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Docent Forum: <http://groups.yahoo.com/group/docentforum/>

Docent Calendar: <http://groups.yahoo.com/group/docentforum/>

Volunteering at Kitt Peak: <http://www.noao.edu/outreach/kpoutreach.html>

www.noao.edu



Next Docent Meeting Monday, April 17

The next docent meeting will be held on Monday, April 17. The meeting will convene at 6:00 in the main conference room and will feature dinner and a speaker. Docents should visit the docent forum calendar to schedule their hours. Docents who do not have web access may contact Nick Petrosino. See the URL for the docent calendar at lower left.

«First Name» «Last Name»
«Mailing Address»
«City» «State» «Zip Code»



DOCENT NEWS

MARS MANIA II HIRISE ARRIVES AT THE RED PLANET

The High Resolution Imaging Science Experiment, also known as the peoples' camera, arrived aboard the Mars Reconnaissance Orbiter spacecraft at the Red Planet on March 10. MRO will soon begin delivering more science data than all other Mars missions combined, including the most detailed photographic survey of Mars ever, courtesy of HiRISE.

In celebration Mars Mania II is scheduled for Saturday, April 8 from 1:00 to 9:30 pm on the University of Arizona main campus. Parking is free. Participating organizations include Flandrau Science Center, Phoenix Mission, Mars Odyssey GRS, TAAA, Steward Observatory, Lunar and Planetary Laboratory, and NOAO.

An educational fair and hands-on activities will be available from 1:00 to 5:00. Cake and punch will be served afterward and the

keynote speeches begin at 6:00. The keynote speaker is Professor Alfred McEwen, principal investigator of HiRISE. Solar viewing and a star party are also scheduled.

Public Outreach will staff an activity booth as it did for the original Mars Mania, featuring Family and Project Astro. The location of the NOAO booth has yet to be determined but should be available early next week. Last year the organization was in the ILC.

The assistance of a docent is requested. Anyone interested should contact the docent coordinator. Persons interested in attending Mars Mania II may obtain information by visiting <http://hiroc.lpl.arizona.edu/marsmania> or by calling (520) 626-7432. Donations are requested for the star party and 3D Mars presentation, but all other activities are free.

FIRST LUNAR ADVENTURE PROGRAM A SUCCESS

The first Lunar Adventure program took place on Tuesday, March 7 from 6:00 to 9:00 pm at the NOAO offices. The current program is a variation of an earlier theme that was developed as the lunar counterpart to the Fun with The Sun program, designed for daytime observing at Kitt Peak.

The current Lunar Adventure is the brainchild of Flynn Haase, AOP Program Coordinator at the Kitt Peak Visitor Center. Haase compiled animations, hands-on activities, and discussions of lunar features with actual observing using a Meade 8-inch LX200 telescope.

The inaugural program hosted eleven guests, eight of whom were from the Boston area. The remaining three guests were local, including two science teachers.

The guests learned about lunar features, watched an animation of the Moon's forma-

tion, conducted the Project Astro Moon Phase activity, received copies of the Virtual Moon Atlas and Sky Charts software, and concluded the evening in the parking lot observing the first-quarter moon.

The program also called for web cam imaging of the Moon but that had to be cancelled because of a problem with the declination drive of the telescope. That problem was subsequently identified and corrected.

April's program is full with a Girl Scout troop, but there is room in May for any interested party. Information is available at our web site by visiting <http://www.noao.edu/outreach/kpvc/lunar.html>. Responses from last month's guests were very encouraging so docents should mention this and other NOAO program whenever the opportunity presents itself.

Points of Interest:

- The docent meeting is scheduled for Monday, April 17, featuring dinner and a speaker.
- April 5: Asteroid 2006 EY near-Earth flyby at 0.050 AU
- April 8: Mercury at greatest western elongation—28 degrees.
- April 8: Mars Mania II, Tucson, AZ.
- April 12: 45th anniversary of the 1st man in space, Yuri Gagarin, 1961
- April 18: Venus passes 0.3 degrees from Uranus
- April 22: Lyrids Meteor Shower peak
- April 23 to 30: 2006 Texas Star Party
- April 26 to 30: 3rd Annual Desert Sunset Star Party, AZ.

For additional information about these points of interest, visit <http://www2.jpl.nasa.gov/calendar/>.

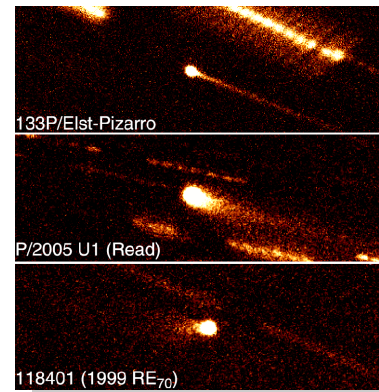
NEW CLASS OF COMETS MAY BE THE SOURCE OF EARTH'S WATER

Three icy comets orbiting among the rocky asteroids in the main asteroid belt between Mars and Jupiter may hold clues to the origin of Earth's oceans.

The newly discovered group of comets, dubbed "main-belt comets" by University of Hawaii graduate student Henry Hsieh and Professor David Jewitt, has asteroid-like orbits and, unlike other comets, appears to have formed in the warm inner solar system inside the orbit of Jupiter rather than in the cold outer solar system beyond Neptune.

The existence of these main-belt comets suggests that asteroids and comets are much more closely related than previously thought and supports the idea that icy objects from the main asteroid belt could be a major source of Earth's present-day water. This work is scheduled to appear in the March 23 edition of Science Express and in an April print edition of Science.

The crucial observations were made on November 26, 2005, using the 8-meter Gemini North Telescope on Mauna Kea. Hsieh and Jewitt found that an object designated as Asteroid 118401 was ejecting dust like a comet. Together with a mysterious comet (designated 133P/Elst-Pizarro) known for almost a decade but still poorly understood, and another comet designated P/2005 U1) discovered by the Spacewatch project in Arizona just a month earlier, "Asteroid" 118401 forms an entirely new class of comets.



Images of the three known main-belt comets, imaged at the 2.2-meter UH telescope by H. Hsieh and D. Jewitt.

"The main-belt comets are unique in that they have flat, circular, asteroid-like orbits, and not the elongated, often tilted orbits characteristic of all other comets," said Hsieh. "At the same time, their cometary appearance makes them unlike all other previously observed asteroids. They do not fit neatly in either category."

In both 1996 and 2002, the "original" main-belt comet, 133P/Elst-Pizarro (named after its two discoverers), was seen to exhibit a long dust tail typical of icy comets, despite having the flat, circular orbit typical of presumably dry, rocky asteroids. As the only main-belt object ever observed to take on a cometary appearance, however, 133P/Elst-Pizarro's true nature remained controversial. Until now.

"The discovery of the other main-belt comets shows that 133P/Elst-Pizarro is not alone in the asteroid belt," Jewitt said. "Therefore, it is probably an ordinary (although icy) asteroid, and not a comet from the outer solar system that has somehow had its comet-like orbit transformed into an asteroid-like one. This means that other asteroids could have ice as well."

The Earth is believed to have formed hot and dry, meaning that its current water content must have been delivered after the planet cooled. Possible candidates for supplying this water

are colliding comets and asteroids. Because of their large ice content, comets were leading candidates for many years, but recent analysis of comet water has shown that comet water is significantly different from typical ocean water on Earth.

Asteroidal ice may give a better match to Earth's water, but until now, any ice that the asteroids may have once contained was thought to either be long gone or so deeply buried inside large asteroids as to be inaccessible for further analysis. The discovery of main-belt comets means that this ice is not gone and is still accessible (right on the surfaces of at least some objects in the main belt, and at times, even venting into space).

Spacecraft missions to the main-belt comets could provide new, more detailed information on their ice content and in turn give us new insight into the origin of the water, and ultimately life, on Earth.

As conventionally defined, comets and asteroids are very different. Both are objects a few to a few hundred miles across that orbit throughout our solar system. Comets, however, are thought to originate in the cold outer solar system and consequently contain much more ice than the asteroids, most of which are thought to have formed much closer to the Sun in the asteroid belt between Mars and Jupiter.

Comets also have large, elongated orbits and thus experience wide temperature variations. When a comet approaches the Sun, its ice heats up and sublimates

(changes directly from ice to gas), venting gas and dust into space, giving rise to a tail and a distinctive fuzzy appearance. Far from the Sun, sublimation stops, and any remaining ice stays frozen until the comet's next pass close to the Sun. In contrast, objects in the asteroid belt have essentially circular orbits and are expected to be mostly baked dry of ice by their confinement to the inner solar system.

Essentially, they should be just rocks. With the discovery of the main-belt comets, we now know this is not the case, and that, in general, the conventional definitions of comets and asteroids are in need of refinement.

This work is supported by a grant from the NASA Planetary Astronomy Program of the Science Mission Directorate.

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April 2006

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Bob K.
2 Jerry, Ken, Gerald	3 Bill, Eugene	4 Joyce, Larry E.	5 Sheila, Punch	6 Jerry, Gerald	7 Don, Doug S. C. V. High 25	8 Jim O., Larry L., Mark
9 Jerry, Ken	10 Bill, Gerald	11 Eugene, Joyce	12 Sheila, Punch	13 Jerry, Richard G.	14 Don, Doug	15 Jim O.
16 Jerry, Anna	17 Bill Docent Meeting	18 Joyce, John Cls.	19 Sheila, Punch	20 Jerry, Richard G.	21 Don, Doug	22 Jim O., Jerry Hamilton College
23 Larry L.	24 Bob, Ken Sun. Drv. Elm. 100	25 John Cls., Eugene	26 Sheila, Punch	27 Jerry, Richard G.	28 Don, Doug	29 Jerry, Jim O.
30 Anna						

NEW DOCENTS SETTLING IN AT KITT PEAK

Most of the current docents have had the opportunity to meet at least some of the recently graduated docent trainees, who have been spending much time on the mountain either with their mentors or just finding their way around on their own. The one exception is Aubrey Mendelow who has been out of the country and who will be completing his training shortly.

The mentor phase of training lasts approximately thirty days from the conclusion of the classroom portion. During this time the trainees have a chance to follow experienced docents and to lead tours of their own but under the supervision of their mentors, who can then offer constructive criticism and help the trainees refine their presentations. At the conclusion of the thirty days, mentors will evaluate their trainees and submit the evaluations to the docent coordinator. The evaluation form is available on the docent forum as is a self-evaluation

form that the trainees should use to ensure that they are covering all the interpretive bases. The mentor's evaluation form has recently been updated and is available on the forum as of March 30. Mentors are requested to complete the evaluations by April 15th and have them submitted by Friday the 21st.

After their evaluations the trainees are welcome to begin scheduling regular shifts and some of the days will be slightly less crowded. But because there are now up to five or six docents in the visitor center on occasion, Kitt Peak administration has asked that the trainees who are riding the shuttle go down on the 2:00 to reduce the possibility of overcrowding on the 4:00 shuttle, which has temporarily replaced the bus. This problem will be resolved once the bus is back in operation but as of this writing no one knows when that will be.