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

NASA Ames History Office
NASA Ames Research Center

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Collection processed and finding aid written by:
April D. Gage, January 2012
Finding aid updated August 2019
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</table>
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 Office
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 one item in the collection is subject to national export 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:
Abbreviated:
NASA ARC. AFS8000.5-LCROSS, [Container number] : [Folder number]. [Identification of item]. [Date, if available].

Acquisition Information:

Accruals:
An oversized banner transferred by Dan Andrews on July 23, 2013 was added to Series III (Acq. 016-2013). Oversized banners and a spacecraft model transferred by Dan Andrews on June 26, 2019 were added to Series III (Acq. 020-2019).

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 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 approved on time, at a total mission cost of 79 million dollars.
The mission was managed from NASA 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, Goddard Space Flight Center, Kennedy Space Center, and the Deep Space Network provided operational support.

**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**


**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 assembleing 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.


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."


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, 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 "LACROSS launch campaign and on-going operations," and video footage of two Spacevidcast shows featuring LACROSS.

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--20th 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-LACROSS supplemental finding aid: File directory structure
AFS8000.5-LACROSS 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

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<td>1</td>
<td>Booklets, Digital (40 files)</td>
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<td>4</td>
<td>Fact Sheets, Analog</td>
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<td>5</td>
<td>Images, Digital (563 files)</td>
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<td></td>
<td>6</td>
<td>Kids' Stuff, Digital (39 files)</td>
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<td></td>
<td>7</td>
<td>Kids' Stuff, Analog</td>
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<td></td>
<td>8</td>
<td>Mission Data and Tools, Digital (21 files)</td>
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<td></td>
<td>9</td>
<td>Mission Data and Tools, Analog</td>
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<td></td>
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<td>Papers, Digital (42 files)</td>
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<td></td>
<td>11</td>
<td>Papers, Analog</td>
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<td></td>
<td>12</td>
<td>Posters, Digital (2 files) See also oversized material in Series III</td>
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<td></td>
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<td>14</td>
<td>Presentations, Analog</td>
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<td>Statements and Articles, Digital (23 files)</td>
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<td>16</td>
<td>Videos and music, Digital (246 files)</td>
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### Series II: Social Media Campaign Records

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<td>LCROSS: Twitter, Facebook, Digital (39 files)</td>
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<td></td>
<td>18</td>
<td>LCROSS: Twitter, Facebook, Analog</td>
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<td></td>
<td>19</td>
<td>Facebook, the Morning After, Digital (3 files)</td>
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<td></td>
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<td>Facebook, the Morning After, Analog</td>
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<td>21</td>
<td>Reactions to Final Tweet, Digital (21 files)</td>
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<td></td>
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<td>Reactions to Final Tweet, Analog</td>
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<td>Swingby, Analog</td>
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### Series III: Model, Awards, Memorabilia, and Ephemera

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<td>NASA Group Achievement Award to the LCROSS Project Team, 2009</td>
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<td>27</td>
<td>NASA Group Achievement Award to the LCROSS Navigation and Trajectory Design Team, 2010</td>
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<td>28</td>
<td>NASA Systems Engineering Excellence Award, 2010</td>
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<td>29</td>
<td>National Space Society Space Pioneer Award for Science and Engineering, 2010</td>
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<td>30</td>
<td>Popular Mechanics Breakthrough Award, 2010</td>
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<td>31</td>
<td>Space Foundation John L. &quot;Jack&quot; Swigert Jr. Award for Space Exploration, 2010</td>
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<td>32</td>
<td>Book, &quot;LCROSS Memories&quot;</td>
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<td>32a</td>
<td>LCROSS Spacecraft Model, 1/12 Scale</td>
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<td>33</td>
<td>&quot;Craterade&quot; LCROSS Impact Ale</td>
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<td>34</td>
<td>Ephemera</td>
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<td>35</td>
<td>&quot;Git-R-Done&quot; Baseball Cap</td>
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<tr>
<td>36</td>
<td>Mission Patches and Pins</td>
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<tr>
<td>37</td>
<td>Oversized Material, LCROSS Posters, Banners, and Team Photograph</td>
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<tr>
<td>38</td>
<td>Rocket Piñata</td>
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### Series IV: Miscellaneous Material Accumulated by LCROSS Team Members

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<td>Mission-related Snapshots, Images, and Personal Facebook Pages, Digital (86 files)</td>
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<td>41</td>
<td>Mission-related Snapshots, Images, and Personal Facebook Pages, Analog</td>
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<td>42</td>
<td>Spacevidcast shows related to LCROSS, Digital (2 files)</td>
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<td>2</td>
<td>1</td>
<td>LRO/LCROSS Launch Console Handbook (1 of 3)*</td>
</tr>
<tr>
<td>2</td>
<td>LRO/LCROSS Launch Console Handbook (2 of 3)*</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>LRO/LCROSS Launch Console Handbook (3 of 3)*</td>
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</tbody>
</table>

*Export-controlled and proprietary information
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).

Object Description
Dimensions 18"w x 15"h x .75"d
Condition Excellent
Date of Object 201005
Type of Object Award
Creator NASA
Creator ID Corporate body
Commissioning Org. NASA

NASA Photo Cat. No.
NASA Property No.
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
Date Entered 3/23/2011
Preservation/Conservation Issues

Hi Res. Image on File
Loan Status Item on loan
Housing Framed
Tracking Id. ARC2011001

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
Award presented to the LCROSS mission team from the Space Foundation. The object consists of a small statue of astronaut John L. "Jack" 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"

Object Description

6"w x 6"d x 12.5"h

Condition: Excellent

Date of Object Award: 2010

Type of Object: Award

Creator: Mark Lundeen and George W. Lundeen

Commissioning Org.: Space Foundation

NASA Photo Cat. No.: ACD11-0072-001

Where Made: Office of the Director of Programs and Projects, Project Management Division (Code PX)

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)

Additional Notes: Artwork 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.


"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."
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
Condition: Excellent
Date of Object Award: 2010
Type of Object: Award
Creator: Visions Awards
Creator ID: Corporate body
Commissioning Org.: Popular Mechanics magazine

Additional Notes:


"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."
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"

Dimensions
5.5"w x 5.5"d x 10.5"h

Condition
Good

Date of Object Award
2010

Type of Object
Award

Creator
Michael Hall's Studio Foundry

Commissioning Org.
National Space Society

NASA Photo Cat. No.
ACD11-0072-005

Where Made
Driftwood, Texas

Materials
Wood, brass, aluminum or nickel?, marble, rubber

Key Words
LCROSS, National Space Society, International Space Development Conference

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

Hi Res. Image
on File

Housing
Framed

Loan Status
Item on loan

Tracking Id.
ARC2012002

Additional images in photographs directory.

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

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 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."

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:

- 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."
**Artifact No.** 005

**Object Description**

NASA Systems Engineering Excellence Award, 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

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>4” diam.</td>
</tr>
<tr>
<td>Condition</td>
<td>Excellent</td>
</tr>
<tr>
<td>Date of Object</td>
<td>2010</td>
</tr>
<tr>
<td>Type of Object</td>
<td>Award</td>
</tr>
<tr>
<td>Creator</td>
<td>unidentified</td>
</tr>
<tr>
<td>Creator ID</td>
<td>Corporate body</td>
</tr>
<tr>
<td>Commissioning Org.</td>
<td>NASA</td>
</tr>
<tr>
<td>NASA Photo Cat. No.</td>
<td>ACD11-0082-003 and ACD11-0082-004</td>
</tr>
<tr>
<td>NASA Property No.</td>
<td>unidentified</td>
</tr>
<tr>
<td>Where Made</td>
<td>Wood, nickel? enamel, brass, felt</td>
</tr>
<tr>
<td>Materials</td>
<td>Wood, nickel? enamel, brass, felt</td>
</tr>
<tr>
<td>Key Words</td>
<td>LCROSS, Systems Engineering</td>
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<td>Provenance</td>
<td>Office of the Director of Engineering, Engineering Systems Division (Code RE)</td>
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<td>013-2011</td>
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<td>Storage Location</td>
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<tr>
<td>Box No.</td>
<td>LCROSS ART-1</td>
</tr>
<tr>
<td>Date Entered</td>
<td>9/27/2011</td>
</tr>
<tr>
<td>Preservation/Conservation Issues</td>
<td></td>
</tr>
</tbody>
</table>

**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.
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 "Craderade LCROSS Impact Ale," date, maker, and slogan "It's the water..."

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

---

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.
**Collection Name**: LCROSS Collection  
**Collection No.**: AFS80005_LCROSS  
**Artifact No.**: 007  
**Image**: ![Image of NASA Ames Honor Award certificate](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.

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>2</th>
</tr>
</thead>
</table>
| Dimensions | 18"w x 15"h  
Dimensions Include Frame. |
| Condition | Excellent |
| Date of Object | 20091014 |
| Type of Object | Award |
| Creator | NASA Ames Research Center |
| Creator ID | Corporate body |
| Commissioning Org. | NASA Ames Research Center |
| NASA Photo Cat. No. | |  
NASA Property No. | |  
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 |
| Preservation/Conservation Issues | |  
Hi Res. Image | ❑ on File |
| Loan Status | ❑ Item on loan |
| Housing | ❑ Framed |
| Tracking Id. | |
Collection Name: LCROSS Collection
Artifact No.: 008

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.

| No. of Pieces | 2 |
| Dimensions | 18"w x 15"h |
| Condition | Good |
| Date of Object | 20090416 |
| Type of Object | Award |
| Creator | NASA |
| Creator ID | Corporate body |
| NASA Photo Cat. No. | NASA Group Achievement Award, LCROSS |
| NASA Property No. | | | |
| 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 | | | |
| Date Entered | 9/27/2011 |
| Preservation/Conservation Issues | | | |
| Hi Res. Image | on File |
| Loan Status | Item on loan |
| Housing | Framed |
| Tracking Id. | | | |

Caption: Additional images in photographs directory.

Additional Notes: Framed award and paper with award details are each counted as one piece.
**Collection Name**: LCROSS Collection  
**Collection No.**: AFS80005_LCROSS  
**Object**: Git-R-Done Baseball Cap

**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 |
| Condition | Good |
| Date of Object | 200604 |
| Type of Object | Ephemera/Commemorative Item |
| Creator | City Hunter |
| Creator ID | Corporate body |
| Provenance | Office of the Director of Programs and Projects, Project Management Division (Code PX) |
| Acquisition No. | 011-2011 |
| Storage Location | RR-C1 |
| Date Entered | 9/27/2011 |
| Preservation/Conservation Issues | |
| Loan Status | Item on loan |
| Hi Res. Image | on File |
| Caption | Additional images in photographs directory. |
| 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'!" |

**Materials**: Cotton, Polyester

**Key Words**: LCROSS, Baseball cap, hat, Git R Done

**NASA Photo Cat. No.**

**NASA Property No.**

**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

**Date Entered**: 9/27/2011

**Preservation/Conservation Issues**: |

**Hi Res. Image**: on File

**Housing**: Framed

**Loan Status**: Item on loan

**Tracking Id.**: Explained
## LCROSS Collection

**Collection Name**
AFS80005_LCROSS

**Object**
Rocket Pinata

### 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 |
| Condition     | Fair |
| Date of Object | 200707 |
| Type of Object | Ephemera/Commemorative Item |
| Creator       | unidentified |
| Creator ID    | unidentified |
| Commissioning Org. | Office of the Director of Programs and Projects, Project Management Division (Code PX) |

### 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.

### 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-D1

### Date Entered
9/27/2011

### Box No.
LCROSS ART-4

### Preservation/Conservation Issues
Hi Res. Image: on File
Loan Status: Item on loan

### Housing
Framed
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.

| No. of Pieces | 3 |
| Dimensions | 4" diam. x 4.5" h |
| Condition | Good |
| Date of Object | 2009~ |
| Type of Object | Model |
| Creator | unidentified |
| Materials | wood, plastic |
| Key Words | spacecraft, LCROSS |

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

Additional Notes: Dimensions Include Frame.
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.

**Object Description**

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>2.75&quot; diam. x 4&quot;h</td>
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<tr>
<td>Condition</td>
<td>Good</td>
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<tr>
<td>Date of Object</td>
<td>2009~</td>
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<tr>
<td>Type of Object</td>
<td>Ephemera/Commemorative Item</td>
</tr>
<tr>
<td>Creator</td>
<td>unidentified</td>
</tr>
<tr>
<td>Creator ID</td>
<td></td>
</tr>
<tr>
<td>Commissioning Org.</td>
<td></td>
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</tbody>
</table>

**Provenance**

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

**Acquisition No.**

011-2011

**Storage Location**

RR-C1

**Date Entered**

9/27/2011

**Key Words**

LCROSS, Northrop Grumman
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 |
| Condition | Good |
| Date of Object | 2009~ |
| Type of Object | Ephemera/Commemorative Item |
| Creator | IWantMyH20.com |
| Creator ID | Corporate body |

Water emptied from bottle.

Key Words: LCROSS, got water? Northrop Grumman
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)

No. of Pieces
12

Dimensions

Condition
Excellent

Date of Object
2009~

Type of Object
Ephemera/Commemorative Item

Creator
unidentified

Creator ID
Corporate body

Commissioning Org.
Office of the Director of Programs and Projects, Project Management Division (Code PX)

Acquisition No.
011-2011

Storage Location
RR-C1

Box No.
ART-1

Date Entered
9/27/2011

Preservation/Conservation Issues

Hi Res. Image
on File

Housing
Framed

Loan Status
Item on loan

Tracking Id.

Caption

Additional images in photographs directory.
Object Description: Purple plastic or rubber bracelet with the following embossed on the exterior:
LCROSS/LRO
Space Settlement
**Object Description**: Oversized banner bearing the LCROSS slogan, "Got Water?"

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>Dimensions</th>
<th>Condition</th>
<th>Date of Object</th>
<th>Type of Object</th>
<th>Creator</th>
<th>Creator ID</th>
<th>Provenance</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>132&quot;w x 58&quot;h</td>
<td>Excellent</td>
<td>2009~</td>
<td>Ephemera/Commemorative Item</td>
<td>unidentified</td>
<td>Office of the Director of Programs and Projects, Project Management Division (Code PX)</td>
<td></td>
</tr>
</tbody>
</table>

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

**Materials**: Vinyl, brass

**Key Words**: LCROSS, got water?
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.

- **Collection Name**: LCROSS Collection
- **Collection No.**: AFS80005_LCROSS
- **Object**: Banner: Got Water!
- **Artifact No.**: 017
- **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.

**Object Details**

- **Dimensions**: 132"w x 58"h
- **Condition**: Good
- **Date of Object**: 2009~
- **Type of Object**: Ephemera/Commemorative Item
- **Creator**: unidentified
- **Commissioning Org.**: Office of the Director of Programs and Projects, Project Management Division (Code PX)
- **Provenance**: Office of the Director of Programs and Projects, Project Management Division (Code PX)
- **Acquisition No.**: 021-2019
- **Storage Location**: HB-3A
- **Date Entered**: 6/27/2019
- **Materials**: Vinyl, brass
- **Key Words**: LCROSS, got water?
- **NASA Photo Cat. No.**: Additional images in photographs directory.
- **Additional Notes**: Commissioning Org.:

**Additional Details**

- **NASA Photo Cat. No.**: Additional images in photographs directory.
- **NASA Property No.**: Additional images in photographs directory.
- **Where Made**: Additional images in photographs directory.
- **Materials**: Vinyl, brass
- **Key Words**: LCROSS, got water?
- **Provenance**: Office of the Director of Programs and Projects, Project Management Division (Code PX)
- **Acquisition No.**: 021-2019
- **Storage Location**: HB-3A
- **Date Entered**: 6/27/2019
- **Materials**: Vinyl, brass
- **Key Words**: LCROSS, got water?
- **Provenance**: Office of the Director of Programs and Projects, Project Management Division (Code PX)
- **Acquisition No.**: 021-2019
- **Storage Location**: HB-3A
- **Date Entered**: 6/27/2019
- **Materials**: Vinyl, brass
- **Key Words**: LCROSS, got water?
**Collection Name**: LCROSS Collection  
**Artifact No.**: 018  
**Object**: 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.

<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>Dimensions Include Frame.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>121&quot;w x 46&quot;h</td>
</tr>
</tbody>
</table>

**Condition**: Excellent  
**Date of Object**: 2009~  
**Type of Object**: Ephemera/Commemorative Item  
**Creator**: unidentified  
**Creator ID**:  
**NASA Photo Cat. No.**: ACD11-0072-007  
**Where Made**: Vinyl, brass  
**Materials**:  
**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  
**Housing**: Framed  
**Hi Res. Image**: on File  
**Loan Status**: Item on loan  
**Preservation/Conservation Issues**: 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

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 |
| 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 |
| NASA Property No. | |
| 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 |
| Date Entered  | 6/27/2019 |
| Preservation/Conservation Issues | |
| Hi Res. Image | on File |
| Loan Status   | Item on loan |
| Loan Status   | Tracking Id. |
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.

No. of Pieces 5
Dimensions 50"l x 29" diameter
Condition Excellent
Date of Object 2009~
Type of Object Model
Creator Scale Model Company
Creator ID Corporate body
Commissioning Org. Office of the Director of Programs and Projects, Project Management Division (Code PX)

NOTE: This is a NASA Artifact
Shipping case counted as one piece.
Dimensions are for the spacecraft model. The model stand is ~14"h.
TO AVOID DAMAGING THE MODEL, USE CARE WHEN PACKING AND UNPACKING, ESPECIALLY WHEN CLOSING THE LID. STORE UPRIGHT.
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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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
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
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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
Series, directories, subdirectories, and Items, from left-to-right

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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
File Structure, Born Digital Material

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

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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
File Structure, Born Digital Material

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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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

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lcross_cadlike2_2k_4.jpg
lcross_cadlike2_2k_6.jpg

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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
Series, directories, subdirectories, and Items, from left-to-right

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2007-04-04-ACD07-0073-005.JPG
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2008-01-09 ACD07-0073-401.JPG
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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
NASA Ames Research Center, History Office  
Lunar CRater Observation and Sensing Satellite (LCROSS) Project Collection (AFS8000.5-LCROSS)

File Structure, Born Digital Material

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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
File Structure, Born Digital Material

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

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Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
File Structure, Born Digital Material

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

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File Structure, Born Digital Material

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

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LRO Mate and Encapsulation
20AD24~1.JPG
20AE9E~1.JPG
20AEB6~1.JPG
20F421~1.JPG
20FAE6~1.JPG
2090~1.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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
Series, directories, subdirectories, and Items, from left-to-right

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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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
LROC Submitted 2010 07 14 Final ud2.docx
LROC Submitted 2010 07 14 Final ud2.pdf
LROC_ASC_Presentation_2010_08_04.pdf
LROC_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
LROC Flight Ops v1.3.ppt
LROCFlightOperationsAbstract.pdf
LROCFlightOps_2010-04-18g.doc
TompkinsLCROSSFlightOpsVg.pdf

Flight Team Devel

Flight Team Dev v1.1.ppt
Flight Team Dev 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

LROC GDS Abstract.pdf
ISSFD_LCROSS_Traj_Design_and_OD_2007.pdf
LROC 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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
Series, directories, subdirectories, and items, from left-to-right:

1. Outreach and educational material for public release
   Posters
     - 2006-08 LCROSS Poster.jpg
     - LPRP Folk Festival Poster.jpg

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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
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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
File Structure, Born Digital Material

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

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_1.VOB
VTS_02_0.BUP
VTS_02_0.IFO
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_05_0.BUP
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

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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
File Structure, Born Digital Material

Series, directories, subdirectories, and items, from left-to-right:

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

**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_VABRooftCam_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**

**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**

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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
```

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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 Broadcast

VIDEO_TS
  VIDEO_TS.BUP
  VIDEO_TS.IFO
  VIDEO_TS.VOB.mp
  VTS_01_0.BUP
  VTS_01_0.IFO

NG LCROSS Mission Overview Video

DVD Files

VIDEO_TS
  VIDEO_TS.BUP
  VIDEO_TS.IFO
  VIDEO_TS.VOB
  VTS_01_0.BUP
  VTS_01_0.IFO
  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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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.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
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-ResponseetoFinalComments.doc
    Twitter-2009-10-10.png
    Twitter-theMorningAfter.doc
  Guardian-HGG.png
  InteractiveConversation-Twitter-Oct5.png
  LCROSS_FB_FinalEntries.png
  LCROSS_FB_LastDay-Fans.png
  LCROSS_Tweets_Per_Day.png
  LCROSS_Tweets_TimeOfDay.png
  lcross_twitbook.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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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
  - L CROSS_NASAWatch_Swingby.doc
  - L CROSS_SwingbyFacebookComments.docx
  - L CROSS_TwitterComments_Swingby.doc
- TweetStats __ for L CROSS_NASA.pdf
- Twitter_CS_Jun4.png
- twitter-after-pressrelease-2010-10-21.doc
- Twitter-Comment-ImpactNight-Example.png
- Twitter-Dec02-NASAblog.png
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.

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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
       LROSS_Impact_Event_3.mov
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
    - LROSS-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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm
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

Full finding aid for the collection located at: http://history.arc.nasa.gov/finding_aids_nasaarc.htm