

SKYNEWS



John McDonald's deepest image of the Andromeda galaxy to date thanks to the dark Metchosin skies at the RASCALS 2010 Star Party. The satellite galaxies M32 and M110 can also be seen.

*Date and location - 2010-08-13 at Metchosin, Vancouver Island, BC.
Conditions excellent for seeing, moisture, lack of wind and very dark skies.*

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NEXT MEETING

September 14th, 2011
University of Victoria
060 Elliott Bldg

www.victoria.rasc.ca



First iPhones in Space to Launch on Last Shuttle Mission

Houston, we have an iPhone: Two iPhone 4 smartphones

loaded with an app to help astronauts perform experiments in space will launch aboard NASA's shuttle Atlantis on July 8. They will be the first iPhones to fly in space, officials say

Houston, we have an iPhone: Two iPhone 4 smartphones loaded with an app to help astronauts perform experiments in space will launch aboard NASA's shuttle Atlantis on July 8. They will be the first iPhones to fly in space, officials say.

The iPhones will be delivered to the International Space Station during the STS-135 mission of Atlantis, NASA's final flight of its storied space shuttle program. They are programmed with an app called SpaceLab for iOS, which was designed by Odyssey Space Research. [Photos: Shuttle Atlantis' Last Launch Pad Trek]

The app contains four step-by-step instruction programs to help the space station's crew perform experiments in the U.S. portion of the orbiting outpost, which has been classified as a U.S. National Laboratory.

Hermetic optocouplers www.isocom.uk.com

Aerospace,hybride,Flatpack,ceramic hirel optocouplers made in Europe

"The revolutionary iPhone 4 offers an extraordinary opportunity to demonstrate serious functions previously reserved for more expensive, purpose-built devices," Brian Rishikof, Odyssey's chief executive officer, said in a statement.

"The potential for using iPhone 4 to both conduct and support in-space research and operations is enormous. The opportunity to make the experience accessible to anyone via the App Store will attract

a new generation of space supporters," Rishikof added.

While intended for space use, a version of the app is also available now for 99 cents in the Apple App Store. This version is designed to simulate the experience astronauts will have for users on the ground.

With Apple's popular smartphone has been certified for spaceflight, and both iPhone 4s will remain on the space station for several months while the experiments are performed. [7 Gadgets that Changed the World]

The first program, called Limb Tracker, is a navigation experiment that involves taking photographs of Earth and matching an arc to the horizon. Limb Tracker is designed to yield an estimate of altitude and the "off axis" angle, which is a measurement of the angle of the image with respect to Earth's center.

Sensor Cal is another program that will use a series of photos of a reference image to help calibrate sensors on board the space station.

State Acq, short for State Acquisition, is a navigation experiment that uses a series of photos of Earth, combined with information from the iPhone's three-axis gyroscope and accelerometer, to estimate the spacecraft's latitude and longitude. The position estimation is calculated by manipulating and matching a wireframe overlay of the Earth's coastlines with the images. Performing multiple sequences, separated by a known amount of time, can permit estimation of the spacecraft's orbit parameters.

Finally, the LFI program, short for Lifecycle Flight Instrumentation, will characterize the effects of radiation on the device by monitoring certain areas of memory for Single Bit Upsets — an unintended change in value of a memory location caused by exposure to radiation.

Station astronauts won't keep them

When the experiments are completed, both iPhones will be returned to Earth. The first opportunity for return will be on a Russian Soyuz in fall 2011, Odyssey Research officials said. Flight data from the experiments are expected to be collected, analyzed, and then shared via this app on the App Store, they added.

The iPhone 4s are just a few of the experiments and cargo flying to the space station on NASA's last-ever space shuttle flight. If all goes as planned, Atlantis will blast off from NASA's Kennedy Space Center in Florida at 11:40 a.m. EDT (1340 GMT) on July 8.

Atlantis' four-person crew plans to fly a 12-day mission to the International Space Station to deliver new experiments and supplies, as well as vital spare parts to keep the orbiting lab going once the space shuttle program ends for good. NASA is retiring its three-shuttle fleet after 30 years of service to make way for a new space exploration program aimed at sending astronauts to an asteroid by 2025, and then on to Mars in the 2030s.

This story was provided by TechNewsDaily, a sister site to SPACE.com. Follow SPACE.com for the latest in space science and exploration news on Twitter @Spacedotcom and on Facebook.

PY4MAB – Sat, 2011 – 06 – 11 22:31

[Source ISS Fan Club](#)

Centre of the Universe update

Currently, the centre is open Tuesday – Friday, 1:00 p.m. to 4:30 p.m., and Saturday, 3:30 p.m. – 11:00 p.m. We are closed from July 1st to the 18th for summer camps. Our summer hours are Tuesday – Saturday, 3:30 p.m. – 11:15 p.m.

If you'd like to bring your family to participate in any of our programs, admission is as follows:

Admission

HST included

Daytime (before 6 p.m.)

\$10.25 for Adults
 \$9.00 for Seniors (65+)
 \$9.00 for Students (13 to 18, or with valid ID)
 \$5.75 for Youth (4 to 12)
 Child under 4 free
 Family Pass (2 adults, 3 children/youth): \$26.25

Evening (from 6 p.m.)

\$13.50 for Adults
 \$11.50 for Seniors (65+)
 \$11.50 for Students (13 to 18, or with valid ID)
 \$8.00 for Youth (4 to 12)
 Child under 4 free
 Family Pass (2 adults, 3 children/youth): \$35.00

Group Rates

During public hours, come in a of 10 or more and receive a % discount on your admission.

Summer Lecture Series

The Centre of the Universe will be hosting another Summer Lecture Series starting July 30th and continuing until early September. Throughout the summer, HIA presenters will be giving talks to the public on a variety of subjects. Look for information regarding speakers and topics during the summer.

Movie Night

Join us on Saturday night August 27th as we celebrate movie night and guest lecture. There is a \$10 fee. Enjoy a warm summer evening under the stars as we project the movie against the big observatory dome. This will be followed by an

examination of the science of the fiction by HIA's own Dr. James Di Francesco. Details to follow.

Astronomy Camps

This year's astronomy camps will run during the first two weeks of July with the younger kids' camp running first and the older kids' camp second. Dates are as follows:

July 4th – 8th: Little Galileos, Gr. 1 & 2 (must have completed at least grade 1)

July 11th – 15th: Junior Astronomers, Gr. 3 to 6

Each camp costs \$195+HST. Spaces are limited, so call us soon at 250-363-8262 or email us at cu@nrc-cnrc.gc.ca to avoid disappointment.

RASC Victoria Summer Star Party

The annual Victoria Summer Star Party will be held July 29th and 30th in the field behind the Fire Hall in Metchosin.



Two nights of amazing dark skies will delight those who come and share the wonders of the night sky with

the public. There should be solar viewing during the day, evening talks from professional astronomers, and draw prizes. Be sure to be there early as parking and telescope space may be limited due to the very popularity of last years event.

LRO a Resounding Success

DR EMILY BALDWIN
ASTRONOMY NOW

Posted: 22 June 2011

The Lunar Reconnaissance Orbiter (LRO) has been declared a full mission success by NASA, delivering more than promised and forever changing our view of the Moon.

Launched on 18 June 2009, the \$540 million spacecraft's primary objective was to create a comprehensive atlas of the Moon's features and resources necessary to design a future manned lunar outpost.

"LRO was originally conceived to deliver the kinds of information that we need to plan for safe and effective exploration of our Moon," says Michael Wargo, chief lunar scientist for exploration at NASA headquarters. "And that's exactly what we did, in spades. And by doing that, we've fundamentally changed our scientific understanding of the Moon."

LRO's general science mission began in September 2010, and between the spacecraft's seven instruments, LRO has returned nearly 200 terabytes of data, enough to fill some 41,000 standard DVDs.

LOLA, the Lunar Orbiter Laser Altimeter, has provided four billion measurements, 100 times more than all previous lunar measurements of its kind combined, yielding information on topography, surface slope values and roughness in greater detail than ever before. Readings include vital information on locations that receive sunlight or are in permanent shadow for the majority of the year; both of which provide useful sites for future solar-powered bases, or sites where water might be frozen, respectively.

LRO's complementary spacecraft mission LCROSS was sent smashing into one such

permanently shadowed crater in October 2009, throwing up traces of water ice, as well as many other mineral resources that could be mined to create rocket fuel, for example.

DIVINER, LRO's Lunar Radiometer Experiment, found a record-breaking temperature of -248 degrees celsius (25 kelvin) in one location. DIVINER also measured the temperature of the Moon during the recent lunar eclipse on 15 June, finding an average decrease of 100 kelvin across the surface as the Moon entered Earth's shadow.

Meanwhile, LRO's camera LROC has produced a global map of the Moon with a resolution of 100 metres per pixel, with higher resolution images capturing detail at 0.5 metres per pixel. "With this resolution, LRO could easily spot a picnic table on the Moon," says LRO's Project Scientist Richard Vondrak of NASA's Goddard Space Flight Center. Not quite a picnic table, LRO did image the locations where Apollo astronauts walked, placed scientific instruments and drove rovers. LRO's other instruments – LAMP (Lyman-Alpha Mapping Project), LEND (Lunar Exploration

Neutron Detector), CRaTER (Cosmic Ray Telescope for the Effects of Radiation) and Mini-RF (Miniature Radio Frequency) – are between them contributing maps of hydrogen distribution and water ice, and providing details of the lunar radiation environment that could aid in the development of protective technologies to help keep future lunar crew safe.

"Not only did we accomplish all of this during the exploration phase of the mission," says Vondrak, "but two more years of wonderful science are already under way." LRO is now in the hands of NASA's Science Mission Directorate, with ongoing, near continuous acquisition of science data. Funded through to at least September 2012, officials say the technical capability is there to see the spacecraft operate well past this date.

For further information and images.

<http://www.astronomynow.com/news/11106/22LRO/>

NEXT MEETING

Wednesday Sept 14th - 7:30pm - 060 Elliott Bldg University of Victoria, 3800 Finnerty Rd.

RASC Victoria Council for 2010 / 2011

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