IN VARIOUS SITES.

THE SAMPLE WAS INCUBATED AT INTERVALS, SAMPLES OF THE ATMOSPHERE WERE TAKEN AND DETERMINED WITH A GAS CHROMATOGRAPH WITH A THERMAL CONDUCTIVITY DETECTOR.

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DATA SET NAME- GAS EXCHANGE- LABELED R2I, ASE, AND PYROLYTIC RELEASE DATA ON MICROFILM

NSSDC ID- 75-075C-053

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 05/30/77

QUANTITY OF DATA- 13 REELS (S) OF MICROFILM

BRIEF DESCRIPTION


INVESTIGATION NAME- MOLECULAR ANALYSIS

NSSDC ID- 75-0755-046

PERSONNEL

EL - K. DIENMANN
TM - H.L. JURV
TM - P.M. ANDERSON
TM - T.
TM - J.
TM - L.E. NIEL
TM - A.C. LUM
TM - P. TOLPIN

BRIEF DESCRIPTION

THE MOLECULAR ANALYSIS EXPERIMENT SEARCHED FOR CHEMICAL COMPOUNDS IN THE UPPER SURFACE LAYER OF MARS AND MEASURED ATMOSPHERIC COMPOSITION NEAR THE SURFACE. THE SOIL ANALYSES WERE PERFORMED USING A GAS CHROMATOGRAPH MASS SPECTROMETER (GC/MS) THAT HAD HIGH SENSITIVITY, HIGH STRUCTURAL SPECIFICITY, AND BROAD APPROPRIATABILITY TO A WIDE RANGE OF COMPOUNDS. SUBSTANCES WERE SUBMITTED FROM THE SURFACE MATERIAL BY A HEATING PROCESS WHILE CO₂ (LABELED WITH C-13) SWEEP THROUGH. THE MATERIAL WAS THEN CARRIED INTO A TERNARY GAS-CHROMATOGRAPHIC COLUMN THAT WAS SWEEP WITH HYDROGEN AS A CARRIER GAS. WHILE PASSING THROUGH THE COLUMN, SUBSTANCES WERE SEPARATED BY DIFFERENT DEGREES OF RETENTION. THE RESIDUAL STREAM MOVED INTO THE Mass SPECTROMETER (AFTER HYDROGEN WAS SWEEP BY HYDROGEN-ONLY-PERMEABLE PALLADIUM) AND A MASS SPECTRUM CHANGES FROM 12 TO 200 UF WAS OBTAINED EVERY 10 S FOR THE BA MIN OF THE EXPERIMENT.

DATA SET NAME- GAS CHROMATOGRAPH MASS SPECTROMETER SOIL ANALYSIS DATA ON MAGNETIC TAPE

NSSDC ID- 75-0755-04A

AVAILABILITY OF DATA SET- DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

THE mass SPECTRUM DATA, ON 9-TRACK, BCD-RIP TAPE, ARE REDUCED VERSIONS OF THE GCMS SOIL ANALYSIS DATA (75-075C-GA). EACH SAMPLE RUN IS ON A SEPARATE FILE, AND THERE IS ONE RECORD FOR EACH SPECTRAL SCAN. INCLUDING Mass SPECTRUM DATA AND ENGINEERING DATA. LISTED IS THE INTENSITY IN ARBITRARY LINEAR UNITS AS A FUNCTION OF MASS NUMBER FROM 12 TO 255 IN THE CONVENTIONAL MASS SPECTRUM FORMAT, THE ENGINEERING INFORMATION INCLUDED PERMITS CONVERSION OF INTENSITIES TO CURRENT UNITS.

INVESTIGATION NAME- LANDER IMAGING

NSSDC ID- 75-0755-006

PERSONNEL

EL - T.A. MUM
TM - C. SAGA
TM - R.A.B. GILMER
TM - E.E. MORRIS
TM - F.G. HECK
TM - E.C. LEVINTHAL
TM - J. LEEBER JR.
TM - J.R. POLLOCK

BRIEF DESCRIPTION

THE LANDER IMAGING EXPERIMENT VIEWED THE SCENE SURROUNDING THE LANDER AND THE SURFACE SAMPLES AND OTHER PARTS OF THE LANDER, THE SUN, PHOEBUS, AND JEDI TO PROVIDE DATA FOR OPERATIONAL PURPOSES, INSTRUMENT CALIBRATION, INSTRUMENT CALIBRATION, TWO SCANNING CAMERAS, CAPABLE OF RESOLVING 0.06 DEG (HIGH RESOLUTION) ON 0.12 DEG (LOW RESOLUTION), COLOR, AND 185 WERE USED ON EACH LANDER. EACH IMAGE ACQUIRED COVERING A VERTICAL FIELD OF 72 DEG. THE RESOLUTIONS FOR B/W, COLOR, AND 185 WAS READABLE FROM 2.5 deg TO 34.25 deg IN 2.5 deg INCREMENTS.
IMAGES WERE ACQUIRED FROM 40 DEG ABOVE THE NOMINAL HORIZON TO 60 DEG BELOW AND WERE COMPARABLE IN 10-DEG INCREMENTS. THE CAMERAS WERE MOUNTED 1.3 M ABOVE THE NOMINAL LANDING PLANE AND WERE CAPABLE OF VIEWING TWO FOOTPADS AND MOST OF THE AREA AROUND THEM. THE TWO CAMERAS WERE SEPARATED BY 3.8 M AND STEEROSCOPIC PICTURES WERE OBTAINED FOR EACH SCENE. BLACK-AND-WHITE IMAGES IN EITHER LOW OR HIGH RESOLUTION INCLUDED RADAR WAVELENGTHS FROM 0.5 TO 1.2 M, AND THE COMPLETE CAMERA SYSTEM INCLUDED A 32 X 32 DETECTOR TO CAPTURE THE ENTIRE FRAME. A RELATIVE RADAROMETRIC ACCURACY OF PLUS OR MINUS 10 PERCENT. FOR MORE INFORMATION CONCERNING THE CAMERAS, SEE HUCK ET AL. SPACE SCIENCE INSTRUMENTATION 7, 195-247 (1975).

***************
DATA SET NAME- B/W PRESS RELEASE PHOTOGRAPHY
NSSDC ID- 75-075C-06A
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 07/20/76 TO 07/25/76
QUANTITY OF DATA- 14 FRAMES
BRIEF DESCRIPTION
THESE DATA ARE ON 4-M X 5-IN. B/W NEGATIVES RECEIVED FROM THE PROJECT FOR PUBLIC DISTRIBUTION. THESE PHOTOGRAPHS ARE OF SELECTED SCENES NEAR THE LANDER THAT ARE OF GENERAL INTEREST TO THE PUBLIC. A DESCRIPTION OF EACH PHOTOGRAPH IS INCLUDED.

***************
DATA SET NAME- COLOR PRESS RELEASE PHOTOGRAPHY
NSSDC ID- 75-075C-06B
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 07/21/76 TO 07/26/76
QUANTITY OF DATA- 4 FRAMES
BRIEF DESCRIPTION
THESE DATA ARE ON 4-M X 5-IN. COLOR FILM RELEASED BY THE PROJECT FOR PUBLIC DISTRIBUTION. THESE PHOTOGRAPHS ARE OF SELECTED SCENES NEAR THE LANDER THAT ARE OF GENERAL INTEREST TO THE PUBLIC. A DESCRIPTION OF EACH PHOTOGRAPH IS INCLUDED. THE COLORING CANNOT BE CONSIDERED TO BE ACCURATE BECAUSE OF COLOR INACCURACIES IN REPRODUCTION.

***************
DATA SET NAME- EXPERIMENT DATA RECORD (EDR) B/W IMAGES ON FILM
NSSDC ID- 75-075C-06C
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 07/20/76 TO 11/02/76
QUANTITY OF DATA- 724 FRAMES
BRIEF DESCRIPTION
THESE DATA SUPPLIED BY THE LANDER IMAGING TEAM, CONSISTS OF THE B/W EUR VERSION OF THE LANDER PHOTOGRAPHY. THE DATA BLOCK ON EACH FRAME CONTAINS IDENTIFICATION, PROCESSING, AND CAMERA EVENT INFORMATION. THE DATA ARE AVAILABLE ON 5-IN. FILM AS INDIVIDUAL 5-M X 5-IN. FRAMES, AND MAY BE ORDERED WITH OR WITHOUT THE DATA BLOCK. THIS TOTAL DATA SET IS A COLLECTION OF IMAGES FROM THE LANDER IMAGING DATA AS RECEIVED ON EARTH. THE PICTURE CATALOG OF PRIMARY MISSION EDR (75-075C-06C) SHOULD BE USED TO ORDER EDR IMAGES.

***************
DATA SET NAME- PICTURE CATALOG OF PRIMARY MISSION EXPERIMENT DATA RECORD (EDR)
NSSDC ID- 75-075C-06D
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA- 5 CARDS OF B/W MICROFICHE
BRIEF DESCRIPTION
THESE DATA ARE ON B/W MICROFICHE GENERATED AT NSSDC FROM NASA REFERENCE PUBLICATION 2027 PREPARED BY ROBERT R. JUCKER. THIS PUBLICATION IS A GENERAL REFERENCE FOR THE IMAGING DATA FROM THE VIKING LANDER PRIMARY MISSION. IT PRESENTS THE RESULTS OF THE PROCEDURES THAT WERE APPLIED TO THE IMAGING DATA TO PRODUCE AN ORGANIZED RECORD THAT IS AS COMPLETE AND AS ERROR-FREE AS POSSIBLE. THE RESULT IS CALLED THE EXPERIMENT DATA RECORD. THIS PUBLICATION CONTAINS ALL IMAGES RETURNED BY THE TWO VIKING LANDERS DURING THE PRIMARY MISSION. SIDELINE DRAWINGS DISPLAY THE OUTLINES OF THE IMAGES AS THEY APPEAR IN THE PRIMARY MISSION EXPERIMENT DATA RECORD. THE MICROFICHES ALSO INCLUDES A COMPUTER-GENERATED CAMERA EVENT REPORTS THAT LIST SUPPLEMENTAL INFORMATION ABOUT THE CONDITIONS UNDER WHICH THE DATA WERE COLLECTED AND HOW THEY WERE PROCESSED AND RECORDED. IN ADDITION TO A COMPREHENSIVE REPORT, SEVERAL LISTS INCLUDED THAT GROUP THE IMAGES IN A VARIETY OF WAYS E.G., BY TIME OF DAY. A SECTION ON TERMINOLOGY HAS BEEN INCLUDED TO ASSIST WITH THE INTERPRETATION OF THE LISTINGS AND THE IMAGE PRESENTATION. SEVERAL DIAGRAMS ALSO PROVIDE ASSISTANCE ON THIS SUBJECT. THIS PUBLICATION WILL ACCOMPANY THE USER WITH THE IMAGING DATA AND ARE AVAILABLE FROM THE VIKING LANDER PRIMARY MISSION AND THE PROCEDURE USED TO OBTAIN PHOTOGRAPHIC PRODUCTS. IT IS NECESSARY TO OBTAIN THIS DATA SET TO SELECT EDR IMAGES (75-075C-06D).

***************
DATA SET NAME- TEAM DATA RECORD (TDR) B/W IMAGES ON FILM
NSSDC ID- 75-075C-06E
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 07/20/76 TO 11/02/76
QUANTITY OF DATA- 647 FRAMES
BRIEF DESCRIPTION
THESE DATA SUPPLIED BY THE LANDER IMAGING TEAM, CONSISTS OF THE B/W EUR VERSION OF THE LANDER PHOTOGRAPHY. THE TWO VISIONS REPRESENT THE COLORS AS SEEN OR MARS UNDER MARS LIGHTING CONDITIONS AND AS SEEN ON EARTH UNDER THE LIGHTING CONDITIONS. INCLUDED ON EACH FRAME ARE GRAY SCALE WEGSET, DATA BLOCKS, AND COLOR SPECTRUM HISTOGRAMS. OCCASIONALLY, A THIRD TYPE IS GIVEN IN WHICH THE COLOR IS AS SEEN ON MARS BUT WAS MADE THE PRODUCTS THAT DID NOT HAVE FULL SIX-CHANNEL DATA ACQUIRED. THIS TYPE IS CALLED "WEGSET". THE PRIMARY MISSION CATALOG (75-075C-06C) SHOULD BE USED TO ORDER TDR IMAGES.

***************
DATA SET NAME- TDR-1PL PRIME MISSION CATALOG ON MICROFICHE
NSSDC ID- 75-075C-06F
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA- 45 FRAMES
BRIEF DESCRIPTION
THESE DATA SUPPLIED BY THE LANDER IMAGING TEAM, CONSISTS OF THE B/W EUR VERSION OF THE LANDER PHOTOGRAPHY. THE TWO VISIONS REPRESENT THE COLORS AS SEEN ON MARS UNDER MARS LIGHTING CONDITIONS AND AS SEEN ON EARTH UNDER THE LIGHTING CONDITIONS. INCLUDED ON EACH FRAME ARE GRAY SCALE WEGSET, DATA BLOCKS, AND COLOR SPECTRUM HISTOGRAMS. OCCASIONALLY, A THIRD TYPE IS GIVEN IN WHICH THE COLOR IS AS SEEN ON MARS BUT WAS MADE THE PRODUCTS THAT DID NOT HAVE FULL SIX-CHANNEL DATA ACQUIRED. THIS TYPE IS CALLED "WEGSET". THE PRIMARY MISSION CATALOG (75-075C-06C) SHOULD BE USED TO ORDER TDR IMAGES.

***************
DATA SET NAME- TDR-1PL PRIME MISSION CATALOG ON MICROFICHE
NSSDC ID- 75-075C-06G
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA- 45 FRAMES
BRIEF DESCRIPTION
THESE DATA SUPPLIED BY THE LANDER IMAGING TEAM, CONSISTS OF THE B/W EUR VERSION OF THE LANDER PHOTOGRAPHY. THE TWO VISIONS REPRESENT THE COLORS AS SEEN ON MARS UNDER MARS LIGHTING CONDITIONS AND AS SEEN ON EARTH UNDER THE LIGHTING CONDITIONS. INCLUDED ON EACH FRAME ARE GRAY SCALE WEGSET, DATA BLOCKS, AND COLOR SPECTRUM HISTOGRAMS. OCCASIONALLY, A THIRD TYPE IS GIVEN IN WHICH THE COLOR IS AS SEEN ON MARS BUT WAS MADE THE PRODUCTS THAT DID NOT HAVE FULL SIX-CHANNEL DATA ACQUIRED. THIS TYPE IS CALLED "WEGSET". THE PRIMARY MISSION CATALOG (75-075C-06C) SHOULD BE USED TO ORDER TDR IMAGES.

***************
DATA SET NAME- HIGH-RESOLUTION B/W MOSAICS
NSSDC ID- 75-075C-06H
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA- 2 CARDS OF B/W MICROFICHE
BRIEF DESCRIPTION
THESE DATA SUPPLIED BY THE LANDER IMAGING TEAM, CONSISTS OF THE B/W EUR VERSION OF THE LANDER PHOTOGRAPHY. THE TWO VISIONS REPRESENT THE COLORS AS SEEN ON MARS UNDER MARS LIGHTING CONDITIONS AND AS SEEN ON EARTH UNDER THE LIGHTING CONDITIONS. INCLUDED ON EACH FRAME ARE GRAY SCALE WEGSET, DATA BLOCKS, AND COLOR SPECTRUM HISTOGRAMS. OCCASIONALLY, A THIRD TYPE IS GIVEN IN WHICH THE COLOR IS AS SEEN ON MARS BUT WAS MADE THE PRODUCTS THAT DID NOT HAVE FULL SIX-CHANNEL DATA ACQUIRED. THIS TYPE IS CALLED "WEGSET". THE PRIMARY MISSION CATALOG (75-075C-06C) SHOULD BE USED TO ORDER TDR IMAGES.

***************
DATA SET NAME- HIGH-RESOLUTION B/W MOSAICS
NSSDC ID- 75-075C-06H
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA- 2 CARDS OF B/W MICROFICHE
BRIEF DESCRIPTION
THESE DATA SUPPLIED BY THE LANDER IMAGING TEAM, CONSISTS OF THE B/W EUR VERSION OF THE LANDER PHOTOGRAPHY. THE TWO VISIONS REPRESENT THE COLORS AS SEEN ON MARS UNDER MARS LIGHTING CONDITIONS AND AS SEEN ON EARTH UNDER THE LIGHTING CONDITIONS. INCLUDED ON EACH FRAME ARE GRAY SCALE WEGSET, DATA BLOCKS, AND COLOR SPECTRUM HISTOGRAMS. OCCASIONALLY, A THIRD TYPE IS GIVEN IN WHICH THE COLOR IS AS SEEN ON MARS BUT WAS MADE THE PRODUCTS THAT DID NOT HAVE FULL SIX-CHANNEL DATA ACQUIRED. THIS TYPE IS CALLED "WEGSET". THE PRIMARY MISSION CATALOG (75-075C-06C) SHOULD BE USED TO ORDER TDR IMAGES.
USING A 100-MICROMETER SPOT SIZE. THEY COVER QUADRANTS 1 AND 2, AND QUADRANTS 3 AND 4. EACH FRAME IS 125 BY 125 METER SQUARES. THE QUADRANT AZIMUTH LIMITS ARE AS FOLLOWS: QUADRANT 1 IS 0 TO 90 GRADE, QUADRANT 2 IS 90 TO 180 GRADE, QUADRANT 3 IS 180 TO 270 GRADE, AND QUADRANT 4 IS 270 TO 360 GRADE.

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DATA SET NAME- DONUT PROJECTION IMAGES ON FILM
NSSDC ID- 75-075C-061

AVAILABILITY OF DATA SET- DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION


***************

INVESTIGATION NAME- METEOROLOGY
NSSDC ID- 75-075C-07

PERSONNEL

J. C. L. HESS
U. OF FLORIDA

R. M. C. LEVY
U. OF WASHINGTON

J. A. RYAN
U. OF WASHINGTON

J. E. TILLMAN
U. OF WASHINGTON

BRIEF DESCRIPTION

THIS EXPERIMENT ANALYZED THE METEOROLOGICAL ENVIRONMENT NEAR THE PLANETARY SURFACE AND OBTAINED INFORMATION ABOUT MOTION SYSTEMS USING VARIOUS SCALES. THE ATMOSPHERIC PARAMETERS DETERMINED WERE PRESSURE, TEMPERATURE, WIND SPEED, AND WIND DIRECTION. DIURNAL AND SEASONAL VARIATIONS WERE OF PARTICULAR IMPORTANCE. THE SAMPLING RATES AND DURATIONS FOR ANY ONE MARTIAN DAY WERE SELECTED BY GROUND COMMAND. THE SENSORS WERE MOUNTED ON AN ERECTABLE ROOF. THREE HOT-FILM ANEMOMETERS, THROUGH WHICH AN ELECTRIC CURRENT FLOWED, WERE MOUNTED IN A VACUUM SEAL. NEAR THE ROOF, TWO NEEDLES COATED IN PLATINUM AND OVERCOATED WITH ALUMINUM WERE USED TO MEASURE WIND SPEED. THE SET-UP WAS USED TO MAINTAIN THESE SENSORS AT A FIXED TEMPERATURE ABOVE THE SURROUNDING AIR. THE MEASURE OF WIND SPEED, ATMOSPHERIC TEMPERATURE, AND WIND DIRECTION WERE USED TO MAINTAIN THE SENSORS. A TWIN METAL DIAPHRAGM MOUNTED IN A VACUUM SEALER WAS USED TO MEASURE ATMOSPHERIC PRESSURE.

***************

DATA SET NAME- SAMNET LISTINGS OF TEMPERATURE AND VECTOR WIND VS TIME
NSSDC ID- 75-075C-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 05/15/77

QUANTITY OF DATA- 208 CARD(S) OF B/W MICROFICH

BRIEF DESCRIPTION

THIS DATA SET, ON B/W MICROFICH, CONSISTS OF A COPY OF THE COMPUTER OUTPUT OF THE SAMNET ANALYSIS PROGRAM, WHICH PRESENTS ALL THE INFORMATION ABOUT ATMOSPHERIC VARIABLES TO THE USER. THE VARIABLES MAPPED WERE PRESSURE, TEMPERATURE, WIND SPEED, AND WIND DIRECTION IN GEOPHYSICAL UNITS; AND PRESSURE DATA IN GEOPHYSICAL UNITS. THERE IS ALSO INFORMATION ON THE DATA HUB INPUT THAT CONTROLLED THE SAMNET RUN AND ON PARITY ERRORS IN THE DATA. THE REDUCED DATA ITEMS 3 AND 4 WERE USED TO PREPARE THE ABABED DATA SETS.

***************

DATA SET NAME- HIGH TIME RESOLUTION PLOTS OF VECTOR WIND AND TEMPERATURE VS TIME (SECONDS)
NSSDC ID- 75-075C-07B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 08/27/76

QUANTITY OF DATA- 1 REEL(S) OF MICROFICH

BRIEF DESCRIPTION

THIS 76-MM MICROFICH DATA SET WAS GENERATED AT NSSDC FROM HARD-COPY REDUCED DATA PLOTS PREPARED BY THE EXPERIMENTER. THE PLOT CONSISTS OF PLOTS OF TWO PARAMETERS (WIND SPEED AND WIND DIRECTION) VS TIME. EACH PLOT IS MADE FROM A FRAME OF 125-SECOND (OBSERVATION) SNAPshots LINING ON THE SURFACE DURING THE END OF THE MEASUREMENT. SUCH INFORMATION AS THE MEASUREMENTS TIMES AND THE TIME PERIOD COVERED NORMALLY BECAUSE FOR EACH WIND SENSE, EXCEPT THAT THE FIRST OBSERVATION PERIOD EACH DAY IS FOR 15 MIN. EACH PLOT PERTAINS RELATIVE SCALE OF SCALE TAKEN FOR ONE OF THE MEASUREMENT PERIODS.

***************

DATA SET NAME- LOW TIME RESOLUTION (AVERAGE) PLOTS OF VECTOR WIND AND TEMPERATURE VS TIME (HOURS)
NSSDC ID- 75-075C-07C

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/22/76 TO 08/27/76

QUANTITY OF DATA- 1 REEL(S) OF B/W MICROFICH

BRIEF DESCRIPTION

THIS 76-MM MICROFICH DATA SET WAS GENERATED AT NSSDC FROM HARD-COPY REDUCED DATA PLOTS PREPARED BY THE EXPERIMENTER FROM THE RECORDED DATA IN DATA SET 75-075C-07B. THE DATA CONSIST OF SERIES OF THREE PLOTS, EACH FRAME FOR WIND SPEED, WIND DIRECTION, AND TEMPERATURE. EACH PLOT IS PRODUCED BY AVERAGING ALL OBSERVATIONS TAKEN DURING ONE WIND HOUR (MOBILE). EACH PLOT DEPICTS DAILY PARAMETERS VARIATION FOR A PARTICULAR DAY.

***************

INVESTIGATION NAME- MAGNETIC PROPERTIES
NSSDC ID- 75-075C-10

PERSONNEL

J. C. L. HESS
U. OF FLORIDA

R. A. F. HARGRAVES
PRINCETON U

BRIEF DESCRIPTION

THE MAGNETIC PROPERTIES EXPERIMENT DETECTED THE PRESENCE OF MAGNETIC PARTICLES IN MARTIAN SURFACE MATERIAL. IT USED THREE PAIRS OF SAMPANUM-CASTAL MAGNETS, TWO MOUNTED ON THE FACE OF THE SURFACE SAMPLER COLLECTOR HEAD AND ONE ON TOP OF THE LANDER. EACH PAIR CONSISTED OF AN OUTER CIRCLE MAGNET ABOUT 2.5 CM IN DIAMETER WITH AN INNER CORE MAGNET OF OOF DIAMETER. THE MAGNETS WERE DIRECTLY IMAIGED BY THE CAMERA SYSTEM IN BLACK AND WHITE AND IN COLOR. A 6-POWER MAGNIFYING MIRROR WAS USED TO MAXIMUM RESOLUTION.

***************

DATA SET NAME- INDEX OF MAGNET IMAGES ON MICROFICH
NSSDC ID- 75-075C-10A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 10/06/76

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICH

BRIEF DESCRIPTION

THESE DATA ARE ON B/W MICROFICH GENERATED AT NSSDC FROM A HARD-COPY IMAGE SUPPLIED BY THE INVESTIGATOR. THIS INDEX LIST THE LANDER CAMERA IMAGES TAKEN OF THE MAGNET PAIRS MOUNTED ON THE SAMPLER HEAD. THE LISTING CONTAINS THE MARTIAN DAY (SOLAR) IMAGE REFERENCE NUMBER BY WHICH THE IMAGES WERE LABELED. RESOLUTION IF COLOR, BLACK, AND WHITE (A INFRARED I IN THE SUN OR SHADED) AND COMMENTS.

***************

DATA SET NAME- MAGNET IMAGES ON ROLL FILM
NSSDC ID- 75-075C-10B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 10/06/76

QUANTITY OF DATA- 2 FRAMES

BRIEF DESCRIPTION

THESE DATA ARE ON 5-IN. B/W ROLL FILM GENERATED AT NSSDC FROM LANDER CAMERA IMAGES SUPPLIED BY THE LANDER IMAGING TEAM. THESE DATA ARE THE BEST IMAGES OF THE MAGNET PAIRS TAKEN BY THE LANDER CAMERA. THEY ARE ALSO AVAILABLE AS INDIVIDUAL B/W FRAMES.
INVESTIGATION NAME- A RADIO SCIENCE
NSSDC ID- 75-075C-11
PERSONNEL
TL - W.R. MICHAEL, JR. NASA-LARC
TM - J.L. SHAPIRO MASS INST OF TECH
TM - Z.G. DAVIES U OF MANCHESTER
TM - R.E. CAHN NASA-JPL
TM - R.G. GROSSI MATTHEON CORP
TM - G.L. TYLEY STANFORD U
TM - J. DREKEL NASA-JPL
TM - R.W. TOLSON NASA-LARC
TM - C.T. STELZER NASA-JPL
TM - G. DOUGLAS HARMAN

BRIEF DESCRIPTION
DATA SET NAME - SPECTRA PLOTS ON MICROFICHE

NSSDC ID- 75-075C-15A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED.

TIME PERIOD COVERED- 07/20/76 TO 10/29/76

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

BRIEF DESCRIPTION

THIS DATA SET CONSISTS OF B/W MICROFICHE PROVIDED BY THE INVESTIGATION TEAM CONTAINING LOGARITHMIC PLOTS OF THE DATA IN THE SPECTRAL HISTORY FILE (SEE 75-075C-15E). THE TITLE ON EACH PLOT INCLUDES LANDER ID, SPECTRUM NUMBER, PC TUBE, SAMPLE INFORMATION, COMMAND HISTORY INFORMATION, COUNT PERIOD (10-77.75), OPERATOR, DETECTOR VOLTAGE, AND RADIUS. THE Y-AXIS REPRESENTS ENERGY (CHANNEL NUMBER), AND THE X-AXIS REPRESENTS INTENSITY (IN RS UNITS DETERMINED TO BE A 50.75-COUNT PERIOD/CHANNEL. THE PC 1 AND 2 DATA REPRESENT THE 1000-500-0 CHANNEL SOURCE INFORMATION WHILE PC 3 AND 4 DATA REPRESENT THE CADMIUM-TOF INFORMATION.

NSSDC ID- 75-075C-15E

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 10/29/76

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

BRIEF DESCRIPTION


INVESTIGATION NAME- ENTRY SCIENCE IONOSPHERIC PROPERTIES

NSSDC ID- 75-075C-14

PERSONNEL

PM - A. J. NIEU WU OF MINNESOTA
IM - V.R. HANSON U OF TEXAS- DALLAS
FM - M. W. SPENCER NASA-GSFC

BRIEF DESCRIPTION

THE VIKING ENTRY SCIENCE IONOSPHERIC PROPERTIES EXPERIMENT (ONE PART OF THE ENTRY SCIENCE INVESTIGATION) STUDIED THE COMPOSITION, STRUCTURE, AND TEMPERATURE OF THE IONOSPHERE. THE EXPERIMENT WAS ORBITED BETWEEN 14000 AND 55000 KM ALITUDE BUT CONTINUOUSLY FROM 5000 TO 100 M. THE INSTRUMENT WAS CONFIGURED IN THREE PHASES TO MEASURE ELECTRIC FIELDS, ELECTRONS, AND ELECTRIC IONS.

DATA SET NAME- TRAJECTORY AND ATTITUDE DATA ON TAPE

NSSDC ID- 75-075C-14A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 07/20/76

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

BRIEF DESCRIPTION

THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 9-TRACK, 1600-BPI, BINARY TAPE, AND CONTAIN TRAJECTORY AND ATTITUDE DATA FOR THE VIKING 1 AND 2 LANDELS. THERE IS ONE FILE FOR EACH SPACECRAFT, EACH RECORD IN A FILE CONTAINS THE FOLLOWING PARAMETERS: TIME IN SECONDS FROM BERT, VELOCITY IN KM/S, ALTITUDE ABOVE MARS' MEAN SURFACE IN KILOMETERS, AND ATTACK, SUN ANGLE, AND ZENITH ANGLE ALL MEASURED IN DEGREES.

DATA SET NAME- RPA ION AND ELECTRON DATA ON TAPE

NSSDC ID- 75-075C-14B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 07/20/76

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

BRIEF DESCRIPTION

THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 16-TRACK, 1600-BPI, BINARY TAPE, THE DATA CONTAIN THE COMPLETE RECORDS OF THE COLLECTED CURRENTS AT VARIOUS POTENTIALS AS A FUNCTION OF TIME FOR BOTH LANDELS IN BOTH THE ELECTRON AND ION MODES, THERE ARE FOUR FILES ON 16 TRACK, AND EACH RECORD CONTAINS TIME IN SECONDS FROM REGRESS-SEQUENTIAL FRAME NUMBER, MAJOR FRAME NUMBER, AND PAIRS OF RETARDING POTENTIAL AND COLLECTOR CURRENT VALUES.

DATA SET NAME- RPA ION AND ELECTRON DATA ON MICROFILM

NSSDC ID- 75-075C-14C

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/20/76 TO 07/20/76

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

BRIEF DESCRIPTION

THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 16-MM MICROFILM. THE DATA ARE ESSENTIALLY THE SAME AS THE MAGNETIC TAPE DATA SEE (75-075C-14B) AND INCLUDE CURRENT VS RETARDING POTENTIAL PLOTS FOR EACH INDIVIDUAL SWEEP IN THE ELECTRON AND ION MODES. SIMILAR PLOTS FOR THE LANDING AT HOM E AS THE LEAST-SQUARES FIT TO THE THEORY TO DETERMINE CONCENTRATIONS, TEMPERATURE, AND OTHER PARAMETERS AND TIME PLOTS OF ALTITUDE, VELOCITY, AND PERTURBATION ANGLES TO DEFINE THE INSTRUMENT ENVIRONMENT DURING THE ENTRY.

SPACECRAFT COMMON NAME- VIKING 2 ORBITER

NSSDC ID- 75-075C-14A

LAUNCH DATE- 07/09/75

CRD PARAMETERS

ORBIT TYPE- AEOORBITCAL
ORBIT PERIOD- 1639.9 MIN
PERIAPSIS- 1699.0 KM
APOAPSIS- 35600.0 KM

EPHEMERIS DATE- 08/09/76
INCLINATION- 55.2 DEG
APARIS- 35600.0 KM

PERSONNEL

PM - W. S. JAKOBSKI NASA HEADQUARTERS
IM - G. S. YOUNG NASA HEADQUARTERS
FM - R. W. WATKINS NASA-JPL
FS - C. W. SNYDER NASA-JPL

BRIEF DESCRIPTION

INVESTIGATION NAME - ORBITER IMAGING

NSSDC ID - 75-083A-D1

PERSONNEL

TL - W.H. CARR
TM - W.A. BRAUN
TH - W.A. MURSKY
GM - G.A. BRIGGS
ZL - A. CUFF
TC - C. DURBURY
IC - A.R. GLASSIG
IG - W. GREELEY
JL - R. HUGGINS
JL - W.Y. HUNTER
JL - R.A. SMITH
JL - L.A. SOBERBLOM
JL - J. VEVERKA
JL - J.B. WELLMAN
JL - AND OTHERS

BRIEF DESCRIPTION


DATA SET NAME - RECTILINEAR AND ORTHOGRAPHIC PHOTOGRAPHY INDEXES ORDERED BY ROLL/FILE NUMBER

NSSDC ID - 75-083A-D1X

AVAILABILITY OF DATA SET - DATA AT NSSDC BEING PROCESSED

BRIEF DESCRIPTION

THESE DATA, SUPPLIED BY THE ORBITER IMAGING TEAM, ARE ON B/W MICROFICHE GENERATED AT NSSDC FROM HARCOPY SUPPLIED BY THE ORBITER IMAGING TEAM. THE INDEX NAMES ARE LISTED IN THE INDEX AND ARE SORTED BY ROLL/FIELD NUMBER.

DATA SET NAME - 10-DEG BOX INDEX AND LATITUDE AND LONGITUDE INDEX ON MICROFICHE

NSSDC ID - 75-083A-D0H

AVAILABILITY OF DATA SET - DATA AT NSSDC BEING PROCESSED

BRIEF DESCRIPTION

THIS "XYZ" SET, SUPPLIED BY THE ORBITER IMAGING TEAM, IS ON B/W MICROFICHE. IT CONSISTS OF TWO INDEXES: ONE LISTS THE IMAGES BY CENTER LATITUDE; AND THE OTHER LISTS THE IMAGES BY 10-DEG BOXES OF LATITUDE AND LONGITUDE. THE FIRST BOX IS AT 0-DEG N TO 10-DEG N IN LATITUDE AND 90-DEG E TO 100-DEG E IN LONGITUDE. THE SECOND BOX IS 10-DEG TO 20-DEG W IN LATITUDE AND 90-DEG E TO 100-DEG W IN LONGITUDE. THE CENTER OF THE IMAGE IS USED FOR THESE COMPUTATIONS; AND ONLY IMAGES WHERE THE INTERCEPT POINT TO THE SURFACE PLACE AT 30 DEGREES OR MORE BE LISTED. EACH INDEX CONTAINS THESE PARAMETERS, INCLUDING QUAD/FRAME COUNT, CENTER LONGITUDE; EMISSION ANGLE; THE ANGLE BETWEEN THE SURFACE NORMAL AND THE LINE TO THE SPACECRAFT; INCIDENCE ANGLE; THE ANGLE BETWEEN THE SURFACE NORMAL AND THE LINE TO THE SPACECRAFT; INCIDENCE ANGLE; AND THE ANGLE BETWEEN THE SURFACE NORMAL AND THE LINE TO THE SPACECRAFT; INCIDENCE ANGLE.

DATA SET NAME - INDEX OF IMAGES ORDERED BY QUADRANT, LATITUDE, AND LONGITUDE ON MICROFICHE

NSSDC ID - 75-083A-D1M

AVAILABILITY OF DATA SET - DATA AT NSSDC BEING PROCESSED

BRIEF DESCRIPTION

THESE DATA, SUPPLIED BY THE ORBITER IMAGING TEAM, ARE ON THE 10-DEG BOX INDEX AND Mosaic Images ORDERED BY QUADRANT, LATITUDE, AND LONGITUDE ON 16MM MICROFILM GENERATED AT NSSDC FROM HARCOPY. A QUADRANT IS ONE OF THE 30 SECTIONS INTO WHICH THE MAREE SURFACE IS DIVIDED ON THE SET OF USGS 1:5,000,000 SCALE MAPS. THE INFORMATION LISTED INCLUDES PICNO, CENTER LATITUDE, CENTER LONGITUDE, INCIDENCE ANGLE, EMISSION ANGLE, AND THE ANGLE BETWEEN THE SURFACE NORMAL AND THE LINE TO THE SPACECRAFT; INCIDENCE ANGLE, AND THE ANGLE BETWEEN THE SURFACE NORMAL AND THE LINE TO THE SPACECRAFT; INCIDENCE ANGLE.
Emission Angle, Filter, Range to Surface, SCR-2 Version, NTG Version, Orthographic Projection Version, and Four Possible Mosas Final Products. This is Considered the Scale and Most Complete Index for Ordering Orbiter Images from NSSDC.

*************
DATA SET NAME: PHOBOS, DEIMOS, STAR, LIMA, AND TERMINATOR IMAGES INDEX ON MICROFICHE
NSSDC 10-75-0834-012
AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA: 1 CARD(S) OF B/W MICROFICHE
BRIEF DESCRIPTION
These data are supplied by the Orbiter Imaging Team. This index is derived from the Viking Supplementary Experiment Data Record (SDEI). It defines the geometric and other observational conditions that pertained to every Vis Frame acquired. Pictures are listed in Chronological Order of Acquisition, Identified by Picno With Six Frames on a Page. Seventy-Eight Parameters, Which Include the Following: Types of Information, Are Included: Time of the Event, Camera Information, Including Identification and Exposure, Orbiter Position and Camera Orientation, Frame Size and Orientation on the Surface, Latitude, Longitude, and Range for the Center and Corners of the Frame, Viewing Angle, Lighting Angle, and Phase Angle of the Center and Corners; and Roll and Frame Numbers for Identifying Different Processed Versions of Each Frame.

*************
DATA SET NAME: PRIME MISSION PICTURE CATALOG ON MICROFICHE
NSSDC 10-75-0834-013
AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED: 08/05/76 TO 11/07/76
QUANTITY OF DATA: 9 CARD(S) OF B/W MICROFICHE
BRIEF DESCRIPTION
This data set is on B/W Microfiche supplied by the Orbiter Imaging Team. This is an Index of Frames in a Sequence Number. The Top Row of Each Card Contains Descriptive Information: Such as (1) Spacecraft Identification with Sequence Number, (2) Every Gray Scale Resolution Frame, (3) Resolution Control Frame, (4) First and Last Picnos On the Card, (5) Number of Frames That May Have an Image of the Surface on the Card, the Images Are Arranged by Picno and Verses. It Is Suggested That the Microfiche Is Excellent.

*************
DATA SET NAME: B/W MOSAICS
NSSDC 10-75-0834-018
AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED: 08/12/76 TO 11/27/77
QUANTITY OF DATA: 95 FRAMES
BRIEF DESCRIPTION
These data are supplied by the Orbiter Imaging Team. They Are 4X4 5-In. B/W Mosaics. Hand-Rendered Mosaic Is Available for Much of the Surface Covered by the Viking Orbiter Camera. For the Most Part, These Mosaics Provide Continuous Coverage of Scenes Made Up from Individual Images and No Attempt Has Been Made to Conform to a Global Control Net. Measurements Made from These Mosaics Will Be Highly Inaccurate. Mosaics Produced by the United States Geological Survey (USGS) Designated as MC Quads or MC Subquads and Built Upon the Appropriate Shader Relief Map Are Valuable Covering. Each Mosaic Identified by the Prefix 211- and a Four-Digit Number, Is Supplied with a FOOTPRINT PLOT PROVIDING THE INDIVIDUAL PICNO AS WELL AS ROLL AND FILE ORDER NUMBERS FOR THE INDIVIDUAL FRAMES MAKING UP THE MOSAIC. ALL OF THESE NUMBERS SHOULD BE SPECIFIED WHEN ORDERING INDIVIDUAL FRAMES. IN FEW CASES WHERE THE PARTICULAR VERSION OF A FRAME IN THE MOSAIC IS NOT AVAILABLE, A SIMILAR VERSION OF THAT FRAME IS DESIGNATED ON THE FOOTPRINT PLOT. THE MOSAIC SUMMARY AND INDEX (75-0834-013) SHOULD BE USED TO SELECT THESE DATA.

*************
DATA SET NAME: MOSAIC SUMMARY AND INDEX ON MICROFICHE
NSSDC 10-75-0834-011
AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED
QUANTITY OF DATA: 1 CARD(S) OF B/W MICROFICHE
BRIEF DESCRIPTION
This data set, supplied by the Orbiter Imaging Team, consists of a Summary and Index of Viking Orbiter Mosaics on B/W Microfiche. This summary contains Identification Number, MOSAIC ID, Comments on Data in Viewing, Resolution Number, Number of Images MOSAICED, Minimum and Maximum Latitude, and Minimum and Maximum Longitude. This Summary 'T' Followed by an Index Ordered by Picno Number That Cross-References the Page Number of the Mosaic in the Summary Section. The Index Includes Picno, Central Latitude, and Central Longitude of Each Photo in the Mosaic.

*************
DATA SET NAME: B/W STEREO PAIRS
NSSDC 10-75-0834-01A
AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED: 09/22/76 TO 09/24/77
QUANTITY OF DATA: 24 FRAMES
BRIEF DESCRIPTION
These data, supplied by the Orbiter Imaging Team, are on 5 X 5-In. B/W Film and Consist of Frames Identified As Having Overlapping Coverage. Stereo Studies of Viking Images Are Still in the Earliest Stages and No Stereo Product As Such Has Been Defined. Frames Should Be Ordered in the Orthographic Version for Stereo Studies. It Should Be Understood That the Visual Imagery Subsystem on the Viking Orbiters Was Not Well Adapted for Acquiring Stereo Data, and That Their Acquisition Was Not a Major Objective of the Primary Mission. The Pairs Contain Significant But Variable Amount of Overlap, in Some Cases the Two Frames Were Taken at Widely Different Times So That Lighting Conditions Do Not Match Well. Stereo Coverage of Higher Quality and Is Only Available in the Extended Mission and Will Be Available at a Later Time.

*************
INVESTIGATION NAME: INFRARED THERMAL MAPPING (ITM)
NSSDC 10-75-0834-02
PERSONNEL
TL - H. KIEFFER
TM - C. MUNICH
SM - J. MINER
PP - G. NEUGEBAUER
TH - S. CHATE, JW.
TN - G. KIEFFER, U OF CALIF, LA
TM - CALIF INST OF TECH
SM - NASA-JPL
PP - NASA-JPL
TH - SANTA BARBARA RES CTW
BRIEF DESCRIPTION
In the Purpose of the Initial Experiment Was to Measure the Temperatures of the Atmospheric and Areas on the Surface of Mars. The Area of Sunlight Reflected by the Planet Was Also Measured. The IMG was a Multichannel Radiometer Mounted On the Orbiiter's Scan Platform, Four Small Telescopes, Each With Seven Infrared Detectors, Were Aired Parallel to the Visual Imagery Optical Axis. Every 35 s, the Instrument Was Capable of Measuring Differences of 1 Throughout a Temperature Range of -730 to +57 °C. THE Field of View was Circular, 5 Millimeters in Diameter.

*************
DATA SET NAME: DECALIBRATED INFRARED THERMAL MAPPING DATA ON MAGNETIC TAPE
NSSDC 10-75-0834-02A
AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED: 08/12/76 TO 10/04/76
QUANTITY OF DATA: 7 REEL(S) OF MAGNETIC TAPE
BRIEF DESCRIPTION


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INVESTIGATION NAME- MARS ATMOSPHERIC WATER DETECTION (MAWD)

NSSDC ID- 75-083A-03

PERSONNEL

TL - R.L. FARMER NASA-JPL
TM - D.B. LAPORTE SANTA BARBARA RES CTR
TM - D.W. DAVIES NASA-JPL

DESCRIPTION

THE MAWD USED AN INFRARED GRATING SPECTROMETER MOUNTED ON THE ORBITER SCAN PLATFORM THAT WAS BORESIGHTED WITH THE TELEVISION CAMERAS AND THE INTR. THE INSTRUMENT MEASURED SOLAR INFRARED RADIATION REFLECTED FROM THE SURFACE THROUGH THE ATMOSPHERE TO THE SPECTRUM. SPECTRAL INTERVALS WERE SELECTED COINCIDENT WITH THE WAVELENGTH OF WATER VAPOR ABSORPTION LINES IN THE 1-4 MICROMETER BAND. THE QUANTITATIVE OF WATER VAPOR ALONG THE LINE OF SIGHT WAS MEASURED FROM 1 TO 10000 MICROMETERS OF WATER VAPOR. THE DECALIBRATED VALUE OF WATER VAPOR DIVIDED BY THE INSTANTANEOUS FIELD OF VIEW OF THE INSTRUMENT WAS 2 X 10-7 MILLIMETERS ALONG THE LINE OF SIGHT. A RAYMOR ROTATED THE LINE OF SIGHT THROUGH 15 POSITIONS TO PROVIDE A RUGHLY RECTANGULAR FIELD OF VIEW OF 17 X 37 MILLIRADIAN.

DATA SET NAME- MAWD RADIANCE AND GEOMETRY DATA ON TAPE

NSSDC ID- 75-083A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 07/31/76 TO 06/12/77

QUANTITY OF DATA- 17 REELS OF MAGNETIC TAPE

BRIEF DESCRIPTION


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INVESTIGATION NAME- ORBITER RADIO SCIENCE

NSSDC ID- 75-083A-04

PERSONNEL

TL - W.H. MICHAEL JN. NASA-LARC
TM - L.J. SHAPIRO MASS INST OF TECH
TM - R.J. HAJEL NASA-JPL
TM - J.G. DAVIES U OF MANCHESTER
TM - M. GROSSI RAYTHEON CORP
TM - C.J. FRENKL STANFORD U
TM - J.J. STEINBERG NASA-LARC
TM - B.E. STELZIER MASS INST OF TECH
TM - J. JENKINS NASA-JPL
TM - B. BESENGER MASS INST OF TECH

BRIEF DESCRIPTION


DATA SET NAME- ORBITER RADI O SCIENCE TRACKING DATA ON MAGNETIC TAPE

NSSDC ID- 75-083A-04B

AVAILABILITY OF DATA SET- DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

THESE 7-TRACK, 800-BPI MAGNETIC TAPE, SUPPLIED BY THE RADIO SCIENCE TEAM, ARE MERGED AND REFORMATTED VERSIONS OF THE ORIGINAL PROJECT TRACKING TAPES. EACH RECORD CONTAINS ALL OR A SUBSET OF THE FOLLOWING PARAMETERS: S-BAND DOPPLER FREQUENCY, X-BAND DOPPLER FREQUENCY, X-BAND RANGE AND X-BAND RANGE DELAY TIME IN MICROSECONDS, INTERPLANETARY PLASMA EFFECT (FROM COMPARISON OF S- AND X-BAND DATA), AND A SUBSET OF THE RANGE BETWEEN THE TRACKING STATION AND THE SPACECRAFT ORBITER ANTENNA.

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SPACECRAFT COMMON NAME- VIKING 2 LANDER

NSSDC ID- 75-083C

LAUNCH DATE- 09/09/75

PERSONNEL

SO - W. JAKOBOWSKI NASA HEADQUARTERS
SC - R.S. YOUNG NASA HEADQUARTERS
DM - R.S. HAFEN JPL
PM - C.W. SNYDER NASA-JPL

ORIGINAL PAGE 18
OF POOR QUALITY
BRIEF DESCRIPTION


Investigation Name - Physical Properties

NSSDC ID - 75-083C-01


Brief Description: The purpose of the physical properties investigation was to determine the physical properties of the martian surface and environment at the landing site, primarily using engineering measurements and scientific instruments required to meet other mission objectives. In particular, it attempted to determine such properties as bulk density, bearing strength, angle of repose, cohesion, angle of internal friction, particle characteristics, thermal parameters, soil transportability, topography, and certain environmental properties such as dust, temperature, and solar flux levels. Maximum use was made of hardware and instruments intended for other applications, such as the mechanical subsistories and lander cameras. Only passive devices, such as microphones and landing leg stroke gauges, were added for this investigation.

Data Set Name: Published Reports on the Results of the Physical Properties Experiment

NSSDC ID - 75-083C-02

Availability of Data Set: Data in published report(s)

Quantity of Data: 18 Pages of Unbound Hardcopy

Abstract: This data set consists of reports published by the investigation team that describes the results of the physical properties experiment. The reports discuss the hardware used, the results of the tests, the results of the imaging science tests, and the results of the science end-to-end tests. The approximate dates of the tests and the elements tested are also discussed. It is emphasized that these results are preliminary and, therefore, subject to change.

Investigation Name - Entry Science Atmospheric Structure

NSSDC ID - 75-083C-03


Brief Description: The entry science atmospheric structure experiment (one of three that was part of the entry science investigation) studied the atmosphere of Mars during the landing. It involved the measurement of atmospheric density and mean atomic mass on the descent to Mars. The primary objective of the experiment was to provide altitude profiles of temperature and pressure to the atmosphere and to determine the density and mean atomic mass on the descent to Mars. The data collected were analyzed to determine the density and mean atomic mass of the atmosphere. The results of the experiment were used to refine the models of the Martian atmosphere and to improve the accuracy of the atmospheric density and mean atomic mass calculations.

Data Set Name: Tabulations of entry measurements for atmospheric structure on microfiche

NSSDC ID - 75-083C-04

Availability of Data Set: Data identified but not received

Abstract: This data set, supplied by the investigation team, is on 16-mm microfiche and contains tabulations of various parameters as functions of time, covering two phases of the descent. (1) From 132 km to 6 km in altitude with the landers in their atmosphere. (2) From 6 km to 3.5 km on parachutes. The parameters listed for both landers are acceleration along the descent axes, altitude measured by the altimeter, velocity (magnitude and path angle), pressure, and temperature.

Investigation Name - Biology

NSSDC ID - 75-083C-05


Brief Description: The biology experiment examined the presence of martian organisms by looking for metabolic processes. Three distinct instruments (pyrolytic release, pyrolytic release, and gas exchange) incubated samples of the martian surface under a number of different environmental conditions. In some instances a sample was kept sterilized and reprocessed as a control. The pyrolytic carbon assimilation, instrument sought to detect the photosynthetic or chemical fixation of CO2 or CO containing C-14. The samples were incubated for several days in the presence of the radioactive gas mixture. Some samples were incubated with CO2 and some without. Each sample was heated to 120 C to remove unreacted CO2 and CO. The soil was pyrolyzed at 650 C and any organic products were collected in an organic vapor trap (COVT). Finally, the trap was heated to combust the organic material and any evolved radioactive gas was measured. The LR experiment sought to determine metabolic processes through radiometry. Liquid nutrients labeled with radioactive carbon were added to the samples and the atmosphere above was continuously monitored to detect any radioactive gases released from these nonvolatile nutrients. The gas measured in the experiment included carbon monoxide (CO), nitrogen (N2), and CO2 during incubation of a soil sample. The soil was sealed and purged by N2, then a mixture of N2, CO and CO2 was introduced as an initial incubation atmosphere. After the addition of a selected quantity of a nutrient solution (saturated with the diagnostic gas), the sample was incubated. At certain intervals, samples of the atmosphere were removed and analyzed by a gas chromatograph with a thermal conductivity detector.

Data Set Name: Gas Exchange, Labeled Release, and Pyrolytic Release Data on Microfiche

NSSDC ID - 75-083C-06

Availability of Data Set: Data at NSSDC being processed

Time Period Covered: 09/04/75 to 05/29/77

Quantity of Data: 11 Reel(s) of Microfiche

Abstract: These data, supplied by the investigation team, are on 16-mm microfiche and consist of descriptions of the commands that were sent to operate the three instruments and tabulations of the raw and reduced data. The reduced data include the mass time for each command sequence, the commands sent, and the data points for each command file that were used and time tag the data when it came back from the instrument, and a summary of the major events of each command sequence. These command data are identified as biological. The tabulation/plot data include instrument responses, time-tagged data, and summary plot data. The instrument response data consist of raw data and reduced data. The time-tagged data are the primary reduced form of the data. These data are mass time on the Y-axis, which is the time of day on which the data were collected. The reduced data for the biological instrument include chromatography voltages, gas chromatograms, and radioactivity versus time. The data are summarized in a table, and time-tagged instrument values.

Investigation Name - Molecular Analyses

NSSDC ID - 75-083C-07


Brief Description: These data, supplied by the investigation team, are on 16-mm microfiche and contain tabulations of various parameters as functions of time, covering two phases of the descent. (1) From 132 km to 6 km in altitude with the landers in their atmosphere. (2) From 6 km to 3.5 km on parachutes. The parameters listed for both landers are acceleration along the descent axes, altitude measured by the altimeter, velocity (magnitude and path angle), pressure, and temperature.

Abstract: This data set, supplied by the investigation team, is on 16-mm microfiche and contains tabulations of various parameters as functions of time, covering two phases of the descent. (1) From 132 km to 6 km in altitude with the landers in their atmosphere. (2) From 6 km to 3.5 km on parachutes. The parameters listed for both landers are acceleration along the descent axes, altitude measured by the altimeter, velocity (magnitude and path angle), pressure, and temperature.
BRIEF DESCRIPTION

The molecular analysis experiment searched for chemical compounds in the upper surface layer of Mars and measured atmospheric gases in the surface. The soil analyses were performed using a gas chromatograph-mass spectrometer for organic compounds and a mass spectrometer for inorganic compounds. Identification of components was based on structural and molecular spectral data from the mass spectrometer, and broad applicability to a wide range of compounds. Samples were obtained from the surface material by a heating process while COP labeled with C-13 swept through. The material was then carried into a Teflon gas-chromatographic column that was swept with hydrogen as a carrier gas. The mass spectrometer was placed at a higher temperature and analyzed to detect volatile materials. For atmospheric measurements, gases were directly introduced into the mass spectrometer, bypassing the gas chromatographic column.

DATA SET NAME: GAS CHROMATOGRAPH MASS SPECTROMETER SOIL ANALYSIS DATA ON MAGNETIC TAPE

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data, on V-track, RCO-8PI, unlabeled, low-compatible tapes, are in raw form. Just as they were received by the Viking experimenters, from the telemetry acquisition and data transmission equipment. They are unlikely to be usable by anyone not very familiar with the equipment except for the preliminary viewing of mass spectra for quality assurance purposes. The mass spectra listed are the output of the analog-to-digital converter on a logarithmic scale as a function of time, separate blocks of engineering data contain temperatures, pressures, and other instrument parameters.

DATA SET NAME: SOIL ANALYSIS MASS SPECTRA ON MAGNETIC TAPE

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data, on V-track, RCO-8PI tapes, are reduced versions of the GCMS soil analysis data (75-083C-0DA). Each sample run is on a separate file, and there is one record for each spectral scan. Each sample run is on a separate file, and there is one record for each spectral scan. The mass spectrometer was placed at a higher temperature and analyzed to detect volatile materials. The mass spectra listed are the output of the analog-to-digital converter on a logarithmic scale as a function of time, separate blocks of engineering data contain temperatures, pressures, and other instrument parameters.

DATA SET NAME: SOIL ANALYSIS MASS SPECTRA ON MICROFILM

NSSDC ID: 75-083C-0DC

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data, on V-track, RCO-8PI tapes, are reduced versions of the GCMS soil analysis data (75-083C-0DC). The mass spectrometer was placed at a higher temperature and analyzed to detect volatile materials. The mass spectra listed are the output of the analog-to-digital converter on a logarithmic scale as a function of time, separate blocks of engineering data contain temperatures, pressures, and other instrument parameters.

DATA SET NAME: GCMS ATMOSPHERIC ANALYSIS DATA ON MAGNETIC TAPE

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data, on V-track, RCO-8PI tapes, are the GCMS raw data for the atmospheric analysis. For the Viking 1 primary mission, there were 4 filtered atmospheric samples with CO and CO2 removed. These samples were filtered for 1, 2, and 3 enrichment cycles to increase the concentration of trace elements. For the Viking 2 primary mission, there were 2 filtered atmospheric samples with CO and CO2 removed. These samples were filtered for 1, 2, and 3 enrichment cycles to increase the concentration of trace elements. The atmospheric data are presented in raw form. The mass spectrometer was placed at a higher temperature and analyzed to detect volatile materials. The mass spectra listed are the output of the analog-to-digital converter on a logarithmic scale as a function of time, separate blocks of engineering data contain temperatures, pressures, and other instrument parameters.

DATA SET NAME: EXPERIMENT DATA RECORD (EDR) 8/4 IMAGES ON FILM

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data are on 4 x 5 in. images released by the project for public distribution. These photographs are of selected scenes near the lander that are of general interest to the public. A description of each photograph is included.

DATA SET NAME: COLOR PRESS RELEASE PHOTOGRAPHY

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data are on 4 x 5 in. images, color film released by the project for public distribution. These photographs are of selected scenes near the lander that are of general interest to the public. A description of each photograph is included. The coloring cannot be considered to be accurate because of color inaccuracies in reproduction.

DATA SET NAME: EXPERIMENT DATA RECORD (EDR) 8/4 IMAGES ON FILM

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA IDENTIFIED BUT NOT RECEIVED

BRIEF DESCRIPTION

These data are on 4 x 5 in. images released by the project for public distribution. These photographs are of selected scenes near the lander that are of general interest to the public. A description of each photograph is included. The coloring cannot be considered to be accurate because of color inaccuracies in reproduction.

DATA SET NAME: SPACE SCIENCE INSTRUMENTATION 1, 189-241 (1975).

NSSDC ID: 75-083C-0DA

AVAILABILITY OF DATA SET: DATA AT NSSDC BEING PROCESSED

BRIEF DESCRIPTION

These data are on 4 x 5 in. images, color film released by the project for public distribution. These photographs are of selected scenes near the lander that are of general interest to the public. A description of each photograph is included.
**DATA SET NAME**: PICTURE CATALOG OF PRIMARY MISSION EXPERIMENT DATA RECORD (EDR)

**NSSDC ID**: 75-083C-06x

**AVAILABILITY OF DATA SET**: DATA AT NSSDC BEING PROCESSED

**QUANTITY OF DATA**: 5 CARDS (5) OF B/W MICROCACHE

**BRIEF DESCRIPTION**

These data are on B/W MICROCACHE generated at NSSDC from NASA Reference Publication 1077, prepared by Robert H. Tucker. This publication is a general reference for the imaging data from the Viking lander primary mission. It presents the results of the procedures that were applied to the imaging data to produce the long-range record that is as complete and as error-free as possible. The result is called the experiment data record. This list contains all the data gathered in the Viking Imaging data, those images associated with the Viking lander primary mission, the two Viking landers during the primary mission, skylene drawings display the outlines of the images as they appear in the viewing area. Also included are a selection of computer-generated camera event reports that list supplemental information about the conditions under which the data were collected and how they were processed and recorded. In addition, a comprehensive report, several listings are included that group the images in a variety of ways (e.g., by type of data), a section on terminology has been included to assist with the interpretation of the listings and the images presented. This publication will acquaint the user with the imaging data that are available from the Viking lander primary mission and the procedures used to obtain photographic products. It is necessary to order this data set to select EDR images.

**DATA SET NAME**: TEAM DATA RECORD (EDR) B/W IMAGES ON FILM

**NSSDC ID**: 75-083C-06c

**AVAILABILITY OF DATA SET**: DATA AT NSSDC BEING PROCESSED

**TIME PERIOD COVERED**: 09/03/76 TO 09/07/77

**QUANTITY OF DATA**: 079 Frames

**BRIEF DESCRIPTION**

This data set, supplied by the Viking lander imaging team, are on 5- X 12-in. B/W FILM. EDR data consist of those camera events and images associated with the lander. This set does not exclude such things as specialized photometric series, calibration images, or blocks and color spectrum histograms. Occasionally, a third type of data is given, a section in columns at the end of the data. This is called "DONUT." These images are a mosaic of a single frame of a single scene. These images were generated using a 25-micrometer spot size, the complete four quadrants of a single scene are contained on a single 5- X 10-in. negative. "DONUT" is necessary to order this data set to select EDR images.

**DATA SET NAME**: TEAM DATA RECORD (EDR) COLOR IMAGES ON FILM

**NSSDC ID**: 75-083C-06f

**AVAILABILITY OF DATA SET**: DATA AT NSSDC BEING PROCESSED

**TIME PERIOD COVERED**: 09/03/76 TO 11/03/76

**QUANTITY OF DATA**: 47 Frames

**BRIEF DESCRIPTION**

This data set, supplied by the lander imaging team, consists of 5- X 12-in. COLOR IMAGES selected from the TV images. There are generally two versions of each scene. The TV images represent the colors as seen on Mars under Mars lighting conditions and as seen on earth under earth lighting conditions. Occasionally, there are color scale wedges, and color spectrum histograms. Occasionally, a third type of data is given, a section in columns at the end of the data. This is called "DONUT." These images were generated using a 25-micrometer spot size, the complete four quadrants of a single scene are contained on a single 5- X 10-in. negative. "DONUT" is necessary to order this data set to select EDR images. The TV-1/PL PRIME MISSION CATALOG (75-083C-06x) should be used to order TVR images.

**DATA SET NAME**: TVR-1PL PRIME MISSION CATALOG ON MICROFICHE

**NSSDC ID**: 75-083C-06x

**AVAILABILITY OF DATA SET**: DATA AT NSSDC BEING PROCESSED

**QUANTITY OF DATA**: 3 CARDS (3) OF B/W MICROCACHE

**BRIEF DESCRIPTION**

This data set, supplied by the lander imaging team, consists of 5- X 10-in. B/W NEGATIVES. Three sets of MOSAICS were produced: one set for images acquired early in the morning, one set for images acquired around noon, and one set for images acquired in the early evening. The complete MOSAIC scene extends 342.5 degrees azimuth, the image was made in a very precise fashion on the subject. This publication will acquaint the user with the imaging data that are available from the Viking lander primary mission and the procedures used to obtain photographic products. It is necessary to order this data set to select EDR images.

**DATA SET NAME**: HIGH-RESOLUTION B/W MOSAICS

**NSSDC ID**: 75-083C-06c

**AVAILABILITY OF DATA SET**: DATA IDENTIFIED BUT NOT RECEIVED

**BRIEF DESCRIPTION**

This data set, supplied by the lander imaging team, consists of computer-generated high-resolution MOSAICS on 5- X 10-in. B/W NEGATIVES. Three sets of MOSAICS were produced: one set for images acquired early in the morning, one set for images acquired around noon, and one set for images acquired in the early evening. The complete MOSAIC scene extends 342.5 degrees azimuth, the image was made in a very precise fashion on the subject. This publication will acquaint the user with the imaging data that are available from the Viking lander primary mission and the procedures used to obtain photographic products. It is necessary to order this data set to select EDR images.

**DATA SET NAME**: DONUT PROJECTION IMAGES ON FILM

**NSSDC ID**: 75-083C-06f

**AVAILABILITY OF DATA SET**: DATA IDENTIFIED BUT NOT RECEIVED

**BRIEF DESCRIPTION**

This data set, supplied by the lander imaging team, consists of 5- X 10-in. B/W NEGATIVES of COMPUTER-GENERATED PANORAMAS produced to show a 340-DEG PINHOLE TYPE IMAGE of the martian terrain. These PANORAMAS were used to show features on the surface of Mars. The DONUT IMAGES were generated using a high-resolution MOSAIC from DATA SET 75-083C-06C. These MOSAICS were SUB-SAMPLED by a factor of three, reducing the resolution, to conserve computer processing time. The DONUT IMAGES were generated for the same time periods as the MOSAICS.

**INVESTIGATION NAME**: METEOROLOGY

**NSSDC ID**: 75-083C-07

**PERSONNEL**

FL - J.L. Hess
TM - C.D. Leovy
TM - A.M. Henry
TM - J.J. Ryan
TM - J.J. Tillman

**FLORIDA STATE U
U OF WASHINGTON
NASA-LARS
MCDONNELL-DOUGLAS CORP
U OF WASHINGTON

**BRIEF DESCRIPTION**

This experiment analyzed the meteorological environment near the planetary surface and obtained information about motion systems of various scales. The atmospheric parameters determined were pressure, temperature, wind speed, and wind direction. The solar parameter variations were of particular interest. The sampling rates and durations for any one observation were selected on a command. The sensors were mounted on an erectable boom. Two hot-filp anemometers, thermal sensors which an electrical resistance that is proportional to pressure heated platinum and coated with aluminum oxide, were used to measure wind speed and one each. These were needed to maintain these sensors at a fixed temperature above the surrounding air was measured by placing the sensors in the atmosphere. The temperature was measured by these three and-three thermocouples in parallel. A thin resistive thermometer, mounted in a vacuum sealed case, was used to measure atmospheric pressure.

**DATA SET NAME**: SAMMET LISTINGS OF TEMPERATURE AND VECTOR WIND VS TIME ON MICROFICHE
NSSDC ID- 75-038-D7A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 11/11/76 TO 02/11/76

QUANTITY OF DATA- 163 CARD(S) OF B/W MICROFICHE

BRIEF DESCRIPTION

This data set, on B/W microfiche consists of a copy of the original event envelope which required only one amplitude sample per second to indicate its shape. At the same time, the data recorded by the zero-crossing trigger consisted of the output of the data recording system. The output was transmitted to Earth and reconstructed. The original event envelope failed to uncage and could not be used in a seismic network with the Viking 2 instruments.

***************

DATA SET NAME- SEISMIC DATA RECORD FORMAT PROGRAM ON MAGNETIC TAPE

NSSDC ID- 75-038-D8A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

BRIEF DESCRIPTION

These data, supplied by the Investigation Team, consist of 7-tracks, 800 BPI, even parity, 8C magnetic tape format that is used to read the EDM tapes described in data set 75-038-D8B. This program (EDRMT) was written to remove the control words and to write the output as card images. One record to an image. The file format is fixed length and the control words are in binary, not BCD, which complicates the task of reading the EDM tape.

***************

DATA SET NAME- SEISMIC DATA RECORDS ON MAGNETIC TAPE

NSSDC ID- 75-038-D8B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME PERIOD COVERED- 09/04/76 TO 02/11/76

QUANTITY OF DATA- 40 REEL(S) OF MAGNETIC TAPE

BRIEF DESCRIPTION

These data, supplied by the Investigation Team, consist of 7-tracks, 800 BPI, even parity, 8C magnetic tape format that is used to read the EDM tapes described in data set 75-038-D8A and 75-038-D8B. This program (EDRMT) was written to remove the control words and to write the output as card images. One record to an image. The file format is fixed length and the control words are in binary, not BCD, which complicates the task of reading the EDM tape.
PERMIT THE CONVERSION OF CURRENT TO ANOMALOUS PARTICLE NUMBER DENSITY, FROM NUMBER TO ATOMIC MASS AND TIME TO ALTITUDE IN KILOMETERS.

INVESTIGATION NAME- INORGANIC ANALYSIS
NSSDC ID- 75-083C-15
PERSONNEL
TL - P. TOULMIN, B.S. US GEOLOGICAL SURVEY
TM - K. KEIL U OF NEW MEXICO
TH - R. CLARK MARTIN-MARIETTA AEROSP
BRIEF DESCRIPTION
THE VIKING ENTRY SCIENCE IONOSPHERIC PROPERTIES EXPERIMENT (ONE OF THREE THAT WERE PART OF THE ENTRY SCIENCE INVESTIGATION) STUDIED THE COMPOSITION, STRUCTURE, AND TEMPERATURE OF THE IONOSPHERE, WHICH WERE PROBED DURING THE DESCENT OF THE LANDING CAPSULE BY MEANS OF RETARDING POTENTIAL ANALYZER (RPA) MOUNTED FLUSH WITH THE FRONT FACE OF THE AEROSHELTER. THE INSTRUMENT WAS OPERATED INTENSIVELY BETWEEN 14-000 AND 50-000 KM ALTITUDE BUT CONTINUOUSLY FROM 5-000 TO 100 KM. THE INSTRUMENT COMPRISED A CURRENT-CollectING PLATE WITH SEVEN GRIDS AHEAD OF IT. A FIXED PROGRAM OF POTENTIALS WAS APPLIED TO THE GRID, AND THE COLLECTED CURRENTS WERE MEASURED AT 10-M SEC INTERVALS. THE INSTRUMENT OPERATED IN THREE PHASES TO MEASURE ENERGETIC ELECTRONS, THERMAL ELECTRONS, AND THERMAL IONS.

DATA SET NAME- TRAJECTORY AND ATTITUDE DATA ON TAPE
NSSDC ID- 75-083C-14A
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 09/03/76 TO 09/03/76
QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE
BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 9-TRACK, BINARY, 1600-BPI, UNLABELED TAPE, AND CONTAIN TRAJECTORY AND ATTITUDE DATA FOR THE VIKING 1 AND 2 LANDERS. THERE IS ONE FILE FOR EACH SPACECRAFT. EACH RECORD IN A FILE CONTAINS THE FOLLOWING PARAMETERS: RPA TIME FROM DEBRIGHT VELOCITY IN KM/S, ALTITUDE ABOVE MARS' MEAN SURFACE IN KILOMETERS, DESCENT PLANE FLIGHT ANGLE, DESCENT PLANE LATITUDE, SUN-LANDER LATITUDE, RPA ANGLE OF ATTACK, RPA ANGLE OF ENTRY, RPA SUN ANGLE, AND ZENITH ANGLE ALL MEASURED IN DEGREES.

DATA SET NAME- RPA ION AND ELECTRON DATA ON TAPE
NSSDC ID- 75-083C-14B
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 09/03/76 TO 09/03/76
QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE
BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 9-TRACK, 1600-BPI, BINARY TAPE. THE DATA CONTAIN THE COMPLETE RECORD OF THE COLLECTED CURRENT VS RETARDING POTENTIAL AS A FUNCTION OF TIME FOR BOTH LANDERS IN BOTH THE ELECTRON AND ION MODES. THERE ARE FOUR FILES ON THIS TAPE. EACH RECORD CONTAINS TIME IN SECONDS FROM DEBRIGHT, SEQUENTIAL FRAME NUMBER, EMERGENCY FRAME NUMBER, AND PAIRS OF RETARDING POTENTIAL AND COLLECTOR CURRENT VALUES.

DATA SET NAME- RPA ION AND ELECTRON DATA ON MICROFILM
NSSDC ID- 75-083C-14C
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 09/03/76 TO 09/03/76
QUANTITY OF DATA- 2 REEL(S) OF MICROFILM
BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 16-MM MICROFILM. THE DATA ARE ESSENTIALLY THE SAME AS THE MAGNETIC TAPE DATA SET (75-083C-14B). INCLUDE CURRENT VS RETARDING POTENTIAL PLOTS FOR EACH INDIVIDUAL SWEEP IN BOTH THE ELECTRON AND ION MODES. SIMILAR PLOTS FOR THERMAL IONS WITH THE LEAST-SQUARES FIT TO THE THEORETICAL EQUATION TO DETERMINE CONCENTRATIONS, TEMPERATURES, ELECTRON MEAN FREE PATHS, AND ELECTRONS IN THE INSTRUMENT ENVIRONMENT DURING THE ENTRY.

INVESTIGATION NAME- ENTRY SCIENCE IONOSPHERIC PROPERTIES
NSSDC ID- 75-083C-14
PERSONNEL
TL - A.O.C. NIER U OF MINNESOTA
TM - W.R. MARQUARDT U OF TEXAS AT DALLAS
TH - N.W. SPENCER NASA-GSFC
BRIEF DESCRIPTION
THE VIKING ENTRY SCIENCE IONOSPHERIC PROPERTIES EXPERIMENT (ONE OF THREE THAT WERE PART OF THE ENTRY SCIENCE INVESTIGATION) STUDIED THE COMPOSITION, STRUCTURE, AND TEMPERATURE OF THE IONOSPHERE, WHICH WERE PROBED DURING THE DESCENT OF THE LANDING CAPSULE BY MEANS OF RETARDING POTENTIAL ANALYZER (RPA) MOUNTED FLUSH WITH THE FRONT FACE OF THE AEROSHELTER. THE INSTRUMENT WAS OPERATED INTENSIVELY BETWEEN 14-000 AND 50-000 KM ALTITUDE BUT CONTINUOUSLY FROM 5-000 TO 100 KM. THE INSTRUMENT COMPRISED A CURRENT-CollectING PLATE WITH SEVEN GRIDS AHEAD OF IT. A FIXED PROGRAM OF POTENTIALS WAS APPLIED TO THE GRID, AND THE COLLECTED CURRENTS WERE MEASURED AT 10-M SEC INTERVALS. THE INSTRUMENT OPERATED IN THREE PHASES TO MEASURE ENERGETIC ELECTRONS, THERMAL ELECTRONS, AND THERMAL IONS.

DATA SET NAME- TRAJECTORY AND ATTITUDE DATA ON TAPE
NSSDC ID- 75-083C-14A
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 09/03/76 TO 09/03/76
QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE
BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 9-TRACK, BINARY, 1600-BPI, UNLABELED TAPE, AND CONTAIN TRAJECTORY AND ATTITUDE DATA FOR THE VIKING 1 AND 2 LANDERS. THERE IS ONE FILE FOR EACH SPACECRAFT. EACH RECORD IN A FILE CONTAINS THE FOLLOWING PARAMETERS: RPA TIME FROM DEBRIGHT VELOCITY IN KM/S, ALTITUDE ABOVE MARS' MEAN SURFACE IN KILOMETERS, DESCENT PLANE FLIGHT ANGLE, DESCENT PLANE LATITUDE, SUN-LANDER LATITUDE, RPA ANGLE OF ATTACK, RPA ANGLE OF ENTRY, RPA SUN ANGLE, AND ZENITH ANGLE ALL MEASURED IN DEGREES.

DATA SET NAME- RPA ION AND ELECTRON DATA ON TAPE
NSSDC ID- 75-083C-14B
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 09/03/76 TO 09/03/76
QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE
BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 9-TRACK, 1600-BPI, BINARY TAPE. THE DATA CONTAIN THE COMPLETE RECORD OF THE COLLECTED CURRENT VS RETARDING POTENTIAL AS A FUNCTION OF TIME FOR BOTH LANDERS IN BOTH THE ELECTRON AND ION MODES. THERE ARE FOUR FILES ON THIS TAPE. EACH RECORD CONTAINS TIME IN SECONDS FROM DEBRIGHT, SEQUENTIAL FRAME NUMBER, EMERGENCY FRAME NUMBER, AND PAIRS OF RETARDING POTENTIAL AND COLLECTOR CURRENT VALUES.

DATA SET NAME- RPA ION AND ELECTRON DATA ON MICROFILM
NSSDC ID- 75-083C-14C
AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED
TIME PERIOD COVERED- 09/03/76 TO 09/03/76
QUANTITY OF DATA- 2 REEL(S) OF MICROFILM
BRIEF DESCRIPTION
THESE DATA, SUPPLIED BY THE INVESTIGATION TEAM, ARE ON 16-MM MICROFILM. THE DATA ARE ESSENTIALLY THE SAME AS THE MAGNETIC TAPE DATA SET (75-083C-14B). INCLUDE CURRENT VS RETARDING POTENTIAL PLOTS FOR EACH INDIVIDUAL SWEEP IN BOTH THE ELECTRON AND ION MODES. SIMILAR PLOTS FOR THERMAL IONS WITH THE LEAST-SQUARES FIT TO THE THEORETICAL EQUATION TO DETERMINE CONCENTRATIONS, TEMPERATURES, ELECTRON MEAN FREE PATHS, AND ELECTRONS IN THE INSTRUMENT ENVIRONMENT DURING THE ENTRY.

ORIGINAL PAGE IS OF POOR QUALITY

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INVESTIGATOR NAME INDEX

This index contains an alphabetical listing of the names of the team leaders and team members associated with each experiment described in the Data Descriptions section of this Catalog. The organizational affiliation of the person is also shown. Listed under each person's name are the associated experiment names along with the spacecraft name, the NSSDC ID code assigned to the experiment, and the page number referencing the description of the experiment. An asterisk preceding the experiment name identifies the person associated with that experiment as the team leader.
ANDERSON, D.L. - CALIF INST OF TECH, PASADENA, CA
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BAUM, W.A. - LOWELL OBSERVATORY, FLAGSTAFF, AZ
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BEHRENS, K. - MASS INST OF TECH, CAMBRIDGE, MA
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*VIKING 2 LANDER: MOLECULAR ANALYSIS (75-083C-04) ......................................... 16

BINGHAM, A.B. - SCIENCE APPL, INC, TUCSON, AZ
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BLASIUS, K.W. - PLANETARY SCIENCE INST, TUCSON, AZ
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BORN, G. - NASA-JPL, PASADENA, CA
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BRENNER, J.P. - NASA-JPL, PASADENA, CA
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VIKING 2 ORBITER: ORBITER RADIO SCIENCE (75-083A-04) ..................................... 15

BRIGGS, J.P. - NASA-JPL, PASADENA, CA
VIKING 1 ORBITER: ORBITER IMAGING (75-075A-07) ............................................. 4
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CAIN, J.R. - SANTA BARBARA SB, OCEA, GOLETA, CA
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CARR, M.H. - US GEOLOGICAL SURVEY, MENLO PARK, CA
VIKING 1 ORBITER: ORBITER IMAGING (75-075A-07) ............................................. 4
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CHASE, J.R. - S.C.C. - SANTA BARBARA SB, OCEA, GOLETA, CA
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CUTTS, J.A. - SCIENCE APPL, INC, PASADENA, CA
VIKING 1 ORBITER: ORBITER IMAGING (75-075A-07) ............................................. 4
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DAVIDS, D.W. - NASA-JPL, PASADENA, CA
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DAVIDS, J.G. - U OF MANCHESTER, MANCHESTER, ENGLAND
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DUENKER, F. - U OF HAWAII, HONOLULU, HI
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DUNBURY, T.C. - NASA-JPL, PASADENA, CA
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FARMER, C.B. - NASA-JPL, PASADENA, CA
VIKING 1 ORBITER: MARS ATMOSPHERIC WATER DETECTION (MAD) (75-075A-03) ........... 6
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FEJEDOR, G. - NASA-JPL, PASADENA, CA
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GREELY, R. - ARIZONA STATE U, TUCSON, AZ
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<td>HESS, D.L. - FLORIDA STATE U, TALLAHASSEE, FL</td>
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APPENDIXES

APPENDIX 1 - NSSDC FACILITIES AND ORDERING PROCEDURES

NSSDC PURPOSE AND ORGANIZATION

The National Space Science Data Center (NSSDC) was established by the National Aeronautics and Space Administration (NASA) to provide data and information from space science experiments in support of additional studies beyond those performed by principal investigators. Available and expected Viking data are announced in this Catalog. Data available from NSSDC in other disciplines (see inside front cover) comprise additional published catalogs or catalogs to be published in the near future. In addition to its main function of providing selected data and supporting information for further analysis of space science flight experiments, NSSDC produces other publications. Among these are a report on active and planned spacecraft and experiments and various users guides.

Virtually all the data available at or through NSSDC result from individual experiments carried on board individual spacecraft. The Data Center has developed an information system utilizing a spacecraft/experiment/data identification hierarchy. This Catalog is based on this information system, and additional program information has been provided.

NSSDC FACILITIES AND SERVICES

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

DATA AVAILABILITY, COSTS, AND ORDERING PROCEDURES

The services provided by NSSDC are available to any individual or organization resident in the United States and to researchers outside the United States through the World Data Center A for Rockets and Satellites (WDC-A-R&S). Normally a charge is made for the requested data to cover the cost of reproduction and the processing of the request. The researcher will be
notified of the charge, and payment must be received prior to the processing of the request. However, as resources permit, the Director of NSSDC/WDC-A-R&S may waive the charge for modest amounts of data when they are to be used for scientific studies or for specific educational purposes and when they are requested by an individual affiliated with: (1) NASA installations, NASA contractors, or NASA grantees; (2) other U.S. Government agencies, their contractors, or their grantees; (3) universities or colleges; (4) state or local governments; or (5) nonprofit organizations.

A researcher may obtain data described in this Catalog by a letter or telephone request, an onsite visit, or the NSSDC/WDC-A-R&S Order Form for Viking Mission Data that accompanies this Catalog. This form enables a requester to order: (1) documentation that will facilitate ordering specific data and (2) specific data where definitive information can be obtained from this Catalog. Anyone who wishes to obtain data for a scientific study should specify the NSSDC identification number, the name of the experiment, the form of the data, and the time span (or location, when appropriate) of interest. A researcher should also specify why the data are needed, the subject of his work, his affiliation, and any Government contracts he may have for performing his study.

NSSDC would also appreciate receiving copies of all publications resulting from studies in which data supplied by NSSDC have been used. It is further requested that NSSDC be acknowledged as a source of the data in all publications resulting from use of the data provided.

Data can be provided in a format or medium other than that noted in the data descriptions. For example, magnetic tapes can be reformatted, computer printout or microfilmed listings can be reproduced from magnetic tape, enlarged paper prints can be produced from data on photographic film and microfilm, etc. The Data Center will provide the requester with an estimate of the response time and, when appropriate, the charge for such requests. When requesting data on magnetic tape, the user should specify whether he will supply new tapes prior to the processing, return the original NSSDC tapes after the data have been copied, or pay for new tapes.

The Data Center's address for requests is:

National Space Science Data Center
Code 601.4
Goddard Space Flight Center
Greenbelt, Maryland 20771
Phone: (301) 982-6695
Researchers who reside outside the U.S. should direct requests for data to:

World Data Center A for Rockets and Satellites
Code 601
Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.
Phone: (301) 982-6695

Because the World Data Center A for Rockets and Satellites (WDC-A-R&S) also maintains listings of rocket experiments, requests for information concerning rocket launchings and experiments may be directed to this institution.