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Kitt Peak Docent Program

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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 September 19

The next docent meeting will be held on Monday, September 19. 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 for July and August. 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»

Kitt Peak Docent Program

DOCENT NEWS

Number 94

August 2005



MARS MANIA COMING IN AUGUST

Mars is once again closing the gap with Earth and in October the red planet will pass 43,000,000 miles from our own planet. As was the case two years ago, this will make for great viewing of Mars.

In addition to this close approach of our neighboring planet, the Mars Reconnaissance Orbiter is scheduled for launch on August 10. The spacecraft will carry the HiRISE camera developed by the University of Arizona. HiRISE stands for High Resolution Imaging Science Experiment and will produce images of Mars's surface with a best resolution of twenty-five centimeters per pixel. The camera employs a twenty-inch mirror. A full scale model of it will be on display in the lobby of Sonett Space Sciences.

In celebration of these events, Mars Mania will offer educational exhibits, solar viewing, a star party, a 3D Mars planetarium show, fun with robotics, hands-on activities for kids, family fun, and keynote speeches by

planetary scientists Alfred McEwen and Peter Smith of the Lunar and Planetary Laboratory.

The festivities are scheduled for Saturday, August 27 from 3:00 p.m. to 10:00 p.m. at C.P. Sonett Spaced Sciences Building, Flandrau Science Center, and the Integrated Learning Center. Tucson Amateur Astronomy Association will conduct the star party on the mall in front of Sonett. NOAO will conduct hands-on activities for kids in the ILC from 3:00 to 7:00, drawing on Project and Family ASTRO materials used so successfully in the FunFest last March at the Tucson Convention Center.

As usual volunteers are needed. Anyone who would like to assist with this fun event should contact Robert Wilson. Time spent at Mars Mania may be counted toward the eighteen hour monthly requirement.

MIDNIGHT METEOR MADNESS IS BACK

This idea worked so well last December that the department decided to give it another try as a last event before summer shutdown. The program was proposed by Chuck Dugan of the nighttime staff, who researched the moon phase and the Perseids meteor shower and decided the program would be viable.

Guests will arrive at 12:30 a.m. on the morning of Saturday, August 13 and park in the picnic area. Just as last time, they will be shuttled to the visitor center. Once there they will have opportunities to gain instruction in planispheres, binocular astronomy, and telescope observing at the 20-inch, if humidity levels permit.

By 2:00 the meteor shower should be in full

swing. The Moon sets at midnight, so by the peak of the shower the sky will be dark and the Milky Way will be high and to the west. Perseus will be high to the northeast.

Unlike last December, food will not be offered. Guests are encouraged to bring snacks or a picnic lunch if they wish to eat. Coffee and hot chocolate will be available in the visitor center, which along with the gift shop will be open for the duration of the program. At 4:00 a.m. guests will be shuttled back to their cars.

Reservations are required and limited to fifty guests. Information is available in the visitor center and on the web site

Points of Interest:

- The docent meetings will resume September 19, featuring dinner and a presentation.
- August 5: Neil Armstrong's 75th birthday.
- August 8: Moon Occults Venus.
- August 8: Asteroid 1992 UY4 near-Earth flyby at 0.040 AU.
- August 8: Neptune at opposition.
- August 12: Perseids Meteor Shower peak.
- August 16: Mars solstice, beginning of northern winter.
- August 21: 40th anniversary of the Gemini 5 launch with Gordon Cooper and Charles Conrad.
- August 24: Mercury at its greatest western elongation of 18°.

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

DUSTIEST STAR COULD HARBOR A YOUNG EARTH

A relatively young star located about 300 light-years away is greatly improving our understanding of the formation of Earth-like planets.

The star, going by the unassuming name of BD +20 307, is shrouded by the dustiest environment ever seen so close to a Sun-like star well after its formation. The warm dust is believed to be from recent collisions of rocky bodies at distances from the star comparable to that of the Earth from the Sun. The results were based on observations done at the Gemini and W.M. Keck Observatories, and published in the July 21 issue of the British science journal Nature.

This finding supports the idea that comparable collisions of rocky bodies occurred early in our solar system's formation about 4.5 billion years ago. Additionally, this work could lead to more discoveries of this sort which would indicate that the rocky planets and moons of our inner solar system are not as rare as some astronomers suspect.

"We were lucky. This set of observations is like finding the proverbial needle in the haystack," said Inseok Song, the Gemini Observatory astronomer who led the U.S.-based research team. "The dust we detected is exactly what we would expect from collisions of rocky asteroids or even planet-sized objects, and to find this dust so close to a star like our Sun bumps the significance way up. However, I can't help but think that astronomers will now find more average stars where collisions like these have occurred."

For years, astronomers have patiently studied hundreds of thousands of stars in the hopes of finding one with an infrared dust signature (the characteristics of the starlight absorbed, heated up and reemitted by the dust) as strong as this one at Earth-to-Sun distances from the star. "The amount of warm dust near BD+20 307 is so unprecedented I wouldn't be surprised if it was the result of a massive collision between planet-size objects, for example, a collision like the one which many scientists believe formed Earth's moon," said Benjamin Zuckerman, UCLA professor of physics and astronomy, member of NASA's Astrobiology Institute, and a co-author on the paper. The research team also included Eric Becklin of UCLA and Alycia Weinberger formerly at UCLA and now at the Carnegie Institution.

BD +20 307 is slightly more massive than our Sun and lies in the constellation Aries. The large dust disk that surrounds the star has been known since astronomers detected an excess of infrared radiation with the Infrared Astronomical Satellite (IRAS) in 1983. The Gemini and Keck observations provide a strong correlation between the observed emissions and dust particles of the size and temperatures expected by the collision of two or more rocky bodies close to a star.

Because the star is estimated to be about 300 million years old, any large planets that might orbit BD +20 307 must have already formed. However, the dynamics of rocky remnants from the planetary formation process might be dictated by the

planets in the system, as Jupiter did in our early solar system. The collisions responsible for the observed dust must have been between bodies at least as large as the largest asteroids present today in our solar system (about 300 kilometers across). "Whatever massive collision occurred, it managed to totally pulverize a lot of rock," said team member Alycia Weinberger.

Given the properties of this dust, the team estimates that the collisions could not have occurred more than about 1,000 years ago. A longer history would give the fine dust (about the size of cigarette smoke particles) enough time to be dragged into the central star.

The dusty environment around BD +20 307 is thought to be quite similar, but much more tenuous than what remains from the formation of our solar system. "What is so amazing is that the amount of dust around this star is approximately one million times greater than the dust around the Sun," said UCLA team member Eric Becklin. In our solar system the remaining dust scatters sunlight to create an extremely faint glow called the zodiacal light (image available on web). It can be seen under ideal conditions with the naked eye for a few hours after evening or before morning twilight.

The team's observations were obtained using Michelle, a mid-infrared spectrograph/imager built by the UK Astronomy Technology Centre, on the Frederick C. Gillett Gemini North Telescope, and the Long Wavelength Spectrograph (LWS) at the W.M. Keck Observatory on Keck I both on Mauna Kea Hawai'i.

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Web release, images and video available at: www.gemini.edu. This link is also available on the docent forum. See page 4 for the URL.

August 2005

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 <i>Jim M.</i>	2 <i>Joyce</i>	3 <i>Sheila, Punch</i>	4 <i>Bob, Gene</i>	5 <i>Doug</i>	6 <i>Jim O.</i>
7 <i>Anna</i>	8 <i>John</i>	9 <i>Eugene</i>	10 <i>Sheila, Punch</i>	11 <i>Gene</i>	12 <i>Doug</i>	13 <i>Need Docent</i>
14 <i>Need Docent</i>	15 <i>Need Docent</i>	16 <i>Joyce</i>	17 <i>Sheila, Punch</i>	18 <i>John</i>	19 <i>Doug</i>	20 <i>Mark</i>
21 <i>Eugene</i>	22 <i>Jim M.</i>	23 <i>Joyce</i>	24 <i>Sheila, Punch</i>	25 <i>Need Docent</i>	26 <i>Doug</i>	27 <i>Jim O.</i>
28 <i>Mark</i>	29 <i>Jim M.</i>	30 <i>Eugene</i>	31 <i>Sheila, Punch</i>			

DOCENTS MAY BECOME CERTIFIED INTERPRETIVE GUIDES

Public outreach has a vested interest in the ability of its docents to function effectively as interpretive guides. Toward that end, the department may, in the near future and depending on the interest of the docents, offer a course in interpretation that will certify participants as interpretive guides.

The National Association for Interpretation defines the audience for interpretive-guide training as "new hires, seasonals, docents/volunteers, individuals who will be delivering interpretive programs or having public contact at interpretive sites but with no previous training in interpretation." Of course many of the newer docents have experienced a condensed version of such training in the docent training sessions. The proposed program will take that instruction to a higher level and make already good docents even better interpreters.

Interpretation is the ability to translate, explain, and describe exhibits in a way that informs, inspires, and entertains.

To quote Y. Edwards, "Interpretation aims at giving people new understanding, new insights, new enthusiasm, new interests. A good interpreter is a sort of Pied Piper, leading people easily into new and fascination worlds that their senses never really penetrated before. [The interpreter] needs three basic attitudes: knowledge, enthusiasm, and a bit of the common touch."

Getting the docents ever closer to this ideal is the aim of the proposed training. Interested docents should contact the program coordinator. No date has yet been set for the training and will depend somewhat on the response. In the meantime, a book titled "The Good Guide: A Sourcebook for Interpreters, Docents and Tour Guides" is available for lending in the program coordinators office. Additional information about interpretation training may also be obtained from <http://www.interpnet.com/home.htm>.