



# SJAA EPHEMERIS

## SJAA Activities Calendar

Jim Van Nuland

### (late) September

- 22 Autumn begins at 2:19 p.m. PDT.
- 25 Houge Park star party. Sunset 7:00 p.m., 49% moon sets 11:40 p.m. Star party hours: 8:00 until 11:00 p.m.

### October

- 3 General Meeting at 8 p.m. Our speaker is Dr. Bradford Holden of Lick Observatory, on The Physical Evolution of Massive Galaxies
- 9 Astronomy Class at Houge Park. 7:30 p.m. Topic is TBA
- 9 Houge Park star party. Sunset 6:39 p.m., 62% moon rises 10:37 p.m. Star party hours: 7:30 until 10:30.
- 10 Dark Sky weekend. Sunset 6:37 p.m., 51% moon rises 11:56 p.m.
- 17 Dark Sky weekend. Sunset 6:28 p.m., 0% moon rises 7:57 a.m. Henry Coe Park's "Astronomy" lot has been reserved.
- 23 Houge Park star party. Sunset 6:20 p.m., 33% moon sets 10:26 p.m. Star party hours: 7:15 until 10:15 p.m.

### November

- 1 DST end at 2 a.m. Set clocks back 1 hour.
- 6 Astronomy Class at Houge Park. 7:30 p.m. Topic is TBA
- 6 Houge Park star party. Sunset 5:05 p.m., 77% moon rises 8:38 p.m. Star party hours: 7:00 until 10:00.
- 7 Dark Sky weekend. Sunset 5:04 p.m., 66% moon rises 9:50 p.m.
- 14 Dark Sky weekend. Sunset 4:58 p.m., 2% moon rises 5:48 a.m. Henry Coe Park's "Astronomy" lot has been reserved.
- 20 Houge Park star party. Sunset 4:54 p.m., 17% moon sets 8:13 p.m. Star party hours: 7:00 until 10:00 p.m.
- 28 General Meeting at 8 p.m. Our speaker is TBA
- 29 Fall Swap. Details TBD

*The Board of Directors meets before each general meeting at 6:30 p.m. All are welcome to attend.*

**24 hour news and information hotline:**

**(408) 559-1221**

**<http://www.sjaa.net>**

## The Return of Hubble

The Hubble Space Telescope has been refurbished and the new pictures are nothing less than spectacular. We highlight some of these on page 2. The credit for these pictures should read: NASA, ESA, and the Hubble SM4 (Service Mission 4) ERO (Early Release Observation) Team. Many more pictures from this early release can be found at <http://www.hubblesite.org/newscenter/archive/releases/2009/25/image/a/>

"This marks a new beginning for Hubble," said Ed Weiler, associate administrator for NASA's Science Mission Directorate at NASA Headquarters in Washington. "The telescope was given an extreme makeover and now is significantly more powerful than ever, well-equipped to last into the next decade."

## Ephemeris Editor Sought

Your current editors, Paul and Mary Kohlmeier, have thoroughly enjoyed working on the SJAA Ephemeris newsletter. We started with the January 2004 issue and with the generous help of past editors Jane and Morris Jones, we hit the ground running and never had a major problem. We've enjoyed the support of the current and past boards of directors. But 6 years is a long time at one job and the newsletter needs new leadership.

Our goal is to find someone who has the ability and enthusiasm to take over as editor. Although we use certain tools, the new editor is not constrained by them. The print version is exported to Adobe Acrobat format and many tools can do that including MS Word. We have a couple of small hand-developed applications that help with the HTML version. Touchups are done with very ordinary text editors. For more detail of what we do each month see <http://ephemeris.sjaa.net/ToDoEphemeris.htm>. Thanks to Gordon Reade and other SJAA board members, the editors don't have to deal with mailings, circulation or paying the printer. Each month we send one e-mail to the board asking them to proof read the Ephemeris, then we send an e-mail to the printer to tell them it is ready, and the last e-mail is to Ephemeris announcement mailing list.

If you are interested in being the SJAA Ephemeris Editor, please contact us at [Ephemeris@sjaa.net](mailto:Ephemeris@sjaa.net).



NGC 6302



STEPHAN'S QUINTET



OMEGA CENTAURI



CARINA NEBULA

**HUBBLE SPACE TELESCOPE ■ WIDE FIELD CAMERA 3  
EARLY RELEASE OBSERVATIONS**

*These four images are among the first observations made by the new Wide Field Camera 3 aboard the upgraded NASA Hubble Space Telescope. The image at top left shows NGC 6302, a butterfly-shaped nebula surrounding a dying star. At top right is a picture of a clash among members of a galactic grouping called Stephan's Quintet. The image at bottom left gives viewers a panoramic portrait of a colorful assortment of 100,000 stars residing in the crowded core of Omega Centauri, a giant globular cluster. At bottom right, an eerie pillar of star birth in the Carina Nebula rises from a sea of greenish-colored clouds.*

You know Uranus, Neptune, and Pluto. But how about their smaller cousins Eris, Ceres, Orcus, and Makemake? How about Easterbunny?

These are all names given to relatively large “planet-like” objects recently found in the outer reaches of our solar system. Some were just temporary nicknames, others are now official and permanent. Each has a unique story.

“The names we chose are important,” says Caltech astronomer Mike Brown, who had a hand in many of the discoveries. “These objects are a part of our solar system; they’re in our neighborhood. We ‘gravitate’ to them more if they have real names, instead of technical names like 2003 UB313.”

Nearby planets such as Venus and Mars have been known since antiquity and were named by the ancient Romans after their gods. In modern times, though, who gets to name newly discovered dwarf planets and other important solar-system bodies?

In short, whoever finds it names it. For example, a few days after Easter 2005, Brown and his colleagues discovered a bright dwarf planet orbiting in the Kuiper belt. The team’s informal nickname for this new object quickly became Easterbunny.

However, ever since its formation in 1919, the International Astronomical Union (IAU) ultimately decides whether to accept or reject the name suggested by an object’s discoverers. “Easterbunny” probably wouldn’t be approved.

According to IAU guidelines, comets are named after whoever discovered them—such as comet Hale-Bopp, named after its discoverers Alan Hale and Thomas Bopp. Asteroids can be named almost anything. IAU rules state that objects in the Kuiper belt should be given mythological names related to

creation.

So Brown’s team started brainstorming. They considered several Easter-esque names: Eostre, the pagan mythological figure that may be Easter’s namesake; Manabozho, the Algonquin rabbit trickster god.

In the end, they settled on Makemake (pronounced MAH-kay MAH-kay), the creator of humanity in the mythology of Easter Island, so named because Europeans first arrived there on Easter 1722.

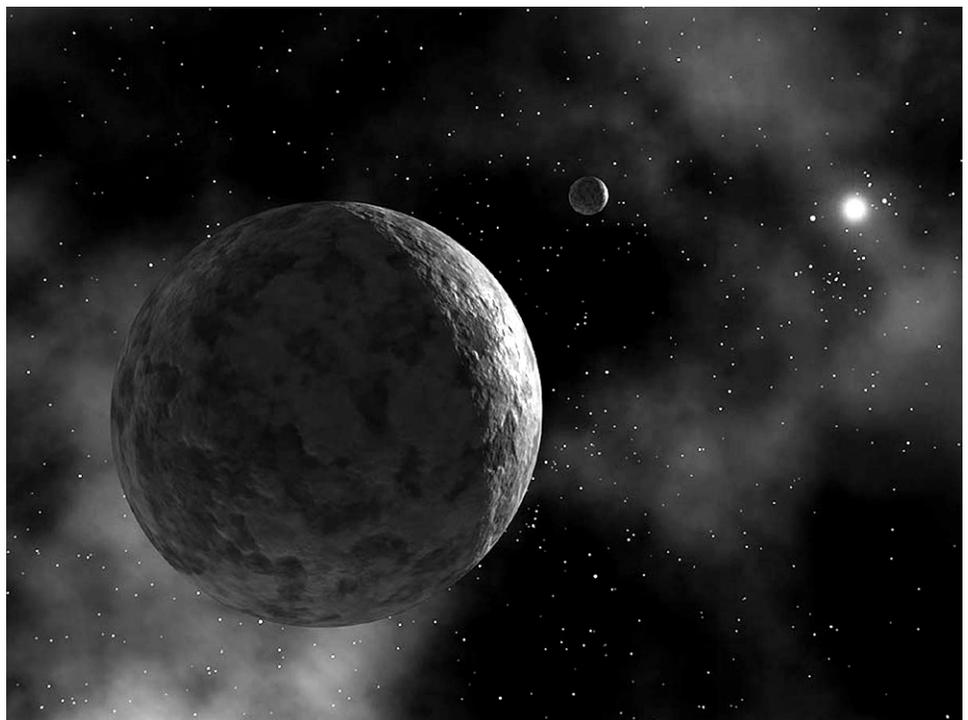
Other names have other rationales. The dwarf planet discovered in 2005 that triggered a fierce debate over Pluto’s status was named Eris, for the Greek goddess of strife and discord. Another dwarf planet with an orbit that mirrors Pluto’s was dubbed Orcus, a god in

Etruscan mythology that, like Pluto, ruled the underworld.

Brown says he takes “this naming business” very seriously and probably spends too much time on it. “But I enjoy it.” More tales of discovery and naming may be found in Brown’s blog [MikeBrownsPlanets.com](http://MikeBrownsPlanets.com).

Constellations have also been named after ancient gods, human figures, and animals. Kids can start to learn their constellations by making a Star Finder for this month at <http://spaceplace.nasa.gov/en/kids/st6starfinder/st6starfinder.shtml>. There you will also find a handy explanation of why astrology has no place in science.

*Artist’s rendering of dwarf planet MakeMake, discovered around Easter 2005. Unlikely to gain acceptance their nickname Easterbunny, the discoverers named it for the god of humanity in the mythology of Easter Island.*



*NOAA’s polar-orbiting and geostationary satellites, along with Russia’s Cospas spacecraft, are part of the sophisticated, international Search and Rescue Satellite-Aided Tracking System.*

## Deep Impact

Akkana Peck

The NASA LCROSS spacecraft is scheduled to smack into the south pole of the moon at 4:30am on the morning of October 9.

They're looking for water ice that might be hidden in polar craters. The hope is that the impact will spray up evidence of water along with the other debris.

The impact itself probably won't be visible from earth, though that shouldn't stop you from trying. But it is expected to generate a plume of dust — and, perhaps, water vapor — visible for up to a minute after the impact. Estimates of the size of the plume vary wildly — I've seen predictions ranging from 40 feet to 5 miles, but of course the debris will disperse and get harder to see as it rises higher. Most people agree that it should reach roughly 5th magnitude, possibly slightly brighter.

5th magnitude is still a little tough to see against a gibbous (20 day old) moon, but certainly possible. I've seen suggestions that a large aperture (10" or more) may help.

The moon will have a favorable libration: the south pole will be tipped an extra 2-1/2° toward us, so we'll be able to see a bit farther than usual into those southern craters. The target is a 48 km crater called Cabeus A, located west of Malapert and south-southwest of Newton. Cabeus A is nearly always in shadow, which is what makes it a great candidate for possible water ice.

I've heard tentative suggestions of LCROSS observing parties put on by SJAA at Houge, or by TAC at Montebello, but as of press time I haven't heard anything definite. If you're looking for a group to observe with, check the web to find the latest plans. Local astronomer Brian Day of PAS is coordinating amateur observations for NASA's Ames Research Center; you can find more information at <http://lcross>.

[arc.nasa.gov/observation.htm](http://arc.nasa.gov/observation.htm). There's also a Google group, [http://groups.google.com/group/lcross\\_observation](http://groups.google.com/group/lcross_observation). And if you'll be awake during the impact but don't feel up to dragging a telescope outside — or if the weather doesn't cooperate — you can watch the Exploratorium's live webcast at <http://www.explo.tv>.

What do you look at during the rest of October?

Jupiter is high (well, as high as it gets this year, about 35 degrees) in the southern sky at nightfall and remains visible most of the evening. It should make an ideal showpiece for all those witches and goblins coming by on the 31st, if you want to offer them some "eye candy" along with the more traditional sugary kind.

Uranus and Neptune are also well placed for early evening observing, Uranus on the border between Pisces and Aquarius and Neptune sitting a couple of degrees above the left corner of Capricornus. Pluto runs a bit ahead; it's already past its prime when night falls, so start early if you want to catch

it in its complicated Milky Way field in northwestern Sagittarius.

Mars rises a little after midnight and is at its best in the predawn hours. Saturn, Mercury and Venus rise just before dawn. Early October is Mercury's best show this year, provided you don't insist on seeing a crescent — it's gibbous, as is Venus.

Saturn's rings have opened a little since we last saw them, to slightly over 2 degrees, and it makes two close passes with other planets this month. It passes a third of a degree away from Mercury on the morning of the 8th, then half a degree from Venus on the 13th.

Finally, if you're out in the dawn hours watching the morning planets or the LCROSS impact, take a look for another plume of fine particles, much fainter and more spread out than the ones LCROSS will stir up: the morning zodiacal light. This thin band of dim light stretching up along the ecliptic from the horizon — caused by sunlight glittering off dust left over from the formation of the solar system — is at its best in the second half of October.

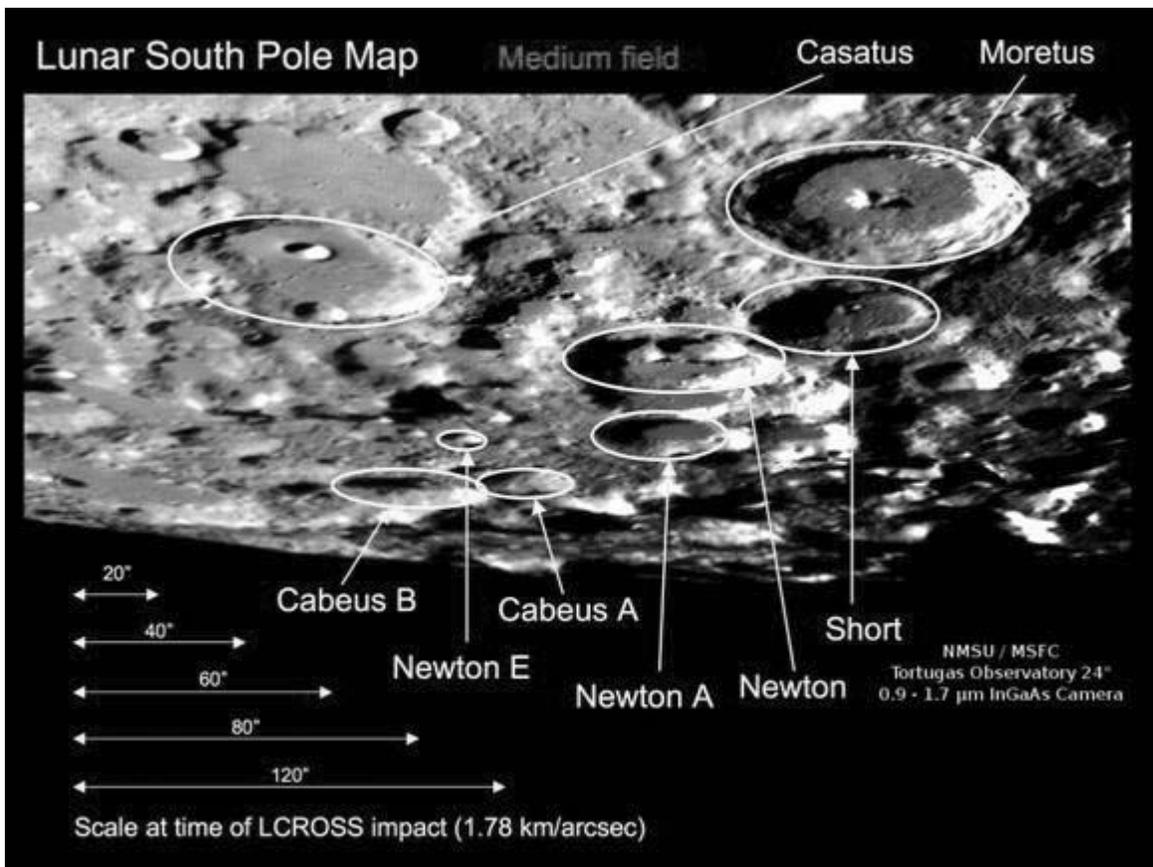


*The LCROSS mission will first slam the spent Centaur upper stage rocket into Cabeus A followed by the LCROSS spacecraft itself. Photo from the website for Popular Mechanics but we don't have the original credit. This photo was found at [http://www.popularmechanics.com/science/air\\_space/4317333.html](http://www.popularmechanics.com/science/air_space/4317333.html).*

# LCROSS - October 9, 4:30 a.m.



All images on this page are courtesy of NASA unless otherwise noted on the image itself. In the upper left, an artist's rendering shows the empty Centaur stage just after separation from LCROSS and before impact. In the upper right, an image of Cabeus A with color coded elevations. Yellow areas are lower than the green areas. At the bottom, a map of the area around Cabeus A.



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## The Last Month In Astronomy

SEP-11-2009 **Electric nose (Enose) returns home.** Nothing stinks. Over a 6-month period on the space station, 32 sensors were used to detect possibly dangerous odors to humans. Ten contaminants were monitored continuously and all were found to be at harmless levels. The Enose may be used in the future to help identify smoldering fires, dangerous chemical spills, and even assist with medical diagnosis. <http://www.sciencedaily.com/releases/2009/09/090910235638.htm>

SEP-09-2009 **New Hubble Photos** The refurbished Hubble Space Telescope has created some fantastic pictures and many more are promised in the near future. A new deep field image is planned. Also, research within the next year will include a search of the Kuiper Belt looking for new "plutoids". As a result of the servicing mission, there are now 13 instruments working on Hubble instead of the 3 that were still working before the mission. See photos on page 2 and a short story on page 1. <http://www.sciencedaily.com/releases/2009/09/090909103507.htm>

SEP-04-2009 **Fast White Dwarf** A Fast-Spinning White Dwarf has been found that has supernova possibilities. Using data from the XMM Newton satellite x-ray telescope, scientists have collected highly accurate mass information for an ultramassive white dwarf in a binary system, one that is close to becoming a type Ia supernova. <http://www.sciencemag.org/cgi/content/abstract/325/5945/1222>

SEP-04-2009 **Comet Research** New research; Will there be a cometary catastrophe? Authors Nathan Kaib and Thomas Quinn use computer simulations to estimate the highest number of long-period comets possible in the inner Oort cloud and how cometary orbits are disrupted. <http://www.sciencemag.org/cgi/content/abstract/325/5945/1234>

SEP-02-2009 **Andromeda is Hungry!** The nearest major galaxy is heading toward the Milky Way and it is ravenous. Astronomers have discovered a half dozen leftovers (stars and dwarf galaxies) in Andromeda's wake. One victim is the dwarf galaxy Triangulum, which has not been fully consumed. [http://www.mercurynews.com/ci\\_13253344?IADID=Search-www.mercurynews.com-www.mercurynews.com&nclick\\_check=1](http://www.mercurynews.com/ci_13253344?IADID=Search-www.mercurynews.com-www.mercurynews.com&nclick_check=1)

AUG-28-2009 **Newtonian Spirals** Was Ptolemy right with his theory of epicycles on how galaxies formed spirals? Scientists have compiled data on more than 20,000 stars mapping their motions. Stars follow Newton's gravitational law. Check out the process on <http://rqgravity.net/SpiralStructure> or the article at <http://sciencenow.sciencemag.org/cgi/content/full/2009/821/2>

AUG-18-2009 **Life component from comet** The amino acid glycine has been detected in samples from the comet Wild2. The NASA Stardust spacecraft detected glycine as reported by Dr. Jamie Elsila. "Our discovery supports the theory that some of life's ingredients formed in space and were delivered to Earth long ago ..." <http://www.sciencedaily.com/releases/2009/08/090817143602.htm>

AUG-17-2009 **Why the corona is so hot** The sun's corona is hot — real hot. It is several million Kelvins but the surface is only about 6000K. Why the difference? At least part of the reason is nanoflares — small, sudden bursts of energy that are found inside "tiny strands that are bundled together to form a magnetic tube called a coronal loop" according to James Klimchuk. <http://www.sciencedaily.com/releases/2009/08/090814165309.htm>

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## Read a Good Book Lately?

Colleen Barboza

Sometimes there's just nothing as cozy as curling up with a good storybook.

Whether you prefer turning real pages or virtual pages, you will enjoy the five spacey storybooks on The Space Place. Joining our classic stories in verse "Professor Starr's Dream Trip" and "Lucy's Planet Hunt" are the new "What's in Space," "Supercool Space Tools," and "The First Annual Planet Awards." All are available as richly illustrated online "books" with interactive page turning or viewable and printable Adobe Reader files. So settle down with a good and fun book at <http://spaceplace.nasa.gov/en/kids/storybooks>.

# It Must Be Astronomical ...

## Loaners

The loaner program offers members a means to try scopes of various sizes and technologies before you buy. For more information please see the loaner program web page: <http://www.sjaa.net/loaners>

## Hot Dates

October 7 - 7 p.m. - Foothill College, Los Altos Hills, CA.  
**Hubble Breakthrough: The First Photos of a Planet Orbiting Another Star** by Prof. Paul Kalas, University of California, Berkeley  
Free and open to the public. Parking on campus costs \$2. Paul Kalas was the leader of the team who managed the long-sought feat of actually taking a photograph of a planet orbiting another star. Before this, all the planets outside our solar system were found by indirect means. He will describe how they achieved the breakthrough using the Hubble Space Telescope and discuss the wide range of planets out there that astronomers are discovering. (The discovery was named one of the top ten science achievements in 2008 by the journals Science and Nature.)

October 30 - Nov.1 - Advanced Imaging Conference in San Jose

Q: What radio frequencies are best for detection of meteorites?  
A: The FM band, 88 MHz to 108 MHz is a good place to start when trying to detect meteorites. It sits between 20 Mhz and 150 MHz which is the area generally used for such detections. (RASC 2209, p.259)

## Astro Blogs (part 2)

<http://www.cosmicdiary.org/> — About 28 professional astronomers blog about their work. Most of them you have probably not heard of except for Brother Guy Consolmagno — the Vatican’s astronomer.

<http://www.portaltotheuniverse.org/> — Sources say this website just started last April and it looks fantastic. You can access several blogs by clicking the “blogs” tab. You can see the current lunar phase, a day/night map, recent supernovae discoveries, Near Earth Object passes, current exoplanet count, an aurora map, sun spot activity graph, predictions of Class M and X solar flares, and the top 3 astronomy news items — and that’s just the home page.

<http://www.ukrc4setwomen.org/html/projects-and-campaigns/astronomy-blog> — This blog is part of the “She is an Astronomer” initiative.

*“I was always very interested in science, and I knew that for me, science was a better long-term career than tennis.” - Sally Ride, first U.S. woman in space.*

### Officers and Board of Directors

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### Publication Statement

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## San Jose Astronomical Association Membership Form

P.O. Box 28243 San Jose, CA 95159-8243

**New**     **Renewal** (Name only if no corrections)

### Membership Type:

- Regular — \$20  
 Regular with Sky & Telescope — \$53  
 Junior (under 18) — \$10  
 Junior with Sky & Telescope — \$43

Subscribing to Sky & Telescope magazine through the SJAA saves you \$5 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

**I prefer to get the Ephemeris newsletter in print form. The newsletter is always available online at <http://ephemeris.sjaa.net>**  
Questions?

Send e-mail to [membership@sjaa.net](mailto:membership@sjaa.net)

Bring this form to any SJAA Meeting or send to the club address (above). Please make checks payable to "SJAA".

You can join or renew online:  
<http://www.sjaa.net/SJAAmembership.html>

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