

Guide to the
Lunar CRater Observation and Sensing Satellite (LCROSS)
Project Collection, 2007-2010
AFS8000.5-LCROSS

NASA Ames History Archives
NASA Ames Research Center

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

Collection processed and finding aid written by:
April D. Gage, January 2012
Finding aid updated July 2013, August 2019, and May 2023

Table of Contents

Descriptive Summary.....	1
Administrative Information	1
Administrative History.....	2
Scope and Content	5
System of Arrangement	6
Series Descriptions.....	6
Indexing Terms	9
Related Material	9
Container List.....	10

Descriptive Summary

Title:

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection, 2007-2010

Collection Number:

AFS8000.5-LCROSS

Creator:

Ames Research Center

Dates:

Inclusive: 2007-2010

Extent:

1,145 digital objects (40.9 gigabytes) and 17 cubic feet of analog material

Repository:

NASA Ames History Archives
Moffett Field, California 94035

Abstract:

This collection of Lunar CRater Observation and Sensing Satellite (LCROSS) records, accumulated by various team members, primarily contains material related to the mission's outreach efforts. Included are digital photographs, fact sheets, booklets, technical papers, briefings, presentations, video footage, social media campaign records, awards, posters, ephemera, objects, and memorabilia.

Administrative Information

Access:

Collection is open for research. Access to a portion of the collection is subject to restrictions.

Publication Rights:

Copyright does not apply to United States government records. For non-governmental material, the researcher must contact the original creator.

Preferred Citation:

Expanded:

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

AFS8000.5-LCROSS, Lunar CRater Observation and Sensing Satellite (LCROSS)

Project Collection, 2007-2010, [Container number] : [Folder number]. [Identification of item]. [Date, if available].

Abbreviated:

NASA ARC. AFS8000.5-LCROSS, [Container number] : [Folder number]. [Identification of item]. [Date, if available].

Acquisition Information:

Transferred from LCROSS team members Stephan F. Ord on March 8, 2011 (Accession 2011-006); Kimberly Ennico Smith on March 14, 2011 (Accession 2011-007); Khaled F. Galal on March 23, 2011; Daniel Andrews on April 18 and 21, 2011 (Accession 2011-009), May 23, 2011 (Accession 2011-010); and Robert D. Barber on June 9, 2011 (Accession 2011-012).

Accruals:

An oversized banner transferred by Dan Andrews on July 23, 2013 was added to Series III (Accession 2013-015).

Oversized banners and a spacecraft model transferred by Dan Andrews on June 26, 2019 were added to Series III (Accession 2019-020).

A spacecraft nameplate replica plaque transferred by Dan Andrews on March 15, 2023 was added to Series III (Accession 2023-009).

Administrative History

On June 18, 2009, NASA launched the Lunar CRater Observation and Sensing Satellite (LCROSS, shepherding spacecraft) as a secondary payload to the Lunar Reconnaissance Orbiter (LRO), from Cape Canaveral atop an Atlas V 401 rocket on a mission to study Earth's moon. LCROSS was designed to confirm the presence and nature of water ice on the moon, and to study the composition of lunar regolith by using the launch vehicle's upper stage as a kinetic impactor and its shepherding spacecraft as a data collector. The impact would dislodge lunar material at the bottom of permanently shadowed crater near the moon's south pole and elevate it high into the sunlight, thus enabling the instruments aboard the spacecraft to record its characteristics. The main task of the LRO mission, which is still active, was to map the moon and characterize future landing sites. Both missions achieved their primary objectives. LCROSS detected water in the moon's Cabeus crater, and LRO returned nearly 200 terabytes of images and high-resolution maps of the lunar surface, and continues to transmit altimeter measurements back to Earth.

LCROSS separated from LRO shortly after launch, carrying the spent upper stage portion of the Centaur rocket with it, and proceeded to shepherd the rocket tank to the impact site. The trajectory consisted of a lunar flyby on June 23, 2009, followed by highly elliptical polar Earth orbits (Lunar Gravity Assist Lunar Return Orbits), designed to give the craft a high angle of impact and sufficient speed to maximize the amount of material kicked up during impact. The plan while in transit was to allow the fuel remaining in the rocket to dissipate and to turn the sides of the tank toward the sun in order to bake out residual water. The flight proceeded smoothly until August 22, 2009, when the operations team detected an alarming, mission-threatening anomaly as it prepared to orient the cold side of the tank toward the sun. Preceding this maneuver, during a planned break in communications with the spacecraft, a systems malfunction had caused the thrusters to fire almost continuously and burn a sizeable amount of propellant. However, the team resolved the spacecraft emergency in time to guide

LCROSS to the impact site without running out of fuel. On October 9, 2009, the LCROSS shepherding spacecraft separated from the Centaur and sent the rocket tank hurtling toward the bottom of the Cabeus crater at a speed of about two kilometers a second. It then performed a braking maneuver to create a four-minute distance, positioned its instruments toward the impact site, and followed the Centaur down to strike the moon in its turn. The first impact dislodged a large plume of debris, dust, and vapor (approximately 250-350 metric tons), which was measured and photographed by the shepherding spacecraft before that spacecraft hit the surface minutes later. This final stage of the mission was timed so that LRO, orbiting high above the crash site, would be in position to collect data from both impact events.

The data returned from the instruments aboard LCROSS and LRO showed that the debris plume contained pure water ice grains as well as other volatiles, such as methane, ammonia, hydrogen gas, carbon dioxide and carbon monoxide, and some light metals, such as sodium and mercury. This detection of water on the moon definitively confirmed what the scientific community had already suspected based on data obtained from three earlier lunar missions that remotely detected the chemical signatures of water in the moon's polar regions: Clementine (Naval Research Laboratory, launched 1994), Lunar Prospector (NASA Ames Research Center, launched 1998), and Chandrayaan-1 (Indian Space Research Organization, launched 2008).

Mission Development and Management

Northrop Grumman, located in Redondo Beach, California, designed and built the LCROSS spacecraft bus with oversight from the team at NASA Ames Research Center. In order to fit LCROSS into the launch vehicle as a secondary payload to LRO, an Evolved Expendable Launch Vehicle Secondary Payload Adaptor, or ESPA ring, served as the main structure of the spacecraft. Designers placed the fuel tank inside the ring and positioned the science instruments, solar array, command and control systems, communications devices, antennas, and batteries around the outside of the ring. The craft carried a science payload of nine instruments designed and developed by NASA Ames for observing the impact and the characteristics of the resulting ejecta cloud: five cameras (one visible, two near infrared, and two mid-infrared), one total luminance photometer, one visible spectrometer, and two near infrared spectrometers.

On April 10, 2006 NASA's Exploration Systems Mission Directorate selected the NASA Ames proposal for LCROSS to lift off as a secondary payload to the LRO. LCROSS had to remain within a budget of 79 million dollars, weigh less than 1,000 kilograms, and be completed in time for the LRO launch scheduled just 31 months following the selection date. To meet these requirements, the designers pursued a non-traditional approach, creatively employing various management measures and incorporating low-cost components. For example, they assembled a humble but fully capable control room from a series of networked personal computers patched into the secure local network at NASA Ames. The spacecraft incorporated durable, commercially-available, "off-the-shelf" materials such as the visible camera and other scientific instruments, and existing flight-qualified hardware, such as the ESPA ring, rather than costly, time- and resource-consuming custom-made items. The Centaur was repurposed for use as the kinetic impactor, thus maximizing the mass available

to the working payload. Ultimately, the spacecraft was completed and delivered on time, at a total mission cost of 79 million dollars.

The mission, science, payload, and operations were managed from Ames Research Center in Moffett Field, California, under the direction of Project Manager Daniel R. Andrews of the Office of the Director of Programs and Projects, Project Management Division (Code PX). NASA Ames Principal Investigator Anthony Colaprete led the science investigations (Office of the Director of Science, Space Science and Astrobiology Division, Planetary Systems Branch, Code SST). Northrop Grumman designed and built the LCROSS spacecraft bus with oversight from the team at Ames. Mission operations were led by Ames along with navigational support from Goddard Space Flight Center and the Jet Propulsion Laboratory. LCROSS was launched co-manifested with LRO from the Kennedy Space Center with network communications provided by the Deep Space Network.

Social Media Outreach

In addition to the usual channels such as traditional Web sites, printed publications, and broadcast media, the LCROSS mission team experimented with disseminating information to the public in real time through two social media platforms, Facebook and Twitter. Accounts were set up in June 2008 and maintained throughout the entire mission by Payload Scientist Kim Ennico Smith and Observation Coordinator and Co-Investigator Jennifer Heldmann, with support from other team members and NASA Ames public affairs officers. The Twitter feed, which was presented from the point of view of the spacecraft, was terminated after the impact event, followed by the Facebook page a few months later. On average, Twitter was updated about twice a day and Facebook twice a week, with heavier messaging during the launch, flyby, and impact events. Thousands of individuals from all over the world signed on as Facebook "fans" and Twitter "followers." Before the spacecraft launch, each outlet had about 2,000 followers, whose numbers climbed during the launch phase, then again during impact phase. After impact, there were over 11,000 Facebook fans and approximately 13,300 Twitter followers.

Sources Consulted

- Andrews, Daniel. *Managing the Bad Day*. Ask Magazine. Issue 44, Fall 2011.
- Indian Space Research Organization. *Chandrayaan-1*. Retrieved January 12, 2012 from www.isro.org/chandrayaan/
- NASA Ames History Archives, NASA Ames Research Center. Moffett Field, California. AFS8000.5-LCROSS, Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection, 2007-2010, 1 : 10. Andrews, Daniel. *LCROSS: A High-Return, Small Satellite Mission* (paper presented at the 4S Symposium in Funchal, Madeira, June 4, 2010).
- NASA ARC. AFS8000.5-LCROSS, 1 : 10. Colaprete A., P. Schultz, J. Heldmann, D. Wooden, M. Shirley, K. Ennico, B. Hermalyn, W. Marshall, A. Ricco, R. C. Elphic, D. Goldstein, D. Summy, G. D. Bart, E. Asphaug, D. Korycansky, D. Landis, and L. Sollitt, Detection of Water in the LCROSS Ejecta Plume, *Science*, 330, No. 6003, 463-468, Oct. 2010.
- NASA ARC. AFS8000.5-LCROSS, 1 : 10. Ennico Smith, K., J. Heldmann, L. Conrad, A. van Dijk, *LCROSS & Social Media* (internal paper prepared on February 28, 2010).

National Aeronautics and Space Administration (2011). *Ice on the Moon*. Retrieved January 12, 2012 from http://nssdc.gsfc.nasa.gov/planetary/ice/ice_moon.html

National Aeronautics and Space Administration (2010). *LCROSS Project Site*. Retrieved January 10, 2012 from <http://lcross.arc.nasa.gov/>

National Aeronautics and Space Administration (2010). *LCROSS Targeting*. Retrieved January 10, 2012 from http://www.nasa.gov/mission_pages/LCROSS/searchforwater/LCROSS_targeting.html

National Aeronautics and Space Administration (2011). National Space Science Data Center Master Catalog, *Lunar Crater Observation and Sensing Satellite (LCROSS)*. Retrieved January 10, 2012 from <http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=2009-031B>

National Aeronautics and Space Administration (2010). *Lunar Reconnaissance Orbiter Portal*. Retrieved January 11, 2012 from http://www.nasa.gov/mission_pages/LRO/main/index.html

Northrop Grumman (2009). *Northrop Grumman-built LCROSS Satellite Impacts Moon*. Retrieved January 12, 2012 from http://www.irconnect.com/noc/press/pages/news_releases.html?d=175079

Scope and Content

The Lunar Crater Observation and Sensing Satellite (LCROSS) Project Collection (7.6 cubic feet and 1,145 digital objects totaling approximately 40.9 gigabytes) contains records and objects accumulated by various LCROSS Team members, including Project Control Manager, Stephan Ord, Payload Scientist Kimberly Ennico Smith, and Project Manager Daniel Andrews. The bulk of the material is in electronic format and documents the team's outreach efforts to inform, educate, and engage the general public and scientific community. Other records were generated for internal use in the course of planning and executing the mission, for inspiring the team, and for commemorating milestones with family and friends. Included are some informational materials produced outside of Ames about the mission, as well as honors and awards bestowed on the team by NASA and other institutions.

Series I contains a full set of the records that were accumulated by the project office and cleared for public release. Included are digital photographs, fact sheets, booklets, technical papers, briefings, presentations, news releases, magazine articles, data samples, spacecraft animations, video footage of the spacecraft assembly and an environmental test, broadcasts featuring the mission, toys, and games. **Series II** documents the social media campaign on Facebook and Twitter with reports, statistics, and archived material. **Series III** consists of objects and oversized material in the form of awards, posters, memorabilia, and ephemeral items. **Series IV** includes images, operational material, and video collected by various individual team members from Ames and other institutions.

System of Arrangement

This collection is arranged in four series:

- I. Outreach and Educational Material for Public Release
- II. Social Media Campaign Records
- III. Model, Awards, Memorabilia, and Ephemera
- IV. Miscellaneous Material Accumulated by LCROSS Team Members

Series are organized by function according to donors, with contents further arranged alphabetically and according to format (analog textual materials, digital materials, objects, and oversized material). Series IV records subject to national export restrictions are boxed separately. "Born digital" records were mainly kept in their original order, with the exception of a few slight shifts to avoid redundancies. Loose analog versions of digital files were physically placed with files for the corresponding digital records, in accordance with the digital file structure.

Though the bulk of this collection is in digital form, it is represented as being physically arranged into boxes and folders. This scheme was chosen to best accommodate access to the blend of digital and physical materials. All folders bearing "Digital" in the title contain copies of the full file directories, while all folders marked "Analog" contain any physical items the team produced from the digital files, as well as selected copies of some of the files printed out by the archivist. Researcher access is not limited to analog records.

Series Descriptions

Series I: Outreach and Educational Material for Public Release (16 folders of textual materials and 990 digital items totaling approximately 39.5 gigabytes).

This series contains records cleared for public release that were accumulated by Project Control Manager Stephan Ord. The bulk of this series is electronic ("born digital"), as submitted, and falls into ten categories, representing the top-level file directory structure.

- The *Booklets* and *Fact Sheets* categories include informational material about the mission, spacecraft, launch architecture, and the moon that was generated for the general public by NASA, Northrop Grumman, and United Launch Alliance. This part of the collection consists of a twenty-page informational booklet along with single-page handouts.
- The *Images* category contains photographic material and illustrations generated by the Public Affairs Office. This part of the collection consists of directories holding sets of individual image files, with most sets grouped into a PowerPoint presentation. Subjects represented include the mission teams; the spacecraft, launch architecture and instrument components; teams assembling the spacecraft in clean rooms; transportation of the spacecraft to Cape Canaveral; preparation for and execution of the launch; the project team in the mission operations control room at NASA Ames; and mission staff, Ames employees, and the public working and reveling on the night LCROSS impacted the moon.

- The ***Kids' Stuff*** category is comprised of material designed to appeal to children. This part of the collection consists of an LCROSS coloring book, a video game, and a punch-out-and-fold paper model kit.
- The ***Papers*** category contains documents related to technical papers delivered before and after the mission. Topics include mission project management, transportation, and use of a Centaur rocket in space, communications, flight operations, flight team development, ground system development, trajectory design and orbit determination, and mission design. Authors include Richard Alena, Daniel Andrews, Robert Barber, John Bresina, Anthony Colaprete, D. Steven Cooley, Dean Dailey, Eric Drucker, Howard Eller, Darin Foreman, Brian Kennedy, Amy Lo, Louie T. Luzod, Tim McElrath, Bernard Morgowicz, James Munger, Matthew D'Ortenzio, Khaled (Ken) Galal, Rusty Hunt, Scott Sawyer, Mark Shirley, James Strong, Paul Tompkins, Nho Vo, and James Wehner. The bulk of the material is technical papers and associated PowerPoint presentations prepared for American Institute of Aeronautics and Astronautics technical conferences in 2010.
- The ***Posters*** category contains two posters produced by NASA, one featuring LCROSS and the other featuring both LCROSS and LRO.
- The ***Presentations*** category contains a few mission briefings and overviews dated from 2007-2010, and NASA Administrator Charles F. Bolden's remarks at the 2009 Wernher von Braun Memorial Symposium in Huntsville, Alabama.
- The ***Statements and Articles*** category includes NASA and Northrop Grumman news releases, and article content for *Space Times* and *Aerospace Now* dated from 2008-2010.
- The ***Videos and Music*** category contains video footage, computer-generated animations, and television coverage describing or depicting the mission, including programs produced by NASA, Northrop Grumman, the Public Broadcasting Service of the United States (NOVA, Science Channel) and Northern California (KQED Quest), CBS News (60 Minutes), and the British Broadcasting Corporation. Of note are the music and video files of the LCROSS theme song entitled "Water on the Moon," which was composed and performed by Deputy Project Manager, John Marmie.

Document and still image formats: Microsoft Word (DOC, DOCX), Joint Photographic Experts Group (JPEG), Microsoft PowerPoint (PPT, PPTX), Portable Document Format (PDF), Portable Network Graphics (PNG) Stereolithography (STL), Tagged Image File Format (TIFF), Extensible Markup Language (XML).

Audio and video formats: Audio Video Interleave (AVI), Backup (BUP), Flash Video (FLV), Information (IFO), Motion Picture Editors Guild Video (MPEG-4, M4V, MPG), QuickTime Movie (QT, MOV), Unix Executable, USR, VirtualDub Video Filter (VDF), DVD Video Object (VOB), Windows Wave audio (WAV), Windows Media Audio (WMA), Windows Media Video (WMV).

Series II: Social Media Campaign Records (8 folders of textual materials and 66 digital items totaling approximately 32 megabytes).

This series contains records accumulated by Payload Scientist Kimberly Ennico Smith. The bulk of this series is in electronic form ("born digital"), as submitted. The records here mainly document the LCROSS mission's experimentation with social media outreach on Twitter and Facebook, from spring 2008 until a few months after the mission ended in October 2009. Contents include project and statistical reports about LCROSS social media efforts, screen captures of Facebook and Twitter postings by the LCROSS team, Facebook fan comments, and Twitter posts, or "tweets."

Formats: Microsoft Word 1997 and 2008 (DOC, DOCX), Portable Document Format (PDF), Plain Text Document (TXT), Joint Photographic Experts Group image (JPEG), Portable Network Graphics (PNG).

Series III: Model, Awards, Memorabilia, and Ephemera (15 folders, objects).

This series contains objects and oversized materials accumulated by Project Manager Daniel Andrews, Mission Design Lead Khaled (Ken) F. Galal, and Project Systems Engineer Robert D. Barber. Included is a spacecraft model, an assortment of LCROSS memorabilia, ephemera, oversized material, and awards. These last were bestowed on the team by NASA, The National Space Society, Popular Mechanics Magazine, and the Space Foundation. A 1/12 scale model of the spacecraft includes the LCROSS shepherding spacecraft atop the Atlas V Centaur upper stage rocket. Ephemeral material includes mission decals, informational cards, a bookmark, and other items, such as a clear plastic water bottle with "LCROSS/Northrop Grumman" and "Got Water?" printed on the sides. Memorabilia include mission patches and pins, a replica of the name plate flown on the spacecraft, which lists the names and titles of staff who worked on the project at NASA and Northrop Grumman, and a bottle of "Craterade" LCROSS Impact Ale, one of a few select batches of LCROSS beer brewed by Contracting Officer Jeffrey S. Brown. Of note is a copy of a bound, softcover book entitled "LCROSS Memories," compiled by Project Manager Daniel Andrews and distributed to the team. The "memory book," as it's called, is a scrapbook that tells the story of the LCROSS mission and provides an intimate glimpse into the people who worked on it. Inside are copies of official documents such as memos and other correspondence, organization charts, schedules, presentations, overviews, and professional photographs, as well as unofficial material such as snapshots of team members with their families and quotations of different messages posted on the whiteboard during the project. Oversized material in this series is comprised of banners signed by the team and their families, a project team photograph, and posters featuring the LCROSS spacecraft, scientific operations, and the launch vehicle.

Series IV: Miscellaneous Material Accumulated by LCROSS Team Members (7 folders of textual materials and 89 digital items totaling approximately 1.4 gigabytes).

This series contains miscellaneous material related to LCROSS that was accumulated by various team members from NASA Ames Research Center, NASA Marshall Space Flight

Center, the Jet Propulsion Laboratory, and Northrop Grumman. Included are a launch console handbook, snapshots, and mission images that individuals thought were memorable, screen shots of Northrop Grumman Lead Flight Software Engineer Emory Stagmer's Facebook album entitled "LCROSS launch campaign and on-going operations," and video footage of two Spacevidcast shows featuring LCROSS.

Formats: Flash Video (FLV), Motion Picture Editors Guild Video (MPEG-4, M4V, MPG), QuickTime Movie (QT, MOV), Graphics Interchange Format (GIF), Joint Photographic Experts Group (JPEG), and Portable Network Graphics (PNG).

Indexing Terms

The following terms may be used to index this collection.

Corporate Name

Ames Research Center
Northrop Grumman Corporation. Aerospace Systems

Subjects

Lunar CRater Observation and Sensing Satellite (Spacecraft)
Lunar exploration
Moon--Exploration--21st century.
Water--Moon.

Separated Material

Some duplicate digital items were removed. When identical content appeared in both compressed and uncompressed directories, the former was removed and the latter retained.

Related Material

AFS8000.5-LCROSS supplemental finding aid: File directory structure
AFS8000.5-LCROSS supplemental finding aid: Catalog records, objects
AFS8000.5-LP: Lunar Prospector Project Records, 1995-1998
AFS1070.8A: Archives Reference Collection

Container List

Series I: Outreach and Educational Material for Public Release

Box	Folder	Folder Title
1	1	Booklets, Digital (40 files)
	2	Booklets, Analog
	3	Fact Sheets, Digital (4 files)
	4	Fact Sheets, Analog
	5	Images, Digital (563 files)
	6	Kids' Stuff, Digital (39 files)
	7	Kids' Stuff, Analog
	8	Mission Data and Tools, Digital (21 files)
	9	Mission Data and Tools, Analog
	10	Papers, Digital (42 files)
	11	Papers, Analog
	12	Posters, Digital (2 files) See also oversized material in Series III
	13	Presentations, Digital (10 files)
	14	Presentations, Analog
	15	Statements and Articles, Digital (23 files)
	16	Videos and music, Digital (246 files)

Series II: Social Media Campaign Records

Box	Folder	Folder Title
1	17	LCROSS: Twitter, Facebook, Digital (39 files)
	18	LCROSS: Twitter, Facebook, Analog
	19	Facebook, the Morning After, Digital (3 files)
	20	Facebook, the Morning After, Analog
	21	Reactions to Final Tweet, Digital (21 files)
	22	Reactions to Final Tweet, Analog
	23	Swingby, Digital (3 files)
	24	Swingby, Analog

Series III: Model, Awards, Memorabilia, and Ephemera

Box	Folder	Folder Title
1	25	NASA Ames Honor Award to the LCROSS Project Team, 2009
	26	NASA Group Achievement Award to the LCROSS Project Team, 2009
	27	NASA Group Achievement Award to the LCROSS Navigation and Trajectory Design Team, 2010
	28	NASA Systems Engineering Excellence Award, 2010
	29	National Space Society Space Pioneer Award for Science and Engineering, 2010
	30	Popular Mechanics Breakthrough Award, 2010
	31	Space Foundation John L. "Jack" Swigert Jr. Award for Space Exploration, 2010
	32	Book, "LCROSS Memories"
	32a	LCROSS Spacecraft Model, 1/12 Scale
	33	"Craterade" LCROSS Impact Ale
	34	Ephemera
	35	"Git-R-Done" Baseball Cap
	36	Mission Patches and Pins
	37	Oversized Material, LCROSS Posters, Banners, and Team Photograph
	38	Rocket Piñata
	38a	LCROSS Spacecraft Nameplate Replica

Series IV: Miscellaneous Material Accumulated by LCROSS Team Members

Box	Folder	Folder Title
1	39	LCROSS Separation and Impact Event Operations Video, Digital (1 file)
	40	Mission-related Snapshots, Images, and Personal Facebook Pages, Digital (86 files)
	41	Mission-related Snapshots, Images, and Personal Facebook Pages, Analog
	42	Spacevidcast shows related to LCROSS, Digital (2 files)
2	1	LRO/LCROSS Launch Console Handbook (1 of 3)*
	2	LRO/LCROSS Launch Console Handbook (2 of 3)*
	3	LRO/LCROSS Launch Console Handbook (3 of 3)*

*Export-controlled and proprietary information

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object NASA Group Achievement Award to the Navigation and Trajectory Design Team, 2010
Object Description May 2010 NASA Group Achievement Award for the Lunar Crater Observation and Sensing Satellite (LCROSS) Navigation and Trajectory Design Team for its work providing navigation and trajectory design support to the mission. Signed by Charles Bolden. Paper certificate bears a foil seal. It is framed and mounted on a wooden plaque. (Plaque is pressboard covered with a simulated wood grain veneer material that appears to be made of plastic or vinyl).

Artifact No. 001
Image



Additional images in photographs directory.

Caption

No. of Pieces 1
Dimensions 18"w x 15"h x .75"d
 Dimensions Include Frame.
Condition Excellent
Date of Object 201005
Type of Object Award
Creator NASA
Creator ID Corporate body
Commissioning Org. NASA

Additional Notes Artifact label was painted on the back of the frame in March 2011. The clear lacquer used as a base and overcoat is Acrylic gloss medium in water. The white paint is golden white fluid acrylics, a rutile titanium dioxide-based paint without dyes. Acetone will remove it.

Originally processed as ART1387.621

NASA Photo Cat. No.
 PN
Where Made
Materials Wood, plastic, paper, ink, foil
Key Words NASA Group Achievement Award, LCROSS

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)
Acquisition No. 009-2011
Storage Location **Box No.**
Date Entered 3/23/2011
Preservation/Conservation Issues

Hi Res. Image on File **Housing** Framed
 -- Eligible N/A

--
--
--

Loan Status Item on loan **Tracking Id.** ARC2011001

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Space Foundation 2010 John L. "Jack" Swigert Jr. Award for Space Exploration
Object Description Award presented to the LCROSS mission team from the Space Foundation. The object consists of a small statue of astronaut John L. Swigert Jr. cast in bronze with enamel on a bronze square decorated with the infinity symbol holding the moon and earth and signed by Mark Lundeen and G. W. Lundeen. The wooden base bears a plaque with the Space Foundation logo and the following inscription:
 "2010 John L. "Jack" Swigert Jr.
 Award for Space Exploration
 LCROSS Mission Team
 NASA Ames, Northrop Grumman,
 United Launch Alliance"

Artifact No. 003
Image



Additional images in photographs directory.

No. of Pieces 1
Dimensions 6"w x 6"d x 12.5"h
 Dimensions Include Frame.
Condition
Date of Object 2010
Type of Object
Creator Mark Lundeen and George W. Lundeen
Creator ID
Commissioning Org. Space Foundation

Caption

NASA Photo Cat. No. ACD11-0072-001
PN
Where Made
Materials Bronze, brass, wood, aluminum, felt
Key Words LCROSS, John L. "Jack" Swigert Jr., Space Foundation, Northrop Grumman, United Launch Alliance
Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)
Acquisition No. 010-2011
Storage Location **Box No.**
Date Entered 5/11/2011
Preservation/Conservation Issues Plaque with inscription appears to be glued. When the adhesive becomes desiccated, it will probably fall off.
Hi Res. Image on File **Housing** Framed
 -- Eligible N/A

Additional Notes Artifact label was painted on the underside of the base in May 2011. The clear lacquer used as a base and overcoat is Acryloid B-72 in acetone. The black paint is golden black fluid acrylics, a carbon-based paint without dyes. Acetone will remove it.

Description of the award from the National Space Symposium Web site, accessed at <http://2011.nationalspacesymposium.org/about/awards/john-l-jack-swigert-jr-award-space-exploration> on May 12, 2011
 "The Space Foundation was founded in 1983, in part to honor the memory and accomplishments of astronaut John L. 'Jack' Swigert, Jr. A Colorado native, Swigert served with retired U.S. Navy Captain James A. Lovell, Jr., and Fred Haise on the legendary Apollo 13 lunar mission, which was aborted after the perilous rupture of an oxygen tank en route to the moon. People around the world watched as NASA overcame tremendous odds to return the crew safely to Earth. The Space Foundation created the Jack Swigert Award for Space Exploration in 2004 in tribute to his enduring legacy of space exploration. The Jack Swigert Award is presented annually at the National Space Symposium."

Loan Status Item on loan **Tracking Id.** ARC2012002

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Popular Mechanics Breakthrough Awards 2010

Artifact No. 004
Image



Additional images in photographs directory.

Caption

Object Description Breakthrough innovator award presented to Ames and Northrop Grumman from Popular Mechanics magazine for the LCROSS mission. The brushed aluminum pillar bears the following inscription in grey, red, and black lettering:
"Popular Mechanics
Breakthrough
Awards 2010
Daniel Andrews
Anthony Colaprete
NASA's Ames Research Center
Stephen L. Carman
Craig Elder
Northrop Grumman"

No. of Pieces 1

Dimensions 3.5"w x 1.5"d x 12"h

Dimensions Include Frame.

Condition

Date of Object 2010

Type of Object

Creator Visions Awards

Creator ID

Commissioning Org. Popular Mechanics magazine

NASA Photo Cat. No. ACD11-0072-002

PN

Where Made China

Materials Brushed aluminum and felt

Key Words LCROSS, Popular Mechanics magazine, Daniel Andrews, Anthony Colaprete, Stephen L. Carman, Craig Elder, Northrop Grumman

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 5/11/2011

ART-1

Preservation/
Conservation Issues

Hi Res. Image on File

Housing Framed

-- Eligible N/A

Additional Notes Excerpt from Popular Mechanics Web site accessed at <http://www.popularmechanics.com/science/space/moon-mars/nasas-explosive-findings-on-moon> on May 12, 2011.
"It's hard to decide what's more impressive: the confirmation of water ice on the moon, or the scrappy way that a team of scientists and engineers pulled off the mission--by slamming 2 tons of equipment otherwise destined to become space junk into the moon's south pole and then analyzing the dust plume it kicked up.

Yet the Lunar Crater Observation and Sensing Satellite, or LCROSS, mission began as an afterthought. When the leaders of NASA's \$491 million Lunar Reconnaissance Orbiter (LRO) found themselves with an extra 1000 kilograms of payload capacity, they sent out a call for shoestring proposals for a companion mission. Led by principal investigator Anthony Colaprete, a team from NASA's Ames Research Center proposed using the Atlas V launch rocket's empty upper fuel stage to impact the moon. Northrop Grumman would turn the rocket's hot-tub-size payload ring into a makeshift spacecraft that would trail in the stage's path, gathering data via instruments bolted to its six satellite ports.

The team came in under its \$80 million budget—and the mission was a headline-screaming success. Essentially, says Colaprete, "we reached out and touched the water." The spacecraft calculated a 4 percent moisture concentration in the plume, double that of the Sahara. "We take that for granted here on Earth, but 1 to 2 percent water on the moon or an asteroid is potentially a lifeline," he says. "From an exploration standpoint, we realize there are a wealth of resources that we can take advantage of. Suddenly, the moon is a more interesting and active place."

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object National Space Society 2010 Space Pioneer Award for Science and Engineering
Object Description Award presented to the LCROSS mission team from the National Space Society. The object consists of a cast metal (nickel or aluminum?) representation of Earth's moon held by three brass prongs atop a wood and marble base. The following citation is printed in black letters on a brass plaque screwed onto the wooden base:
 "2010 Space Pioneer Award
 For Science & Engineering
 Presented by
 The National Space Society to the
 Ames LCROSS Mission Team
 at the 29th International
 Space Development Conference
 Chicago, Illinois, May 27-31, 2010"

Artifact No. 002
Image



Additional images in photographs directory.

Caption

No. of Pieces 2
Dimensions 5.5"w x 5.5"d x 10.5"h
 Dimensions Include Frame.
Condition
Date of Object 2010
Type of Object
Creator Michael Hall's Studio Foundry
Creator ID
Commissioning Org. National Space Society

Additional Notes The surface of the moon model is scratched in several places.

NASA Photo Cat. No. ACD11-0072-005
PN
Where Made Driftwood, Texas
Materials Wood, brass, aluminum or nickel?, marble, rubber
Key Words LCROSS, National Space Society, International Space Development Conference

Artifact label was painted on the underside of the base in May 2011. The clear lacquer used as a base and overcoat is Acryloid B-72 in acetone. The white paint is golden white fluid acrylics, a rutile titanium dioxide-based paint without dyes. Acetone will remove it.

Description of the award from the National Space Society Web site, accessed at http://www.nss.org/awards/space_pioneer_awards.html on May 12, 2011
 "The annual Space Pioneer awards recognize those individuals and teams whose accomplishments have helped to open the space frontier. The awards are divided into thirteen categories. The intent is to recognize those who have made significant contributions in different fields of endeavor to "develop a spacefaring civilization that will establish communities beyond the Earth."

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)

The usual number of Space Pioneer awards per year is three, so not every category is awarded each year. The 13 Space Pioneer Award categories are:

Acquisition No. 010-2011
Storage Location **Box No.**
Date Entered 5/11/2011
Preservation/Conservation Issues

- * Business/Corporate
- * Business/Entrepreneur
- * Compelling Art
- * Educator/Education
- * Government Service (Non-legislative)
- * Government Service (Legislative)
- * Mass Media
- * Public Awareness
- * Scientist/Engineer
- * Service to the Space Community
- * Space Development
- * Special Merit
- * Wide Media."

Hi Res. Image on File **Housing** Framed
 -- Eligible N/A

Loan Status Item on loan **Tracking Id.** ARC2012002

Collection Name LCROSS Collection
 Collection No. AFS80005_LCROSS
 Object NASA Systems Engineering Excellence Award, 2010
 Object Description NASA Systems Engineering Excellence Award, conferred February 2010.

Official citation (does not appear on the award):
 National Aeronautics and Space Administration
 Presents the
 NASA Systems Engineering Excellence Award to
 "name of individual on list"
 In recognition of your outstanding contributions to
 Systems Engineering.
 Signed by the NASA Chief Engineer, Mike
 Ryschkewitsch, Office of the Chief Engineer

Artifact No. 005
 Image



Additional images in photographs directory.

No. of Pieces 5
 Dimensions 4" diam.
 Dimensions Include Frame.
 Condition
 Date of Object 2010
 Type of Object
 Creator unidentified
 Creator ID
 Commissioning Org. NASA

NASA Photo Cat. No. ACD11-0082-003 and ACD11-0082-004

PN

Where Made unidentified

Materials Wood, nickel? enamel, brass, felt

Key Words LCROSS, Systems Engineering

Provenance Office of the Director of Engineering, Engineering Systems Division (Code RE)

Acquisition No. 013-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/Conservation Issues

Hi Res. Image on File Eligible N/A
 Housing Framed

Additional Notes LCROSS systems engineers nominated for the OCE Systems Engineering Award:

From ARC:
 Robert Barber
 Darin Foreman
 Leonid Osetinsky
 Mark Shirley
 Matt D'Ortenzio
 James Strong
 Jason Otoshi

From Northrop Grumman:
 Jose Cabanillas
 Eric Drucker
 Craig Elder
 Leo Matuszak
 James Munger
 Emory Stagmer
 James Wehner
 Howard Eller

Pieces include medallion, wooden medallion holder, wooden case, and felt bag

Dimensions are of the medallion.

Box counted as 1 piece.

Loan Status Item on loan Tracking Id. ARC2018001

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Craterade LCROSS Impact Ale

Artifact No. 006
Image



Additional images in photographs directory.

Caption

Additional Notes The Impact ale was the second batch of LCROSS beer made by Brown. The first batch was called a Launch Ale.

Label printed on an ink jet printer.

Object Description Bottle and cap of the beer brewed by LCROSS team member Jeff Brown. The bottle label features an artist's rendering of the spacecraft and Centaur separation above the moon, with the title "Craterade LCROSS Impact Ale," date, maker, and slogan "It's the water..."

Beer label designed by LCROSS Contracting Officer Jeffrey S. Brown.

No. of Pieces 2
Dimensions 11"h x 9.25"circ.

Dimensions Include Frame.

Condition
Date of Object 2009
Type of Object
Creator Brown, Jeffrey S., Mountain Mutt Brewery
Creator ID

Commissioning Org.

NASA Photo Cat. No. ACD11-0082-001
PN

Where Made Dublin, Calif.

Materials Glass, paper, aluminum?

Key Words LCROSS, Ale, Beer

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 010-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object NASA Ames Honor Award to the LCROSS Project Team, 2009

Artifact No. 007
Image

Object Description Framed paper NASA Ames Honor Award certificate presented to the LCROSS Project Team for excellence in the category of Group/Team. Signed by Ames Center Director S. Pete Worden. Dated October 14, 2009. An Ames Honor Awards program is included.



Additional images in photographs directory.

No. of Pieces 2
Dimensions 18"w x 15"h
 Dimensions Include Frame.
Condition
Date of Object 20091014
Type of Object
Creator NASA Ames Research Center
Creator ID
Commissioning Org. NASA Ames Research Center

Caption

NASA Photo Cat. No.

PN

Where Made

Materials Wood, plastic, paper, ink

Key Words Ames Honor Award, LCROSS

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location HB-2C

Box No. LCROSS

Date Entered 9/27/2011

ART-2

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

Additional Notes Framed award and program each counted as one piece.

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object NASA Group Achievement Award to the LCROSS Project Team, 2009
Object Description Framed paper NASA Group Achievement Award certificate conferred on the LCROSS Project Team for successful implementation of the pathfinder Ames Class D flight mission. Signed by acting NASA administrator Christopher J. Scolese. Dated April 16, 2009. A sheet of paper with award details is included.

Artifact No. 008
Image



Additional images in photographs directory.

No. of Pieces 2
Dimensions 18"w x 15"h
 Dimensions Include Frame.
Condition
Date of Object 20090416
Type of Object
Creator NASA
Creator ID
Commissioning Org. NASA

Caption

Additional Notes Framed award and paper with award details are each counted as one piece.

NASA Photo Cat. No.
 PN
Where Made
Materials Wood, plastic, paper, ink
Key Words NASA Group Achievement Award, LCROSS

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)
Acquisition No. 011-2011
Storage Location **Box No.** LCROSS ART-3
Date Entered 9/27/2011
Preservation/Conservation Issues

Hi Res. Image on File **Housing** Framed
 -- Eligible N/A

--
--
--

Loan Status Item on loan **Tracking Id.**

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Git-R-Done Baseball Cap

Artifact No. 009
Image



Additional images in photographs directory.

Caption

Additional Notes According to LCROSS Project Manager Dan Andrews, the team was given the cap from "a contractor representing 'how we roll' on LCROSS. We just get in there and 'git R done'!"

Object Description Baseball cap. Black canvas with "Git-R-Done" in white embroidered lettering. White piping along the brim.

No. of Pieces 1
Dimensions 8"w x 5.5"h x 12"l
 Dimensions Include Frame.
Condition
Date of Object 200604
Type of Object
Creator City Hunter
Creator ID
Commissioning Org.

NASA Photo Cat. No. PN
Where Made China
Materials Cotton, Polyester
Key Words LCROSS, Baseball cap, hat, Git R Done

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)
Acquisition No. 011-2011
Storage Location RR-C1 Box No. LCROSS ART-1
Date Entered 9/27/2011
Preservation/Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Rocket Pinata

Artifact No. 010
Image



Additional images in photographs directory.

Caption

Object Description Pinata shaped like a rocket. Consists of a cardboard tube covered with red, white, and blue tissue paper with a band of yellow construction paper bearing the name LCROSS handwritten in black marker. A NASA decal is affixed to the nose and a United States flag decal is affixed to the tail. A plastic loop is threaded through the nose.

No. of Pieces 1

Dimensions 20" circ. x 31"l

Dimensions Include Frame.

Condition Fair

Date of Object 200707

Type of Object Ephemera/Commemorative Item

Creator unidentified

Creator ID

Commissioning Org.

Additional Notes Item reshaped and supported with acid-free tissue.

Item was broken open at a party held at the home of LCROSS Project Manager Dan Andrews in July 2007. His wife purchased it and he made the LCROSS label.

NASA Photo Cat. No.

PN

Where Made unidentified

Materials tissue paper, construction paper, cardboard, decals, plastic

Key Words pinata, piñata, rocket, LCROSS

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-F7

Box No. LCROSS

Date Entered 9/27/2011

ART-4

Preservation/
Conservation Issues

Hi Res. Image on File

Housing Framed

-- Eligible N/A

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS Spacecraft Model

Artifact No. 011
Image

Object Description Rough wooden model of the LCROSS spacecraft perched on a plastic post above a wooden base with the raised letters LCROSS. Spacecraft painted silver, gold, and black. Base painted black.



Additional images in photographs directory.

No. of Pieces 3
Dimensions 4" diam. x 4.5" h
 Dimensions Include Frame.
Condition
Date of Object 2009~
Type of Object
Creator unidentified
Creator ID
Commissioning Org.

Caption

Additional Notes

NASA Photo Cat. No.

PN

Where Made unidentified

Materials wood, plastic

Key Words spacecraft, LCROSS

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS/Northrop Grumman Beverage Bottle Insulator
Object Description Foam beverage bottle insulator. Pictured on the item is a gold spacecraft against the background of a dark, starry sky. The letters LCROSS are in blue over the spacecraft. The Northrop Grumman logo is in blue and "Lunar Crater Observation and Sensing Satellite" is in white lettering.

Artifact No. 012
Image



Additional images in photographs directory.

No. of Pieces 1
Dimensions 2.75" diam. x 4"h
 Dimensions Include Frame.
Condition
Date of Object 2009~
Type of Object
Creator unidentified
Creator ID
Commissioning Org.

Caption

Additional Notes

NASA Photo Cat. No.

PN

Where Made unidentified

Materials

Key Words LCROSS, Northrop Grumman

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/Conservation Issues

Hi Res. Image on File **Housing** Framed
 -- Eligible N/A

Loan Status Item on loan **Tracking Id.**

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS/Northrop Grumman Water Bottle

Artifact No. 013
Image



Additional images in photographs directory.

Caption

Additional Notes Water emptied from bottle.

Object Description Plastic water bottle with cap. The LCROSS logo, Northrop Grumman logo, image of the spacecraft and lunar impact, and the slogan "Got Water?" are pictured on the bottle label.

No. of Pieces 2
Dimensions 8" circ. x 8.5"h

Dimensions Include Frame.

Condition
Date of Object 2009~
Type of Object
Creator IWantMyH20.com
Creator ID
Commissioning Org.

NASA Photo Cat. No.

PN

Where Made unidentified

Materials plastic

Key Words LCROSS, got water? Northrop Grumman

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

--
--
--

Loan Status Item on loan Tracking Id.

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS and LRO Mission Patches and Pins

Artifact No. 014
Image

Object Description Patches:
NASA Atlas LRO LCROSS mission patch
LRO LCROSS "Crash Course in Hydrology" ULA,
45SW, NASA mission patch
NASA Ames Research Center Northrop Grumman
LCROSS 2009 mission patch (2 copies)

Pins:
NASA Atlas LRO LCROSS mission pin attached to
informational card about the spacecraft (2 copies)
LCROSS mission pin (2 copies)
LCROSS Got Water? mission pin (2 copies)



Additional images in photographs directory.

No. of Pieces 12

Dimensions

Dimensions Include Frame.

Condition Excellent

Date of Object 2009~

Type of Object Ephemera/Commemorative Item

Creator unidentified

Creator ID Corporate body

Commissioning Org.

NASA Photo Cat. No.

PN

Where Made China

Materials fabric, metal

Key Words LCROSS, LRO, Atlas, Northrop Grumman,
patch, pin

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/
Conservation Issues

Hi Res. Image on File

Housing Framed

-- Eligible N/A

Caption

Additional
Notes

Loan Status Item on loan Tracking Id.

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS/LRO Bracelet

Artifact No. 015
Image

Object Description Purple plastic or rubber bracelet with the following embossed on the exterior:
LCROSS/LRO
Space Settlement



Additional images in photographs directory.

No. of Pieces 1
Dimensions

Dimensions Include Frame.

Condition

Date of Object

Type of Object

Creator

Creator ID

Commissioning Org.

NASA Photo Cat. No.

PN

Where Made China

Materials plastic? rubber?

Key Words LCROSS, space settlement, bracelet

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location RR-C1

Box No. LCROSS

Date Entered 9/27/2011

ART-1

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed

-- Eligible N/A

Caption

Additional
Notes

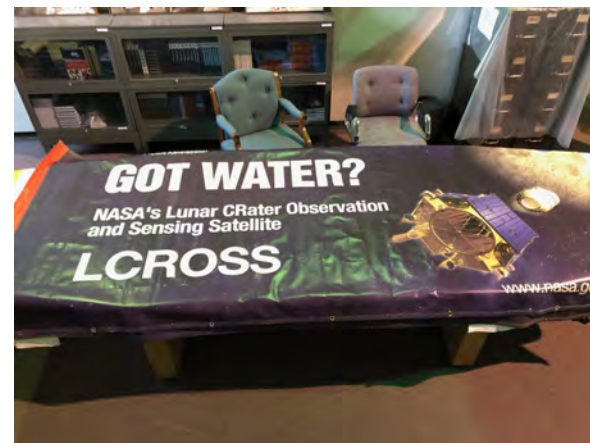
Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Banner: Got Water?

Artifact No. 016
Image

Object Description Oversized banner bearing the LCROSS slogan, "Got Water?"



Additional images in photographs directory.

No. of Pieces 1
Dimensions 132"w x 58"h
 Dimensions Include Frame.
Condition
Date of Object 2009~
Type of Object
Creator unidentified
Creator ID
Commissioning Org.

Caption

NASA Photo Cat. No.

PN

Where Made

Materials Vinyl, brass

Key Words LCROSS, got water?

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 016-2013

Storage Location HB-3A

Box No. ART-6

Date Entered 6/27/2019

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

Additional Notes LCROSS slogan was a spin on "Got Milk?" slogan for the popular American advertising campaign for milk.

--
--
--

Loan Status Item on loan Tracking Id.

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Banner: Got Water!

Artifact No. 017
Image

Object Description Oversized banner bearing a modification the LCROSS slogan, "Got Water?" from a question to a declaration. The change to "Got Water!" signaled the success of the mission.



Additional images in photographs directory.

No. of Pieces 1
Dimensions 132"w x 58"h
 Dimensions Include Frame.
Condition
Date of Object 2009~
Type of Object
Creator unidentified
Creator ID
Commissioning Org.

Caption

NASA Photo Cat. No.

PN

Where Made

Materials Vinyl, brass

Key Words LCROSS, got water?

Additional Notes

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 021-2019

Storage Location HB-3A

Box No. ART-6

Date Entered 6/27/2019

Preservation/
Conservation Issues

Hi Res. Image on File Housing Framed
-- Eligible N/A

Loan Status Item on loan Tracking Id.

--
--
--

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Banner: Congratulations LCROSS Team on Winning the LRO Secondary Payload! (signed)

Artifact No. 018

Image



Additional images in photographs directory.

Caption

Additional Notes See also NASA photo ACD11-0072-007 (filed with this collection) which shows this banner hanging in the LCROSS project space in Building N240A with the Git-R-Done baseball cap and LCROSS pinata attached to the upper corners, along with a sheet of paper bearing a copy of the mission's key decision point approval attached to the lower right-hand corner.

Object Description Oversized yellow vinyl banner on which the following message appears:
"Congratulations Lunar Crater Observation & Sensing Satellite (LCROSS) Team on Winning the LRO SECONDARY PAYLOAD!"

The banner is signed by LCROSS team members. Attached to the lower left-hand corner (facing the item) is a photograph of a Space.com piece showing LCROSS as number ten in the top ten moon crashes. Lunar Prospector also shown.

No. of Pieces 1

Dimensions 121"w x 46"h

Dimensions Include Frame.

Condition

Date of Object 2009~

Type of Object

Creator unidentified

Creator ID

Commissioning Org.

NASA Photo Cat. No. ACD11-0072-007

PN

Where Made

Materials Vinyl, brass

Key Words LCROSS, LRO secondary payload

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location HB-3A

Box No. ART-5

Date Entered 6/27/2019

Preservation/Conservation Issues

Hi Res. Image on File

Housing Framed

-- Eligible N/A

Loan Status Item on loan Tracking Id.

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object Banner: Banner: Got Water? (signed)

Artifact No. 019
Image



Additional images in photographs directory.

Caption

Additional Notes See also NASA photo ACD11-0072-006 (filed with this collection).

Object Description Large vinyl banner on which the following message appears:
"National Aeronautics and Space Administration
GOT WATER?
NASA's Lunar Crater Observation & Sensing
Satellite
LCROSS
www.nasa.gov/lcross"

The banner is signed by LCROSS team family members.

No. of Pieces 1

Dimensions 122"w x 53"h

Dimensions Include Frame.

Condition Excellent

Date of Object 2009~

Type of Object Ephemera/Commemorative Item

Creator unidentified

Creator ID

Commissioning Org.

NASA Photo Cat. No. ACD11-0072-006.jpg

PN

Where Made

Materials Vinyl, brass

Key Words LCROSS, got water?

Provenance Office of the Director of Programs and Projects,
Project Management Division (Code PX)

Acquisition No. 011-2011

Storage Location HB-3A

Box No. ART-5

Date Entered 6/27/2019

Preservation/
Conservation Issues

Hi Res. Image on File

Housing Framed

-- Eligible N/A

Loan Status Item on loan Tracking Id.

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS Spacecraft Model

Artifact No. 020
Image

Object Description Lunar CRater Observing and Sensing Satellite (LCROSS) display model on a detachable stand with padded shipping case.

The 1/12 scale model includes the LCROSS shepherding spacecraft atop the Atlas V Centaur upper stage rocket. On the final approach to the lunar impact site, the shepherding spacecraft and Centaur upper stage separated. The latter acted as a heavy impactor to kick up a debris plume through which the former flew to collect and send the plume data back to Earth, before impacting the surface and creating another debris plume.



Additional images in photographs directory.

Caption

No. of Pieces 5
Dimensions 50"l x 29" diameter
 Dimensions Include Frame.

Condition
Date of Object 2009~
Type of Object
Creator Scale Model Company
Creator ID
Commissioning Org.

Additional Notes NOTE: This is a NASA Artifact
Shipping case counted as one piece.
Dimensions are for the spacecraft model. The model stand is ~14"h.

NASA Photo Cat. No.
PN 2289234
Where Made Hawthorne, Calif.
Materials brass, foil, plastic, wood
Key Words Centaur upper stage booster rocket, Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) ring, LCROSS, shepherding spacecraft
Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)
Acquisition No. 020-2019
Storage Location HB Box No. LCROSS ART-7
Date Entered 6/27/2019
Preservation/Conservation Issues Two small pieces that are detached and slightly bent need to be repaired. Centaur upper stage needs to be cleaned.
Hi Res. Image on File Framed
-- Eligible N/A

TO AVOID DAMAGING THE MODEL, USE CARE WHEN PACKING AND UNPACKING, ESPECIALLY WHEN CLOSING THE LID. STORE UPRIGHT.

\$40,000 acquisition cost.

Loan Status Item on loan Tracking Id.

Collection Name LCROSS Collection
Collection No. AFS80005_LCROSS
Object LCROSS Spacecraft Nameplate Replica

Artifact No. 021
Image



Additional images in photographs directory.

Caption

Additional Notes

Object Description Replica of the name plate flown on the Lunar CRater Observing and Sensing Satellite (LCROSS) spacecraft mounted on a wooden plaque.

The black and silver nameplate lists the names and titles of staff at NASA and Northrop Grumman.

No. of Pieces 1
Dimensions 9"w x 12"h x .75"d
 Dimensions Include Frame.
Condition Good
Date of Object 2009
Type of Object Ephemera/Commemorative Item
Creator Larry Beck Company
Creator ID Corporate body
Commissioning Org. Northrop Grumman

NASA Photo Cat. No.

PN

Where Made Baltimore, Mary.

Materials metal, wood (pressboard)

Key Words LCROSS, Lunar CRater Observing and Sensing Satellite

Provenance Office of the Director of Programs and Projects, Project Management Division (Code PX)

Acquisition No. 009-2023

Storage Location RR-C1

Box No. LCROSS

Date Entered 4/20/2023

ART-1

Preservation/Conservation Issues The front of the plaque is slightly scratched

Hi Res. Image on File Housing Framed
-- Eligible N/A

Loan Status Item on loan Tracking Id.

--
--
--

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Booklets

Storybook--Individual Pages

LCROSS Page1a.jpg
LCROSS Page2b.JPG
LCROSS Page3b.jpg
LCROSS Page4c.jpg
LCROSS Page5b.jpg
LCROSS Page6a.jpg
LCROSS Page7a.jpg
LCROSS Page8a.jpg
LCROSS Page9b.jpg
LCROSS Page10-11a.jpg
LCROSS Page12a.jpg
LCROSS Page13a.jpg
LCROSS Page14a.jpg
LCROSS Page15a.jpg
LCROSS Page16a.jpg
LCROSS Page17b.jpg
LCROSS Page18a.jpg
LCROSS Page19b.JPG

Storybook-JPEG

Booklet Final p1-20.JPG
Booklet Final p2-19.JPG
Booklet Final p3-18.JPG
Booklet Final p4-17.JPG
Booklet Final p5-16.JPG
Booklet Final p6-15.JPG
Booklet Final p7-14.JPG
Booklet Final p8-13.JPG
Booklet Final p9-12.JPG
Booklet Final p10-11.JPG

Storybook-PSD

Booklet Final p1-20.psd
Booklet Final p2-19.psd
Booklet Final p3-18.psd
Booklet Final p4-17.psd
Booklet Final p5-16.psd
Booklet Final p6-15.psd
Booklet Final p7-14.psd
Booklet Final p8-13.psd
Booklet Final p9-12v2.psd
Booklet Final p10-11.psd

Northrop Grumman trifold brochure

LCROSS_tri_bro_ag_ver_09-09_LR.pdf
NG LCROSS Tri-Fold Brochure.pdf

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Fact sheets

LCROSS NG Bookmark.pdf
Moon Phase Calculator and Fact Sheet.pdf
NASA LCROSS Fact Sheet.pdf
ULA Atlas V Fact Sheet.pdf

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Images

Mission Ops, Mission Support, Public Affairs Impact Night

DSC_9481.jpg
DSC_9482.jpg
DSC_9483.jpg
DSC_9484.jpg
DSC_9485.jpg
DSC_9486.jpg
DSC_9487.jpg
DSC_9488.jpg
DSC_9489.jpg
DSC_9490.jpg
DSC_9491.jpg
DSC_9492.jpg
DSC_9493.jpg
DSC_9494.jpg
DSC_9495.jpg
DSC_9496.jpg
DSC_9497.jpg
DSC_9498.jpg
DSC_9499.jpg
DSC_9500.jpg
DSC_9509.jpg
DSC_9510.jpg
DSC_9511.jpg
DSC_9512.jpg
DSC_9513.jpg
DSC_9514.jpg
DSC_9515.jpg
DSC_9516.jpg
DSC_9517.jpg
DSC_9518.jpg
DSC_9519.jpg
DSC_9520.jpg
DSC_9521.jpg
DSC_9522.jpg
DSC_9523.jpg
DSC_9524.jpg
DSC_9525.jpg
DSC_9526.jpg
DSC_9528.jpg
DSC_9529.jpg
DSC_9530.jpg
DSC_9531.jpg
DSC_9532.jpg
DSC_9533.jpg
DSC_9534.jpg
DSC_9535.jpg
DSC_9536.jpg
DSC_9537.jpg
DSC_9538.jpg
DSC_9539.jpg
DSC_9540.jpg
DSC_9541.jpg
DSC_9542.jpg
DSC_9543.jpg

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

DSC_9544.jpg
DSC_9545.jpg
DSC_9546.jpg
DSC_9547.jpg
DSC_9548.jpg
DSC_9549.jpg
DSC_9550.jpg
DSC_9551.jpg
DSC_9552.jpg
DSC_9553.jpg
DSC_9556.jpg
DSC_9557.jpg
DSC_9558.jpg
DSC_9559.jpg
DSC_9560.jpg
DSC_9561.jpg
DSC_9562.jpg
DSC_9563.jpg
DSC_9564.jpg
DSC_9565.jpg
DSC_9566.jpg
DSC_9567.jpg
DSC_9568.jpg
DSC_9569.jpg
DSC_9570.jpg
DSC_9571.jpg
DSC_9572.jpg
DSC_9573.jpg
DSC_9574.jpg
DSC_9575.jpg
DSC_9576.jpg
DSC_9577.jpg
DSC_9578.jpg
DSC_9579.jpg
DSC_9580.jpg
DSC_9581.jpg
DSC_9582.jpg
DSC_9583.jpg
DSC_9584.jpg
DSC_9585.jpg
DSC_9586.jpg
DSC_9587.jpg
DSC_9588.jpg
DSC_9589.jpg
DSC_9590.jpg
DSC_9591.jpg
DSC_9592.jpg
DSC_9593.jpg
DSC_9594.jpg
DSC_9595.jpg
DSC_9596.jpg
DSC_9597.jpg
DSC_9598.jpg
DSC_9599.jpg
DSC_9600.jpg
DSC_9601.jpg
DSC_9602.jpg

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

DSC_9603.jpg
DSC_9604.jpg
DSC_9605.jpg
DSC_9606.jpg
DSC_9607.jpg
DSC_9608.jpg
DSC_9609.jpg
DSC_9610.jpg
DSC_9611.jpg
DSC_9612.jpg
DSC_9613.jpg
DSC_9614.jpg
DSC_9615.jpg
DSC_9616.jpg
DSC_9617.jpg
DSC_9618.jpg
Moonrise Over Lick Observatory.jpg
PAO Images App'd for Public Vol 01
PAO Images Approved for Public Distribution Vol 01.ppt
Vol 01
800px-Atlas_V_551_Pad_41.jpg
2006-1~1.JPG
2006-08 EDUS & Moon.jpg
2006-08 In Transit.jpg
2007-01 Approach to Moon.jpg
2007-01 Centaur Impact.jpg
2007-04 NG Approach.jpg
2007-04 NG Impact.jpg
2007-08-02 Closer Look 2.jpg
2007-08-02 Closer Look.jpg
2007-08-02 Fairing Cutaway.jpg
2007-08-02 Fairing Cutaway2.jpg
2007-08-02 Impact.jpg
2007-08-02 Insertion Burn.jpg
2007-08-02 On Way In.jpg
2007-08-02 Separation.jpg
Atlas V Only Vertical.JPG
Atlas V Only Vertical.psd
Atlas V Only.psd
Atlas V Only.tif
Atlas V w- Text.jpg
New Horizons Picture1.jpg
New Horizons Picture2.jpg
New Horizons Picture3.jpg
New Horizons Picture4.jpg
New Horizons Picture5.jpg
New Horizons Picture6.jpg
New Horizons Picture7.jpg
New Horizons Picture8.jpg
New Horizons Picture9.jpg
New Horizons Picture10.jpg
New Horizons Picture11.jpg
New Horizons Picture12.jpg
New Horizons Picture13.jpg
New Horizons Picture14.jpg
New Horizons Picture15.jpg
Trajectory.jpg

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

PAO Images App'd for Public Vol 02
PAO Images Approved for Public Distribution Vol 02.ppt
Vol 02
2007-09 Pod.jpg
ACD07-0073-351.JPG
ACD07-0073-353.JPG
att10dc5.jpg
DSC00050.JPG
DSC00082.JPG
DSC00089.JPG
DSC00169.JPG
DSC09986.JPG
Payload Identified.jpg
Picture1Payload.jpg

PAO Images App'd for Public Vol 03
PAO Images Approved for Public Distribution Vol 03.ppt
Vol 03
2007-10 307155_07-2.jpg
2007-10 307155_07-9.jpg
2007-10 307155_07-11.jpg
2007-10 307155_07-15.jpg
2007-10 307155_07-24.jpg
2007-10 IMG_9274-Edit.jpg
2007-10 Picture1.jpg
2007-10 Picture2.jpg
2008-01-10 ACD07-0073-445.JPG
2008-01-10 ACD07-0073-455.JPG
2008-01-10 ACD07-0073-456.JPG
2008-01-10 ACD07-0073-466.JPG
1220071101.jpg
IMG_0121.jpg
IMG_0123.jpg

PAO Images App'd for Public Vol 04
PAO Images Approved for Public Distribution Vol 04.ppt
Vol 04
2008-01 307232_08-5-Edit rt.tif
2008-01 307232_08-11-Edit.tif
2008-01 307232_08-34-Edit.tif
2008-01 307232_08-40-Edit.tif
2008-01 307232_08-60-Edit.tif
2008-01 307232_08-79-Edit.tif
2008-01 307232_08-105-Edit.tif
2008-01 307232_08-108-Edit.tif
2008-01 307232_08-111-Edit.tif
2008-01 307232_08-117-Edit.tif
2008-02-26 test_307272_08-4-Edit.jpg
2008-02-26 test_307272_08-022.jpg
2008-02-26 test_307272_08-024.jpg
2008-03-18 Highbay (2).jpg

PAO Images Approved for Public Distribution Vol 05.ppt
Vol 05
0416-GK-1447.jpg
0417-GK-1425.jpg
0417-GK-1705.jpg
0417-GK-1706.jpg
0417-GK-1761.jpg
0417-GK-1783.jpg

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

- 0417-GK-1790.jpg
- 0417-GK-1803.jpg
- 0417-GK-1805.jpg
- 0417-GK-1811.jpg
- 0417-GK-1825.jpg
- PAO Images App'd for Public Vol 06
 - PAO Images Approved for Public Distribution Vol 06.ppt
 - Vol 06
 - 2008-04-30 Move, Riser to IPT (13).jpg
 - 2008-05-06 IPT to TV Chamber (20).jpg
- PAO Images App'd for Public Vol 07
 - PAO Images Approved for Public Distribution Vol 07.ppt
 - Vol 07
 - 08-0421-GK-3007-Edit.jpg
 - 08-0421-GK-3062-Edit.jpg
 - 08-0421-GK-3064-Edit.jpg
 - 08-0421-GK-3073-Edit.jpg
 - lcross_cadlike2_2k_2.jpg
 - lcross_cadlike2_2k_4.jpg
 - lcross_cadlike2_2k_6.jpg
- PAO Images App'd for Public Vol 08
 - Vol 08
 - LRO LCROSS rendering_back.gif
 - LRO LCROSS rendering_back.jpg
 - LRO LCROSS rendering_front.gif
 - LRO LCROSS rendering_front.jpg
- PAO Images App'd for Public Vol 09
 - PAO Images Approved for Public Distribution Vol 09.ppt
 - Vol 09
 - KSC Pictures
 - 2008-05-04 _2641.JPG
 - 2008-05-04 _2642.JPG
 - 2008-05-04 _2644.JPG
 - 2008-05-04 _2645.JPG
 - 2008-05-04 _2648.JPG
 - 2008-05-04 _2649.JPG
 - 2008-05-04 _2650.JPG
 - 2008-05-04 _2651.JPG
 - 2008-05-04 _2654.JPG
 - 2008-05-04 _2655.JPG
 - 2008-05-04 _2656.JPG
 - 2008-05-04 _2657.JPG
 - 2008-05-04 _2659.JPG
 - 2008-05-04 _2660.JPG
 - 2008-05-04 _2661.JPG
 - 2008-05-04 _2662.JPG
 - 2008-05-04 _2663.JPG
 - 2008-05-04 _2665.JPG
 - 2008-05-04 _2667.JPG
 - 2008-05-04 _2668.JPG
 - 2008-05-04 _2669.JPG
 - 2008-05-04 _2670.JPG
 - 2008-05-04 _2671.JPG
 - 2008-05-04 _2672.JPG
 - 2008-05-04 _2674.JPG
 - 2008-05-05 _0045.JPG
 - 2008-05-05 _0158.JPG

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

2008-05-05_0159.JPG
2008-05-05_0161.JPG
2008-05-05_0163.JPG
2008-05-05_0165.JPG
2008-05-05_0168.JPG
2008-05-05_0171.JPG
2008-05-05_0172.JPG
2008-05-05_0182.JPG

PAO Images App'd for Public Vol 10
PAO Images Approved for Public Distribution Vol 10.ppt
Vol 10

2007-04-04-ACD07-0073-002.JPG
2007-04-04-ACD07-0073-003.JPG
2007-04-04-ACD07-0073-005.JPG
LCROSSPoster4-36x60.pdf

PAO Images App'd for Public Vol 11
Images Approved for Public Distribution Vol 11.ppt
Vol 11

-AN 2007-11-17, 2.jpg
-AN 2007-11-17, 3.jpg
-AN 2007-11-17, 5.jpg
-AN 2007-11-17, 6.jpg
-AN 2007-11-17, 7.jpg
-AN 2007-11-17, 8.jpg
-AN 2007-11-17, 9.jpg
-AN 2007-11-17, 11.jpg
-AN 2007-11-17, 13.jpg
-AN 2007-11-17, 14.jpg
-AN 2007-11-17, 15.jpg
-AN 2007-11-17, 17.jpg
-AN 2007-11-17, 18.jpg
-AN 2007-11-17, 20.jpg
-AN 2007-11-17, 22.jpg
-AN 2007-11-17, 23.jpg
-AN 2007-11-17, 24.jpg
-AN 2007-11-17,1.jpg
-AN 2007-11-17,4.jpg
-AN 2007-11-17,10.jpg
-AN 2007-11-17,12.jpg
-AN 2007-11-17,16.jpg
-AN 2007-11-17,19.jpg
-AN 2007-11-17,21.jpg
-AN 2007-11-17,25.jpg
2007-11-17 ACD07-0222-013.JPG
2007-11-17 ACD07-0222-015.JPG
2007-11-17 ACD07-0222-029.JPG
2007-11-17 ACD07-0222-036.JPG

PAO Images App'd for Public Vol 12
Images Approved for Public Distribution Vol 12.ppt
Vol 12

2008-01-09 ACD07-0073-379.JPG
2008-01-09 ACD07-0073-388.JPG
2008-01-09 ACD07-0073-392.JPG
2008-01-09 ACD07-0073-394.JPG
2008-01-09 ACD07-0073-399.JPG
2008-01-09 ACD07-0073-401.JPG
2008-01-10 ACD07-0073-452.JPG

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

2008-01-10 ACD07-0073-458.JPG
2008-01-10 ACD07-0073-461.JPG
2008-01-14 ACD07-0073-481.JPG
2008-01-14 ACD07-0073-497.JPG
PAO Images App'd for Public Vol 13
Images Approved for Public Distribution Vol 13.ppt
Vol 13
201DD3~1.JPG
203D87~1.JPG
2008-0~1.JPG
2008-0~2.JPG
2008-0~3.JPG
2008-0~4.JPG
2008-09-06 ACD08-0197-001.jpg
2008-09-06 ACD08-0197-002.jpg
2008-09-06 ACD08-0197-003.jpg
2008-09-06 ACD08-0197-004.jpg
2008-09-06 ACD08-0197-005.jpg
2008-09-06 ACD08-0197-006.jpg
2008-09-06 ACD08-0197-007.jpg
2008-09-06 ACD08-0197-008.jpg
2008-09-06 ACD08-0197-009.jpg
2008-09-06 ACD08-0197-010 Andrews.jpg
2008-09-06 ACD08-0197-010.jpg
2008-09-06 ACD08-0197-011.jpg
2008-09-06 ACD08-0197-012.jpg
2008-09-06 ACD08-0197-013.jpg
2008-09-06 ACD08-0197-014.jpg
2008-09-06 ACD08-0197-015.jpg
2008-09-06 ACD08-0197-016.jpg
2008-09-06 ACD08-0197-017.jpg
2008-09-06 ACD08-0197-018.jpg
2008-09-06 ACD08-0197-019.jpg
2008-09-06 ACD08-0197-020.jpg
2008-09-06 ACD08-0197-021.jpg
2008-09-06 ACD08-0197-022.jpg
2008-09-06 ACD08-0197-023.jpg
2008-09-06 ACD08-0197-024.jpg
2008-09-06 ACD08-0197-025.jpg
2008-09-06 ACD08-0197-026.jpg
2008-09-06 ACD08-0197-027.jpg
2008-09-06 ACD08-0197-028.jpg
2008-09-06 ACD08-0197-029.jpg
2008-09-06 ACD08-0197-030.jpg
2008-09-06 ACD08-0197-031.jpg
2008-09-06 ACD08-0197-032.jpg
2008-09-06 ACD08-0197-033.jpg
2008-09-06 ACD08-0197-034.jpg
2008-09-06 ACD08-0197-035.jpg
2008-09-06 ACD08-0197-036.jpg
PAO Images App'd for Public Vol 14
Images Approved for Public Distribution Vol 14.ppt
Vol 14
2008-0~1.JPG
PAO Images App'd for Public Vol 15
PAO Images Approved for Public Vol 15.ppt
Source Files--Vol 15

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

- 2009-02-10 GK-1120 frt.jpg
- 2009-02-10 GK-1126 frt.jpg
- 2009-02-10 GK-1138 frt.jpg
- 2009-02-10 GK-1147 frt.jpg
- 2009-02-10 GK-1173 frt.jpg
- PAO Images App'd for Public Vol 16
 - LCROSS Centaur Logo As Painted 1.jpg
 - LCROSS Centaur Logo As Painted 2.jpg
- PAO Images App'd for Public Vol 17
 - PAO Images Approved for Public Distribution Vol 17.ppt
 - Vol 17
 - Fork Loading at NG.jpg
 - Forklift at Astrotech.jpg
 - Frame with Sides Rolled Up.jpg
 - Lowering Frame at NG.jpg
 - Outside Astrotech.jpg
 - Towing Across Street.jpg
 - Truck.jpg
- PAO Images App'd for Public Vol 18
 - PAO Images Approved for Public Distribution Vol 18.ppt
 - Vol 18
 - 09-0216-GSak--0317.jpg
 - 09-0216-GSak--0354.jpg
 - 09-0216-GSak--0415.jpg
 - 09-0216-GSak--0430.jpg
- PAO Images App'd for Public Vol 19
 - PAO Images Approved for Public Vol 19.ppt
 - Vol 19
 - 2009-02 LCROSS Control Bin.01.jpg
 - 2009-02-12 DSC_4178.JPG
 - 2009-02-12 DSC_4194.JPG
 - 2009-02-12 DSC_4212.JPG
 - 2009-02-12 DSC_4214.JPG
 - 2009-02-12 DSC_4217.JPG
 - 2009-02-12 DSC_4222.JPG
 - 2009-06-17 IMG_2467.JPG
 - 2009-06-17 IMG_2472.JPG
 - 2009-06-17 IMG_2473.JPG
 - 2009-06-17 IMG_2477.JPG
 - 2009-06-17 IMG_2479.JPG
- Public Launch Campaign Photos
 - Booster Arrival At Cape Canaveral
 - 2009-03-03-1922.jpg
 - 2009-03-03-1923.jpg
 - 2009-03-03-1924.jpg
 - 2009-03-03-1925.jpg
 - 2009-03-03-1926.jpg
 - 2009-03-03-1927.jpg
 - 2009-03-03-1928.jpg
 - 2009-03-03-1929.jpg
 - 2009-03-03-1930.jpg
 - Booster Stack at VIF
 - 2009-04-27 Booster 2009-2831.jpg
 - 2009-04-27 Booster 2009-2832.jpg
 - 2009-04-27 Booster 2009-2833.jpg
 - 2009-04-27 Booster 2009-2834.jpg
 - 2009-04-27 Booster 2009-2835.jpg

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

2009-04-27 Booster 2009-2836.jpg
2009-04-27 Booster 2009-2837.jpg
2009-04-27 Booster 2009-2838.jpg
2009-04-27 Booster 2009-2839.jpg
2009-04-27 Booster 2009-2840.jpg
2009-04-27 Booster 2009-2841.jpg
Centaur Arrival Cape Canaveral
2009-02-20-1755.jpg
2009-02-20-1756.jpg
2009-02-20-1757.jpg
2009-02-21-1758.jpg
2009-02-21-1759.jpg
2009-02-21-1760.jpg
2009-02-21-1761.jpg
2009-02-21-1762.jpg
2009-02-21-1763.jpg
2009-02-21-1764.jpg
2009-02-21-1765.jpg
2009-02-21-1766.jpg
Centaur Stack at VIF
2009-04-30 Centaur Stack24 2009-2915.jpg
2009-04-30 Centaur Stack25 2009-2915.jpg
2009-04-30 Centaur Stack26 2009-2915.jpg
2009-04-30 Centaur Stack27 2009-2915.jpg
2009-04-30 Centaur Stack28 2009-2915.jpg
2009-04-30 Centaur Stack29 2009-2915.jpg
2009-04-30 Centaur Stack30 2009-2915.jpg
2009-04-30 Centaur Stack31 2009-2915.jpg
2009-04-30 Centaur Stack32 2009-2915.jpg
2009-04-30 Centaur Stack33 2009-2915.jpg
2009-04-30 Centaur Stack34 2009-2915.jpg
2009-04-30 Centaur Stack35 2009-2915.jpg
2009-04-30 Centaur Stack36 2009-2915.jpg
2009-04-30 Centaur Stack37 2009-2915.jpg
2009-04-30 Centaur Stack38 2009-2915.jpg
2009-04-30 Centaur Stack39 2009-2915.jpg
2009-04-30 Centaur Stack40 2009-2915.jpg
2009-05-14 2009-3145.jpg
2009-05-14 2009-3146.jpg
2009-05-14 2009-3147.jpg
2009-05-14 2009-3148.jpg
2009-05-14 2009-3149.jpg
2009-05-14 2009-3150.jpg
2009-05-14 2009-3151.jpg
2009-05-14 2009-3152.jpg
2009-05-15 2009-3174.jpg
2009-05-15 2009-3175.jpg
Launch
2009-06-15 2009-3721.jpg
2009-06-17 2009-3740.jpg
2009-06-17 2009-3741.jpg
2009-06-17 2009-3742.jpg
2009-06-17 2009-3743.jpg
2009-06-17 2009-3744.jpg
2009-06-17 2009-3745.jpg
2009-06-17 2009-3746.jpg
2009-06-17 2009-3747.jpg

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

2009-06-17 2009-3748.jpg
2009-06-17 2009-3749.jpg
2009-06-17 2009-3750.jpg
2009-06-17 361164main_AV020LRO_MLPRoll1_061709_full.jpg
2009-06-18 2009-3752.jpg
2009-06-18 2009-3753.jpg
2009-06-18 2009-3754.jpg
2009-06-18 2009-3755.jpg
2009-06-18 2009-3762.jpg
2009-06-18 2009-3763.jpg
2009-06-18 2009-3764.jpg
2009-06-18 2009-3765.jpg
2009-06-18 2009-3766.jpg
2009-06-18 2009-3767.jpg
2009-06-18 2009-3768.jpg
2009-06-18 2009-3769.jpg
2009-06-18 2009-3770.jpg
2009-06-18 2009-3771.jpg
2009-06-18 2009-3772.jpg
2009-06-18 2009-3773.jpg
2009-06-18 2009-3774.jpg
2009-06-18 2009-3775.jpg
2009-06-18 2009-3776.jpg
2009-06-18 2009-3777.jpg
2009-06-18 2009-3778.jpg
2009-06-18 2009-3779.jpg
2009-06-18 2009-3780.jpg
2009-06-18 2009-3781.jpg
2009-06-18 2009-3782.jpg
2009-06-18 2009-3783.jpg
2009-06-18 2009-3784.jpg
2009-06-18 2009-3785.jpg
2009-06-18 2009-3786.jpg
2009-06-18 2009-3787.jpg
2009-06-18 2009-3788.jpg
2009-06-18 2009-3789.jpg
2009-06-18 2009-3790.jpg
2009-06-18 2009-3791.jpg
2009-06-18 2009-3792.jpg
2009-06-18 2009-3793.jpg
2009-06-18 361488main_AV020_2_full.jpg
2009-06-18 361516main_200906180002HQ_full.jpg
2009-06-18 American Flag.bmp

LRO Mate and Encapsulation

20AD24~1.JPG
20AE9E~1.JPG
20AEB6~1.JPG
20F421~1.JPG
20FAE6~1.JPG
2009-0~1.JPG
2009-05-08 LRO Mate92 2009-2994.jpg
2009-05-08 LRO Mate93 2009-2994.jpg
2009-05-08 LRO Mate94 2009-2994.jpg
2009-05-08 LRO Mate95 2009-2994.jpg
2009-05-08 LRO Mate96 2009-2994.jpg
2009-05-08 LRO Mate97 2009-2994.jpg
2009-05-08 LRO Mate98 2009-2996.jpg

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

2009-05-15 2009-3177.jpg
2009-05-15 2009-3178.jpg
2009-05-15 2009-3179.jpg
2009-05-15 2009-3180.jpg
2009-05-15 2009-3181.jpg
2009-05-15 2009-3182.jpg
2009-05-15 2009-3183.jpg
2009-05-15 2009-3184.jpg
2009-05-15 2009-3185.jpg
2009-05-15 2009-3186.jpg
2009-05-15 2009-3187.jpg
2009-05-15 2009-3188.jpg
2009-05-15 2009-3189.jpg
2009-05-15 2009-3190.jpg
2009-05-15 2009-3191.jpg
2009-05-15 2009-3192.jpg
2009-05-15 2009-3193.jpg

Payload Stack at VIF

2009-05-28 2009-3292.jpg
2009-05-28 2009-3293.jpg
2009-05-28 2009-3294.jpg
2009-05-28 2009-3295.jpg
2009-05-28 2009-3296.jpg
2009-05-28 2009-3297.jpg
2009-05-28 2009-3298.jpg
2009-05-28 2009-3299.jpg
2009-05-28 2009-3300.jpg
2009-05-28 2009-3301.jpg
2009-05-28 2009-3302.jpg
2009-05-28 2009-3303.jpg

S-C at Astrotech

2009-02-19-1751.jpg
2009-02-19-1752.jpg
2009-02-19-1753.jpg
2009-02-19-1754.jpg
2009-02-20-1740.jpg
2009-02-20-1741.jpg
2009-02-20-1742.jpg
2009-02-20-1743.jpg
2009-02-20-1744.jpg
2009-02-20-1745.jpg
2009-04-19 Fairing 2009-2804.jpg

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Kid's stuff

- Design Squad On the Moon.pdf
- LCROSS Coloring Book
 - Impact.jpg
 - Near Moon.jpg
 - Patch.jpg
 - S-C ConfigColoring.jpg
- LCROSS Game
 - assets
 - 76 Track 76.mp3
 - BeepsLoop.aif
 - blast_small.flv
 - blast.flv
 - booster2.png
 - control_panel.swf
 - control.png
 - explosion.aif
 - fem_1.wav
 - fem_2.wav
 - fem_3.wav
 - fem_4.wav
 - fem_5.wav
 - fem_launch.wav
 - fem_ontarget.wav
 - fem_standby.wav
 - fem_target.wav
 - flyup.flv
 - ice.flv
 - ice.wav
 - intro.flv
 - m1.png
 - module.flv
 - moon.flv
 - northrop_game.xml
 - rocks.flv
 - space_Ship.aif
 - standby_lunar_imp.wav
 - standby_shep_space.wav
 - stars.flv
 - Autorun.inf
 - LCROSSGame.zip
 - Start.exe
- LCROSS Origami.pdf

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Mission data and tools

- 3D Model
 - 12-09 LCROSS Base 0.260 Hole.STL
 - 12-09 LCROSS Model 0.260 Hole.stl
 - centaur_15_inch_w_squiggy_a.stl
 - lcrossall_3D_Model.pdf
- 2009-06-23 Swingby
 - 2009-06-23 Swingby MidIR Camera 1 (Temperature) Goddard Crater Target 2.jpg
 - 2009-06-23 Swingby NIR Camera 1 Goddard Crater Target 2.jpg
 - 2009-06-23 Swingby Snapshots.ppt
 - 2009-06-23 Swingby VIS Camera Goddard Crater Target 2.jpg
 - 2009-06-23 Swingby VIS Camera Mendeleev Target 1 Slew to Goddard Crater Target 2.avi
- 2009-07-14 STK Animations
 - LCROSS-analysis-pre-StarTracker.vdf
 - LCROSS-First-Week-Attitude-For-Omni-Pattern.vdf
 - LCROSS-Position.ppt
 - LCROSS-Position.vdf
 - LCROSS-Swingby-Analysis-time-corrected.vdf
 - Viewer900.exe
- 2009-08-01 Earthlook A
 - EarthLook1-data-samples.ppt
 - NIR-MIR-Earthlook-images.tif
 - NIR-spectrometer-Earthlook-spectrum.tif
 - UV-Visible-Earthlook-spectrum.tif
- Data Roadmap 6-10-08.ppt
- WBS Dictionary.pdf

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Papers

- 2010-03-31 PAPER 4S Symposium Andrews - FINAL.pdf
- AIAA Astrodynamics Specialist Conference, 2010
 - LCROSS Submitted 2010 07 14 Final ud2.docx
 - LCROSS Submitted 2010 07 14 Final ud2.pdf
 - LCROSS_ASC_Presentation_2010_08_04.pdf
 - LCROSS_ASC_Presentation_2010_08_04.pptx
- Post-Flight Publications
 - AIAA Space Ops 2010
 - AIAA Conference Paper Template.dot
 - AIAA Manuscript Prep Kit.pdf
 - AIAA_Paper_Format_Ref.pdf
 - Centaur Ops
 - 2010SpaceOps_Centaur_ARC1676A.IFM
 - AIAA_LCROSS_Centaur_Present_042010.pdf
 - AIAA_LCROSS_Centaur_Present_042010.ppt
 - AIAA_SpaceOps_LCROSSCentaur.doc
 - AIAASpaceOpsLCROSSCentaur2197.pdf
 - AV20 Launch Timeline_Jun 18-21Block_rev10.xls
 - CentaurOps_Abstract.doc
 - NF1676A_Centaur_paper_draft.ifm
 - NF1676A_Centaur.ifm
 - Plus_Count_18-21_Jun_09.ppt
 - Comm
 - LCROSS_AIAA_Presentation_A.ppt
 - SpaceOpsLXComms1933Final.pdf
 - Flight Ops
 - Flight Operations Brainstorming.docx
 - FlightOperations_ARC310.IFM
 - FlightOperations_ARC1676A.IFM
 - FlightOperations_NF1676A.IFM
 - LCROSS Flight Ops v1.3.ppt
 - LCROSSFlightOperationsAbstract.pdf
 - LCROSSFlightOps_2010-04-18g.doc
 - TompkinsLCROSSFlightOpsVg.pdf
 - Flight Team Devel
 - Flight Team Dev v1.1.ppt
 - Flight Team Devel Brainstorm.docx
 - FlightTeam_2009-04-18d.doc
 - FlightTeam_2009-12-02.doc
 - FlightTeam_ARC310.IFM
 - FlightTeam_ARC1676A.IFM
 - FlightTeamAbstract.pdf
 - TompkinsFlightTeamVd.pdf
 - Ground System Devel
 - LCROSS GDS Abstract.pdf
 - ISSFD_LCROSS_Traj_Design_and_OD_2007.pdf
 - LCROSS Paper References_0618_2010.docx
 - NG Abstract--LCROSS Rapid Flight Software Development.doc
 - NG AIAA Paper Amy Lo.doc
 - NG--LCROSS As A Rapid Procurement Example.docx

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Posters

2006-08 LCROSS Poster.jpg

LPRP Folk Festival Poster.jpg

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Presentations

Bolden_Von_Braun_Dinner_Speech10-21-09.pdf
Final LCROSS Overview Code FO 11-19-09.ppt
LCROSS Overview -- Code FO 11-19-09.ppt
LCROSS Overview 12-08-09 EPO -- Brian Day.ppt
LCROSS_Public_Talk_CompiledbyKEnnico_2010-03-03.ppt
Lunar Ice Challenger -- Brian Day 4-20-10.ppt
NG Briefing at Mass Properties Engr Conference 5-22-10.pptx
NGST LCROSS Briefing for 2008 CubeSat Workshop.ppt
NGST LCROSS Briefing for ARC Family Night.ppt
Popular Mechanics Response.ppt

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Statements and articles

(AS) LCROSS Media ALert v1clean.doc
ABSL LCROSS Impact Battery Press Release_rev1.doc
Aviation Week Program Excellence Award Photo.jpg
Aviation Week Program Excellence Award.doc
Caption - I&T Continues on LCROSS.doc
LCROSS At a Glance Fact Sheet.doc
LCROSS Review Online.doc
LCROSS Story for NG Employee Magazine.doc
Mate Match (Lower Adapter).doc
Mate Match (Upper Adapter).doc
NG ABSL LRO LCROSS Battery Press Release.pdf
NG Aerospace Now - July Story.doc
NG Congratulations to NASA.pdf
NG Lunar Swing By News Release.doc
NG Media Alert 3-25-09.doc
NG News Release--General Dynamics Comm Link.docx
NG News Release--Space Fdn Swigert Award.docx
NG Pre-Launch New Release.doc
NG Press Release--NG Ships S-C to KSC.doc
NG Social Media News Release.doc
NG Space Times Article.doc
NG Thermal Vac Press Release.doc
RTD Press Release.pdf

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

I_outreach and educational material for public release

Videos and music

60 Minutes NASA's Return To The Moon.mpg

BBC Return to the Moon

VIDEO_RM

DVD_REC.USR

PVR_TEMP.USR

TT_INFO.USR

VIDEO_RM.BUP

VIDEO_RM.IFO

VIDEO_TS

VIDEO_TS.BUP

VIDEO_TS.IFO

VIDEO_TS.VOB

VTS_01_0.BUP

VTS_01_0.IFO

VTS_01_1.VOB

VTS_01_2.VOB

VTS_01_3.VOB

VTS_01_4.VOB

VTS_01_5.VOB

Cabeus Impact Video 10-09.mov

HQ LRO-LCROSS Mission Video

HQ Video on LRO and LCROSS Mission

VIDEO_TS.BUP

VIDEO_TS.IFO

VTS_01_0.BUP

VTS_01_0.IFO

VTS_01_1.VOB

HQ Video on LRO and LCROSS Mission LetterBox.mov

HQ Video on LRO and LCROSS Mission with Text.qt

HQ Video on LRO and LCROSS Mission.qt

JPL Sim Ops LCROSS-LRO

AUDIO_TS

HD_720p_QT

GSSR_LRO_LCROSS_Sim_Ops.mov

VIDEO_TS

VIDEO_TS.BUP

VIDEO_TS.IFO

VIDEO_TS.VOB

VTS_01_0.BUP

VTS_01_0.IFO

VTS_01_0.VOB

VTS_01_1.VOB

VTS_02_0.BUP

VTS_02_0.IFO

VTS_02_0.VOB

VTS_02_1.VOB

VTS_03_0.BUP

VTS_03_0.IFO

VTS_03_0.VOB

VTS_03_1.VOB

VTS_04_0.BUP

VTS_04_0.IFO

VTS_04_0.VOB

VTS_04_1.VOB

VTS_05_0.BUP

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

VTS_05_0.IFO
VTS_05_0.VOB
VTS_05_1.VOB
VTS_06_0.BUP
VTS_06_0.IFO
VTS_06_0.VOB
VTS_06_1.VOB
VTS_07_0.BUP
VTS_07_0.IFO
VTS_07_0.VOB
VTS_07_1.VOB
VTS_08_0.BUP
VTS_08_0.IFO
VTS_08_0.VOB
VTS_08_1.VOB

KQED Quest Broadcast - NASA Ames Rocket to the Moon

KQED Quest Part I.mpg
KQED Quest Part II.mpg
VIDEO_TS

VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_1.VOB
VTS_01_2.VOB

LCROSS A First Step in the Return to the Moon.mp4

LCROSS Launch Video

Launch

External Rocket Cam

LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.WMV
LROLAU~2.M4V

Fairing Cam

LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV
Thumbs.db

GSFC Control Rooms

LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV
Thumbs.db

Pad 39A Perimeter

LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV

Press Site

LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV

Tower Cam

NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

UCS-12 LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV

UCS-23 LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV

Umbilical Cam LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV

VAB LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV
LROlaunch_VABRoofCam_ipod.m4v

VIF Level 9 LROLAU~1.M4V
LROLAU~1.MOV
LROLAU~1.PNG
LROLAU~1.WMV

LRO-LCROSS-Atlas V Customer Flow
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_0.VOB
VTS_01_1.VOB
VTS_01_2.VOB

LRO-LCROSS-Atlas V Mission Science Briefing
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_1.VOB
VTS_01_2.VOB
VTS_01_3.VOB

LRO-LCROSS-Atlas V PAO Launch Feed and Rocket Cam Raw Feed
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_1.VOB

NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

VTS_02_0.BUP
VTS_02_0.IFO
VTS_02_1.VOB
VTS_03_0.BUP
VTS_03_0.IFO
VTS_03_1.VOB
VTS_04_0.BUP
LRO-LCROSS-Atlas V Pre-Launch Briefing
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_1.VOB
VTS_01_2.VOB
VTS_01_3.VOB
LCROSS Payload Preparation for Shipment.mp4
LCROSS Recap - NG 10-20-09.wmv
Music for Public Release
Water On The Moon--Music Only
Water On The Moon.mp3
Water On The Moon.wav
Water On The Moon.wma
Water On The Moon--Video
Music and A First Step Video
AUDIO_TS
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_0.VOB
VTS_01_1.VOB
VTS_02_0.BUP
VTS_02_0.IFO
VTS_02_0.VOB
VTS_02_1.VOB
Water On The Moon--Launch Animation Closed Captioned.qt
Water On The Moon--Launch Animation.mp4
Water On the Moon, A First Step Video
AUDIO_TS
LCROSSVideoZip
AUDIO_TS
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_0.VOB
VTS_01_1.VOB
VTS_02_0.BUP
VTS_02_0.IFO
VTS_02_0.VOB
VTS_02_1.VOB

NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

```
VIDEO_TS
    VIDEO_TS.BUP
    VIDEO_TS.IFO
    VIDEO_TS.VOB
    VTS_01_0.BUP
    VTS_01_0.IFO
    VTS_01_0.VOB
    VTS_01_1.VOB
    VTS_02_0.BUP
    VTS_02_0.IFO
    VTS_02_0.VOB
    VTS_02_1.VOB
    Water On The Moon.mp3
    Water On The Moon.wav
    Water On The Moon.wma
    NASA TV Impact Live BroadcastVIDEO_TS
    VIDEO_TS
        VIDEO_TS.BUP
        VIDEO_TS.IFO
        VIDEO_TS.VOB.mpg
        VTS_01_0.BUP
        VTS_01_0.IFO
    NG LCROSS Mission Overview Video
    DVD Files
        VIDEO_TS.BUP
        VIDEO_TS.IFO
        VIDEO_TS.VOB
        VTS_01_0.BUP
        VTS_01_0.IFO
        VTS_01_0.VOB
        VTS_01_1.VOB
    NG LCROSS Mission Overview Video.mpg
    NG Lewis B-Roll
    AUDIO_TS
    Lewis B Roll.mpg
    VIDEO_TS
        VIDEO_TS.BUP
        VIDEO_TS.IFO
        VIDEO_TS.VOB
        VTS_01_0.BUP
        VTS_01_0.IFO
        VTS_01_1.VOB
    NG Q&A Students Video
    VTS_01_1.mpg
    VTS_01_2.mpg
    VTS_01_3.mpg
    VTS_01_4.mpg
    VTS_01A_1.mpg
    VTS_01A_2.mpg
    VTS_01A_3.mpg
    VTS_01A_4.mpg
    VTS_01A_5.mpg
    NG Spacecraft Assembly.wmv
    NG Spacecraft Environmental Test.wmv
    NOVA - Science Now
    VIDEO_TS
        VIDEO_TS.BUP
```

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_1.VOB
VTS_01_2.VOB
The Science Channel--Base Camp Moon
Marabella Productions Required Credit.txt
VIDEO_TS
VIDEO_TS.BUP
VIDEO_TS.IFO
VIDEO_TS.VOB
VTS_01_0.BUP
VTS_01_0.IFO
VTS_01_0.VOB
VTS_01_1.VOB
VTS_01_2.VOB
VTS_01_3.VOB
VTS_01_4.VOB

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

II_social media campaign records

- LCROSS_twitter_facebook
 - 2009-08-17-Letter-History-Keep.txt
 - 2010-02-15-TwitterFB-Memo_JLH-v1.doc
 - 2010-02-28-TwitterFB-Memo_v2.doc
 - 2010-03-02-FB.txt
 - blog-graph-550.jpg
 - CNN-Twitter-Article-2009-10-09.png
 - ExampleTweets-IncludingLRO-Oct8.png
 - Facebook-LewisCenter-2010-02-27.png
 - facebook-oct06.txt
 - Facebook-WhereAml-Now-Comments.png
 - FacebookPhotoAlbums.png
 - FB-2009-10-10.txt
 - fb-2010-03-01.txt
 - FB-Fans-2010-02-10.png
 - fb-sep15.txt
 - fb-sep17.txt
 - fb-sep18.txt
 - fb-sep19.txt
 - FB-TheMorningAfter
 - FB-MorningAfter-ResponsetoFinalComments.doc
 - Twitter-2009-10-10.png
 - Twitter-theMorningAfter.doc
 - Guardian-HGG.png
 - InteractiveConverstaion-Twitter-Oct5.png
 - LCROSS_FB_FinalEntries.png
 - LCROSS_FB_LastDay-Fans.png
 - LCROSS_NASA Stats & Rankings (LCROSS_NASA) | Twitterholic.com.pdf
 - LCROSS_Tweets_Per_Day.png
 - LCROSS_Tweets_TimeofDay.png
 - lcross_tweetbook.txt
 - LCROSS_Twitter_EarlyDays_Stats.png
 - LCROSS-FB-2010-10-06.png
 - LCROSS-FinalTweet.png
 - LCROSS-twitter-3month-snapshot.png
 - LCROSS-twitter-2009-11-01.png
 - LCROSSlessonslearned-avd.doc
 - PaloAltoDailyNewsTwitter2009-10-10.png
 - ReactionstoFinalTWeet
 - FinalTweet.png
 - Picture 14.png
 - Picture 15.png
 - Picture 16.png
 - Picture 17.png
 - Picture 18.png
 - Picture 19.png
 - Picture 20.png
 - Picture 21.png
 - Picture 22.png
 - Picture 24.png
 - Picture 25.png
 - Picture 26.png
 - Picture 27.png
 - Picture 28.png
 - Picture 29.png
 - Picture 30.png

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

Picture 31.png
Picture 32.png
Picture 33.png
Starman_LCROSS_twitter_entry.png
Social Media Stats 112209.xls
Swingby
 LCROSS_NASAWatch_Swingby.doc
 LCROSS_SwngbyFacebookComments.docx
 LCROSS_TwitterComments_Swingby.doc
TweetStats __ for LCROSS_NASA.pdf
Twitter_CS_Jun4.png
twitter-after-pressrelease-2010-10-21.doc
Twitter-Comment-ImpactNight-Example.png
Twitter-Dec02-NASAblog.png

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

III_awards memorabilia and ephemera

No digital content in this series.

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

IV_miscellaneous material accumulated by lcross team members

separation and impact event

LCROSS_Impact_Event_3.mov

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

IV_miscellaneous material accumulated by lcross team members

snapshots images and personal facebook pages

day brian

AdAstraCover.jpg

kennedy brian

DSCN0912.JPG

may todd

09 AV020_LRO_STS.jpg

1003185.jpg

AV020LRO_MLPRollGroup_061709.jpg

DSC_0037.jpg

google lcross logo.gif

LCROSS-20090629-anim2.gif

LRO-LCROSS launch.jpg

stagmer emory_screen captures of facebook pages

Screen shot 2011-05-26 at 3.54.59 PM.png

Screen shot 2011-05-26 at 3.55.09 PM.png

Screen shot 2011-05-26 at 3.55.32 PM.png

Screen shot 2011-05-26 at 3.55.43 PM.png

Screen shot 2011-05-26 at 3.56.01 PM.png

Screen shot 2011-05-26 at 3.56.08 PM.png

Screen shot 2011-05-26 at 3.56.12 PM.png

Screen shot 2011-05-26 at 3.56.17 PM.png

Screen shot 2011-05-26 at 3.56.22 PM.png

Screen shot 2011-05-26 at 3.57.01 PM.png

Screen shot 2011-05-26 at 3.57.13 PM.png

Screen shot 2011-05-26 at 3.57.18 PM.png

Screen shot 2011-05-26 at 3.57.21 PM.png

Screen shot 2011-05-26 at 3.57.25 PM.png

Screen shot 2011-05-26 at 3.57.34 PM.png

Screen shot 2011-05-26 at 3.57.38 PM.png

Screen shot 2011-05-26 at 3.57.41 PM.png

Screen shot 2011-05-26 at 3.57.45 PM.png

Screen shot 2011-05-26 at 3.57.48 PM.png

Screen shot 2011-05-26 at 3.57.51 PM.png

Screen shot 2011-05-26 at 3.57.55 PM.png

Screen shot 2011-05-26 at 3.57.58 PM.png

Screen shot 2011-05-26 at 3.58.02 PM.png

Screen shot 2011-05-26 at 3.58.06 PM.png

Screen shot 2011-05-26 at 3.58.11 PM.png

Screen shot 2011-05-26 at 3.58.15 PM.png

Screen shot 2011-05-26 at 3.58.20 PM.png

Screen shot 2011-05-26 at 3.58.23 PM.png

Screen shot 2011-05-26 at 3.58.27 PM.png

Screen shot 2011-05-26 at 3.58.30 PM.png

Screen shot 2011-05-26 at 3.58.34 PM.png

Screen shot 2011-05-26 at 3.58.43 PM.png

Screen shot 2011-05-26 at 3.58.47 PM.png

Screen shot 2011-05-26 at 3.58.49 PM.png

Screen shot 2011-05-26 at 3.58.53 PM.png

Screen shot 2011-05-26 at 3.58.57 PM.png

Screen shot 2011-05-26 at 3.59.00 PM.png

Screen shot 2011-05-26 at 3.59.04 PM.png

Screen shot 2011-05-26 at 3.59.07 PM.png

Screen shot 2011-05-26 at 3.59.10 PM.png

Screen shot 2011-05-26 at 3.59.14 PM.png

Screen shot 2011-05-26 at 3.59.18 PM.png

NASA Ames Research Center, History Office

Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

Screen shot 2011-05-26 at 3.59.21 PM.png
Screen shot 2011-05-26 at 3.59.24 PM.png
Screen shot 2011-05-26 at 3.59.28 PM.png
Screen shot 2011-05-26 at 3.59.32 PM.png
Screen shot 2011-05-26 at 3.59.36 PM.png
Screen shot 2011-05-26 at 3.59.39 PM.png
Screen shot 2011-05-26 at 3.59.44 PM.png
Screen shot 2011-05-26 at 3.59.48 PM.png
Screen shot 2011-05-26 at 3.59.52 PM.png
Screen shot 2011-05-26 at 3.59.55 PM.png
Screen shot 2011-05-26 at 3.59.59 PM.png
Screen shot 2011-05-26 at 4.00.05 PM.png
Screen shot 2011-05-26 at 4.00.09 PM.png
Screen shot 2011-05-26 at 4.00.15 PM.png
Screen shot 2011-05-26 at 4.00.19 PM.png
Screen shot 2011-05-26 at 4.00.23 PM.png
Screen shot 2011-05-26 at 4.00.27 PM.png
Screen shot 2011-05-26 at 4.00.32 PM.png
Screen shot 2011-05-26 at 4.00.37 PM.png
Screen shot 2011-05-26 at 4.00.50 PM.png
Screen shot 2011-05-26 at 4.00.55 PM.png
Screen shot 2011-05-26 at 4.01.04 PM.png
Screen shot 2011-05-26 at 4.01.32 PM.png
Screen shot 2011-05-26 at 4.01.44 PM.png
Screen shot 2011-05-26 at 4.01.51 PM.png
Screen shot 2011-05-26 at 4.01.57 PM.png
Screen shot 2011-05-26 at 4.02.03 PM.png
Screen shot 2011-05-26 at 4.02.12 PM.png
Screen shot 2011-05-26 at 4.02.17 PM.png
Screen shot 2011-05-26 at 4.02.24 PM.png
Screen shot 2011-05-26 at 4.02.28 PM.png
Screen shot 2011-05-26 at 4.02.33 PM.png
Screen shot 2011-05-26 at 4.02.38 PM.png
Screen shot 2011-05-26 at 4.02.46 PM.png
Screen shot 2011-05-26 at 4.02.53 PM.png

**NASA Ames Research Center, History Office
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)**

File Structure, Born Digital Material

Series, directories, subdirectories, and Items, from left-to-right

IV_miscellaneous material accumulated by lcross team members

spacevidcast shows

Spacevidcast-LCROSSAnniversaryLiveShow333967.mp4

spacevidcast1_20091213.flv