



SJAA EPHEMERIS

SJAA Activities Calendar

Jim Van Nuland

(late) October

- 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

December

- 11 Astronomy Class at Houge Park. 7:30 p.m. Topic is TBA
- 11 Houge Park star party. Sunset 4:50 p.m., 16% moon rises 3:39 a.m. Star party hours: 7:00 until 10:00.
- 12 Dark Sky weekend. Sunset 4:51 p.m., 9% moon rises 4:43 a.m. Henry Coe Park's "Astronomy" lot has been reserved.
- 19 General Meeting at 8 p.m. Our speaker is TBA
- 21 Winter begins at 9:47 a.m. PST

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 Shallow Sky

Not with a bang

Akkana Peck

LCROSS has come and gone — and the impact was more of a whimper than a bang. The weather here didn't cooperate for amateur observers, but it turns out there was nothing to see anyway — even the professional and space-born observatories didn't see a debris plume. As I write this, there's been no word on why there was no debris plume or whether the spectroscopes saw evidence of water, and NASA is being a bit cagey compared to their huge media blitz leading up to the impact. With any luck we'll hear some results following the big AGU meeting in December.

Meanwhile, as November opens, Mars is passing through the Beehive cluster in Cancer. There's a big moon (it's full on November 2) but that shouldn't interfere with getting pretty wide-field views of planets and bright clusters.

NASA mum on the missing debris plume

Jupiter is an excellent early evening object, transiting just before sunset and setting by midnight. As always, it's full of detail, though this year the weather seems relatively quiet — not a lot of festoons or interesting new storms compared to some years. Still, there's plenty to look at!

On November 23rd, try looking for Jupiter about 4 degrees south of the moon, plus a bit east if you're looking in the morning, or a bit west in the afternoon. It should be easy to find in binoculars or a telescope with the moon so nearby, but even with the naked eye, Jupiter is surprisingly obvious during the day if the sky is clear and you know where to look.

If that's not enough of a challenge for you, there's a Europa shadow transit that same day, the 23rd, starting at about 3pm. Can you see the shadow on Jupiter's face even in the daytime? I suspect not, but it sounds like a fun experiment. Europa itself starts its transit about two hours earlier, but seeing that seems very unlikely.

Continued on page 2

Of course, once you find Jupiter once, you know where to look and you should be able to find it for the rest of the month if you look at about the same place and time.

Mercury is mostly too close to the sun to see, but we'll get a peek at month's end as it emerges into the evening sky.

Venus is in the morning sky, but not very far from the Sun. Saturn, too, is a morning object this month.

Daylight Savings Time ends on the morning of November 1, so don't forget to set your clocks back an hour on Halloween night! At least if you're a Luddite like me who still owns clocks that don't reset themselves.



SJAA and City of San Jose In Contract

Mark Wagner

The San Jose Astronomical Association is pleased to announce it has a finalized contract with the City of San Jose, for the use of Houge Park through June 2010. At that time, both parties will evaluate the first year, and look toward a longer term continuation of the contract. The SJAA wishes to thank the City of San Jose, and particularly Rudy Navarro, Angel Rios, Frances Reyes at Parks, Recreation and Neighborhood Services. Additional thanks to the City of San Jose staff in Legal and Contract. The City of San Jose was a pleasure to work with. Lastly, thanks to Rob Hawley, for the groundwork he laid toward making this contact possible.

By-law Changes

The following changes to the by-laws were approved by the board on October 3, 2009. They need to be approved by the membership at a general meeting.

TERM LIMITS FOR PRESIDENT

Amendment 2 (approved 1996 Sept 21)

Article 4, SECTION 2. QUALIFICATION, ELECTION, AND TERM OF OFFICE

Original:

Officers elected by the Board of Directors are elected for one year terms. Any member may serve as officer of this corporation. Officers shall be elected by the Board of Directors by a two-thirds (2/3) vote, at any time, and each officer shall hold office until the end of the elected term, or until he or she resigns or is removed or is otherwise disqualified to serve, or until his or her successor shall be elected and qualified, whichever occurs first.

Revised:

Officers elected by the Board of Directors are elected for one year terms. Any member may serve as officer of this corporation. Officers shall be elected by the Board of Directors by a two-thirds (2/3) vote, at any time, and each officer shall hold office until the end of the elected term, or until he or she resigns or is removed or is otherwise disqualified to serve, or until his or her successor shall be elected and qualified, whichever occurs first. **THE OFFICE OF PRESIDENT IS LIMITED TO TWO CONSECUTIVE YEARS.**

Article 12: MEMBERS

Original:

SECTION 3. ADMISSION OF MEMBERS

Applicants shall be admitted to

membership upon payment of annual dues, as specified in the following sections of this Bylaw.

SECTION 4. FEES, DUES AND ASSESSMENTS

(a) The following fee shall be charged for making application for membership in the corporation: None

(b) The annual dues payable to the corporation by members shall be of such amount as may be determined from time to time by resolution of the board of Directors and may differ between membership classes.

(c) Memberships shall be nonassessable.

Revised:

SECTION 3. ADMISSION OF MEMBERS

Payment of dues, as specified in the following sections of this Bylaw, is an application for membership. Approval of an application for membership is by a majority vote of the board of Directors.

SECTION 4. FEES, DUES AND ASSESSMENTS

(a) The following fee shall be charged for making application for membership in the corporation: None

(b) The annual dues payable to the corporation by members shall be of such amount as may be determined from time to time by resolution of the board of Directors and may differ between membership classes.

(c) Memberships shall be nonassessable.

The Spitzer Space Telescope is getting a second chance at life.

The liquid helium “lifeblood” that flows through the telescope has finally run out, bringing Spitzer’s primary mission to an end. But a new phase of this infrared telescope’s exploration of the universe is just beginning.

Even without liquid helium, which cooled the telescope to about 2 degrees above absolute zero (-271°C), Spitzer will continue to do important research—some of which couldn’t easily be done during its primary mission. For example, scientists will use Spitzer’s “second life” to explore the rate of expansion of the universe, study variable stars, and search for near-Earth asteroids that could pose a threat to our planet.

“We always knew that a ‘warm phase’ of the mission was a possibility, but it became ever more exciting scientifically as we started to plan for it seriously,” says JPL’s Michael Werner, Project Scientist for Spitzer. “Spitzer is just going on and on like the Energizer bunny.”

Launched in August 2003 as the last of NASA’s four Great Observatories, Spitzer specializes in observing infrared light, which is invisible to normal, optical telescopes.

That gives Spitzer the power to see relatively dark, cool objects such as planet-forming discs or nearby asteroids. These objects are too cold to emit light at visible wavelengths, but they’re still warm enough to emit infrared light.

In fact, all warm objects “glow” with infrared light—even telescopes. That’s why Spitzer had to be cooled with liquid helium to such a low temperature. Otherwise, it would be blinded by its own infrared glow.

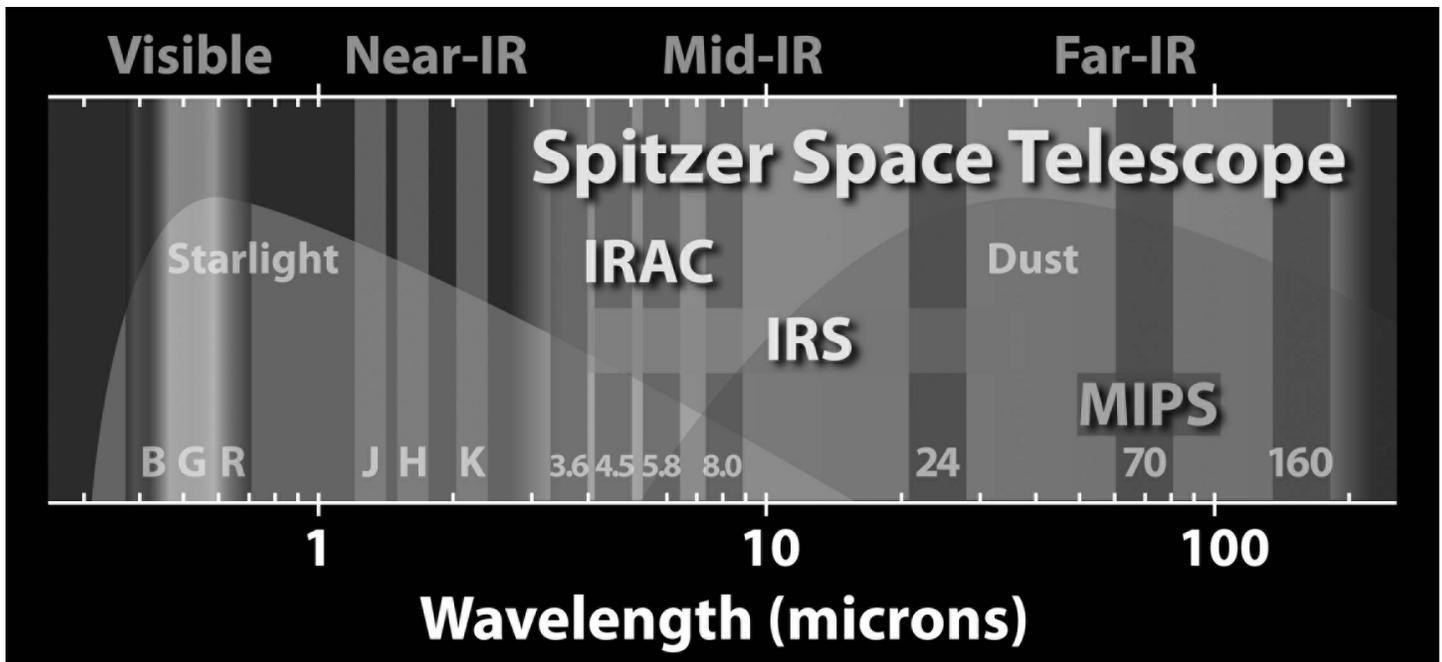
As the helium expires, Spitzer will warm to about 30 degrees above absolute zero (-243°C). At that temperature, the telescope will begin emitting long-wavelength infrared light, but two of its short-wavelength sensors will still work perfectly.

And with more telescope time available for the remaining sensors, mission managers can more easily schedule new research proposals designed for those sensors. For example, scientists have recently realized how to use infrared observations to improve our measurements of the rate of expansion of the universe. And interest in tracking near-Earth objects has grown in recent years—a task for which Spitzer is well suited.

“Science has progressed, and people always have new ideas,” Werner says. In its second life, Spitzer will help turn those ideas into new discoveries.

For kids, The Space Place Web site has a fun typing game using Spitzer and infrared astronomy words. Check it out at spaceplace.nasa.gov/en/kids/spitzer/signs.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



The “warm mission” of the Spitzer Space Telescope will still be able to use two sensors in its Infrared Array Camera (IRAC) to continue its observations of the infrared universe.

Mission to Iwo Jima

Recording the Solar Eclipse of July 22, 2009

Ernie Piini

The solar eclipse of July 22, 2009 offered me a unique opportunity to see another eclipse and to pay homage to my brother's war-time service aboard an aircraft carrier during WWII. On February 21, 1945 his ship was sunk in the cold waters off the coast of the island of Iwo Jima by two Japanese suicide planes that continued to shoot at the survivors in the water. Enos Piini was one of 605 crew members who were miraculously saved after many terrifying hours in the darkness. My quest to go to the vicinity of Iwo Jima to see this special total solar eclipse, the longest of this century, was determined by three factors:

1. To witness from within the Moon's shadow my 27th, and daughter Elaine's third, total solar eclipse.
2. To observe my third viewing of an unusually long eclipse cycle, that of the Saros #136 family.
3. To pay homage to those who didn't survive the sinking of my brother's aircraft carrier, and to express my gratitude for his survival.

Initially we were to fly to the Island of Iwo Jima on the morning of the eclipse and then fly back to Guam for a one week stay. We hoped to observe the eclipse from Iwo Jima, but on October 16, 2008, the Japanese Foreign Ministry cancelled our island visit due to problems created by multiple eclipse groups.

One recourse was to sign on to Roy MayHugh's ship excursion that planned to cruise to a location east of Iwo Jima at the time of maximum duration and view the Eclipse of the 21st Century from there. We did this on November 10, 2008. This meant it would be my first time to observe and photograph an eclipse from on board a ship and not from terra firma. Redesigning my equipment became a necessity. So instead of using my 3-Way camera telescope with special coronal streamer filters, perfected on previous eclipse

trips, I had roughly seven months to design and build a stabilized mount for Elaine's camcorder and my digital camera.

The camcorder stabilizer consisted of a bearing assembly using a 3-inch wooden croquet ball cut in half to form the upper bearing. This was attached to the camcorder mount above and a weight extension bar below. The lower bearing was made of Teflon to provide smooth mating and movement of the upper assembly. This bearing rested on a platform attached to a tripod. At the bottom of the weight rod was a 12-inch diameter plate where three one-gallon jugs, filled with water, provided the needed 24 pounds of stabilizing weight.

The camcorder mount had to be adjustable to an awkward elevation of up to 85 degrees — where the Sun would be at eclipse time. A manual up-down (Declination) adjustment was made using 1/4-20 threaded rod. Fast and slow Right Ascension capability was provided using two dc motors. Tracking the Sun was performed with the aid of a control box.

Our results were quite promising from our first real test. Total angular movement during the eclipse was less than 1/2 degree — about the diameter of the Sun. Another try at the design will most likely reduce movement close to zero.

After arriving on the coast of China, east of Beijing, we boarded the Italian cruise ship *Costa Classica*. It made stops on the Southern Korean Island of Cheju, and Kagoshima, and Kobe in Japan; the latter the victim of a deadly Earthquake in 1995 killing more than 6,000 people.

On the morning of the eclipse, we were treated to our first view of Iwo Jima. The island is only 6 miles long and 2 miles wide. Mt. Suribachi, where the US flag was raised on February 23, 1945, loomed

prominently into the clear blue sky. Our Tour Director Roy MayHugh's father, Bill, saw action there during the WWII battle. Roy and Bill were instrumental in getting the ship's captain to alter course and sail closer to the island for a better view.

The *Costa Classica* cruised in view of fluffy clouds on the horizon to a point 50 miles to the northeast for our encounter with the eclipse. During the viewing nearly 1,000 travelers and 300 crew members crowded the upper deck. Soon the jewel in the sky appeared, greeted with noisy approval from the observers. The eclipsed Sun was almost featureless due to a minimum of sunspot activity, and the horizon during totality was remarkable. The low-level clouds lined the distant horizon making this scene surreal! The best I have ever seen.

This eclipse was the third I have seen of the Saros #136 family. For you non-astronomer readers, the Saros cycle is a family of eclipses with a period of about 6585 plus 1/3 days (approximately 18 years 11 and 1/3 days), which can be used to predict future eclipses of the Sun and the Moon. One Saros period after an eclipse, the Sun, Earth, and the Moon return to approximately their same places but because of the 1/3 day approximately 120 degrees to the west (See diagram).

I have been obsessed with eclipses since I saw my first one from Mitla, Mexico on March 7, 1970. I had joined a Foothill College expedition to witness that event. The heavenly sight was so remarkable that I knew I wanted to see many more. I have now made 27 adventures into the Moon's shadow. I have observed an eclipse lasting only 9 seconds and some over 7 minutes in duration. The exceptionally long eclipses belong to the aforementioned Saros family #136. There are approximately 36 Saros families currently active, each involving between 70-80 eclipses and spanning 1200 to

1400 years.

My first view of Saros #136 took place in Akjoujt, Mauritania on the African Sahara Desert on June 30, 1973. It lasted 7 minutes and 4 seconds, a long time for an eclipse event. For it I designed and build a special telescope with three camera ports to take advantage of the time to do many experiments. Of special interest for this eclipse was the flight of a prototype of the French built Concorde super-sonic transport. It chased the Moon's shadow across the African continent for an unprecedented length of 74 minutes of totality!

I saw the second eclipse of this same Saros family from San Jose del Cabo, Baja California, Mexico on July 11, 1991. (18 years, 11 1/3 days later) That was the Eclipse of the 20th Century with unbelievable coronal streamers and long pink prominences. It lasted 6 minutes and 53 seconds at the center line a little north of my viewing site.

My third view of this Saros family lasted 6 minutes and 39.4 seconds at the centerline north of our site east of Iwo Jima, but with our ship cruising and chasing the eclipse path (like the Concorde), we were able to extend our viewing to 6 minutes and 42.3 seconds, a gain of approximately 3 seconds.

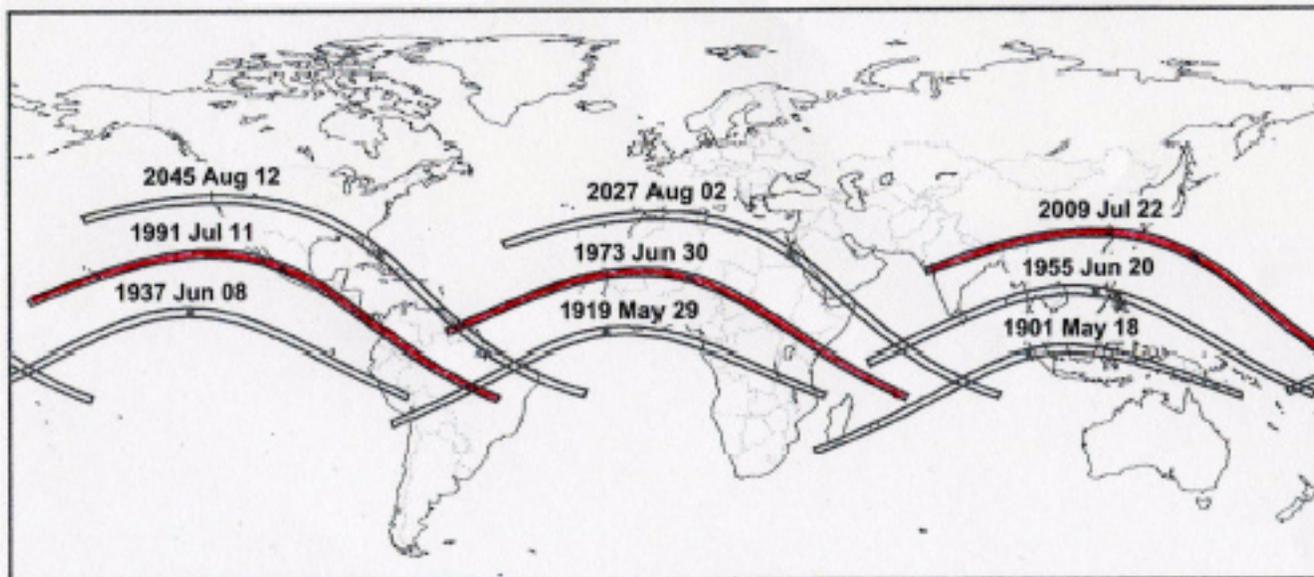
As our cruise ship, the Costa Classica, turned and headed west towards Kobe, Japan, I walked to the stern to spend time near the area where Enos' carrier, the USS Bismarck Sea (CVE-95), was sunk during those terrible waning days of WWII. Fortunately, my brother survived the terrible ordeal of that long night, but 318 crewmen did not. My prayers went out to all of them and to the thousands of others whose lives were sacrificed to capture that bleak island with its strategic airstrip which made possible for U.S. airplanes to reach Japan and hasten the end of WWII.

MISSION ACCOMPLISHED!



The author wishes to thank Joe Heim for editing this article, and to Fred Espenak and Jean Meeus for the use of their Saros map. The eclipse photo was taken by Kenichi Miura on July 22. Both Ernie and Kenichi have more photos which can be seen in the online version of the Ephemeris.

Eclipses from Saros 136: 1901 to 2045



Fred Espenak and Jean Meeus, NASA

Eclipses Ernie witnessed are traced in red.

The Last Month In Astronomy

OCT-09-2009 **Europa's young surface** Professor Richard Greenburg of the University of Arizona says that the surface of Europa may be only 50 million years old. This also makes it likely that the oceans below the surface have a lot of oxygen. In fact, it may have more oxygen than the oceans on Earth. Just to top it off, the production of oxygen was probably delayed just as it was on Earth. This delay is important because it slowed biological processes so that life could evolve before having to deal with the effects of high rates of oxidation. <http://www.astronomy.com/asy/default.aspx?c=a&id=8706>

OCT-07-2009 **Apophis recalculated** The odds that asteroid Apophis will hit Earth in 2036 have plummeted. Instead of one chance in 45,000 the odds are now 1 in 250,000. That's the result of new orbital calculations by JPL. <http://www.jpl.nasa.gov/news/news.cfm?release=2009-151>

OCT-02-2009 **Herschel Showing Off** The Herschel Observation is delivering amazing pictures of star forming regions. These regions are generally considered to be "dark" but in the infrared the glow is showing more cold and turbulent material than was previously believed to be the case. Herschel is still in an early performance verification phase but a few scientific measurements have been made. <http://jpl.nasa.gov/news/features.cfm?feature=2328>

OCT-01-2009 **Messenger 3rd flyby** The Messenger spacecraft made it's third flyby of Mercury. Unfortunately, during the approach it suffered a power glitch which caused it to go into safe mode. Observations made just before closest approach were transmitted but many planned images were not taken. Messenger enters into orbit around Mercury March 2011. The circumstances around the power problem are not expected to occur again. <http://www.spacetoday.net/Summary/4728>

SEP-29-2009 **LCROSS changes aim** The LCROSS mission has decided to change targets from Cabeus A to Cabeus (proper). The change was based on new information pointing to areas that have higher hydrogen concentrations. http://www.nasa.gov/centers/ames/news/features/2009/LCROSS_new_crater.html

SEP-24-2009 **Water Everywhere** Do you ever get the feeling that astronomers are H₂O obsessed? It seems like water is found everywhere, it's just a matter of doing the right kind of detections. On Mars, a recent meteorite hit uncovered ice. After 3 months, the resultant crater shows that the ice has disappeared. On the moon, three different spacecraft have found water molecules in the polar region. <http://jpl.nasa.gov/news/news.cfm?release=2009-147> <http://jpl.nasa.gov/news/news.cfm?release=2009-148>

Speaker Search

Do you have an idea for a speaker who could give a talk at one of the SJAA General Meetings? No need to keep it a secret. Please send your ideas to David Smith. His e-mail address is [aeropagus \(at\) yahoo.com](mailto:aeropagus(at)yahoo.com).

Eyepiece Theft at Houge Park

Over the past few months, a couple of eyepieces have "disappeared" out of open cases during our public star parties at Houge Park. This is very unusual, but occasionally it does happen. Prior to this year, the last such instance was one eyepiece at CalStar several years ago. Since some of the gear we use can be relatively expensive, please, be careful. When you are away from your eyepiece case, close it, have it snapped shut, and put away from plain line of sight. If you need to walk away from your gear, ask a friend or neighbor to keep an eye on out. Meanwhile, the SJAA board, being aware of these unfortunate occurrences, is looking at ways to minimize such risks. The best way is for us all to take care of our gear by keeping it as safe as possible, and to watch out for our friend's stuff as well.

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>

Astro Blogs (part 3)

<http://setiradio.blogspot.com/> - A companion blog for the Are We Alone radio show from SETI.

<http://blog.professorastronomy.com/> - A blog of astronomy information written by Kurtis Williams from Texas. Parts of the blog are based on studies funded by the NSF.

<http://bongo69.wordpress.com/> - This blog is named "Above The Clouds" and includes information for amateur astronomers.

When I enter "astronomy blog" into Google I get more than 13 million hits. So, of course, there must be a blog of astronomy blogs. Or at least a directory of blogs along with ratings. See <http://www.blogged.com/directory/education/science/astronomy>

Q: What is the most distant moon that can be seen in an amateur telescope?

A: Neptune's largest moon Triton is visible in a 10 inch scope. (RASC 2209, p.234) Since Pluto's moon Charon (pronounced SHAR-on) was only discovered in 1978, you can almost replace the word "amateur" with "ground-based".

Hot Dates

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

"Don't let anyone rob you of your imagination, your creativity, or your curiosity. It's your place in the world; it's your life. Go on and do all you can with it, and make it the life you want to live." - Mae Jemison, first woman African-American astronaut.

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San Jose Astronomical Association Membership Form

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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

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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