SJAA EPHEMERIS

SJAA Activities Calendar

Jim Van Nuland

February

1 Astronomy Class at Houge Park. 7:30 p.m. Topic: Physics and Astronomy. A (mostly) non-mathematical look at the physics of various astronomical phenomena.

1 Houge Park star party. Sunset 5:32 p.m., 21% moon rises 4:05 a.m. Star party hours: 7:00 until 10:00 p.m.

2 Dark Sky weekend. Sunset 5:33 p.m., 13% moon rises 4:58 a.m.

9 Dark Sky weekend. Sunset 5:41 p.m., 11% moon sets 8:47 p.m. Henry Coe Park's "Astronomy" lot has been reserved.

15 Houge Park star party. Sunset 5:47 p.m., 72% moon sets 3:50 a.m. Star party hours: 7:00 until 10:00 p.m.

16 **General Meeting at Houge Park**. 8 p.m. Our speaker is SJSU/SETI astronomer Dr. Friedemann Freund.

20 Lunar Eclipse party at Houge Park. Sunset 5:52 p.m.,100% moon rises 5:44 p.m.

Partial starts	5:44	-1 degree elevation
Totality start	7:01	13
Mid-time	7:26	18
Totality ends	7:51	23
Partial ends	9:08	37

29 Houge Park star party. Sunset 6:01 p.m., 37% moon rises 2:48 a.m. Star party hours: 7:00 until 10:00 p.m.

29 Astronomy Class at Houge Park. 7:30 p.m. Topic: Using Astronomical Charts Efficiently – preparation for the Messier Marathon.

29 Dark Sky weekend. Sunset 4:59 p.m., 61% moon rise 11:22 p.m.

March

1 Dark Sky weekend. Sunset 6:02 p.m., 28% moon rises 3:36 a.m.

8 Dark Sky weekend. Sunset 6:09 p.m., 3% moon sets 7:41 p.m. ***Messier Marathon at Henry Coe Park.*** Henry Coe Park's "Astronomy" lot has been reserved.

9 DST starts at 2 a.m. Advance clocks 1 hour.

14 Astronomy Class at Houge Park. 7:30 p.m.

14 Houge Park star party. Sunset 7:15 p.m., 58% moon sets 3:41 a.m. Star party hours: 8:00 until 11:00 p.m.

22 **General Meeting at Houge Park**. 8 p.m. Our speaker is Dr. Adrian Brown of the SETI Institute. His topic is "Latest Results from the Mars Reconnaissance Orbiter."

28 Houge Park star party. Sunset 7:27 p.m., 55% moon rises 2:28 a.m. Star party hours: 8:30 until 11:30 p.m.

29 Dark Sky weekend. Sunset 7:28 p.m., 45% moon rises 3:13 a.m.

The Board of Directors meets at 6:00 p.m. preceding each general meeting. All are welcome.

February General Meeting

Dr. Friedemann Freund

Feb. 16, 2008 - 8 p.m. - Houge Park

Our February speaker will be Dr. Friedemann Freund. He is a professor at San Jose State University and also works at SETI. In 2005 in an issue of SETI's Explorer magazine it said the following: "*Traditionally, scientists have argued that oxygen became prevalent largely as the byproduct of photosynthesis. But Freund and microbiologist Lynn Rothschild of NASA suggest the mechanism may be much simpler: the weathering of rocks ... If their hypothesis is correct, we might expect oxygen to be prevalent in the atmospheres of many Earth-like planets.*" Dr. Freund has also worked on earthquake predictions. In April of 2006 he spoke before the Commonwealth Club about the pre-earthquake signals that the Earth sends to us.

Photo courtesy of SETI

24 hour news and information hotline:
(408) 559-1221

Copyright © 2008 San Jose Astronomical Association, Inc.

DEEP SKY OBSERVING

by Mark Wagner

February 2008 third quarter to new moon observing list. The list begins in the north and moves southward. Objects are within roughly a one hour section of right ascension that is at a comfortable elevation to the east at astronomical dark. This list is just a sampling of the full list which is at http://www.resource-intl.com/Deep.Sky.Feb.08.html.

Object	Const.	Type	Size	Mag	R.A.	Dec.
NGC 2281	Aur	OC	14.0'	5.4	06 48 18	41 04 42
	A curved "V" shape, stingers form one long and one short leg.					
NGC 2371/72	Gem	PN	55.0"	13.0P	07 25 34	29 29 22
	Two bright knots along an elongated body that lies WSW to ENE.					
NGC 2266	Gem	OC	6.0'	9.5	06 43 20	26 58 12
	Medium dense containing a chain of 3 stars aligned nearly N/S.					
NGC 2264	Mon	OC	20.0'	4.1	06 40 59	09 53 42
	Central region of cluster set against a weakly glowing background.					
NGC 2251	Mon	OC	10.0'	7.3	06 34 39	08 22 00
	Gorgeous, long, stung out open cluster, broken in the middle.					
NGC 2244	Mon	OC	23.0'	4.8	06 32 19	04 51 24
	Christmas Tree cluster surrounded by Rosette Nebula.					
NGC 2301	Mon	OC	12.0'	6	06 51 46	00 27 36
	Unique, interesting, and beautiful cluster.					
NGC 2286	Mon	OC	14.0'	7.5	06 47 41	-03 08 54
	Large, loose, several dozen stars, various mags, no clear borders.					
NGC 2232	Mon	OC	29.0'	4.2	06 28 02	-04 50 48
	Fairly faint, small, slightly elongated, bright core, stellar nucleus.					
M50	Mon	OC	16.0'	5.9	07 02 45	-07 23 00
	Large, many bright stars. Rich field of stars to one side.					
NGC 2353	Mon	OC	20.0'	7.1	07 14 31	-10 16 00
	Two bright stars in group. Extended, sweeping up in two branches					
NGC 2343	Mon	OC	6.0'	6.7	07 08 07	-10 37 00
	Distinct shape as a butterfly complete with a body.					
NGC 2360	CMa	OC	12.0'	7.2	07 17 44	-15 38 30
	Near M46 and M47, this lovely rich OC contains 80 stars.					
M41	CMa	OC	38.0'	4.5	06 46 00	-20 45 18
	Not a spectacular object, but bright enough to look nice in the city.					
NGC 2362	CMa	OC	6.0'	3.8	07 18 42	-24 57 18
	Jiggle your scope and watch Tau Cma move indepentent of group.					
NGC 2354	CMa	OC	20.0'	6.5	07 14 16	-25 41 30
	Easy to find; large, pretty bright, sparse, roundish, various mags.					

Note: Source catalogs are Messier, Arp, Abell Planetary, Abell Galaxy Cluster (AGC), Hickson Compact Galaxy (HCG), Sharpless HII Regions, Barnard Dark Nebulae, Herschel 400-I, Herschel 400-II. Herschel 400-I are identified as NGCXXXX, Herschel 400-II as NXXXX.

An Edgy Eclipse

Akkana Peck

The big news this month is the total lunar eclipse on February 20. And unlike last year, this one happens at a very civilized hour.

As the moon rises at 5:44 on the 20th, it's just starting to enter the umbra, the darkest part of the Earth's shadow.

"This eclipse may be edgier than a Ginsu knife. "

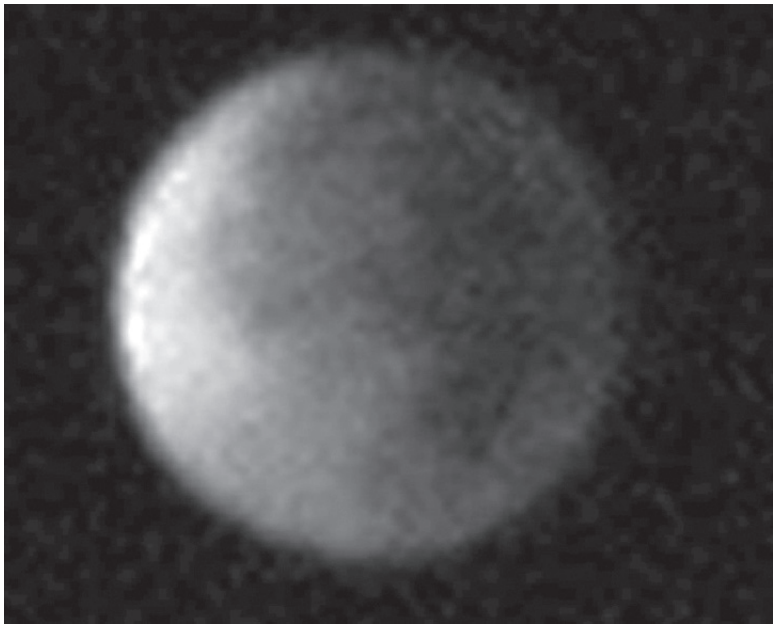
(The sun doesn't set until eight minutes later.) Totality begins at 7:01 and continues until 7:51. The moon leaves the umbra at 9:08. Can you see the progression of the lighter penumbral shadow across the face of the moon?

This is an "edgy" eclipse – the moon is just skimming the edge of our umbra, so it may be fairly bright as eclipses go – a coppery colored moon with a bright edge, versus the deeper red of last year's eclipse. But weather and other factors can affect the color of an eclipse ... you never know exactly what it'll look like until you look!

This eclipse may be edgier than a Ginsu knife ...but wait, that's not all. With this eclipse, you also get a bonus planet! Saturn hangs a scant four degrees away, making for lovely views in binoculars, wide-field scopes or photographs. Now how much would you pay? But wait, there's more. About the same distance on the other side of Saturn from the moon are some nice Messier galaxies: M95, 96 and 105, plus similarly bright NGC 3371. How often do you get a chance to observe four galaxies at once less than eight degrees away from a full moon?

SJAA will have a public Eclipse Party at Houge that night, so if you don't have other plans, drop by and join the fun! The moon won't rise above the buildings until about 7 p.m. when totality starts, but the rest of the eclipse should be visible.

While you're waiting for the moon to rise, see how early you can spot Mars! The red planet is just a month past opposition and should still be very bright. It's ideally placed for observing, transiting at 80 degrees up – almost overhead!



This photo was taken using an ordinary digital camera. It shows the moon just as totality is ending during last August's lunar eclipse. Photo by Paul Kohlmiller

– at about 10 p.m. On the 20th while waiting for the eclipse to start, Mars is showing the Tharsis plateau and Valles Marineris, with Acidalium and Erythraeum disappearing off the eastern limb and Sirenum rotating in from the west. (That's Mars' east and west; reverse east and west if you want the directions in our sky.)

We get a good look at Syrtis Major during the first week of the month if you do most of your observing at about 8-9 p.m. A week later, you'll be looking at Cimmerium in the south and the subtle Cerberus, Elysium and the wonderfully named Trivium Charontis in the north. Finally, the week after the eclipse you'll see the complex Erythraeum complex stretching from the equator southward, and Acidalium, Niliacus Lacus and Nilokeras in the northeast. By late in the month, Mars is already shrinking, but that doesn't mean it's time to stop looking -- you'll probably be able to see some decent detail for another month yet, at least if the weather cooperates more than it did in December and January.

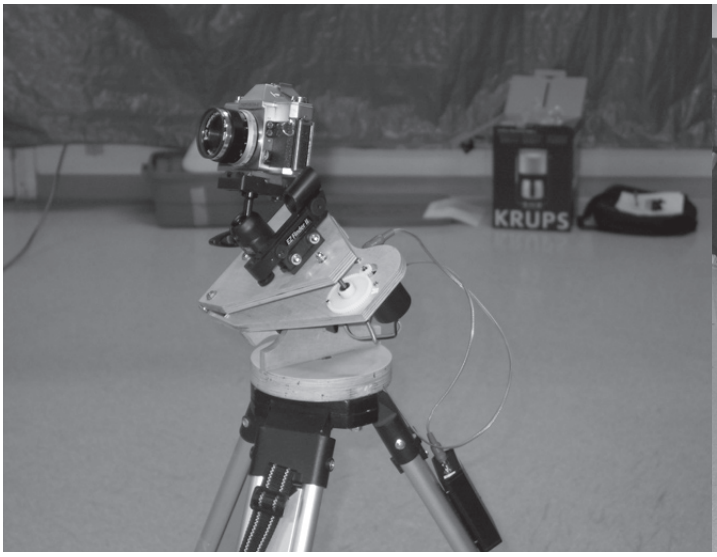
Saturn is well placed for observing as well. It rises just before sunset and is visible all night. The rings are only tilted about 8.5 degrees, a big change from the wide-open rings of a few years ago.

None of the other planets are particularly well placed. Jupiter, Venus, Mercury and Pluto are all fairly close to the sun in the late morning sky, while Uranus and Neptune are completely lost in the sun's glare.

Photos

Left: One of the most enthusiastic audiences of the past year attended a talk given by Dr. Graeme Smith, a UC professor of Astronomy. The SJAA holds talks approximately every month following the monthly board meeting.

Right: At the December General Meeting, Dr. Lee Hoglan discussed why astronomers suffer from dark sky myopia. See the notice for our February speaker on page 1.



Left: One of the few months where SJAA does not have a speaker is Slide and Equipment night – sometimes called Show and Tell night. This was held last September 22 and included member's slides and equipment. Shown here is a mount for a digital SLR camera that was built by Rob Hawley inspired by a design by Gary Seronik in the June 2007 issue of Sky & Telescope. An updated version of this mount can be seen at http://www.robhawley.net/ChristmasComets07/seronik-mount.jpg.

Right: At the December General Meeting, a white elephant gift exchange was held. In this photo, a large rocker box for a Dobsonian telescope is inspected while others consider if it is worth "stealing".

Ultraviolet Surprise

Patrick L. Barry and Tony Phillips

How would you like to visit a universe full of exotic stars and weird galaxies the likes of which astronomers on Earth have never seen before? Now you can. Just point your web browser to http://galex.stsci.edu and start exploring.

That's the address of the Galaxy Evolution Explorer image archive, a survey of the whole sky at ultraviolet wavelengths that can't be seen from the ground. Earth's atmosphere blocks far-ultraviolet light, so the only way to see the ultraviolet sky is by using a space telescope such as NASA's Galaxy Evolution Explorer.

About 65% of the images from the all-sky survey haven't been closely examined by astronomers yet, so there are plenty of surprises waiting to be uncovered.

The Galaxy Evolution Explorer produces so much data that, beyond basic quality control, we just don't have time to look at it all," says Mark Seibert, an astronomy postdoc at the Observatories of the Carnegie Institution of Washington in Pasadena, California.

This fresh view of the sky has already revealed striking and unexpected features of familiar celestial objects. Mira is a good example. Occasionally visible to the naked eye, Mira is a pulsating star monitored carefully by astronomers for more than 400 years. Yet until Galaxy Evolution Explorer recently examined Mira, no one would have guessed its secret: Mira possesses a comet-like tail 13 light-years long.

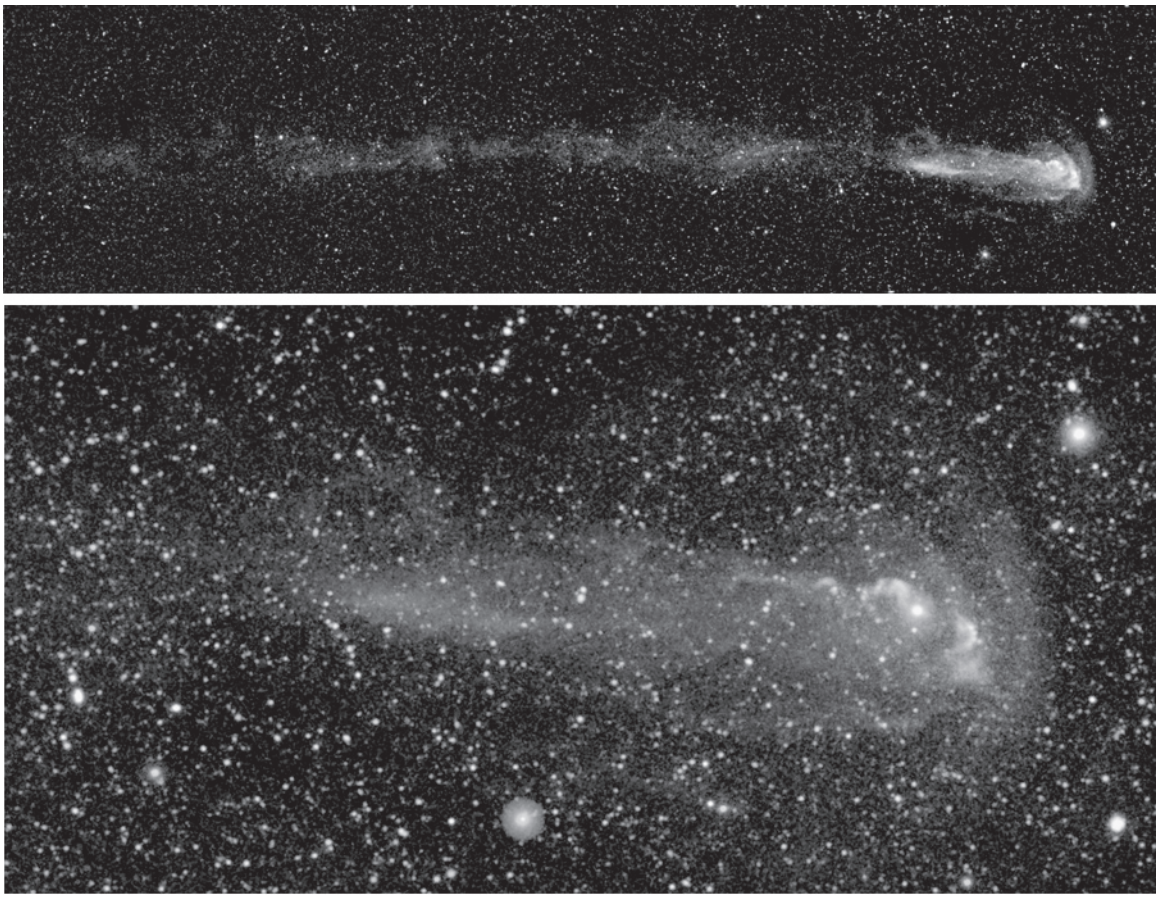
Mira shows us that even well-observed stars can surprise us if we look at them in a different way and at different frequencies," Seibert says.

Another example: In April, scientists announced that galaxies such as NGC 1512 have giant ultraviolet spiral arms extending three times farther out into space than the arms that can be seen by visible-light telescopes. It would be like looking at your pet dog through an ultraviolet telescope and discovering his ears are really three times longer than you thought!

The images from the ultraviolet space telescope are ideal for hunting new phenomena. The telescope's small, 20-inch primary mirror (not much bigger than a typical backyard telescope) offers a wide field of view. Each image covers 1.2 degrees of sky—lots of territory for the unexpected.

If someone combing the archives does find something of interest, Seibert advises that she or he should first search astronomy journals to see whether the phenomenon has been observed before. If it hasn't, email a member of the Galaxy Evolution Explorer science team and let them know, Seibert says.

So what are you waiting for? Fire up your web browser and let the discoveries begin!



Astronomers looking at new ultraviolet images from the Galaxy Evolution Explorer spacecraft were surprised to discover a 13-light-year long tail on Mira, a star that has been extensively studied for 400 years.

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

The Last 31 Days In Astronomy

DEC-13-2007 ***New Work for Deep Impact*** The Deep Impact spacecraft has two new mission objectives. It will swing by Earth a few times and eventually fly by comet Hartley 2 on Oct. 11, 2010. In the meantime, one of the onboard telescopes will be pointed at known extrasolar planetary systems to see if planets as small as three Earth masses can be detected. The spacecraft mission is now calle Epoxi. It was going to investigate another comet but comet Boethin has apparently broken up and can no longer be detected. http://www.jpl.nasa.gov/news/news.cfm?release=2007-150

DEC-18-2007 ***GRB from nothing?*** Last February, gamma ray burst GRB 070125 was detected by the Swift spacecraft. When the afterglow faded it was expected that the source of the GRB would be seen. But even with the 10-meter Keck telescope, no host galaxy has been found. It seems like there must be a new class of objects that can cause powerful gamma-ray bursts. In this case, the object would be 9.4 billion lightyears away. http://www.skyandtelescope.com/news/12604061.html

DEC-21-2007 ***2009, The International Year of Astronomy*** The year 2009 has been declared the International Year of Astronomy. Did you think this is old news? The International Astronomical Union made this declaration months ago but it was not until December that the United Nations' General Assembly anted up. http://www.skyandtelescope.com/news/12718882.html

JAN-03-2008 ***Super sized SETI@home*** I know what you are thinking. SETI is going to start using the Allen Telescope Array and it has new computers. Who needs SETI@home anymore? Turns out that a refurbished Arecibo radio telescope is pulling 300 Gb a day for SETI and the SETI@home software has been upgraded as well. http://www.astronomy.com/asy/default.aspx?c=a&id=6443

JAN-04-2008 ***Life building blocks found extrasolar*** Tholins, a complex organic molecule, have been found around the star HR 4796A. This star is believed to be in the last stages of forming planets. http://www.astronomy.com/asy/default.aspx?c=a&id=6446

JAN-08-2008 ***Supernova blue*** Consider the possible deleterious effects of a supernova. What would be the worst of it? Gamma-rays; X-rays; high energy particles? What about blue light? Turns out that visible blue light might be worse - obviously blue light gets through the atmosphere better than many forms of radiation. Also, a nearly constant addition in blue light might mess up the internal clock of planets, animals and even humans. More to the point, there is a possibility that the blue light effect might visit the Earth if future supernova candidate Eta Carinae follows the pattern of SN 2006gy. http://www.space.com/scienceastronomy/080108-eta-carinae.html

JAN-09-2008 ***New record for black hole size*** A massive black hole, 18 billion times the mass of the sun, has been found. The black hole has another black hole orbiting it. The previous record was 3 billion solar masses. The binary black hole powers a quasar that is 3.5 billion lightyears away in the constellation Cancer. http://www.space.com/scienceastronomy/080109-aas-massive-black-holes.html

JAN-09-2008 ***Astronomy team discovers ancestors of Milky Way-type galaxies*** Astronomers at Rutgers and Penn State universities have discovered galaxies in the distant universe that are ancestors of spiral galaxies like our Milky Way. The galaxies are quite small – one-tenth the size and one-twentieth the mass of our Milky Way. They also have fewer stars – only one-fortieth as many as are in the Milky Way. From ground-based telescopes, they look like individual stars in size. Recent images made by the Hubble Space Telescope, however, reveal them as regions of active star formation. http://www.sciencedaily.com/releases/2008/01/080108142446.htm

JAN-10-2008 ***Mars asteroid bash cancelled*** It turns out the asteroid 2007 WD5 will not crash into Mars after all. Previously it appeared that there might be a chance for a Tunguska-sized event on the red planet. http://www.space.com/scienceastronomy/080109-mars-asteroid-update.html

From NASA Space Place ... **"Is Time Travel Possible?"**

Every science fiction fan has pondered the weird implications of time travel. Can you travel into the future and find out the winning Super Lotto number–then come back and buy a ticket? Would doing so be cheating the laws of physics (to say nothing of ethics)? Astrophysicist Marc Rayman toys with such ideas in this Space Place Musings Podcast. Go to http://spaceplace.jpl.nasa.gov/en/educators/podcast/ to subscribe to these Podcasts. Or listen now to this and the previous Podcasts on your computer or read the transcripts.

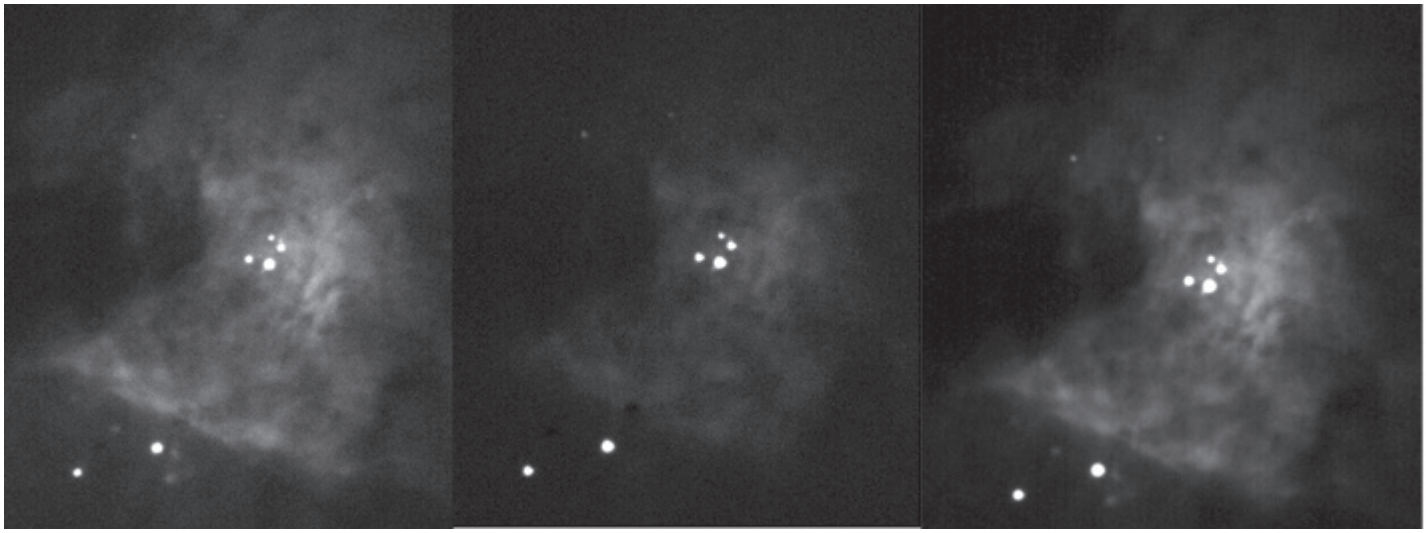
Upcoming Events

Here's a reminder of some upcoming events.

* February General Meeting - Besides the board meeting and the February speaker (see page 1), the February General Meeting is also the Annual Meeting where the Board of Directors is elected. Roughly half of the board is up for election each year.

* Messier Marathon - It is a bit earlier this year, March 8. At this time, the fate of the state parks such as Henry Coe and Fremont Peak are in doubt due to budgetary discussions going on in Sacramento. How this would affect SJAA is unknown at this time.

* SJAA Auction – The famous SJAA auction will be held this year on April 20. Some adjustments in the telescope lending program means that there may be more bargains than usual this year. By the way, there were 10 scopes available for loan as of January 14, 2008. See the telescope loaner page at http://www.sjaa.net/loaners/sjaaloan.html .



The pictures of M42 above were all taken on January 1, 2008 using a 10" LX200 Classic and an SBIG ST-7XE camera. The left image is taken with a hydrogen alpha filter. The center image is through an O III filter. A third image (not shown) was taken through a Sulfur filter but only the stars are visible through that filter. Assigning red, green and blue to the three images and letting Photoshop perform color correction resulted in the image on the right. Images and processing by Paul Kohlmiller.

Officers and Board of Directors

Pres	Rob Hawley	(408) 997-6526
VP	Rich Neuschaefer	
Sec	Craig Scull	(408) 292-9317
Tres	Gary Mitchell	(408) 265-2336
Dir	David Smith	(408) 978-5503
Dir	Lee Hoglan	
Dir	Gordon Reade	
Dir	Robert Armstrong	
Dir	Mark Wagner	

Ephemeris Staff

Editors Paul & Mary Kohlmiller (408) 848-9701
Circulation Gordon Reade
Printing Accuprint (408) 287-7200

School Star Party Chairman

Jim Van Nuland (408) 371-1307

SJAA Email Addresses

Board of Directors	board@sjaa.net
Membership ?'s	membership@sjaa.net
Chat List	chat@sjaa.net
President	president@sjaa.net
Treasurer	treasurer@sjaa.net
Announce	sjaa-announce@sjaa.net
Secretary	secretary@sjaa.net
School Star Parties	schools@sjaa.net
Ephemeris	ephemeris@sjaa.net
Web Page	pkohlmil@best.com
Circulation	circulation@sjaa.net
Telescope Loaners	loaner@sjaa.net

Members Email Lists:
http://www.sjaa.net/majordomo.html

Publication Statement
SJAA Ephemeris, newsletter of the San Jose Astronomical Association, is published monthly.

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

The SJAA Ephemeris is published in three formats: hardcopy, Adobe Acrobat PDF, and HTML. The PDF and HTML versions are found at http://ephemeris.sjaa.net.

Articles for publication should be submitted by the 10th of the previous month. The PDF version is generally available by the 24th of the previous month and the HTML version by the last day of the previous month.

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

ADDRESS SERVICE REQUESTED

Nonprofit Organization
U.S. Postage Paid
San Jose, California
Permit No. 5381

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 $10 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

☐ **I'll get the Ephemeris newsletter online**
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

Name: _____

Address: _____

City/ST/Zip: _____

Phone: _____

E-mail address: _____