



Guide to the
John D. Mihalov Collection, 1960-1997
PP05.22-JM

NASA Ames Research Center Archives

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Descriptive Summary

Title:

John D. Mihalov Collection, 1960-1997

Collection Number:

PP05.22-JM

Creator:

Mihalov, John D. (John Donald)

Dates:

Inclusive: 1960-1997

Extent:

Volume: 18 record cartons (18 cubic feet)

Repository:

NASA Ames History Archives
Moffett Field, California 94035

Abstract:

The John D. Mihalov Collection includes record books, meeting notes, project proposals, correspondence, design reviews, experiment plans, circuit diagrams, instrument descriptions, test reports, data, charts, plots, presentations for international meetings, publications, peer reviews, press kits, and reference materials documenting Mihalov's solar physics contributions to Pioneers 6 through 11, Pioneer 12 (Pioneer Venus Orbiter), and the Galileo Probe during his career as a research scientist at the NASA Ames Research Center.

Language:

English

Administrative Information

Access:

Restricted Partly; This collection contains information that has Controlled Unclassified Information (CUI).

Distribution Limits: Partly Public; NASA employees contact archivist regarding restricted materials.

Publication Rights:

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Preferred Citation:

Expanded:

Ames Research Center Archives, NASA Ames Research Center. Moffett Field, California.

PP05.22-JM, John D. Mihalov Collection, [Container number] : [Folder number].

[Identification of item]. [Date, if available].

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[Date, if available].

Acquisition Information:

Materials transferred to the History Archives by Charles Sobeck in October 2005 (Accession 2005-024).

Biographical History

John Donald Mihalov was born in Los Angeles on December 28, 1937. His father was John Mihalov, and his mother was Alice Alma Lydia (Wagner) Mihalov. Little information is available about his early years.

In 1959, at the age of 22, he joined the technical staff of Space Technology Laboratories in El Segundo, California. In the same year, he received a B.S. in Physics from the California Institute of Technology. He moved to New York and became a Ph.D. candidate in Astronomy and Space Sciences at Cornell University. He also worked as a research assistant at Cornell's Center for Radiophysics and Space Research.

He returned to California in 1961 and received an M.S. in Electrical Engineering from the California Institute of Technology. During that year, he was employed as a scientist at the Jet Propulsion Laboratory. Also in 1961, he joined the technical staff of the Space Physics Laboratory at the Aerospace Corporation in El Segundo, California. He stayed at Aerospace for five years, helping on contracts for NASA.

At Aerospace, Mihalov served as the Principal Investigator for the Electron Spectrometer on the KH-4 9047, which was a satellite that the United States Air Force launched into Earth's orbit for a month in 1962. The mission studied the effects of high altitude nuclear explosions by the United States and the Soviet Union.

Also in 1962, he was the Principal Investigator for the Three Axis Fluxgate Magnetometer on the Mariner 1 mission. Mariner 1 was intended to fly by Venus, but it was purposely destroyed five minutes after launch because it was veering off course, possibly toward inhabited areas. Later, analysts learned that a missing hyphen in the computer code had caused the transmission of incorrect guidance signals to the spacecraft. Mihalov's magnetometer was demolished along with Mariner 1.

Next, Mihalov served on the OV2-1 mission, which was a research satellite that the U.S. Air Force launched in 1965. For the OV2-1, Mihalov was the Principal Investigator for two experiments: a Cerenkov Counter that measured radiation, and a study on the biological hazards of radiation. However, during the launch, the upper stage rocket didn't separate as planned, and the mission failed. Later that year, Mihalov served as the Principal Investigator for a Low Energy Proton Spectrometer on the OV2-3 mission, but again the launch failed due to separation problems.

In all, from 1962 to 1965, Mihalov helped design, construct, calibrate, and analyze experiments for six U.S. Air Force satellites. He completed his calibrations at accelerator facilities at the University of Southern California; the University of California, Berkeley; Stanford University; and the Los Alamos National Laboratory.

In 1966, Mihalov became a research scientist in the Space Science Division at the NASA Ames Research Center. He started in the Electrodynamics Branch (Code SSE) under the direction of John Wolfe. Later, Mihalov moved to the Space Physics Branch (Code SSS), of which John Wolfe had become the Chief.

Mihalov married Winifred Koch in 1967. Around that time, he was working on the Explorer 33 mission for NASA. Explorer 33 was a spacecraft that was designed to study interplanetary plasma, energetic charged particles, solar X rays, and magnetic fields. An onboard magnetometer measured magnetic field vectors, and Mihalov served as a Co-Investigator for the Explorer 33 magnetometer data.

He also became involved with the Pioneer series satellites and was responsible for data analysis for the plasma analyzers on Pioneers 6 through 11. Pioneers 6 through 9 were launched into solar orbit to gather information about solar events. Pioneers 10 and 11 were launched toward Jupiter and were the first spacecraft to leave our solar system. Mihalov received the NASA Public Service Group Achievement Award for his work on the Pioneer 10 Plasma Analyzer.

During these years, his marriage foundered, and he and his wife divorced in 1973. That year, he started a graduate program at Stanford University, taking classes part-time as he continued his work at NASA. He completed his advanced degree in Space Science Engineering in 1981.

By 1977, Mihalov had moved to the Theoretical and Planetary Studies Branch (Code SST) of the Space Science Division, where he worked on the Pioneer Venus Orbiter (Pioneer 12). His role on the project was to study the solar wind in the vicinity of Venus. The solar wind constantly sweeps out into space from the Sun, affecting electrical and communication systems on Earth. On the Pioneer Venus Orbiter mission, Mihalov was a Co-Investigator for the Solar Wind Plasma Analyzer (OPA), which measured how the solar wind behaves at far distances from the sun.

The next large project for Mihalov was the Galileo Probe, which was launched toward Jupiter in 1995. He was a Co-Investigator for the Atmospheric Structure Instrument (ASI),

which measured the temperature, pressure, and density of Jupiter's atmosphere while the Probe descended closer and closer to Jupiter's surface. For the Probe mission, Mihalov also served as a Co-Investigator for the Lightning and Radio Emission Detector (LRD), which measured the characteristics of lightning on Jupiter, as well as the planet's radio frequency noise levels. The LRD experiment shared a common set of electronics with another Probe experiment called the Energetic Particles Investigation (EPI).

Meanwhile, Mihalov's interest in Mars was growing. The Mars Observer mission was slated to study the geoscience and climate of Mars, and Mihalov submitted a proposal to study and interpret the Observer's gamma-ray spectrometer data. Not only was his proposal rejected, but the ill-fated Observer never reached Mars. Undaunted, Mihalov became involved with the Mars Pathfinder mission, which evaluated the Martian environment for further explorations. He assisted Alvin Seiff with a paper about the Pathfinder's Atmospheric Structure Instrument/Meteorology Package (ASI/MET), which recorded data about the atmospheric structure of Mars and the meteorological conditions on the planet's surface. In addition to this paper with Seiff, Mihalov published several other papers about the Mars Pathfinder mission.

In 2001, he received a Length of Service Award to commemorate his 35 years at NASA. He died on January 15, 2002.

John D. Mihalov was a member of the American Physical Society, the American Geophysical Union, the American Astronomical Society, and the American Association for the Advancement of Science. His considerable achievements include service on numerous NASA missions plus the publication of over 100 scientific papers. He contributed to the studies of Earth's trapped radiation, Earth's radiation belts, the interplanetary medium, solar wind interaction with the moon and with Venus, solar wind in the outer heliosphere, shock propagation in the outer heliosphere, the atmosphere of Jupiter, and the magnetospheres of Jupiter and Saturn.

Scope and Content

The John D. Mihalov Collection (18 cubic feet) include technical documents, correspondence, reports, data, conference documentation, and publications detailing Mihalov's contributions to Pioneers 6 through 11 (Pioneers A-G), Pioneer 12 (Pioneer Venus Orbiter, Pioneer Venus 1), and the Galileo Probe (Jupiter Orbiter Probe).

The first series, Record Books, contains technical diaries that Mihalov kept from 1968 to 1992. He filled them with ideas, calculations, and meticulous meeting notes. The notebooks focus on the Interplanetary Monitoring Platform, the Planetary Explorer, Jupiter exploration, scientific instruments on the Galileo Probe, and Pioneer 10 detector data.

The second series, NASA Mission Files, documents Mihalov's involvement with Pioneers 6 through 11, Pioneer 12, and the Galileo Probe. The files contain project management details, correspondence, scientific experiments, and informational materials.

The third series, Project Proposals, consists of proposals that Mihalov produced for scientific experiments.

The fourth series, Scientific Publications, records the development of his publications. It also includes research from his early years, as well as drafts of some of his writings that may not have reached publication.

The fifth series, Meeting Materials, contains information about the international meetings he attended. Also, it records the development of the papers that he authored or co-authored for the meetings.

The sixth series, Peer Reviews, consists of works where Mihalov was not the author or co-author, but he provided feedback to his peers.

The seventh series, Reference Materials, contains books and papers that Mihalov used for research. Some of the items have marginalia in his handwriting. This series is largely unprocessed.

System of Arrangement

The materials are arranged in an order that reflects their technical and historical significance. At the top of the arrangement are Mihalov's record books and mission files, which he wrote and collected from the vantage point of a research scientist who participated in the decision-making processes of several remarkable NASA missions. His project proposals are presented next, revealing his creative ideas for mission experiments, sometimes before the missions were even established. During and after each mission, Mihalov wrote papers about his findings, and these are presented in the next two series, which are his scientific publications and meeting materials. Throughout his long career, Mihalov also helped other scientists with their research, and those contributions show up in the peer review series. The final series in the arrangement contains materials that Mihalov used for reference.

The records of the collection are arranged in seven series, three of which are further arranged in subseries. Contents are in alphabetical order, with two exceptions. The record books are in chronological order, and the NASA missions are presented chronologically at the subseries level.

I. Record Books

II. NASA Mission Files

1. Pioneers 6 through 11
2. Pioneer 12 (Pioneer Venus Orbiter)
3. Galileo Probe
 - A. Project Management
 - B. Correspondence
 - C. Experiments

- D. Informational Materials
- III. Project Proposals
- IV. Scientific publications
 - 1. Publications
 - 2. Early Research
 - 3. Unfinished Works
- V. Meeting Materials
- VI. Peer Reviews
- VII. Reference Materials

Where possible, Mihalov's original order was maintained at the box level, and his folder titles were preserved. However, the bulk of the collection consisted of loose material in no discernable order, so it was necessary to impose an arrangement.

Series Descriptions

Series I: Record Books, 1968-1992, 5 folders.

This series contains technical diaries that Mihalov kept from 1968 to 1992. He filled them with ideas, calculations, and meticulous meeting notes. The notebooks focus on the Interplanetary Monitoring Platform, the Planetary Explorer, Jupiter exploration, Pioneer 10 Trapped Radiation Experiment Detector data, and the scientific instruments on the Galileo Probe. Mihalov was the Co-Investigator for two of the probe's instruments (the Atmospheric Structure Instrument plus the Lightning and Radio Emission Detector). However, the record books reveal that he participated in meetings where all the probe's instruments were discussed. Some of the Galileo meetings that are recorded here were also attended by James B. Pollack, James Van Allen, and Carl Sagan.

Funding was discussed in the meetings, and questions were occasionally raised about the progress of the Russians in the space race. The record book about the Interplanetary Monitoring Platform holds a 1987 timeline of "Humans in Space," which predicted that manned ships would reach Mars in 2015.

Series II: NASA Mission Files, 154 folders.

This series is arranged in three subseries, documenting Mihalov's involvement with Pioneers 6 through 11, Pioneer 12 (Pioneer Venus Orbiter), and the Galileo Probe.

The first subseries, Pioneers 6 through 11, contains reports, data, and meeting notes for the missions of Pioneers 6 through 11. Some of the meeting notes mention funding problems and morale. It is worth noting that the Pioneer missions had alternate (alphabetic) names, and it is not unusual to see Pioneer 10 called Pioneer F in this subseries. Similarly, Pioneer 11 equates to Pioneer G.

The second subseries, Pioneer 12 (Pioneer Venus Orbiter), includes meeting notes, correspondence, design reviews, tests, and data related to Pioneer 12.

The third subseries, Galileo Probe, represents Mihalov's work on the Galileo mission. This subseries is further arranged into sub-subseries of Project Management, Correspondence, Experiments, and Informational Materials. A detailed picture of the Galileo Probe project emerges, touching on attempts to open the high gain antenna and management's efforts to improve team harmony. Most of the series is scientific and professional, but there is also a fair amount of personal correspondence between Mihalov and Rolf Behrends, who worked on the Probe project from Germany. Mihalov and Behrends discuss topics such as international politics, their travels, and the books that they were reading.

Series III: Project Proposals, 18 folders.

This series consists of proposals that Mihalov made for scientific experiments. He produced numerous diagrams, calculations, and price estimates. Some of his early proposals were rejected, and the files reveal that he contemplated leaving NASA. He persevered on proposals for many years, and his documents provide a glimpse into the political climate of the era, with memos from NASA Headquarters and news from Congress.

Series IV: Scientific Publications, 62 folders.

This series is arranged in three subseries, which are Mihalov's publications, his early research, and some of his unfinished works.

The first subseries, Publications, records the development of Mihalov's publications, which were primarily for scientific periodicals. He was the author or co-author of over 100 journal publications that dealt with Earth's trapped radiation, Earth's radiation belts, the interplanetary medium, solar wind interaction with the moon and with Venus, solar wind in the outer heliosphere, shock propagation in the outer heliosphere, the atmosphere of Jupiter, and the magnetospheres of Jupiter and Saturn.

In the first subseries, the "Galileo Science Book" folder holds Mihalov's contributions to *Galileo: Exploration of Jupiter's System*, Yeates et al., NASA SP-479, Washington, D.C., 1985

Also in the first subseries, the "Magnetopause" folders include correspondence with Charles P. Sonett, where Mihalov provides rare comments about his wife and family events, and where he also expresses dissatisfaction with his NASA managers at the time.

The second subseries, Early Research, shows his earliest work in areas that became the foundation of his career.

The third subseries, Unfinished Works, includes some of his writings that may not have reached publication.

Series V: Meeting Materials, 1972-1993, 44 folders.

This series contains information about the international meetings that Mihalov attended. It also records the development of papers that he authored or co-authored for the meetings. Frequently, his meeting papers ended up as publications in scientific journals. In this series, there are occasional letters from scientists around the world. They wrote to Mihalov saying they had met him at meetings, and they wondered if they could use his data, or work with him on future papers.

Series VI: Peer Reviews, 1972-1992, 13 folders.

This series consists of works where Mihalov was not the author or co-author, but he provided feedback to other scientists.

Series VII: Reference Materials, 5 boxes.

This series is largely unprocessed, and it contains papers and books that Mihalov used for research. Some of the items have marginalia in his handwriting.

Indexing Terms

The following terms may be used to index this collection.

Corporate Name

Ames Research Center
Max Planck Institute for Aeronomy
University of Kiel

Geographic Name

Moffett Field (Calif.)

Personal Name

Mihalov, John D.

Subjects

Energetic Particles Investigation
Galileo probe
Lightning and Radio Emission Detector
Pioneer 6-9 (Spacecraft)
Pioneer 10 (Spacecraft)
Pioneer 11 (Spacecraft)
Pioneer 12 (Spacecraft)
Pioneer Venus spacecraft
Plasmas (physics)
Solar physics
Solar planetary interactions

Solar wind

Related Collections

Alvin Seiff Papers, 1955-2000

Pioneer Project Records, 1952-1956

Container List

Series I: Record Books

Box	Folder	Folder Title
1	1	Interplanetary Monitoring Platform D and E Data Exchange, 1968-1987
1	2	Planetary Explorer, 1968-1987
1	3	Jupiter Exploration, 1971-1976
1	4	Galileo Probe Lightning and Radio Emission Detector - Energetic Particles Instrument Critical Design Review, 9/81, et sequentia (Energy Particle Calibration), 1981-1992
1	5	Pioneer 10 Detector A Steps, 1990

Series II: NASA Mission Files

1. Pioneers 6 through 11

Box	Folder	Folder Title
2	1	Pioneer 6, Electron Data
2	2	Pioneer 6 through 11, Collaborative Work, 1979 (1 of 2)
2	3	Pioneer 6 through 11, Collaborative Work, 1979 (2 of 2)
2	4	Pioneer 9, Downlink Signal
2	5	Pioneer 10, 3-Temp, 2-Temp Models, 1976
2	6	Pioneer 10, Data
2	7	Pioneer 10, Dyal, Palmer, Correspondence
2	8	Pioneer 10, Electron Data
2	9	Pioneer 10, Electron Data, 1972 August
2	10	Pioneer 10, Encounter Material (1 of 2)
2	11	Pioneer 10, Encounter Material (2 of 2)
2	12	Pioneer 10, Encounter Material, Publication of
2	13	Pioneer 10, Histograms, Distant Solar Wind
2	14	Pioneer 10, Jupiter Encounter Electrons
2	15	Pioneer 10, Moments Calculations
2	16	Pioneer 10, Roll Attitude
2	17	Pioneer 10, Second Inbound Magnetosheath Traversal
2	18	Pioneer 10, Sector Angle Correction Report
2	19	Pioneer 10, Tracking Schedules
2	20	Pioneer 10 and 11, Data

2	21	Pioneer 10 and 11, Data Shipment to Lazarus and Feynman
2	22	Pioneer 10 and 11, Multiple Pioneer Augment, 1974 March and May
2	23	Pioneer 10 and 11, Plasma Analyzer Engineering Drawings, Oversized (1 of 4)
2	24	Pioneer 10 and 11, Plasma Analyzer Engineering Drawings, Oversized (2 of 4)
2	25	Pioneer 10 and 11, Plasma Analyzer Engineering Drawings, Oversized (3 of 4)
2	26	Pioneer 10 and 11, Plasma Analyzer Engineering Drawings, Oversized (4 of 4)
2	27	Pioneer 10 and 11, Plasma Data from the Plasma Analyzer Experiment
2	28	Pioneer 10 and 11, Project Science Group
2	29	Pioneer 10 and 11, Trajectory Data User Requirements
2	30	Pioneer 10/G Quarterly Review
2	31	Pioneer 11, Data
2	32	Pioneer 11, Data and Miscellaneous Papers
2	33	Pioneer 11, Failure Mode and Effects Analysis of Plasma Analyzer Instrument
2	34	Pioneer 11, Fred Scarf's Shock
2	35	Pioneer 11, Jupiter Encounter
2	36	Pioneer 11, Magnetic Coordinates for the Second Jupiter Flyby
2	37	Pioneer 11, Solar Wind Speed Data
2	38	Pioneer 11, Van Allen, James A., Correspondence
2	39	Pioneer Block I and III Era Archive Tape Formats, 1967
2	40	Pioneer, Recent Block I Business
2	41	Pioneer Weekly Reports

2. Pioneer 12 (Pioneer Venus Orbiter)

Box	Folder	Folder Title
3	1	Brace, Larry H., Correspondence
3	2	Computer Programs and Printouts
3	3	Electrometer Data
3	4	General Plasma Program Information
3	5	Interplanetary Summary Data from Pioneer Venus
3	6	Knudsen's Data for 1978 Shocks
3	7	Notes and Calculations, Pioneer Venus Plasma Analyzer
3	8	Notes and Charts
3	9	Partial Report, Unidentified
3	10	Pioneer 10 through 13, Plasma Parameters
3	11	Pioneer Budget Reduction Memo
3	12	Pioneer Venus Lunch Seminar, 1980 September
3	13	Pioneer Venus Orbiter Alignment Test Procedure HS-507
3	14	Pioneer Venus Orbiter and International Sun-Earth Explorer

- 3 15 Pioneer Venus Orbiter and International Sun-Earth Explorer Ecliptic Plane Projection
- 3 16 Pioneer Venus Orbiter Entry Operations Plan
- 3 17 Pioneer Venus Orbiter Final Encounter Operations Requirement Handbook
- 3 18 Pioneer Venus Orbiter Plasma Analyzer, Final Design Review
- 3 19 Pioneer Venus Orbiter, Ten Years of Discovery
- 3 20 Pioneer Venus Pre-entry Orbiter Mission Operations Planning/Entry Planning Committee Meeting Materials
- 3 21 Pioneer Venus Project Orbiter Encounter Readiness Review
- 3 22 Pioneer Venus Project Real-Time Data Processing System Software Specification (PC 454), Volume II (1 of 3)
- 3 23 Pioneer Venus Project Real-Time Data Processing System Software Specification (PC 454), Volume II (2 of 3)
- 3 24 Pioneer Venus Project Real-Time Data Processing System Software Specification (PC 454), Volume II (3 of 3)
- 3 25 Pioneer Venus Science Steering Group, 1990 September
- 3 26 Pioneer Venus Science Steering Group, 1991 March
- 3 27 Pioneer Venus Science Steering Group, 1991 Fall
- 3 28 Pioneer Venus Science Steering Group, 1992 March
- 3 29 Pioneer Venus Science Steering Group, 1992 September
- 3 30 Pioneer Venus Science Steering Group, 1993 March
- 3 31 Pioneer Venus Science Steering Group, 1993 September
- 3 32 Pioneer Venus Solar Wind Speed Daily Samples
- 3 33 Pioneer Venus Solar Wind Velocity
- 3 34 Pioneer Venus Spectra Data
- 3 35 Plasma Analyzer Theory and Calibrations for Pioneers 10 and 11, and Pioneer Venus Orbiter
- 3 36 Plots of Electric Field, Pioneer Venus
- 3 37 Plots, Pioneer Venus Orbiter (1 of 3)
- 4 1 Plots, Pioneer Venus Orbiter (2 of 3)
- 4 2 Plots, Pioneer Venus Orbiter (3 of 3)
- 4 3 Plots, Pioneer Venus Orbiter Long Eclipse
- 4 4 Plots, Pioneer Venus Orbiter (Microfilm) (1 of 3)
- 4 5 Plots, Pioneer Venus Orbiter (Microfilm) (2 of 3)
- 4 6 Plots, Pioneer Venus Orbiter (Microfilm) (3 of 3)
- 4 7 Plots, Pioneer Venus Orbiter?
- 4 8 Plots, Pioneer Venus Plasma Analyzer
- 4 9 Plots, Unidentified
- 4 10 Post-Journal of Geophysical Research Pioneer Venus Orbiter Work (1 of 2)
- 4 11 Post-Journal of Geophysical Research Pioneer Venus Orbiter Work (2 of 2)
- 4 12 References and Clippings
- 4 13 Russell, Christopher T., Correspondence

3. Galileo Probe

A. Project Management

Box	Folder	Folder Title
4	14	Decision Plan
4	15	Document Change Notices
4	16	Final Review, System Design Study, 1977
4	17	Galileo Probe Project Office Technical Coordination Memos
4	18	High Gain Antenna
4	19	Preliminary Design Review, Deceleration Module, 1979
4	20	Probe Project Science Group Meetings (1 of 2)
4	21	Probe Project Science Group Meetings (2 of 2)
4	22	Probe System Command Sequence Review
4	23	Probe System Environments, Specification JP-590.00 and Revisions, 1978-1985
4	24	Project Communications, Miscellaneous
4	25	Project Management Directory
4	26	Science Data Management Plans
4	27	Status Briefings
4	28	System Preliminary Design Review, Book 1, 1979
4	29	System Preliminary Design Review, Book 2, 1979
4	30	Untitled (Mission Profile Change)

B. Correspondence

Box	Folder	Folder Title
5	1	Chin, Benny
5	2	Harvard Cyclotron Laboratory
5	3	Lanzerotti, Louis J.
5	4	Lanzerotti, Louis J., Email
5	5	Lawrence Livermore National Laboratory
5	6	Max Planck Institute for Aeronomy
5	7	Schaupp, R. William
5	8	Tischler, Edward A.
5	9	University of Kiel

C. Experiments

Box	Folder	Folder Title
5	10	Atmospheric Structure Instrument Experiment
5	11	Atmospheric Structure Instrument Service Request Reports
5	12	Data Output, qplot
5	13	Data Printouts (1 of 3)
5	14	Data Printouts (2 of 3)
5	15	Data Printouts (3 of 3)

5	16	Descent Data Format and Data Map
5	17	Energetic Particles Instrument Circuit Diagram
5	18	Energetic Particles Instrument Experiment SDM Tape Data
5	19	Energetic Particles Instrument/Lightning and Radio Emission Detector Experiment Planning, Testing, and Review (1 of 2)
5	20	Energetic Particles Instrument/Lightning and Radio Emission Detector Experiment Planning, Testing, and Review (2 of 2)
5	21	Energetic Particles Instrument/Lightning and Radio Emission Detector Installation Study
5	22	Energetic Particles Instrument/Lightning and Radio Emission Detector Installation Study Supporting Documents
5	23	Energetic Particles Instrument/Lightning and Radio Emission Detector Test Data
5	24	Handwritten Notes
5	25	Radiation, Design Considerations for (1 of 2)
5	26	Radiation, Design Considerations for (2 of 2)
5	27	Software Interface Specification
5	28	Telemetry Calibration Handbook
5	29	Untitled, Experiment Records and Correspondence (1 of 3)
5	30	Untitled, Experiment Records and Correspondence (2 of 3)
5	31	Untitled, Experiment Records and Correspondence (3 of 3)

D. Informational Materials

Box	Folder	Folder Title
5	32	Contractor Publications (1 of 4)
5	33	Contractor Publications (2 of 4)
5	34	Contractor Publications (3 of 4)
5	35	Contractor Publications (4 of 4)
5	36	Galileo Completing Venus-Earth-Earth-Gravity-Assist, A Mid-Term Report
5	37	Galileo Cosmic Ray Symposium
5	38	Galileo Messenger, The
6	1	Galileo Press Kits and Informational Material
6	2	Galileo Papers
6	3	Journal Articles and Clippings (1 of 2)
6	4	Journal Articles and Clippings (2 of 2)
6	5	Jupiter Charged Particle Environment
6	6	Miscellaneous
6	7	NASA Materials (1 of 2)
6	8	NASA Materials (2 of 2)

Series III: Project Proposals

Box	Folder	Folder Title
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6	9	Infrared Space Observatory (1 of 2)
6	10	Infrared Space Observatory (2 of 2)
6	11	Jupiter Orbiter Probe
6	12	Mars and Titan
6	13	Mars Gamma Ray Spectrometer Information
6	14	Mars Observer Material
6	15	Mars Observer Program (1 of 2)
6	16	Mars Observer Program (2 of 2)
6	17	Pioneer 10 and 11, Energetic Electron Fluxes
6	18	Pioneer 10 and 11, Particle Measurements
6	19	Pioneer Venus Orbiter (1 of 4)
6	20	Pioneer Venus Orbiter (2 of 4)
6	21	Pioneer Venus Orbiter (3 of 4)
6	22	Pioneer Venus Orbiter (4 of 4)
6	23	Pioneer Venus Orbiter, Proposal References
7	1	Pioneer Venus Orbiter, Retarding Potential Analyzer Experiment
7	2	Submission Guidelines and Documents
7	3	Venus Data Analysis Program

Series IV: Scientific Publications

1. Publications

Box	Folder	Folder Title
7	4	Analysis of In-Situ Plasma Detections in the Vicinity of Comet Halley: Pioneer 7 Observations
7	5	Cliver Paper, 1986 (1 of 2)
7	6	Cliver Paper, 1986 (2 of 2)
7	7	Comparison of Gas Dynamic Model with Steady Solar Wind Flow around Venus
7	8	Dryer, Pioneer 11 - Pioneer 10 Paper
7	9	Evidence for the Acceleration of Ionospheric O ⁺ in the Magnetosheath of Venus
7	10	Factors Controlling the Location of the Venus Bow Shock
7	11	Far Reaches of the Solar Wind: Pioneer 10 and Pioneer 11 Plasma Results, The (1 of 2)
7	12	Far Reaches of the Solar Wind: Pioneer 10 and Pioneer 11 Plasma Results, The (2 of 2)
7	13	Galileo Science Book
7	14	Heliospheric Shocks (Excluding Planetary Bow Shocks) (1 of 3)
7	15	Heliospheric Shocks (Excluding Planetary Bow Shocks) (2 of 3)
7	16	Heliospheric Shocks (Excluding Planetary Bow Shocks) (3 of 3)
7	17	Impact Ionization in the Nighttime Venusian Ionosphere Calculated from Observed Electron Spectra
7	18	Ionotail of Venus: Its Configuration and Evidence of Ion Escape, The

7	19	Large Solar Wind Disturbances during Late May and Early June 1991 (1 of 4)
7	20	Large Solar Wind Disturbances during Late May and Early June 1991 (2 of 4)
7	21	Large Solar Wind Disturbances during Late May and Early June 1991 (3 of 4)
7	22	Large Solar Wind Disturbances during Late May and Early June 1991 (4 of 4)
8	1	Lunar Diamagnetism (1 of 2)
8	2	Lunar Diamagnetism (2 of 2)
8	3	Magnetopause (1 of 2)
8	4	Magnetopause (2 of 2)
8	5a	Observations of Shock Propagation in the Distant Heliosphere (1 of 2)
8	5b	Observations of Shock Propagation in the Distant Heliosphere (2 of 2)
8	6	Pioneer 6 Bow Shock Manuscript (1 of 2)
8	7	Pioneer 6 Bow Shock Manuscript (2 of 2)
8	8	Pioneer 11 Science Manuscript
8	9	Pioneer Bow Shock Measurements (1 of 2)
8	10	Pioneer Bow Shock Measurements (2 of 2)
8	11	Pioneer Studies of Shock Propagation in the Heliosphere (1 of 2)
8	12	Pioneer Studies of Shock Propagation in the Heliosphere (2 of 2)
8	13	Pioneer Venus, Journal of Geophysical Research Paper
8	14	Pioneer Venus, Journal of Geophysical Research-2 (1 of 2)
8	15	Pioneer Venus, Journal of Geophysical Research-2 (2 of 2)
8	16	Pioneer Venus, Journal of Geophysical Research-3
8	17	Russell's Comet Article (1 of 2)
8	18	Russell's Comet Article (2 of 2)
8	19	Scarf Pioneer 8 Paper
8	20	Shock Strengths (1 of 2)
9	1	Shock Strengths (2 of 2)
9	2	Slavin Geophysical Research Letters Publication
9	3	Smith, E.J., 10 AU Transient Interaction Region Paper
9	4	Taylor Material, 1983
9	5	Taylor's Study of Travelling Interplanetary Phenomena (STIP) Papers
9	6	Thermal Structure of Jupiter's Atmosphere Near the Edge of a 5-Micron Hot Spot in the North Equatorial Belt
9	7	Venus and Other Tail (1 of 3)
9	8	Venus and Other Tail (2 of 3)
9	9	Venus and Other Tail (3 of 3)

2. Early Research

Box Folder Folder Title

9	10	Block I Plasma Probe Parameters versus Param. Plots
9	11	Electron Multipliers

9	12	Fluxgate
9	13	Herbig-Haro Objects
9	14	Knecht, David J., Correspondence
9	15	Magnetometer
9	16	Plasma Probes

3. Unfinished Works

Box	Folder	Folder Title
9	17	Flow and Mass Loading in the Subsolar Magnetosheath of Venus
9	18	Galileo Magnetosphere Article
9	19	Galileo Science Report
9	20	Pioneer 10 and 11
9	21	Sheeley Paper
9	22	Solar Wind Speed Variations at Venus during the Declining Portion of Solar Cycle 21

Series V: Meeting Materials

Box	Folder	Folder Title
9	23	American Geophysical Union, 1972 Fall
9	24	American Geophysical Union, 1975 Fall
9	25	American Geophysical Union, 1976 Fall
9	26	American Geophysical Union, 1977 Fall
9	27	American Geophysical Union, 1980 Spring
9	28	American Geophysical Union, 1982 Spring
9	29	American Geophysical Union, 1984 Fall
10	1	American Geophysical Union, 1987 Fall (1 of 6)
10	2	American Geophysical Union, 1987 Fall (2 of 6)
10	3	American Geophysical Union, 1987 Fall (3 of 6)
10	4	American Geophysical Union, 1987 Fall (4 of 6)
10	5	American Geophysical Union, 1987 Fall (5 of 6)
10	6	American Geophysical Union, 1987 Fall (6 of 6)
10	7	American Geophysical Union, 1988 Fall
10	8	American Geophysical Union, 1989 Fall
10	9	American Geophysical Union, 1990 ? (1 of 2)
10	10	American Geophysical Union, 1990 ? (2 of 2)
10	11	American Geophysical Union, 1990 Fall
10	12	American Geophysical Union, 1992 Spring (1 of 2)
10	13	American Geophysical Union, 1992 Spring (2 of 2)
10	14	American Geophysical Union, 1992 Fall
10	15	American Geophysical Union, 1993 Fall (1 of 3)
10	16	American Geophysical Union, 1993 Fall (2 of 3)
10	17	American Geophysical Union, 1993 Fall (3 of 3)

10	18	American Physical Society, 1983 November (1 of 2)
10	19	American Physical Society, 1983 November (2 of 2)
10	20	International Association of Geomagnetism and Aeronomy (IAGA), 1993
10	21	Meetings, 1990
11	1	Meetings, 1991 (1 of 2)
11	2	Meetings, 1991 (2 of 2)
11	3	Meetings, 1993
11	4	Miscellaneous Meetings (1 of 4)
11	5	Miscellaneous Meetings (2 of 4)
11	6	Miscellaneous Meetings (3 of 4)
11	7	Miscellaneous Meetings (4 of 4)
11	8	Outer Heliosphere Symposium, 1989 May
11	9	Solar Wind 6 Conference, 1987 (1 of 3)
11	10	Solar Wind 6 Conference, 1987 (2 of 3)
11	11	Solar Wind 6 Conference, 1987 (3 of 3)
11	12	Solar Wind 7 Conference, 1992 ?
11	13	Tucson, Jupiter Conference, 1974 July
11	14	Tucson, Saturn Conference, 1982 May
11	15	Venus Environment Conference, 1981 (1 of 2)
11	16	Venus Environment Conference, 1981 (2 of 2)

Series VI: Peer Reviews

Box Folder Folder Title

11	17	Cliver, Edward W., 1992
11	18	Fowler, J.L., 1972 (1 of 2)
11	19	Fowler, J.L., 1972 (2 of 2)
11	20	Kivelson, Margaret, 1991
11	21	Lunar Science Review Panel, 1975
11	22	McGary, John E., 1992
11	23	Moore, Kurt R., 1990
11	24	Moore, Kurt R. and McComas, David J., 1990
11	25	Null, George W., 1976
11	26	Other Peer Reviews, 1981
11	27	Russell, Christopher T., 1982
11	28	Simpson, John A. and Lopate, Clifford, 1989
11	29	Slavin, James A., 1982

Series VII: Reference Materials

Boxes 12-16