

SJAA EPHEMERIS

Astronomy tour

Paul Kohlmiller

On May 3-10, 2003, my wife and I participated in *Sky & Telescope* magazine's astronomy tour called Arizona Deep Skies and Deserts.

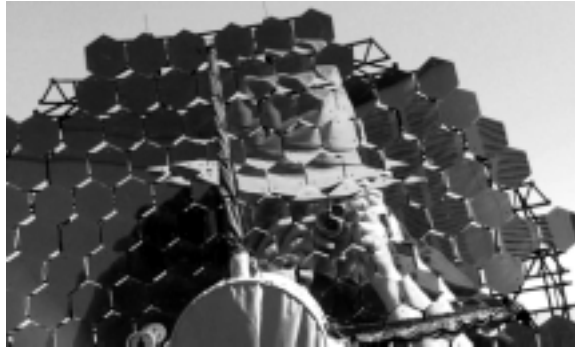
The tour group consisted of about 40 people. The astronomy expertise level of the group covered a wide area. Some did not own a scope and had never been to a star party. Others were quite advanced amateurs with one participant anxiously waiting delivery of his 14" LX200 GPS. We had a tour guide who had lived almost his entire life in Arizona. Also, Stuart Goldman of *Sky & Telescope* led many of the astronomical events. We were bussed to virtually every event in a Greyhound-sized bus.

Most of the sky-gazing events (at least 5 out of 6) were conducted while the moon was a factor so it is difficult to say how much darker the skies are in Arizona.

One test for transparency is the ability to see all the stars in Ursa Minor. The dimmest star in the bowl of the little dipper could barely be detected using averted vision. My test is being able to see Kappa and Lambda Leonis without averted vision which I can just barely do from my back yard in Gilroy when those stars are close to the zenith. These stars were visible but



Mary Kohlmiller poses on the rim of the Grand Canyon.



The author reflected in a 10-meter array of mirrors used for detecting gamma ray bursts.

more about telescope optics and observatory management than the science of astronomy.

We did a tour of Kitt Peak, located about 50 miles southwest of Tucson. Kitt Peak is the largest observatory in the world in terms of the number of telescopes at one location. We saw the solar telescope and then checked out some other scopes. We had a light

not much easier than they are at home.

The weather either curtailed or cancelled 4 of the 6 viewing sessions. The result is that the trip felt like it was

supper in the observatory dining room and then they gave us a talk in the

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SJAA activities calendar

Jim Van Nuland

June

- 6** Houge Park star party. Sunset 8:25 p.m., 43% Moon sets 1:39 a.m. Star party hours 9:30 p.m. to midnight
- 7** ATM class. Houge Park, 7:30 p.m.
- 14** **General meeting**, Houge Park. 8:00 p.m. Dr. Scott Sandford *The Stardust mission: To return a sample from a comet*
- 19** ATM class. Houge Park, 7:30 p.m.
- 20** Astronomy class. Houge Park, 7:30 p.m., subject to be announced
- 20** Houge Park star party. Sunset 8:31 p.m., 55% Moon rises 1:24 a.m. Star party hours 9:30 p.m. to midnight
- 21** Deep sky weekend. Sunset 8:31 p.m., 45% Moon rises 1:16 a.m.
- 28** Deep sky weekend. Sunset 8:32 p.m., 0% Moon rises 5:31 a.m.
- 25-30** Wednesday - Monday Shingletown star party

July

- 5** ATM class. Houge Park, 7:30 p.m.
- 10** ATM class. Houge Park, 7:30 p.m.
- 12** **General meeting**, Houge Park. 8:00 p.m. speaker to be announced
- 18** Astronomy class. Houge Park, 7:30 p.m. subject to be announced
- 18** Houge Park star party. Sunset 8:26 p.m., 70% Moon rises 11:49 p.m. Star party hours 9:30 p.m. to midnight
- 19** Deep sky weekend. Sunset 8:26 p.m., 68% Moon rises 0:13 a.m.
- 25-26** SJAA Yosemite star party
- 26** Deep sky weekend. Sunset 8:21 p.m., 4% Moon rises 4:16 a.m.

The Board of Directors meet at 6:30 p.m. preceding each general meeting. All are welcome.

24 Hour News and Information Hotline: (408) 559-1221

<http://www.sjaa.net>

Astronomy tour

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visitor center. Besides discussing distances between stars and galaxies, they also handed out a planisphere (that wheel star chart that you know and love) and a pair of high quality binoculars to each participant. They also gave each of us a red light flashlight that we got to keep. Then we split into two groups — each going to one of the two scopes that still use eye-pieces. Our group used a 16-inch Meade LX 200. This was my first time viewing the star cluster Omega Centauri. First we found this object using binoculars. Then the view through the scope filled up the entire field of view. This was also the first time I viewed M51 through a scope where the two galaxies looked like they were in contact with each other.

We were deciding whether our astronomical vacation should be at one of those astronomical B&B's or this tour. The clincher was the opportunity to visit renowned astronomer David Levy (of comet Shoemaker-Levy fame) at his house and check out his observatory. David has about 10 scopes in his observatory. We used 2 of the scopes to view various items: Jupiter, M51, Albireo, M57 (Ring Nebula) and others. David and Wendee Levy were very gracious hosts. David also pointed out some interesting astronomical details such as the variability of Delta Scorpii and the full extent of the Hydra constellation.

There are no observatories (that I know of) at the Grand Canyon. However it was fun to watch the shadows move up the cliffs during sunset. At 2 a.m., a hardy subset (no more than 10) set up a couple of scopes and tried to do some viewing. After about an hour in very cold and windy conditions, half of the group gave up which apparently signaled the clouds to part. Before the sunset there was a short sleet shower (don't say that 3 times fast) which led to a

partial rainbow rising out of the canyon.

You can walk into observatory dome after dome and pretty soon they all look alike. At Lowell Observatory's Anderson Mesa site we saw something quite different. The difference was the interferometer located there. This consists of a Y-shaped array of tubes that gather light and precisely merge the light from up to 6 different locations along the way following paths whose total distance must be accurate to 10 microns (soon to be 1 micron). The result is the resolving power of a scope that has a diameter the size of the array (more than 400 meters) although the limiting magnitude is much smaller.

The last astronomical event of this tour was a lecture by Dr. Jeff Hester of Arizona State University. Let me set the scene. We are on the balcony level of a sports bar in Phoenix. The bar is owned by rock and roller Alice Cooper so it's called Cooper's Town. All waitresses wear Cooper-inspired eye makeup. The speaker's Powerpoint slides are projected onto a sheet while three other sheets attempt to cover the window. But Hester is in fine form regardless and his talk, while basic, gave an impressive structure for looking at the universe — from the Big Bang to star formation. If you haven't heard of Dr. Hester, you may have seen the Hubble picture called Pillars of Creation — an image credited to him and his team.

— *Paul Kohlmler*, pkohlml@best.com



A pair of 6.5 meter mirrors are being produced. One mirror is nearly completed. The closer mirror is actually upside down at this time. The mirror construction lab is located under the university's football stadium because the large concrete structure adds stability.

Out there

Springtime galaxies, doubles and globulars Mark Wagner

Last month I wrote "Between the serpents" which took us from Draco to Hydra. This month's 2-hour-wide observing window is between R.A. 15:30 and 17:30, and again begins with galaxies in Draco, but finishes with globular clusters in the arms of Ophiuchus, the Serpent Bearer. We'll throw in some nice double stars along the way as well.

NGC 5982 and NGC 5985 are two bright galaxies that share one field of view, located conveniently between the two bright stars that bend the serpent around the bowl of the Little Dipper. The stars are mag 3.3 Edasich and mag 4.0 Theta Draconis. Point your scope about 1/3rd the way from Edasich toward Theta, and nudge it north. Richard Navarrete's notes say "These were all in a line with 5985 the largest and brightest in the group. A very interesting field!" A third dimmer galaxy rounds out this famous trio ... one spiral, one elliptical and an edge-on ... set in a sweep of stars that parallel the galaxies from southeast to northwest. Beautiful sight.

For a side trip follow the two prior locator stars toward Draco's head. They'll point toward the double star Nu Draconis, the northwestern star and dimmest of the four comprising Draco's head. The double Nu is a nice sight, but while here, move four degrees west to mag 5 Mu Draconis, another nice double. My own observation was a "gold pair that is very tight with a clean split at 100x. The components are equal brightness and lay N/S."

Continue in the same direction four and one half degrees to another fine double star, 16 and 17 Draconis. I wrote "mag 5.6 visible naked eye. Nice white pair with 16 Draconis just 7' N. Pair is tight at about 1.5" with brighter star to the W."

NGC 6229 is a surprise in Hercules. It is hard to compete with M13 and M92 ... the two magnificent

Continued on next page

Springtime galaxies ...

Continued from previous page

globular clusters in the constellation, so many observers are surprised to find this NGC globular hiding in the strongman's backwaters. NGC 6229 is a bright small globular cluster north of the keystone toward the Draco border. At 70x the globular is granular with some hint of individual stars. It is a nice view, as two equally bright stars, the brightest in the field, stand equidistant 8' west of the glob. Nice triangle. At 100x the granularity is more pronounced and the bright core diminishes evenly out to the edges. Seems to be about 1.5' diameter.

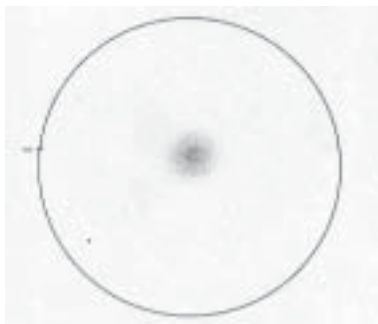
Speaking of M13, we can use it as the landmark for our next target, NGC 6207. Jay Reynolds Freeman notes "M13's better-known 'companion' is NGC 6207, about 20 arc minutes northeast; it is easy in a four-inch telescope in a dark sky." I like to view M13 and NGC 6207 in the same field and marvel at the relative distances. M13 is a mere tens-of-thousands of light years distant, then empty space out to the little galaxy ... forty six million light years further away.

How about a quick skip now through some nice doubles on the way to our next non-stellar target? Let's just list them, and you do some research ... I promise these stars will make it worth the effort:

Sigma Coronae Borealis (16:14:42 +33)
Delta Herculis (17:15:06 +24)
Beta Serpens (15:48:30 +15)
Alpha Herculis (17:14:42 +14)
Xi Scorpius (16:04:24 -11)
Beta Scorpius (16:05:24 -19)
Nu Scorpius (16:12:00 -19.00).

Now we are in the realm of the serpent bearer, Ophiuchus, where we'll visit four globular clusters. This is not surprising, as this constellation is the richest in globulars.

NGC 6342 is a mag 10 globular at the southeastern end of Ophiuchus.



NGC 6229 in Hercules sketched by Jon Webdale, Colchester, England



NGC 6207 in Hercules sketched by Andreas Domenico, Germany.

Bruce Jensen wrote "NGC 6342, mag 9.9, came off as moderately-sized, fairly bright, pretty well resolved, with a well-condensed center, sort of a smaller version of M5." Find it four and one half degrees southeast of mag 2.4 Sabik.

Seven and one half degrees west you'll find the unresolved globular NGC 6235. It is bright at mag 10.2 and is "framed in a right triangle of stars, is diffuse with uneven edges. At 210x, with the 6mm, got 7-8 brighter stars to resolve across the cluster. It's listed as 32.6 kly away" according to Jamie Dillon.

Jamie continues with NGC 6287, just over two and one half degrees east. He says it "is closer, 29 kly, and very different, round, tight, condensed. Got sugary at 126x. Studied it a 210x; after a couple of minutes got plenty of resolution, more than 20 little stars across the face."

We're nearing the end of our night out. Drop down to Antares. Have you ever tried to split this double? It is not a particularly tight double, but the magnitude difference between the primary and secondary is significant, and the little "green pea" as it is known can get lost in the glare of the primary component. You'll need steady seeing to split this. Now move your scope a half degree northwest to find NGC 6144, an often over-

looked globular cluster almost in the shadow of M4 one degree to its west-southwest. Bruce Jensen said "NGC 6144 was large and somewhat faint due to its sparsity but nonetheless well-resolved at 72x, and NGC 6144 was bright and well-resolved on its edge."

We'll finish with a nice double star and another globular, both in Ophiuchus. 36 Ophiuchi is described as a striking twin system, both golden yellow. Two degrees to the west-southwest sits NGC 6293, and it is a nice object to end with. At mags 8.2 and reasonably sized at 7.9', this ball of mag 16 stars is well resolved. Jamie enthusiastically writes "The beauty prize went to 6293, just east of M19. At 210x it showed a bright core with swirls in its halo."

I'll finish this month by asking for feedback from those who regularly read this column (if there are any of you). What I think works best is to fit writing to the audience, and your suggestions can help make them more relevant. I am a deep sky observer, and have a large number of observations under my belt, so it is likely that what I write may not meet the needs of readers. My e-mail address is at the end of the article each month ... let me hear from you. — Mark Wagner, mgw@resource-intl.com

Directions to Houge Park

Houge (rhymes with "Yogi") Park is in San Jose, near Campbell and Los Gatos. From Hwy. 17, take the Camden Avenue exit. Go east 0.4 miles, and turn right at the light, onto Bascom Avenue. At the next light, turn left onto Woodard Road. At the first stop sign, turn right onto Twilight Drive. Go three blocks, cross Sunrise Drive, then turn left into the park.

From Hwy. 85, take the Bascom Avenue exit. Go north, and turn right at the first traffic light, onto White Oaks Road. At the first stop sign, turn left onto Twilight Drive. You will now be passing the park. Turn right at the first driveway, into the parking lot.

The Moon in June

Dave North

June is when the highest elevation the Moon reaches is at new. Which is the worst possible time for an observer — there's nothing to see when it's new!

What is one to do in such a tragic time?

Two things.

First, this means the timing is pretty darn good for trying to see an early new Moon. Locally, new Moon is just a bit before noon on June 29, not too long after solstice. If you manage to catch a sliver of it near sunset that evening, you'll manage something on the order of a 9-10 hour old Moon.

Gotta be careful, though. Don't start fishing for it until the Sun has gone down or you might hurt your eyes and go blind and have to find another hobby. You will need a telescope to play this game.

Best technique is to note where the Sun goes down and take a look about six degrees above that point. Six degrees of separation. That's all you

***“Six degrees of separation.
That's all you get.”***

get. Which means you better have a very clear horizon ... right? Well, no. In fact, an unclear horizon (like the flat top of a building) is even better. That way the Sun is masked but the Moon is still a bit higher ... but it's not dark!

Get the idea? If you have a clear horizon but a good obstruction (and mobility, which means a Dob) you can actually hunt more than once.

Fun huh?

What else is there to do? Take a look at the eastern wonders of the Moon! Usually they're available (and nicely high in the sky) during the first few days after full Moon, but everything's all bright and lit up away from the terminator, which does have a different aesthetic.

They look completely different with the light from “the other side” and that means the first five or six days

after new are particularly interesting in June. In this light, that's about as high as they're going to get.

The Gang Of Four (Langrenus, Vandelinus, Petavius and Furnerius) are particularly nifty in June. Plus, heck, the weather is good and sunset is way after most people's dinner time anyway.

Of course, if it's at its highest at the new phase, that means it's lowest

The shallow sky

It's a beautiful day in the planetary neighborhood

Akkana Peck

Jupiter is still visible in June, low in the west after sunset. The best bet for observers is to set up a scope at sunset and start observing before the sky is fully dark. Jupiter is bright enough that you can still observe it in a twilit sky, and catching it before it gets low will help in seeing more detail.

Pluto is at opposition on June 9th, shining at magnitude 13.8. Now is the best chance to catch our dim farthest planet, so if you've always wanted to find Pluto, get your finder charts, find a dark sky and try it!

The most reliable finder charts for Pluto are the ones in the RASC *Observer's Handbook*. To illustrate the problems with finding Pluto, compare the chart in the published RASC handbook to the chart they publish on their web site: <http://www.edmontonrasc.com/pluto.html>.

The chart on the web site was made using Guide 7 (an excellent program for planetary predictions) but if you pick a date and compare the two charts, you'll see significant differences in the nearby stars plotted. In fact, I highly recommend that beginning Pluto hunters try this exercise of getting several charts and comparing them. It's good practice for what you'll be doing in the eyepiece, but in addition, you'll become much more familiar with the star patterns nearby so you'll remember them better when you're looking in the dark, which means a lot less back-and-forth

at full ... which means this is kind of dark for a full Moon (no, not dark enough to go deep sky weaseling).

But there's an interesting effect: if you note how high the Moon is at sunset, it will roughly seem to be about the same height each night.

Getting a little practice hunting for detail while the Moon is a bit low isn't a bad idea, though. In a few months we're going to have basically the ideal opposition of Mars, and you're going to need the skill!

— *Dave North*, north@znet.com

between the eyepiece and the chart. I'm definitely going to try this myself as preparation beforehand the next time I look for Pluto!

Mars, in Aquarius, rises before midnight, but doesn't get very high in the sky before morning twilight. It's growing in apparent size — about as big as Saturn (without the rings) — and you might be able to make out some details on it on a steady night, at least

***“... So if you've always
wanted to find Pluto, get
your finder charts, find a
dark sky and try it!”***

fairly prominent features like Hellas and Syrtis Major, and possibly the south polar cap (SPC). The southern hemisphere of Mars (the one currently tilted toward us) is in spring right now, so the polar cap should be fairly substantial, but shrinking. Use a reliable program if you have one (XEphem, Guide, and Starry Night are good for Mars features), or a globe and a Mars ephemeris (there's one in this year's RASC *Observer's Handbook*) to figure out what features are pointed toward us, and be careful not to confuse Hellas and the SPC. Then keep an eye on the SPC — can you see it shrink over the

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The shallow sky

Continued from previous page

next month?

Uranus and Neptune are hanging out on either side of Mars — Uranus just barely visible to the naked eye and easily in a telescope, while Neptune, two magnitudes fainter, requires a telescope. They'll get easier to see over the next few months.

Saturn, Mercury and Venus are too close to the sun to be observable this month.

I was hoping I could end this month's column with some information on how to observe one of our newest-named asteroids, asteroid 26858 Misterrogers. Unfortunately, 26858 Misterrogers is in Orion this month, and sets before twilight ends. At magnitude 16.5, that means it's going to be a tough target in amateur scopes! It's a main-belt asteroid with an estimated diameter of about 10 km, and will next be at opposition on May 3, 2004 at magnitude about 16.6. (It's fainter at opposition than it is now? That doesn't make sense to me either, so maybe it's a misprint and really should be 15.6, since its last opposition had a magnitude of 15.8. Regardless, it's very faint!)
— Akkana Peck,
observer@shallowsky.org



And thank you to the students of Guadalupe School for their unique thank you note to Jim Van Nuland and the SJAA members who helped at school star parties last fall. Photo by Morris Jones.

Music of the Spheres

Tickets for the Lick Observatory Summer Programs are going to be available starting May 13th. The two programs are The Summer Visitors Program and The Music of the Spheres. Lick Observatory Summer Visitors Program is an opportunity for the public to view the heavens through two Lick telescopes. On six Friday and Saturday nights, a limited number of ticket-holders will enjoy a lecture by an astronomer followed by telescope viewing. Tickets are "by lottery." For tickets and more info: <http://www.ucolick.org/public/sumvispro.html>

Music of the Spheres is a series of summer concerts followed by talks given by Lick Observatory astronomers and (weather permitting) viewing through a Lick telescope. Performances are held at Lick Observatory in the Great Hall of the Main Building, and the proceeds of the concerts benefit Lick Observatory's Visitors Program. Tickets are first come first served.

Shingletown Star Party:

June 25-30

Calstar — Lake San Antonio:

September 25-27

Information, including tickets, performers, and speakers can be found at: <http://www.ucolick.org/public/music.html>

— Bob Havner, bhavner@earthlink.net

Donation to SJAA in memory of Rita Miram

Bill Dellinges, a SJAA member now living and observing in Arizona, honored the memory of SJAA member and Sacramento resident Rita Miram with a donation to the SJAA. Bill's generosity and thoughtfulness spans the miles that separate us.

SJAA thanks Bill for his generosity. See July 2002 Ephemeris for announcement.

— Jim Van Nuland, jvn@svpal.org



Dr. Nick Kanas shows some examples of early star charts at the January SJAA general meeting during his talk Of epicycles and unicorns: Celestial mapping in the golden age. Photo by Morris Jones

XXIII Auction

Mike Koop

The 23rd annual SJAA auction and swap meet were the most profitable ever for the club! This year the auction raised \$1849.01 with 81 items successfully sold. Many people helped to contribute to this record year with 56 donated items.

We sold off the last of the odds and ends donated by the Hewett Estate. Four people bought copies of Bob Hewett's wonderful picture of the full moon rising over Lick observatory 36-inch refractor dome. Dave Kingsley brought an 8-inch f/6 Optical Craftsman Newtonian and mount donated by a friend's estate that sold for an unbelievably low price. Tim Tully donated two



Auctioneer Jay Freeman presides over the annual auction with his usual aplomb. Photo by Dave North.

copies of his acclaimed *The Universe* video. Kevin Medlock searched around his house, found, and donated 4 sets of the highly recommended shake ends for tripod legs.

Sam Sweiss of Scope City donated posters, books, software, and star charts. Sky Image Lab donated 4 framed prints. One print was of NGC 1850, (a globular cluster in the LMC with a wisp of a supernova remnant) which auctioneer Jay Freeman pointed out during the bidding was an object he had not seen. After the auction, we

gave the print to Jay in appreciation for his great auctioneering skills. He did not know whether to thank us or curse us, with the daily reminder of the object hanging on his wall. Look for a report soon from Jay in the southern hemisphere.

The 4 Jaegers Refractor with a home built equatorial mount, refurbished by Jim Bartolini who built a new wooden tripod for it and fine-tuned by Phil Chambers, sold for only \$225. What teamwork! What a deal!

Those who saw it at the Houge Park star party before the auction know what a deal this was with the excellent views of Jupiter, Saturn, and the moon.

Special thanks go to Bill Arnett for updating the Auction website with items preregistered, Dana Crum for manning the registration table, Gary Mitchell for handling the money, and Jim Van Nuland for running his trustworthy auction program (written in BASIC!), keeping everything running smoothly. After the auction, the hall was filled with many interesting items for the swap.

Ralph Seguin brought dial calipers and some of his home made sphereometers.

Chris Angelos had binocular heads from inspection microscopes that could be adapted for use with a telescope. Joe Sunseri of Earth and Sky Adventure Products brought his usual assortment of new and used astronomical equipment. Various used books and eye-pieces were sold. After an hour, it was all over. The club raised an additional \$95 from the swap proceeds. We figured that most people were literally just spent after the auction. See you all again next year!

— Mike Koop, president@sjaa.net

Celestial Calendar

June 2003

Richard Stanton

Lunar Phases:	Date	Rise	Trans	Set
FQ	13:27 PDT	07	12:51	19:34 01:39
FM	04:15 PDT	14	21:16	00:59 05:45
LQ	07:44 PDT	21	01:24	07:16 13:15
NM	11:38 PDT	29	05:31	13:14 20:58

Nearer Planets:	R. A.	Dec.
Mercury, 1.08 A.U., Mag. -1.4		
07 04:40 11:31 18:22	03:23	+15:13
17 04:42 11:49 18:55	04:20	+19:39
27 05:09 12:29 19:50	05:40	+23:28

Venus, 1.63 A.U., Mag. -3.9		
07 04:45 11:46 18:47	03:37	+18:14
17 04:46 11:57 19:08	04:28	+20:57
27 04:52 12:10 19:27	05:20	+22:42

Mars, 0.64 A.U., Mag. -1.3		
07 00:50 06:03 11:56	21:55	-15:51
17 00:26 05:42 10:59	22:13	-14:46
27 23:59 05:19 10:38	22:29	-13:52

Jupiter, 5.95 A.U., Mag. -1.8		
07 10:15 17:14 00:12	09:05	+17:29
17 09:44 16:41 23:38	09:12	+16:59
27 09:14 16:09 23:04	09:19	+16:26

Saturn, 10.0 A.U., Mag. 1.0		
07 06:52 14:10 21:27	06:01	+22:36
17 06:19 13:36 20:53	06:07	+22:37
27 05:45 13:02 20:19	06:12	+22:36

SOL Star Type G2V	Intelligent Life in System ?			
Hours of Darkness				
05:29 07 05:48	13:08	20:27	04:59	+22:43
05:21 17 05:48	13:10	20:31	05:41	+23:22
05:22 27 05:50	13:12	20:33	06:22	+23:20

Astronomical Twilight:	Begin	End
JD 2,452,797	07 03:59	22:19
	807 17 03:57	22:25
	817 27 04:00	22:27

Sidereal Time:
Transit Right Ascension at local midnight
07 00:00 = 15:53
17 00:00 = 16:32
27 00:00 = 17:12

Darkest Saturday Night: 28 June 2003	
Sunset	20:36
Twilight	22:30
Moon Set	20:10
Dawn Begin	03:52
Hours Dark	05:22

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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.

SJAA loaner scope status

All scopes are available to any SJAA member; contact Mike Koop by email (loaner@sjaa.net) or by phone at work (408) 473-6315 or home (408) 446-0310 (Leave message).

Available scopes

These are scopes that are available for immediate loan, stored at other SJAA members homes. If you are interested in borrowing one of these scopes, please contact Mike Koop for a scope pick up at any of the listed SJAA events.

# Scope	Description	Stored by
1	4.5" Newt/ P Mount	Annette Reyes
3	4" Quantum S/C	Hsin I Huang
7	12.5" Dobson	Michael Lagae
16	Solar Scope	Bob Havner
19	6" Newt/P Mount	Daryn Baker
24	60mm Refractor	Al Kestler
27	13" Dobson	Richard Savage
32	6" f/7 Dobson	Sandy Mohan
33	10" Deep Space Explorer	Michael Wright
38	Meade 4.5" Digital Newt	Tej Kohli

Scope loans

These are scopes that have been recently loaned out. If you are interested in borrowing one of these scopes, you will be placed on the waiting list until the scope becomes available after the due date.

# Scope	Description	Borrower	Due Date
6	8" Celestron S/C	Carl Ching	8/9/03
10	Star Spectroscope	Keng Teh	7/19/03
11	Orion XT6 Dob	Tina Mia Kurth	5/22/03
13	Orion XT6 Dob	Michael Rudy	7/27/03
15	8" Dobson	Gary Hansen	8/9/03
23	6" Newt/P Mount	Wei Cheng	8/9/03
28	13" Dobson	Jim Albers	7/20/03
29	C8, Astrophotography	Frank Williamson	8/9/03
35	Meade 8" Equatorial	Patrick Lewis	8/9/03
36	Celestron 8" f/6 Skyhopper	Dennis Hong	5/23/03
37	4" Fluorite Refractor	Jeff Crilly	6/3/03
39	17" Dobson	Lloyd Frisbee	7/13/03

Extended scope loans

These are scopes that have had their loan period extended. If you are interested in borrowing one of these scopes, we will contact the current borrower and try to work out a reasonable transfer time for both parties.

# Scope	Description	Borrower	Due Date
2	6" f/9 Dob	John Paul De Silva	?
8	14" Dobson	Ron Gross	7/3/03
9	C-11 Compustar	Paul Barton	Indefinite
12	Orion XT8 Dob	Vinod Nagarajan	7/8/03
14	8" f/8.5 Dob	Tom Frerickson	7/19/03
21	10" Dobson	Ralph Seguin	Repair
26	11" Dobson	Jan Lynch	7/3/03
34	Dynamax 8" S/C	Mike Macedo	8/7/03

Waiting list:

3	4" Quantum S/C	Eric Anderson
8	14" Dobson	Craig Colvin
12	Orion XT8 Dob	Rob Hawley
16	Solar Scope	Dwight Elvey

San Jose Astronomical Association Membership Form

New **Renewal** (Name and corrections below)

Membership Type:

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