



SJAA EPHEMERIS

SJAA Activities Calendar

(late) August

- 25 **General meeting at Houge Park.** 8 p.m. Dr. Graeme Smith, UC Professor of Astronomy will tell us of his research on globular Clusters.
- 28 Houge Park lunar eclipse party. Roughly 2-5 a.m.

September

- 7 Astronomy Class at Houge Park. "Eyepieces - So How Deep is your Wallet?" 7:30 p.m.
- 7 Houge Park star party. Sunset 7:28 p.m., 9% moon rise 3:45 a.m. Star party hours: 8:30 to 11:30 p.m.
- 8 Coyote Lake Park star party. Sunset 7:26 p.m., 4% moon rise 4:51 p.m. Star party starts at 8:30.
- 15 Dark sky weekend. Sunset 7:16 p.m., 19% moon sets 9:02 p.m.
- 21 Houge Park star party. Sunset 7:07 p.m., 75% moon sets 2:01 a.m. Star party hours: 8:00 to 11 p.m.
- 22 **General meeting at Houge Park.** 8 p.m. Slide and Equipment night.
- 29 **AANC-Con in San Mateo. See page 6.**

October

- 5 Astronomy Class at Houge Park. "Weather for Astronomers - tools to tell you whether to go." 7:30 pm.
- 5 Houge Park star party. Sunset 6:45 p.m., 21% moon rises 2:44 a.m. Star party hours: 8:00 to 11:00 p.m.
- 6 Dark sky weekend. Sunset 6:44 p.m., 13% moon rises 3:47 a.m.
- 11/13 Cal-Star star party at Lake San Antonio Park.
- 13 Dark sky weekend. Sunset 6:34 p.m., 8% moon sets 7:35 p.m.
- 19 Houge Park star party. Sunset 6:26 p.m., 59% moon sets 0:52 a.m. Star party hours: 7:30 to 10:30 p.m.
- 27 **General meeting at Houge Park.** 8 p.m. Peter Dunckel on amateur/professional cooperative research.

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

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

Upcoming Speaker

David Smith

August 25 General Meeting

Dr. Graeme Smith presents Globular Clusters

The main area of Dr. Smith's research has been the properties of the oldest populations of stars within our Galaxy, with regard to both their physical evolution and what they can tell us about the chemical enrichment history of the Milky Way. Much of his work has been directed towards the study of abundance differences among stars within globular clusters. These clusters are amongst the oldest stellar systems within the Galaxy, having formed at a time when the process of galactic chemical enrichment was just commencing. Striking differences in the abundances of the elements carbon, nitrogen, oxygen, sodium, magnesium, and aluminum typically exist among stars within the same globular cluster. Understanding the origin of these differences can potentially provide information about the early environment in the halo of our Galaxy, within which the globular clusters formed, as well as about processes, such as mixing, occurring within the interiors of their stars.

Dr. Smith also conducts research into chromospheric activity among evolved red giants, the spectroscopy of comets in our Solar System, and the chemical composition of red giants in Galactic open clusters. He holds B.S. and Ph.D. degrees from the Australian National University.



Photo credit to UCO/Lick Observatory

DEEP SKY OBSERVING

Mark Wagner

September 2007 third quarter to new moon observing list The list begins in the north and moves southward. Objects are within roughly a two 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.Sep.07.html>.

Object	Const.	Type	Size	Mag	R.A.	Dec.
N7129	Cep	OC	4.3'	9.3	21 45 12	65 46 23
	In field with NGC7142.					
NGC 7142	Cep	OC	4.3"	9.3	21 45 12	65 46 23
	Fine view of several open clusters in same field!					
N7139	Cep	PN	77.0"	13.3	21 46 08	63 47 31
	Easily viewed without filter at 100x in 18" scope.					
NGC 7160	Cep	OC	7.0"	6.1	21 53 48	62 36 00
	160x, ~40 stars are visible in a 8'x6' group, extended SW-NE.					
N7354	Cep	PN	36.0"	12.9	22 40 20	61 17 06
	Easy to pick up at low power. High surface brightness.					
NGC 7380	Lac	OC	12.0'	7.2	22 47 00	58 06 00
	A snap to identify at 100x with both OIII and UHC filters					
N7245	Lac	OC	5.0'	9.2	22 15 08	54 20 00
	Small concentration of 50+ stars with a solitary bright field star.					
NGC 7296	Lac	OC	4.0'	9.7	22 27 57	52 18 58
	Tight cluster, relatively easy, more concentrated than background.					
NGC 7243	Lac	OC	21.0'	6.4	22 15 18	49 53 00
	Large, amorphous - approximately 25 bright stars.					
NGC 7209	Lac	OC	24.0"	7.7	22 05 12	46 30 00
	12 brighter stars, many more in haze around brighter members.					
NGC 7128	Cyg	OC	3.1"	9.1	21 44 00	53 43 00
	Like a miniature version of the head of Cetus.					
NGC 7086	Cyg	OC	9.0"	8.4	21 30 30	51 35 00
	About 75 stars mag 10-14 in a 10' diameter.					
M39	Aur	OC	21.0'	6.4	05 28 43	35 51 18
	About 20 bright stars in this large sparse cluster.					
N7082	Cyg	OC	24.0'	7	21 29 24	47 05 00
	Elongated SW/NE with many dozen bright components.					
NGC 7331	Peg	GX	14.5'x3.7'	9.4	22 37 04	34 25 00
	Great galaxy with nearby companions, and Stephan's Quintet nearby.					
NGC 7217	Peg	GX	3.9'x3.2'	11	22 07 52	31 21 33
	Visible in 10" from suburban backyard!					
AGC 2666	Peg	GXCL	13.4'	15.9	23 50 54	27 08 00
	Four galaxies easily, but MCG +4-56-14 is nearby, a "ring" galaxy!					

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

The Phoenix Rises

Akkana Peck

Did you manage to get through August without reading any “WILL MARS BE AS BIG AS THE MOON?” emails? I thought I was going to skate through, but I did get some of them after all. Not as many as in past years – maybe Mars not even being up in the evening helped that a little. Well, it’s up, just barely – it rises a bit before midnight and transits near dawn, so you can get a look at it if you stay up late or rise very early.

NASA’s Mars-bound Phoenix probe launched last month, for a scheduled arrival in late May of next year. It almost missed its launch window due to weather at Cape Canaveral, so I’m sure it was a relief when it finally lifted off. Phoenix will land in Mars’ far north, where it will dig in the ice looking for evidence of organic molecules. It will also study the composition of the Martian dust and look for clues about the red planet’s atmosphere and climate.

Back on Earth, we can still see Jupiter low in the southwestern sky throughout the early evening. Catch it as early as you can, before it gets any lower.

Uranus reaches opposition on September 9, so this month and next are a great time to look for the small green disk, just barely visible to the naked eye from a dark site but easy in a telescope. It sits just west of the head (ϕ)

of Aquarius. Neptune, a smaller, fainter and bluer disk, is running nearly two hours ahead of Uranus now, in northeast Capricornus. Pluto is getting tough this year: it’s already past its fairly low transit by the time the sky is dark enough to start looking, so it’ll take some dedication to find it this month.

Mercury is visible in the evening sky throughout the month, with a gibbous phase. Venus, on the other hand,

displays a nice crescent to early morning observers.

Saturn is emerging into the morning sky. If you’re a morning person, check out the close pass of Saturn with Regulus in the first few days of the month. They’re close to the same brightness, so this is a great chance to see how different a planet looks from a star. Try a naked eye or binocular view first: see if you can tell which is which.



Phoenix takes off in the predawn sky on August 4, 2007. Photo courtesy of NASA.

(I bet you’ll have no trouble telling.) Using a telescope is cheating, of course (hint: the one with the big wide rings is the planet), but after you’ve made your guess, you can use a telescope to reward yourself with views of this beautiful planet.

The last two weeks of the month are a good time for morning observers (or those who stay up all night) to look for the zodiacal light, a faint band of light extending upward from sunset or sunrise along the ecliptic. It’s caused by the reflection of sunlight off tiny bits of debris left over from the formation of the planets.

Only one problem: the moon is near full for most of that time, so try it around mid-month, before the brightening moon interferes too much, if you find yourself up before dawn in a place with very dark or clear skies.

Now is an exciting time for space enthusiasts. In the history of the Space Age, there have never been so many missions “out there” at once. NASA has, for example, robots on Mars, satellites orbiting Mars, a spacecraft circling Saturn, probes en route to Pluto and Mercury—and four spacecraft, the two Voyagers and the two Pioneers, are exiting the solar system altogether.

It’s wonderful, but it is also creating a challenge.

The Deep Space Network that NASA uses to communicate with distant probes is becoming overtaxed. Status reports and data transmissions are coming in from all over the solar system—and there’s only so much time to listen. Expanding the network would be expensive, so it would be nice if these probes could learn to communicate with greater brevity. But how?

Solving problems like this is why NASA created the New Millennium Program (NMP). The goal of NMP is to flight-test experimental hardware and software for future space missions. In 1998, for instance, NMP launched an experimental spacecraft called Deep

Space 1 that carried a suite of new technologies, including a new kind of communication system known as Beacon Monitor.

The system leverages the fact that for

“The Deep Space Network that NASA uses to communicate with distant probes is becoming overtaxed ... and there’s only so much time to listen.”

most of a probe’s long voyage to a distant planet or asteroid or comet, it’s not doing very much. There’s little to report. During that time, mission scientists usually only need to know whether the spacecraft is in good health.

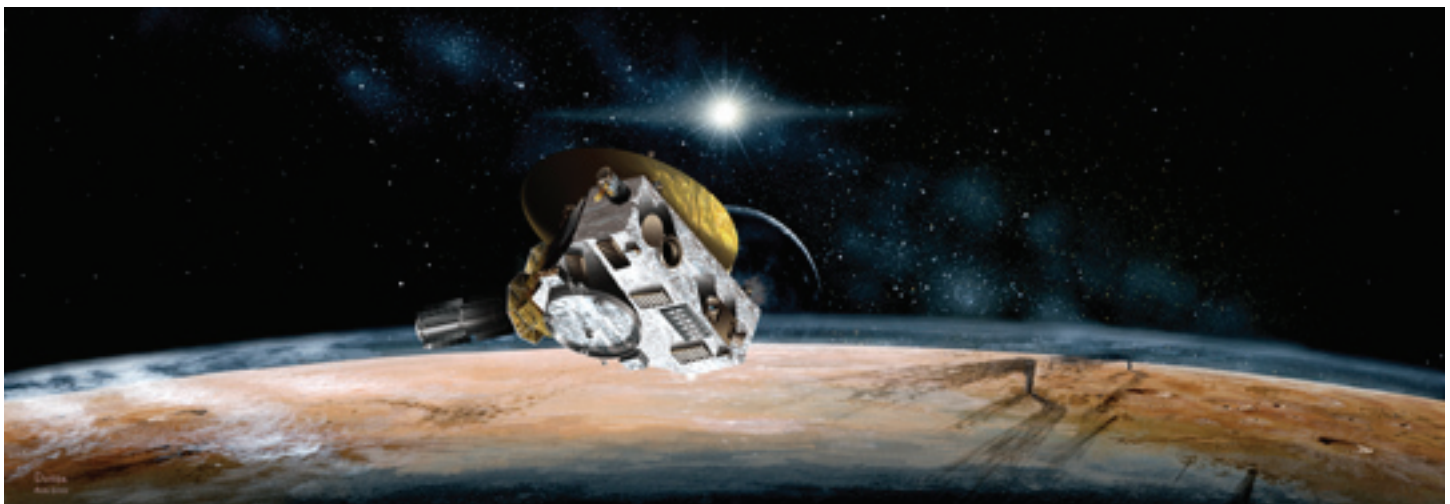
“If you don’t need to transmit a full data stream, if you only need some basic state information, then you can use a much simpler transmission system,” notes Henry Hotz, an engineer at NASA’s Jet Propulsion Laboratory who worked on

Beacon Monitor for Deep Space 1. So instead of beaming back complete data about the spacecraft’s operation, Beacon Monitor uses sophisticated software in the probe’s onboard computer to boil that data down to a single “diagnosis.” It then uses a low-power antenna to transmit that diagnosis as one of four simple radio tones, signifying “all clear,” “need some attention whenever you can,” “need attention soon,” or “I’m in big trouble—need attention right now!”

“These simple tones are much easier to detect from Earth than complex data streams, so the mission needs far less of the network’s valuable time and bandwidth,” says Hotz. After being tested on Deep Space 1, Beacon Monitor was approved for the New Horizons mission, currently on its way to Pluto, beaming back a simple beacon as it goes.

Discover more about Beacon Monitor technology, as well as other technologies, on the NMP Technology Validation Reports page, <http://nmp-techval-reports.jpl.nasa.gov>.

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



This artist’s concept shows the New Horizons spacecraft during its planned encounter with Pluto and its moon, Charon. The spacecraft is currently using the Beacon Monitor system on its way to Pluto. Credit: Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute (JHUAPL/SwRI)

CalStar's New Approach

Rob Hawley

SJAA will hold the Fall CalStar Star Party this year on the nights of October 11 - 13 at Lake San Antonio.

This year SJAA is teamed with GSSP. GSSP put on the Lassen party this year and have been responsible for Shingletown in the past. Together we came up with a new approach how to layout and sign the CalStar site.

The new layout recognizes there is a need to support those that do not wish to camp or arrive too late. The new Late Arrival/ Early Departure area uses a part of the park we have not previously used. It is different entrance that is easy to find at night, easy to drive into and out of after darkness, has good horizons, and is only a short walk from the food and other observers. It is a much better site than we previously used for Early Departers. Finally, it will reduce the impact of arrivals and departures on the more controlled areas.

The two resident areas are the Dark Enforced Area (where all white light is banned) and a Casual Area (for people that want a more relaxed experience). They will be signed this year to make them easier to find. Signage and volunteers will also make it clear when these areas close to all traffic. Every vehicle in these areas must remain off from 8 PM to morning twilight. These are the same rules we have had for 7 years. Attendees using the DEA or CA must register every vehicle in these areas by car TAG ID.

Since 90+% of the people attending CalStar camp in the dark or casual areas the only change they should notice is their night vision being preserved for the entire evening. Time is precious in a star party like this. One mistake (or inconsiderate action) can prevent someone from finding that elusive glob for 30 minutes or more.

Registration begins Sept 1. To register, for more information, or to get a tour of the new layout visit our website at www.sjaa.net/calstar.

The Last 31 Days In Astronomy

The news seen between July 08 and August 08, 2007.

JUL-23-07 **Life Necessary Compounds from Star** Astronomers at the University of Arizona have found interesting compounds flowing from the star VY Canis Majoris. So far they have found salt, hydrogen cyanide, phosphorous nitride and a lot of oxygen coming from this star. <http://www.spacearchive.info/news-2007-07-23-ua.htm>

JUL-24-07 **Planets with 4 suns** Spitzer has found a star, HD 98800 if you must know, that is a 4 star system and maybe planets. The evidence for the planets is circumstantial. A dusty disk around the two central stars has a gap in it that suggests planetary formation. http://www.nasa.gov/mission_pages/spitzer/multimedia/spitzer20070724.html

JUL-31-07 **Rovers hit by dust storms** The Mars Rovers are having a tough time coping with the dust storms covering much of Mars. The rover Opportunity has experienced temperatures near the limit where some emergency heaters turn on. If they do, the energy consumption goes up and the solar panels are covered with dust. This could cause a low power fault on the rover which would cause it to essentially shutdown except for checking every so often if the energy levels are back up. <http://www.jpl.nasa.gov/news/news.cfm?release=2007-083a>

AUG-01-2007 **Cassini snow driving** The Cassini spacecraft may fly through the ice geyser spewing out of the Saturnian moon Enceladus. If the goahead is given for the maneuver, Cassini will travel to within X miles of the planet. It will orient itself to protect some instruments but the idea is to learn as much about this geyser as possible. This flyby will occur around March of 2008. http://www.space.com/news/070801_cassini_update.html

AUG-04-2007 **Mars Phoenix** The Mars Phoenix spacecraft headed toward the red planet starting a 9 month journey. The spacecraft is expected to land near but not at the Northern Pole of Mars (think Greenland). Landing is set for May 25, 2008. <http://jpl.nasa.gov/news/news.cfm?release=2007-086>

AUG-08-2007 **Shuttle Launch** The Space Shuttle Endeavor flew into space for the first time in nearly 5 years. While the media buzz is about former teacher Barbara Morgan's first trip into space, this mission is full of ISS construction activities. <http://www.msnbc.msn.com/id/20178250/>

ASTRONOMY magazine renewal time

Jim Van Nuland

It's time to renew our group subscription to Astronomy magazine. The rate for 2008 is still \$34, or \$60 for two years. Please send a check payable to Jim Van Nuland, 3509 Calico Ave., San Jose CA 95124.

Subscribers: if I have your e-mail address (from the SJAA roster), you should have gotten a note with particulars of your subscription.

If you subscribe independently, and your subscription ends during 2007 or 8, you may convert to the group rate. Send a check and the renewal card or a mailing label to Jim, and you'll be added to the group for an additional 12/24 months.

If you do not subscribe and wish to do so, send the \$34/60 and your subscription will begin with the January 2008 issue.

I will hold your checks until late September, when the renewal package must be sent in. So don't worry that your check doesn't clear promptly.

Any questions? Call Jim at 408.371.1307, from 10 am to 10 pm, or e-mail to <jvn@svpal.org>.

PLEASE NOTE: this applies to Astronomy magazine, not Sky & Telescope! The latter subscription is paid to the treasurer as part of your SJAA dues.

Good Reading!



Peter Manly (1945-2007)

Gene Lucas

We have learned that Peter L. Manly, active in the San Jose Astronomy Association and the Saguaro Astronomy Club during the 1980s, passed away last Friday at the VA hospital in Phoenix, after a long illness. Captain Manly served and flew in the USAF in Vietnam; later working on the Air Force GEODSS satellite tracking telescope program; and then for NASA on the Kuiper Airborne Observatory. He was active in the San Jose Astronomy Association, before moving to Phoenix. He took part in several solar eclipse expeditions. Peter was a pioneer in video astronomy, for occultation timing and eclipses. Along with several other SAC members, we did a series of programs featuring live broadcasts of Halley's Comet on Channel 8 KAET TV at ASU in 1985-86. He was a member of the IAPPP photometry organization, and IOTA, the International Occultation Timing Association. He published a number of magazine articles on astronomy, and two books, "Unusual Telescopes" and "The 20-cm Schmidt-Cassegrain Telescope", both still widely available. In later years, Peter wrote and published two science fantasy books and a number of science fiction stories and was active in the SF writers groups in Arizona. A wake was held in Scottsdale, AZ on August 10th.

Reach for the Stars!

Vivian White

Join us Saturday, September 29, 2007 for the AANC-CON at the College of San Mateo for a fun-filled day and night of astronomy events. From workshops, talks and telescopes to raffles and kid's activities, there are stellar treats for everyone! Astronomy clubs from all over northern California are bringing their enthusiasm, know-how and telescopes to share with the public. This family event is packed with activities for the whole family and Sponsored by the Astronomical Association of Northern California and the Astronomy Department at the College of San Mateo.

Planetarium shows, updates from NASA scientists, hands-on astronomy activities for all ages, a raffle of great astronomy gear, telescope making, solar telescopes, and finishing the night off..."Jazz Under the Stars" Star Party Hosted by the San Mateo County Astronomical Society and KCSM from 7:45 until midnight.

Find out more here: <http://>

aancstars2007.org/

If you are interested in volunteering for this event, the AANC would love your help with set-up, ticket sales and lots more cool stuff! Please go to the website and click on Volunteer. You can also help by getting the word out. To download a flyer:

http://aancstars2007.org/downloads/aanc_con_flyer.pdf



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Telescope Loaner Program

(temporarily suspended)

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Submit

Submit articles for publication in the SJAA *Ephemeris*. Send articles to the editors via e-mail to ephemeris@sjaa.net. **Deadline, 10th of previous month.**

Coyote Park Star Party



It was another star party at Coyote Lake Park near Gilroy on July 21, 2007. Various telescopes were in different stages of readiness shortly before sunset. The SJAA has brought telescopes to these star parties a few times each summer for the last 4 years. Photo courtesy of Denis Lefebvre.



Rob Hawley is shown here with his 10" Meade LX 200. Photo courtesy of Denis Lefebvre.

Photo and Equipment Night

September 22, 2007

8 p.m. Houge Park

This "show and tell" night is one of the most popular annual events at SJAA. Bring equipment or images to share or just listen to what others bring in that may surprise you.

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

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Please make checks payable to "SJAA".

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<http://www.sjaa.net/SJAAmembership.html>

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