

University of Houston Clear Lake

Archives and Special Collections

HSF-55 Allan DuPont Papers

[Human Space Flight Collection]

Collection Number: HSF-55

Title: Allan DuPont Papers

Dates: 1973-2011, undated

Creator: Allan DuPont

Abstract

The Allan DuPont Papers is composed of internal NASA presentations, professional presentations, memos, and other related documentation, from NASA employee Allan DuPont's time working in the Guidance, Navigation and Control (GNC) Subsystem at NASA Johnson Space Center in Houston, Texas, from 1963 to 2016. The majority of the collection consists of PowerPoint-style presentation slide pages (printouts and transparencies). Topics within the collection include Rendezvous Proximity Operations & Capture Rendezvous (RPOC) between the International Space Station and various service vehicles; the Japanese H-II Transfer Vehicle; the European Space Agency Automated Transfer Vehicle; detailing of the development, testing and integration of the H-II Transfer vehicle and Automated Transfer Vehicle with NASA and the ISS; and other topics.

Extent: approximately 5.05 linear feet

Language(s): English

Repository

University of Houston-Clear Lake Archives and Special Collections, Alfred R. Neumann Library, 2700 Bay Area Blvd., Houston, TX 77058-1002

Restrictions on Access: There are no restrictions on accessing this collection.

Restrictions on Use

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Preferred Citation

[Item name or title], [Box Numbers], [Folder Numbers], Allan DuPont Papers, HSF-55, University of Houston-Clear Lake Archives and Special Collections, Alfred R. Neumann Library, 2700 Bay Area Blvd., Houston, TX 77058-1002

Acquisition

The collection was donated to the University of Houston-Clear Lake Archives and Special Collection by Allan DuPont in October 2020. "Accrual A: 2022" was donated to the University of Houston-Clear Lake Archives and Special Collection by Allan DuPont in November 2022.

Processing Information

The original collection was numbered according to a pre-2022 numbering system, which was the accession number for the collection. This was composed of the year in which the collection was accessioned into the UHCL Archives' holdings, and the number of the collection in the order it was accessioned. For example, the collection number "2022-0001" should be interpreted as "Year 2022, 1st collection accessioned that year." Starting in 2022, the UHCL Archives began implementing a new collection numbering system to better reflect the various collecting area categories of the Archives, and to make locating and identifying which collections belonged to which collecting areas within the Archives' storages areas and shelves. The Lisa Leonard Moore's collection number was changed from "2022-0001" to HSF-55, which represents "Human Space Flight Collection, collection number 55 within this category.

An addition was donated by DuPont in late 2022, which was processed as an accrual at the end of the original collection arrangement. The materials in this accrual were organized in chronological order by the formats—paper materials and photographic materials.

Processed by: Jacob Welch, January-April 2022; addition processed and finding aid updated by Matthew M. Peek, March 2023.

Arrangement

The collection is organized into sixteen series based on categories provided by the collection's donor. The series in order are as follows: Series I: Rendezvous Proximity Operations & Capture/ISS; Series II: Generic Planning; Series III: SpaceX/Dragon; Series IV: Japan H-II Transfer Vehicle; Series V: Rendezvous Analysis Software MBOS/MARS; Series VI: Phobos Mission; Series VII: the Moon; Series VIII: Mars; Series IX: Published Items; Series X: Rendezvous/ISS; Series XI: European Space Agency Automated Transfer Vehicle; Series XII: Published Promotional Materials; Series XIII: Shuttle Rendezvous; Series XIV: Shuttle; Series XV: Additional Books; and Accrual A: 2022.

Biographical Note

Allan L. DuPont (also written as "Dupont"), who goes by "Al," worked at NASA Johnson Space Center from 1963 to 2016. DuPont worked in the 1980s through the 2000s in the Aerospace & Flight Mechanics Division in the Engineering Directorate at JSC. He specialized in the Guidance, Navigation and Control (GNC) Subsystems, and worked on the International Space Station Rendezvous/Proximity Operations and Capture (RPOC) support task unit at JSC. At the time of this writing, Allan DuPont was living in the Houston, Texas, area.

Scope and Content

The collection is composed of internal NASA presentations, professional presentations, memos, and other related documentation, from NASA employee Allan DuPont's time working in the Guidance, Navigation and Control (GNC) Subsystem at NASA Johnson Space Center in Houston, Texas, from 1963 to 2016. The majority of the collection consists PowerPoint-style presentation slide pages (printouts and transparencies). Topics within the collection include Rendezvous Proximity Operations & Capture Rendezvous (RPOC) between the International Space Station and various service vehicles; the Japanese H-II Transfer Vehicle; the European Space Agency Automated Transfer Vehicle; detailing of the development, testing and integration of the H-II Transfer vehicle and Automated Transfer Vehicle with NASA and the ISS; research, assessment and testing regarding lunar surface and orbital missions; early development of Mars related missions; the Space Shuttle, with emphasis on operations software, mission types, and RPOC operations; and some discussion of SpaceX and other related topics.

Subject Terms

Personal/Family Name

DuPont, Allan

Corporate Names

European Space Agency
Lyndon B. Johnson Space Center

United States. National Aeronautics and Space Administration

Geographic Name

Houston (Tex.)

Topical Term

International Space Station
International Space Station--Design and construction
Lunar bases
Mars (Planet)--Exploration--Equipment and supplies
Martian bases
Space flight to Mars
Space Shuttle Program (U.S.)
Space shuttles--United States--History
Space--Social aspects--History
United States. National Aeronautics and Space Administration--History

Genre/Physical Characteristic

Books
Operating manuals
Presentations
Publications
Schedules
Technical manuals
Technical reports

Collection Inventory

Series I: Rendezvous Proximity Operations & Capture/ISS

Series I consists of planning records, conference materials, and miscellaneous records, documenting DuPont's involvement with the Rendezvous, Proximity Operations and Capture (RPOC) unit at NASA Johnson Space Center in its role of rendezvousing various service vehicles with the International Space Station. A number of the records are from the pre-ISS days during the United States' planning for a future Space Station.

Box/Folder	Description	Date
1/1	"Products et all '00"	April 1980-June 2000
1/2	Service Vehicles Proximity Operations Planning	October 1980
1/3	International Space Station (ISS) Rendezvous, Proximity	December 1982-

	Operations and Capture (RPOC)	December 1999
1/4	AIAA International Space Station Service Vehicle Conference	April 26, 1999

Series II: Generic Planning

Series II contains a single folder of planning records used for various purposes by Allan DuPont while working at NASA Johnson Space Center. The materials range in topics from budgeting to future space projects between 1993 and 2001.

Box/Folder	Description	Date
1/5	Generic Planning	July 1993-September 2001

Series III: SpaceX/Dragon

Series III contains a single folder of records from Allan DuPont's Rendezvous, Proximity Operations and Capture (RPOC) unit at Johnson Space Center, in the working with the new commercial SpaceX program in 2011. The materials cover the launch of communication systems through the SpaceX program.

Box/Folder	Description	Date
1/6	SpaceX/Dragon	June 2011

Series IV: Japan H-II Transfer Vehicle

Series IV contains records documenting the role Allan DuPont and his Rendezvous, Proximity Operations and Capture (RPOC) unit at Johnson Space Center had in the development, testing, operations and demonstration of the Japan H-II Transfer Vehicle (also called Kounotori). The H-II Transfer Vehicle was an expendable, automated cargo spacecraft used to resupply the Kibō Japanese Experiment Module and the International Space Station. The records date between 1997 and 2008, with the bulk dating from 2000-2002 when the vehicle was being developed and originally intended to be launched in 2001.

Box/Folder	Description	Date
2/1	HTV Development	February 2002-June 2008
2/2	HII (HTV) Testing	February 2000-August 2001
2/3	HII (HTV) and the Crew	August 2001

2/4	Further HII (HTV) Testing	August 2001
2/5	HII (HTV)	March 2001-May 2002
2/6	HII (HTV) Operations	January-February 2001
2/7	Demonstration and Training	1997-January 2004

Series V: Rendezvous Analysis Software MBOS/MARS

Series V contains the bi-weekly reports of the rendezvous analysis software Multi-Body Orbital Simulations conducted by NASA Johnson Space Center in 1989.

Box/Folder	Description	Date
2/8	Bi-Weekly Reports	January-September 1989

Series VI: Phobos Mission Planning

Series VI contains presentations, research, website printouts, and miscellaneous documentation, regarding the operation and history of the Phobos Mars satellite exploration program in 1988. The Phobos 1 mission was launched on July 7, 1988, from Baikonur Cosmodrome in southern Kazakhstan that was leased by the Soviet Union. The primary objective of the mission was to explore the larger of Mars' two moons, Phobos. In addition to instrumentation to explore the Martian satellites, Phobos 1 also carried instruments to study the Sun, Mars, the interplanetary medium, and gamma-ray burst sources. The Phobos 1 spacecraft was lost enroute to Mars after a faulty command sequence was sent from Earth caused the spacecraft to shut down.

Box/Folder	Description	Date
2/9	Phobos Beginnings	September-October 1988
2/10	Rotator Positions (part 1 of 3)	June 1997
2/11	Rotator Positions (part 2 of 3)	June 1997
2/12	Rotator Positions (part 3 of 3)	January 1997-May 30, 1996
2/13	Research Phobos/Deimos	July 1988-March 1998

2/14	Phobos Assessment	July 1988-August 1989
2/15	Surface Systems	September-December 1988
2/16	Phobos & Deimos	September 1977-May 1989
3/1	Phobos Science Workshop	July 14, 1988
3/2	Various Phobos Presentations	October 1988-July 1991

Series VII: The Moon

Series VII contains miscellaneous records regarding exploration of and returning to the Moon, with the materials dating between 1989 and 2002.

Box/Folder	Description	Date
3/3	Lunar Exploration	April 1989-February 1996
3/4	FLO Global Surface Access	March 1992
3/5	Lunar Return	February 1992-July 2006
3/6	TSS A Spec Comments	February 2002

Series VIII: Mars

Series VIII contains case reports, mission planning records, and miscellaneous records, documenting NASA Johnson Space Center's Mars mission planning starting back in 1978 and dating to 2003. Most of the materials date to the 1980s and early 1990s. The records provide details on NASA's early planning of a potential mission to Mars in relation to exploration of the planet's surface.

Box/Folder	Description	Date
3/7	Mars Test Cases	June-August 1990
4/1	Report of the 90 Day Study on Human Exploration of the Moon and Mars	November 1989

4/2	Mars Mission Planning	December 1978-July 2003
4/3	Mars/Lunar	October 1988-November 1990

Series IX: Published Items

Box/Folder	Description	Date
4/4	The Apollo Spacecraft: A Chronology, Volume IV	1978
4/5	Skylab: A Chronology	1977

Series X: Rendezvous/ISS

Series X contains records related to the role of the Rendezvous, Proximity Operations and Capture (RPOC) unit at Johnson Space Center with planning for operations of Space Shuttle orbiters and travel to and from a potential International Space Station (ISS). The materials even cover plans for managing the anticipated traffic of numerous Shuttle orbiters going to and coming from the ISS. Most of the records date from 1980 to 1999 during the planning stages for the ISS.

Box/Folder	Description	Date
5/1	Rendezvous Proximity Operations and Capture (RPOC)	September 1984-June 2004
5/2	Traffic Management	July 1980-April 1986
5/3	Space Station Operations (part 1 of 3)	February 1985-January 2001
5/4	Space Station Operations (part 2 of 3)	October 1999-June 2011
5/5	Space Station Operations (part 3 of 3)	October 1983-January 1996
6/1	(EG) SSM Resource Breakdown: Customer=VA	April-May 1995
6/2	ISS Vehicles and Traffic Management	June 1985-November 1995

Series XI: European Space Agency Automated Transfer Vehicle

Series XI contains guides, presentations, and miscellaneous records, documenting the development and integration of the European Space Agency Automated Transfer Vehicle (ESA ATV) with NASA. Most of the records date between 1994 and 1998.

Box/Folder	Description	Date
6/3	Automated Transfer Vehicle Implementation Guide	Undated
6/4	European Space Agency Automated Transfer Vehicle	November 1994-July 2007
6/5	ESA/Industry Presentation	March 10-11, 1998
6/6	ESA-NASA ATV Integration	February 1998
6/7	ATV Mission Demonstration	February 1998-October 2006

Series XII: Published Promotional Materials

Box/Folder	Description	Date
6/8	NASA Career Materials	1962, June 2010
6/9	Spacelab Life Sciences 2	1993
6/10	Miscellaneous Published Materials	1983-March 1992

Series XIII: Shuttle Rendezvous

Series XIII contains records, reports, presentation slides, and miscellaneous materials, related to the operations software and various mission types proximity operations for rendezvous with the Space Shuttle orbiter in space. Most of the records date between 1973 and 1991, including documents used in the initial planning for the first Shuttle launch in 1981.

Box/Folder	Description	Date
7/1	Monte Carlo Analysis	January 1978-June 1984
7/2	Rendezvous Software	September 1984-January 1985
7/3	Phase IB VMMPS	October 1973-July

		1985
7/4	Operations Software	July 1978-June 1982
7/5	Effects of Current Star-Tracker Lighting Constraints [FM 32 (75-56) DuPont]	March 31, 1975
7/6	Requirements Verification for Various Shuttle Hardware [FM 32 (75-31) DuPont]	February 4, 1975
7/7	Review of Short-Range Tracking Devices for Rendezvous Support [FM 32 (76-180) DuPont]	August 19, 1976
7/8	Presentation at Rendezvous Radar Requirements Meeting [FM 32 (75-177) DuPont]	November 20, 1975
7/9	Effects of Current Star-Tracker Lighting Constraints [FM 32 (75-56) DuPont]	March 31, 1975
7/10	RMSL Simulations on the Shuttle Engineering Simulator (SES) Thru May 29, 1976 [FM 32 (76-129) DuPont, Olszewski]	June 14, 1976
7/11	Current Status of the Shuttle Engineering Simulator (SES) On-Orbit Simulation	May 3, 1976
7/12	Request for Time on the Shuttle Procedures Simulator to Study Post-TPI Environment for Rendezvous [FM 32 (76-12) DuPont]	January 21, 1976
7/13	Hybrid Simulation Requirements for Rendezvous Verification [FM 32 (75-132) DuPont]	September 4, 1975
7/14	Mission Types and Phases	February 1973-June 1994
7/15	Proximity Operations	December 1991
8/1	Orbital Flight Test	September 1975-May 1976
8/2	RCS Propellant	August 19, 1976
8/3	On-Orbit Flight Techniques	April 2, 1978
8/4	Passive Versus Cooperative	Undated

8/5	Miscellaneous	1980-1982
8/6	Requirements Verification	February 1975- December 1995
8/7	Passive and Cooperative Rendezvous	February 1975- February 1985
8/8	Proximity Operations II	May 1978-April 1998

Series XIV: The Shuttle

Series XIV contains planning records and miscellaneous materials continued from Series XIII, but that largely relate to the work of the Charles Stark Draper Laboratory with the Shuttle Program. Some of the records also feature issues such as rendezvous radar, orbiting, and trajectory for the Shuttle orbiter. The records date between 1973 and 1988.

Box/Folder	Description	Date
8/9	Shuttle Planning	May 1974-November 1975
8/10	Charles Stark Draper Laboratory	August 17, 1982
8/11	Rendezvous Radar & Orbiting Strategies	June-August 1977
9/1	Trajectory Control	November 1975- January 1985
9/2	Orbital Planning and Operations	October 1973-August 1988

Series XV: Additional Books

Box/Folder	Description	Date
9/3	The Apollo Spacecraft: A Chronology, Vol. IV	1978
9/4	The Partnership: A History of the Apollo-Soyuz Test Project	1978

Accrual A: 2022

Accrual A contains booklets, a console book, presentation slides, photographs, color transparencies, and miscellaneous materials, covering a variety of aspects of Allan DuPont's career work at NASA Johnson Space Center largely from the 1980s to the 2000s. One of the most important items in this accrual is one of DuPont's original Shuttle flight support console books, which was a three-ring binder of records used in Johnson Space Center's Mission Control Center during Shuttle orbiter missions to provide technical and informational support for any situation within DuPont's assigned work responsibilities.

DuPont was involved from a rendezvous planning aspect with NASA's planning for what they termed the Mars/Moon Exploration Program that really took off in the late 1980s and early 1990s. A large part of this mission was the planning for human habitats and living on the surfaces of the Moon and Mars, including landing on and launching off of the lunar and martian surfaces, as well as the development of vehicles that could rendezvous with an International Space Station that had not yet been developed. The most important items within Accrual A are a large number of NASA Johnson Space Center concept art images, printed as photographs, showing artists' conceptions of what the habitats, living conditions, and surface and travel vehicles could look like.

These concept images are almost science fiction in the way they are designed with what was considered to be futuristic technological designs. Some of the more interesting images date from 1990 to 1993, and were created with computer graphics that really date the graphics to the early 1990s. Some of the image components are almost see-through or transparent due to the nature of vector graphics and coloring used in NASA graphics programs from the time period. Several of the images are reprints of 1971 concept drawings, showing people in the future living on the Moon, but wearing clothing and using items that are from the early 1970s—like women wearing go-go boots and huge tape-operating computers. Some of the concept images bear the names of the artists in the photographic prints. These concept images are important documentation of the way NASA viewed the imagery and technological look of the future of human space travel.

Box/Folder	Description	Date
10/1	NASA Booklet: <i>Standards of Conduct for NASA Employees</i>	October 1967
10/2	DuPont's Shuttle Flight Support Console Book (Part 1)	1983-1984
10/3	DuPont's Shuttle Flight Support Console Book (Part 1)	1983-1984
10/4	The JSC Workforce in Profile: FY 95 Booklet	1995
10/5	NASA JSC Aeroscience and Flight Mechanics Division Personnel Chart	January 6, 2000
10/6	JSC Engineering Directorate International Space Station	2004, 2006

POP Decision Packages

10/7	DuPont's Presentation Slides: ISS RPOC Support Overview	September 14, 2000
10/8	Presentation Slides: ISSP Support From RPOC	February 18, 2004
10/9	JSC ISS Presentation Slides: Funding for HTV Robotic and Rendezvous, Prox-ops and Capture (RPOC) Analysis	September 27, 2006
10/10	DuPont's Presentation Slides: RPOC Summary ATV & HTV	April 21, 2008
10/11	DuPont Presentation Slides: RPOC Response CR 14095	Undated
10/12	Miscellaneous DuPont JSC ISS Program Records	1999-2001, 2003, undated
11/1	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1971, 1984-1989
11/2	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1988-1989
11/3	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1990
11/4	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1990
11/5	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1991-1992
11/6	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1993
11/7	Miscellaneous Unnumbered Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	Undated
11/8	Johnson Space Center Moon/Mars Human Habitats and Vehicles Concept Images	1986-1989, 1993