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Old Moon Images Get Modern Makeover

By Leonard David, SPACE.com's Space Insider Columnist
posted: 31 March 2009 09:17 am ET

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WOODLANDS, Texas — Think of it as a space age twist to that adage: Something old, something new...something borrowed, something blue.

Back in 1966 and 1967, NASA hurled a series of Lunar Orbiter spacecraft to the moon. Each of the five orbiters were dispatched to map the landscape in high-resolution and assist in charting where best to set down Apollo moonwalkers and open up the lunar surface to expanded human operations.

Imagery gleaned from the Lunar Orbiters over 40 years ago is now getting a 21st century makeover thanks to the Lunar Orbiter Image Recovery Project (LOIRP).

By gathering the vintage hardware to playback the imagery, and then upgrading it to digital standards, researchers have yielded a strikingly fresh look at the old moon. Furthermore, LOIRP's efforts may also lead to retrieving and beefing up video from the first human landing on the moon by Apollo 11 astronauts in July 1969.

Digital domain

Dennis Wingo, LOIRP's team leader, detailed the group's work in progress during last week's 40th Lunar and Planetary Science Conference.

Teamed with SpaceRef.com, LOIRP's saga is one of acquiring the last surviving Ampex FR-900 machinery that can play analog image data from the Lunar Orbiter spacecraft. Wingo noted that the work is backed by NASA's Exploration Systems Mission Directorate, the space agency's Innovative Partnership Program, along with private organizations, making it possible to overhaul old equipment, digitally upgrade and clean-up the imagery via software.

LOIRP is located at NASA's Ames Research Center at Moffett Field, Calif. There, project members are taking the analog data, converting it into digital form and reconstructing the images.

By moving them into the digital domain, Wingo said, the photos now offer a higher dynamic range and resolution than the original pictures, he added.

"We're going to be releasing these to the whole world," Wingo said.

Use of the refreshed images, contrasted to what NASA's upcoming Lunar Reconnaissance Orbiter (LRO) mission is slated to produce, has an immediate scientific benefit. That is, what is the frequency of impacts on the Moon's already substantially crater-pocked surface?

"We'll be able to get crater counts," Wingo told SPACE.com. "LRO imagery of the same terrain imaged decades ago will provide a crater count over the last 40 years."



The Lunar Orbiter Image Recovery Project (LOIRP) is providing a refreshing look at the Moon and Earth - imagery taken some 40 years ago. Credit: LOIRP/NASA

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Frozen in time

There's also a more down to Earth output thanks to LOIRP scientists.

They have used a Lunar Orbiter 1 image of the Earth for climate studies, basically a snapshot frozen in time that shows the edge of the Antarctic ice pack on August 23, 1966.

The team is working with the National Snow and Ice Data Center in Boulder, Colorado to correlate their images of the Earth with old NASA Nimbus 1 and Nimbus 2 spacecraft imagery that flew at about the same time — in the mid-1960s — as the Lunar Orbiter 1. Nimbus satellites were meteorological research and development spacecraft.

Wingo said that the original Nimbus images may have been recorded on an Ampex FR-900 — so by processing the original Nimbus tapes there is a very good chance that they can provide NASA with polar ice pack data from ten years earlier.

Lessons learned

One treasure hunt outing by LOIRP may lead to finding what some term as "lost" [Apollo 11 slow scan tapes](#), Wingo said.

"We don't think they are lost. People have been looking for the wrong tapes," he said, explaining that they were recorded on Ampex FR-900 equipment — not on another type of recorder as previously thought.

Wingo said those Apollo tapes are stored at the Federal Records Center, labeled and ready for a look see.

"We think for the 40th anniversary of Apollo we may be able to get the original slow scan tapes," Wingo said. If so, the hope is to recover them and give the public a higher-quality, never-before-seen view of human exploration of the Moon.

There is a lesson learned output from LOIRP.

In the beginning, very few people thought this could be done...but now they have seen the results," Wingo said.

It is not enough to have 100 year recording medium, Wingo explains. Without the retention of the specific era equipment that images are archived on, it will be impossible for future generations to recover older NASA or other satellite data, he advised.

This is a general issue, not specific to the Lunar Orbiter program. The retention of critical hardware should be a requirement for flight efforts. The original historic Apollo 11 slow scan images have been lost due to inattention to this critical detail, Wingo concluded.

• [Video - Apollo 11: The First Moon Men](#)

• [Video - Direct From the Moon](#)

• [Skywatcher's Guide to the Moon](#)

Leonard David has been reporting on the space industry for more than four decades. He is past editor-in-chief of the National Space Society's Ad Astra and Space World magazines and has written for SPACE.com since 1999.

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MasterSith wrote:

posted 31 March 2009, 11:48 am ET

Hmm, slow news day? This is kind of recycled news, is it not? They have a second picture released, so post that too.

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Thohry wrote:

posted 31 March 2009, 12:00 pm ET



this news seems to have appeared sometime ago under different name: 'Images of the moon in the 60s have been digitized' or so.

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HelloBozos wrote:

posted 31 March 2009, 12:26 pm ET

Don't fix Them!! then people will see the misson was fake... 8^/

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JoelDooris wrote:

posted 31 March 2009, 1:27 pm ET

I'm wondering why it would be so hard today to make a device to play back the original media. I'm glad they are doing it, it's a terrible thought to have any type of data from these missions lost somewhere instead of in the public domain.

Well net result, NICE WORK! Keep it up!

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frogman2008 wrote:

posted 31 March 2009, 2:37 pm ET

i have this same problem with my old 8mm film. it's just too big to fit in my blue-ray! LOL.
all kidding aside, things like this are a big problem for everyone, not just NASA. it's just like that important document you save to that 5 3/4 floppy 20 years ago. you might be able to find a working drive and if you have linux, someone might right you a driver to use it, if not, too bad - so sad =(

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posted 31 March 2009, 2:38 pm ET

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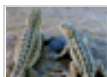
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