Guide to the
Jeffrey N. Cuzzi Collection, 1975-2025
ARC25.04

NASA Ames Research Center Archives

Contact Information:
NASA Ames Research Center Archives
Mail-Stop 207-1
Moffett Field, CA 94035-1000
Phone: (650) 604-1032
Email: ARC-DL-archives@mail.nasa.gov
URL: https://www.nasa.gov/archives/arc-archives/

Collection processed and finding aid prepared by:
April Gage and Jeffrey N. Cuzzi, December 2025

Table of Contents

Descriptive Summary

Title:
Jeffrey N. Cuzzi Collection, 1975-2025

Collection Number:
ARC25.04

Creator:
Cuzzi, Jeffrey N.

Dates:
Inclusive: 1975-2025
Bulk: 1975-2018

Extent:
15 cubic feet (15 linear feet)
15 record cartons
9 digital items (71 Megabytes), PDF files

Repository:
NASA Ames Research Center Archives
Moffett Field, California 94035

Abstract:
This collection documents Jeff Cuzzi's extensive career at Ames Research Center, highlighting his contributions to planetary science over several decades. It includes materials related to his role in developing the Cassini-Huygens mission, and in planning and executing observations of planetary rings during the Mission. It also includes documentation pertaining to his branch management tenure during a period of significant agency restructuring during Daniel Goldin's administration of NASA. Additionally, the collection encompasses his involvement in various Ames projects, such as the Search for Extraterrestrial Intelligence (SETI) Program and the application of artificial intelligence in spacecraft operations. This collection provides valuable insights into Cuzzi's professional activities and the development of NASA's scientific endeavors.

Administrative Information

Access: Restricted Partly; This collection may contain information that has Controlled Unclassified Information (CUI) and Export Control restrictions.

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

Publication Rights: This collection may contain copyrighted material. The researcher assumes full responsibility for conforming with the laws of copyright. Securing permission to publish or use materials is the sole responsibility of the researcher.

Languages and Scripts: All records are in English.

Acquisition Information: Transferred by Jeffrey N. Cuzzi in March and November 2025 (Acc. ARC-TR-2025-004).

Related Material

Related collections at the Ames Research Center Archives
AFS1070.8A: Archives Reference Collection, 1939-
ARC11.17: Exobiology Branch Collection, 1960-1996

Biographical History

Jeffrey "Jeff" Cuzzi is an interdisciplinary research scientist at Ames Research Center whose extensive contributions to planetary science reshaped our understanding of planetary ring systems and advanced our knowledge of the composition of comets, interplanetary dust, and the origins of our solar system. For this work, he has been honored with multiple prestigious awards, such as the Gerard P. Kuiper Prize from the American Astronomical Society's Division of Planetary Sciences, the Leonard Medal from the Meteoritical Society, the H. Julian Allen Award, and three NASA Exceptional Scientific Achievement Medals.

After earning degrees in engineering physics from Cornell University and astrophysics from the California Institute of Technology, Cuzzi began his postdoctoral work at Ames in 1974. As James B. Pollack's first postdoctoral student, his main focus was on studying the composition of Saturn's rings. The two predicted that the rings were largely composed of water ice particles of varying sizes, which they later confirmed from Voyager mission observations. As part of the Voyager Imaging Team Rings Working Group, Cuzzi led the planning of all the rings observations for that mission's two Saturn encounters in 1980 and 1981, the Uranus encounter in 1986, and the Neptune encounter in 1989.

Even before the Voyager Program drew to a close, the Cassini-Huygens mission to study Saturn and its system of rings and moons was being formulated by NASA, the European Space Agency, and the Italian Space Agency. During that time, Cuzzi contributed to defining the probe and ring science portions of the Announcement of Opportunity and collaborated on potential variations of what would ultimately become the Cassini mission. In the late 1970s, he served as the pre-phase study scientist to investigate sending an atmospheric entry probe to Titan. Later, in the early 1980s, he participated in Saturn Orbiter Dual Probe (SOP2) studies that looked into sending an orbiter and probe to Saturn and a second probe to Titan. Also, while Cassini was being proposed and initiated, he collaborated on an Ames Thermal Infrared Radiometer Experiment (TIREX) as part of the Comet Rendezvous Asteroid Flyby (CRAF) mission, which was approved as a dual mission with Cassini in 1990 before being canceled in 1992.

After Cassini was approved, Cuzzi was selected as the interdisciplinary scientist for rings and dust. In this role, he directed the Rings Discipline Working Group, and served on the Project Science Group, Rings Target Working Team (TWT), and Saturn Orbit Insertion (SOI) TWT. Along the way, he conducted or led special studies and other activities in areas such as hazards the rings could potentially pose to the spacecraft, risk analysis and public outreach for the Plutonium-based Radioisotope Thermoelectric Generators (RTGs), cross-instrument data volume requirements, and artificial intelligence applications for spacecraft scheduling.

While working on Cassini and other efforts, Cuzzi was tapped in 1992 to lead the Theoretical Studies Branch in the Space Science Division (renamed the Planetary Systems Branch a year or two later). His transition to branch management coincided with the appointment of Daniel Goldin as NASA's administrator, which initiated a turbulent period in NASA’s history marked by sweeping efforts to reshape the agency. As branch chief until 1996, Cuzzi navigated agency-wide Zero-Base Reviews and total quality management initiatives amid workforce and budget reductions. Also during this period, he and Ames management faced a range of threats to the center’s existence and identity, including closing down the Space Science Directorate and/or converting it from a government-

operated federal research laboratory to a federally-funded research and development center like JPL, none of which came to pass. In Cuzzi's final year as branch chief, Administrator Goldin launched the Origins program, which aligned nicely with the capabilities of the Ames Science Directorate (expanding an origins program the Directorate conceived of in the late 1980s). The Origins program would use space-based and airborne telescopes and ground-based technologies to study the origin of stars, planets, and other astronomical bodies, as well as the potential for life on them. The textbook-rewriting Kepler mission led by William Borucki was an outgrowth of this new initiative.

Throughout his career, Cuzzi participated in a diverse array of projects and served on several advisory committees at Ames and NASA Headquarters. One area of note is his early participation in the Search for Extraterrestrial Intelligence (SETI) program. Shortly after his arrival at Ames in 1974, he was pulled into a working group that was defining what was then called the CETI (Communication with Extraterrestrial Intelligence) program, run by John Billingham. Cuzzi's work as a radio astronomer before he came to Ames made him a natural fit for the group, which set out to define the program's rationales and goals.

Cuzzi retired from federal service in 2023 but continues to work with the Planetesimal Formation group as an Ames Associate.

Sources Consulted

Cuzzi, J. N. (2024, August 5). Jeff Cuzzi, principal investigator. Retrieved from https://www.nasa.gov/people/jeff-cuzzi. Accessed September 3, 2025.

Valdez, M. A., Fitzpatrick, C. C., & Cuzzi, J. N. (2021, July 29). Interview of Jeff Cuzzi by Frederic van Wert and Sara Perez-Rojo [Interview]. Retrieved from https://www.nasa.gov/general/interview-with-jeff-cuzzi. Accessed September 8, 2025.

Cuzzi, J. N. (2025). Archive notes. NASA Ames Research Center Archives. ARC25.04, Jeffrey N. Cuzzi Collection, 1975-2025, Box 1 : Folder 1.

Scope and Content

This collection of Jeffrey Cuzzi's personal papers reflects over four decades of his work for NASA as a planetary research scientist and Branch Chief in the Space Science Division at Ames. The collection is intellectually arranged into three series.

Series I documents Cuzzi's contributions to the Cassini-Huygens mission. Included are materials related to his scientific and technical studies, management of interdisciplinary science teams for the mission from 1990 until circa 2018, and precursor work in the 1970s and 1980s related to the Titan entry probe and a potential companion mission (CRAF) to encounter a comet and an asteroid. This series, which represents the bulk of the collection, provides a deep view into the inner workings of how the mission definition and execution process evolved.

Series II pertains to Cuzzi's role as the Planetary Systems Branch Chief from 1992 to 1996, as well as his participation in various center and agency advisory groups. This series provides insight into how Ames and science were impacted by agency restructuring and government downsizing during the first years of Daniel Goldin's administration of NASA. Within this context, the files provide a glimpse into Space Science Division activities and how the center navigated a turbulent time in the agency and the country. Also included is biographical information. Of note is a lengthy document that is instrumental in understanding this collection. Entitled "Archive Notes," this document describes the physical contents of every box, along with Cuzzi's personal recollections to further contextualize the material.

Series III contains files related to some of Cuzzi's special projects, including efforts in areas such as the Search for Extraterrestrial Intelligence (SETI), bringing the Stratospheric Observatory for Infrared

Astronomy (SOFIA) program to Ames, and developing artificial intelligence tools for smart spacecraft and for augmenting mission science data collection and handling. Of note in this series are extensive notes and other documentation from the early days of SETI that are not otherwise available in published reports from that time.

This collection does not cover Cuzzi's work on the Voyager mission, including Voyager 1 and 2 encounters with Saturn, and Voyager 2 encounters with Uranus and Neptune. He transferred that documentation to the Ring-Moon Systems Node of NASA's Planetary Data System.

System of Arrangement
This collection is physically arranged in the creator's original order. See Cuzzi's "Archive Notes" document, which details the contents of each box according to the physical arrangement, along with personal recollections about his work.

The collection description is intellectually arranged into three series:

I. Cassini-Huygens Mission Work, circa 1977-2018
II. Ames Management and Strategic Planning Activities, circa 1980s-1994
III. Special Projects, circa 1974-1990s

Processing Information
This collection is partially physically processed.

Series Descriptions

I. Cassini-Huygens Mission Work, circa 1977-2018
This material covers the planning and design of the mission starting with activity prior to approval in 1990, followed by Cuzzi's selection as the Interdisciplinary Scientist (IDS) for Rings and Dust, and thus a member of the project's executive board or Project Science Group (PSG) with instrument team leads and other IDSs. As Rings IDS from 1990 until circa 2017 when the mission ended, he led the Rings Discipline Working Group (RWG). This group, which included ring scientists from across all of the instrument teams, was responsible for all ring-related aspects of tour design and observation prioritization. This series also includes Cuzzi's pre-Cassini studies on Titan entry probes and his role as a coinvestigator for an Ames thermal infrared radiometer proposal that was selected for the Comet Rendezvous Asteroid Flyby (CRAF) mission. CRAF and Cassini were approved as a cost-effective pair by Congress in 1990, but CRAF was canceled in 1992.

Most of the material in this series comprises documentation from the RWG and PSG working group meetings. This represents the foundational documentation for the mission science work, covers scientific and tactical issues, includes Cuzzi's IDS proposal and collaboration agreements with the instrument teams, and details how the groups reached consensus on the objectives for the tour and allocated discipline-specific science to different geometric opportunities (periapses, mostly). Of note is a collection of bound green notebooks that contain Cuzzi's meeting notes from throughout the entire mission. There is a partial run of bound JPL PSG slide packages (also referred to as orange jackets, due to the orange paper used for the covers) from 23 meetings spanning 1990-2001.

RWG materials include Cuzzi's summaries of prioritization workshops starting with the Yosemite workshop, an Ames workshop, and the Estes Park workshop, all done on the Gordon Research Conference schedule. Some files provide political background on how the group worked through the science allocation process.

Other types of documentation include scattered correspondence; reports and studies written to advocate the selection of the mission by Congress; files related to Cuzzi's active outreach role during intense prelaunch media scrutiny about the planned use of plutonium in the spacecraft's

power system; several ring hazard studies; the first Cassini orbiter data volume study; and several studies on planning substantive scientific investigations just after the Saturn orbit insertion burn and thereafter.

II. Ames Management and Strategic Planning Activities, circa 1980s-1994
This series contains studies, reports, briefings, presentations, bound journals with meeting notes, correspondence, and other materials related to the Space Science Division in the early 1980s and to Cuzzi's term as Planetary Systems Branch Chief from 1992 to 1996. These files pertain to center management, strategic planning, and other special study groups. Of note are studies in the 1990s about potentially reorganizing center science capabilities (i.e., The Ames Institute). Another set of files relates to astrobiology and the associated Origins program launched during the Goldin years. These files document planning that led to the original NASA Origins of Solar Systems research and analysis program, the agency's increasing use of the "Origins" theme, as well as the NASA Astrobiology Institute and Ames's role in it, how it would be structured, and the kick-off workshop. Examples of other subject areas include investigations of center roles and missions, Ames Strategy and Tactics Committee (SATCOM) files and final report spanning work conducted from 1985 to 1987, and Ames Basic Research Council evaluations to award funding for various science projects.

Other files pertain to one of the first NASA Headquarters investigations of science capabilities at the NASA centers and resulting Alexander Committee report in 1988, a follow-up study of agency research and analysis programs from 1989 to 1994.

III. Special Projects, circa 1974-1990s
Materials in this series cover a few additional special projects in which Cuzzi participated. One set of files comprises Cuzzi's records from the beginnings of the Ames SETI working group and its Communication with Extraterrestrial Intelligence (CETI) program precursor from about 1974 to 1980. These files include study and workshop materials, collaboration with Jill Tarter on the first high-resolution SETI search, and extensive bound notes from both the Ames-internal small group meetings and the complete printed notes from the series of high-level workshops in 1975-1976 from which the final report, NASA SP-419, was derived. SP-419, written by Philip Morrison, John Billingham, and John Wolfe, only summarizes the individual workshops and contains only their agendas, so these original notes expand on the report by including, for example, debates about the noise properties of signals and whether they should be treated as waves or as photons. Another set of files relates to the SOFIA program, including planning leading to managing the program at Ames. A third set pertains to the use of artificial intelligence (neural nets and so-called software-based "recognizers") for smart spacecraft and ground-based telescopes. Cuzzi worked on several projects in this group, including a candidate observation scheduler for Cassini called COSMO, a Smart Rover called the Grad Student on Mars, and a study of the next-generation Deep Space Network.

Types of documentation in this series include technical reports, studies, some published articles, proposals, priorities, rationales, recommendations, correspondence, and memoranda.

Indexing Terms
The following terms may be used to index this collection.

Corporate Name
Ames Research Center
Ames Research Center. Planetary Systems Branch
Ames Research Center. Space Science and Astrobiology Division
Jet Propulsion Laboratory (U.S.)
NASA Astrobiology Institute

Personal Name
Cuzzi, Jeffrey N.

Subjects
Artificial Intelligence
Cassini Mission
Comet Rendezvous Asteroid Flyby
Cosmic Dust
Exobiology
Planetary Science
Research Management
Saturn Rings
Solar System Evolution
Zero-base Budgeting

Container List

Box	Title	Date
1	Biographical Information; narrative collection inventory (Cuzzi's Archive Notes document, which details the contents of each box according to the physical arrangement, along with personal recollections about his work); files covering the first years of the Ames working group on Communication with Extraterrestrial Intelligence (CETI), later called the Search for Extraterrestrial Intelligence (SETI) Program; origin of the origins program; Alexander Committee report on science at the NASA centers (1988); and agency-level advisory committee files.	1975 - 1989
2	Ames and Space Science Division general history (circa 1980s); Ames Strategy and Tactics Committee (SATCOM); National Academy of Science-National Research Council (NAS-NRC) postdoc program history; and studies for a Saturn mission with an orbiter and two probes (SOP2), including the first Titan entry probe studies.	1977 - 1986
3	Cassini and Comet Rendezvous Asteroid Flyby (CRAF) TIREX Instrument; Space Science Division Theoretical Studies/Planetary Systems Branch Chief notes and files during Goldin's administration of NASA (1992-1996); and another file about the Origins program.	1992 - 1996
4	Ames Roles and Missions activity to define center competencies; Zero-Base Review efforts; and the Ames Institute and exploration of privatizing agency space sciences into federally funded research and development centers (FFRDCs).	1993 - 1998
5	Origins program efforts; astrobiology and Astrobiology Institute concept; science and artificial intelligence "Dream Team;" and the Stratospheric Observatory for Infrared Astronomy (SOFIA).	1990 - 1998
6	Smart spacecraft artificial intelligence applications development: Cassini scheduler (COSMO), Grad Student on Mars, neural networks, next generation Deep Space Network scheduling tool; role of scientists in NASA; SOP2 (Cassini-Huygens) pre-project studies with emphasis on Saturn planetary ring science and ring particle hazard studies; Jim Pollack's examination of ring particle hazard to the Galileo Probe.	1975 - 2005

7	Cassini. Pre-project work, including Saturn ring hazard study and proposal for interdisciplinary strategy using remote sensing and in-situ charged particle observations; and announcement of opportunity. The first Project Science Group (PSG) meeting and appointment to lead the Rings Discipline Working Group (RWG). Studies about early instrument properties and data volume.	1988 - 1992
8	Cassini. PSG and RWG meetings and associated work; Saturn Orbit Insertion (SOI) science studies; and COSMO.	1990 - 2000
9	Cassini. PSG and RWG work; tour design; and the second ring hazard study.	1995 - 1996
10	Cassini. Project bulletins and fact sheets; tour design and integration; dialogues and risk analysis for Radioisotope Thermoelectric Generators (RTGs) using plutonium-238; science planning process; PSG and RWG work, including final RWG prioritizations by team for the Cross-Discipline Workshop (CDW).	1997 - 2001
11	Cassini. CDW and follow-up at PSG-RWG meetings, including priority 1 "bible"; finalizing a working relationship with the International Space Station (ISS) team; Target Working Team (TWT) integration and activities.	2001 - 2003
12	Cassini. Ultraviolet Imaging Spectrograph (UVIS) “URIMPACT” observations; Rings TWT activities; advanced warning studies of inbound imaging of the SOI crossing point; final SOI TWT activities; SOI event; RWG/PSG activity, including kick off of extended mission planning.	2002 - 2006
13	Cassini. Planning for extended missions XM (Equinox Mission, revs 80-134) and XXM (Solstice Mission with Grand Finale, revs 134-278); various Senior Reviews; the final ring hazard study; the TWT for the final periapses (called "POST"); PSG and closeout work, including final Rings and Radio Detection and Ranging (RADAR) reports.	2006 - 2018
14	Cassini. Orange Jackets from PSG meetings (1-6, 8-12) and other science working group packages.	1990 - 1995
15	Cassini. Orange Jackets from PSG meetings (13-24), Saturn orbit insertion risk review, and other science working group packages.	1996 - 2003