

# SJAA EPHEMERIS

## An Eclipse Behind the Clouds

Ernie Piini

10° 01' 20" N. Latitude  
85° 44' 29" W. Longitude  
San Juanillo, Costa Rica

Our intrepid group of five adventurers traveled by van for two hours from the coastal town of Samara, through rain and over bumpy gravel roads, to the half-moon shaped beach of San Juanillo, about 30 kilometers north as the crow flies. This was our destination where we expected to see the December 14, 2001 Annular Eclipse of the sun near the calculated centerline.

Our group included my 13-year-old grandson, Matthew Piini from Dublin, California; retired Mount Hamilton staffer Shiloh Unruh; Derek Gallion, a software programmer from Hastings, Minnesota; and our leader, Madelyn Dovano from Los Gatos, president of Migrant Travelers.



View of the Arenal Volcano with white Brahma cattle grazing near the base.

We arrived onto the sandy beach around 2 p.m. where the sky was quite cloudy and it rained occasionally. The moon's initial bite into the sun was to take place at first contact, 3:11 p.m. Annularity was to begin about 4:30 p.m. when the offset ring around the moon's perimeter appeared inside the solar disc. At this point no further beads from lunar mountains are seen. The ring, varying in shape, was to last for three and one-half minutes and then become a partial eclipse in

reverse. The still partially eclipsed sun was to set at 5:22 p.m. A perfect ring occurs at mid-annularity when it is located exactly on the centerline as seen by the observer. I was expecting the best photo opportunities to occur during post annularity. A partial eclipse near sunset can be very colorful.

My special projects for this eclipse entailed building several solar filter assemblies for Matthew's JVC

*Continued on next page*

## SJAA Activities Calendar

Jim Van Nuland

### February

- 2** Deep-sky weekend. Sunset 5:35 p.m., 66% moon rise at 11:25 p.m.
- 7** Telescope Making Class, Houge Park meeting room, 8:00 p.m. See December SJAA Ephemeris for more information.
- 8** Astronomy Class II — Houge Park, 7:30 p.m. Observing the Planets, Akkana Peck
- 8** Houge Park star party. Sunset 5:39 p.m., 7% moon rises 4:45 a.m.
- 9** Deep-sky weekend. Sunset 5:40 p.m., 5% moon rises 6:20 a.m.
- 16** Telescope Making Class II — Houge Park, 7:30 p.m.
- 22** Houge Park star party. Sunset 5:54 p.m., 77% sets 4:05 a.m.
- 23** **General Meeting** at Houge Park, speakers Tim Thompson of NASA/JPL on Stellar Evolution, and Karin Avila on Project Astro, **Board of Director Elections**

### March

- 7** Telescope Making Class III — Houge Park, 7:30 p.m.
- 8** Houge Park star party. Sunset 6:09 p.m., 21% moon rise 4:22 a.m.
- 9** Deep-sky weekend. Sunset 6:08 p.m., 13% moon rise 5:01 a.m.
- 16** Deep-sky weekend. Sunset 6:14 p.m., 8% moon sets 8:50 p.m.
- 22** Astronomy class III — Houge Park, 7:30 p.m. Lunar Observing, David North
- 22** Houge Park star party. Sunset 6:21 p.m., 61% moon sets 2:50 a.m.
- 23** Telescope Making Class IV — Houge Park, 7:30 p.m.
- 30** **General Meeting** at Houge Park. Christopher Mauch of Lawrence Livermore Labs, on satellite observations of binary and cataclysmic variable stars.
- 31** Easter. School vacations week before or after.

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

**[www.sjaa.net](http://www.sjaa.net)**



Final partial eclipse photo taken at 3:30 p.m.  
Photos by the author.

## Eclipse

Continued from previous page

digital camcorder. These slip-on devices were machined to fit easily onto the front of his lens. I used the popular Baader ND-5 filter material. It reduces sunlight by a very safe 100,000 times. My set-up made use of a Takahashi "Sky Patrol" equatorial mount for tracking the sun. My recording equipment included a C-90 telescope with a Pentax ZX-5 camera and Kodak Royal Gold 100 film. Also on the mount was my Canon GL-1 camcorder.

As it turned out, I took two clear photos of the partial eclipse, the final at 3:30 p.m. but the clouds moved in shortly thereafter. It appeared that the clouds were moving southward and a clearing near the horizon was possible. This would have given us an opportunity for a colorful photo of the partial eclipse near the horizon without using our solar filters. This never happened.

It was dark when we left our eclipse site for the long bumpy ride back to Samara. Our van hit a rock on the road which took out the reverse gear of the transmission. The driver radioed ahead for another bus to pick us up for the remainder of the trip.

The next morning we flew back to San Jose, Costa Rica, in a single prop Cessna 12-passenger aircraft, the same one that took us out to Samara. The runway is a narrow path cut through the rain forest and on take-off the plane sloshed through three mud puddles. Looking back, it was a

cramped but smooth and scenic ride.

A good substitute for the clouded out eclipse was a visit to the Arenal Volcano. Near sunset we arrived at the park which features a hot springs resort and a ringside hotel room facing the volcano just 2 kilometers away. The volcano was covered with clouds down to its base. During the night I kept looking out from our front observation window hoping to see red lava flows but we were actually in the cloud ourselves. After an early breakfast, we were scheduled to depart the area at 8:30 a.m. As we packed for our trip to Monteverde, we could see the clouds around the volcano begin to lift. We can't leave now! Hold on, bus driver, we may luck out and see a substitute for the clouded out eclipse. By 10:10 a.m., the clouds rose high enough to see the peak of the twin craters. What a grand sight. White, Brahma cattle grazed near a fence at the bottom of

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*... We could see the clouds  
around the volcano begin to  
life. We can't leave now!*

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the volcano. In India these are the sacred cattle which roam the streets freely. Near the summit lies an easily seen aircraft that crashed there about a year ago killing all 10 passengers. On a clear night the active volcano can be seen spewing lava, and during the day white-ash clouds from massive explosions. It has an almost perfect conical shape and reaches 1,633 meters (5,357 ft.) high above sea level.

The last part of our trip was spent visiting Monteverde, a rain forest at an altitude of 1,524 meters (5,000 ft). It is green, green, everywhere. Matthew got to see and photograph his favorite quetzal, a colorful, long-tailed bird, during his walking tour through the reserve. We also saw exotic frogs and butterflies. We awoke at 4:00 a.m. to see the Southern Cross, Eta Carina, and the false cross beautifully displayed above the tree tops.

Other than the well paved and maintained Pan-American Highway, most roads in Costa Rica are gravel or

bumpy dirt. A 30-mile stretch can take several hours of slow driving, but the lush green flora alongside is never tiresome to look at.

On our last night in Costa Rica we took a ride down Colon Avenue (named after Christopher Columbus). Every 50 yards or so colorful Christmas decorations spanned the street. We enjoyed our gala final dinner at the popular Jurgen's Restaurant, which featured French cuisine.

We enjoyed one more night's stay at the luxurious Herradura Hotel, joyfully decorated for Christmas even into the parking lot.

Yes, we did miss the eclipse, but the chance to mingle with the proud Costa Rican people, and to view their lush green country, its flora and fauna and beautiful beaches, and to experience the way the Arenal volcano cleared its cloud cover just for us is unforgettable.

My thanks to my personal editors, Joe Heim and May Coon for reviewing this report.

## Upcoming School Star Parties

For more information on school star parties, visit Jim Van Nuland's school star party web page, <http://www.svpal.org/~jvn/>.

### February

- 6 Alternate date, Holy Spirit, Almaden Valley
- 25 Millbrook School, NE San Jose

### March

- 18 Toyon Elementary, NE. San Jose
- 19 Laurelwood Elementary, NE San Jose
- 20 West Valley Elementary, Sunnyvale
- 21 Silver Oak, far E. San Jose
- 25 Alternate date, Toyon

### April

- 23 Bachrodt School, mid-San Jose

## Observing Through 60 Inches

Jane Houston Jones

Nothing prepares you properly for your first look at or through a big telescope. We drove to Pasadena and up into the San Gabriel mountains during the January 2002 new moon weekend. Our destination was the historic 60-inch telescope at Mount Wilson. Our hosts for the weekend were the Los Angeles Sidewalk Astronomers, who usually set up their homemade reflectors outside the dome for public star parties.

This weekend they arrived without telescopes, and spent Friday and Saturday night peering through the eyepiece of the 60-inch telescope instead. I could write an entire article about the the history of Mount Wilson, the mirrors and telescopes, the current research using adaptive optics with the

Hubble, to name but a few. An old phone list on the bulletin board lists Halton "Chip" Arp, next to one of the many black rotary telephones.

The telescope operator and Mount Wilson Observatory Association docents have a list of target objects that show well in the 60-inch f/16 telescope. And in-between objects they tell tales, give telescope and observatory history, and answer any questions you may have. The upper cage had been removed and the telescope was in its cassegrain configuration for the star party.

With a group of 25 people, it takes about an hour for everyone to view one object. As with most group star parties, many of the participants seemed to poop out by midnight or so,

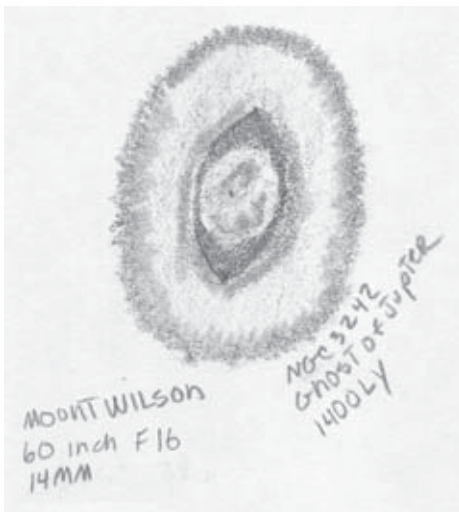
### ***I wonder what Mr. Hubble stored in his locker on those observing nights long ago?***

which meant they had only looked at about 5 objects. After midnight, with a smaller crowd, we were able to move through objects more quickly, and for those of us who stayed until 5:00 a.m. that meant we got plenty of observing time. The conditions on the two nights at latitude 118 degrees 3.6 minutes west, longitude 34 degrees 13.0 minutes north were not too bad. The sky brightness at Mount Wilson from Los Angeles is approximately equal to the sky brightness from the full moon, and the seeing ranged from good to poor. Even so, we had some spectacular views of some amazing objects.

Our first observation on the first night was the blue and yellow double star, iota Triangulum. Next was Saturn, with six moons (even Mimas) visible and a large brown oval storm on the north equatorial band. The storm was as big or bigger than the red spot of Jupiter. And speaking of that other big planet, Jupiter's red spot was near the central meridian too early for observing on the first night, but we went back to it



*The author peers through the telrad mounted near the cassegrain focus of the 60-inch telescope on Mt. Wilson.*



NGC3242 "The Ghost of Jupiter" planetary. Sketch by the author.

100-inch Hooker telescope, but you can read that yourselves if you are interested. Here is the website for Mt. Wilson Observatory and the Mount Wilson Observatory Association <http://www.mtwilson.edu/General/> for your telescope and history fix.

Before dark, I made sure to walk by the famous storage lockers. One square foot in size each, a wall of three rows of four lockers bore the names of some of the famous Mount Wilson astronomers: Minkowski, Zwicky and

the second night at about 1:00 a.m. and got a real treat! The red spot hollow sported a black dot of moon shadow near where a tear duct would appear on a drawing of an eye. Right next to the shadow of the moon, I saw the round beige disk of Europa. The red spot itself was nearly invisible, a washed out faint pink oval. All belts and zones, including the faint equatorial band were visible. The four of us who were sketching were busy getting looks at the planets, and then comparing drawings.

Other highlights (for me, at least) were IC418 in Lepus (the red planetary), Eskimo NGC2392 in Gemini, and Ghost of Jupiter NGC3242 in Hydra at about 800 power. It looked like a Hubble Photo! The trapezium and surrounding nebula in M42 was spectacular. I was able to see the G star inside the trapezium, and the telescope operator told me it is not unusual on a sub arc-second night to see a dozen stars inside the trapezium through this telescope! He also told me that spring and summer are the best observing months, with steady air, and that January is pretty dismal.

*Continued on next page*



## Observing Through 60 Inches

*Continued from previous page*

NGC3115 needle galaxy in Sextans was one of the few high-surface brightness galaxies we attempted to view, the other being the Sombrero Galaxy, M104, in Corvus.

But the absolute highlight for me was to clearly see the jet in M-87. It looked like blobs of material, a string of clumpy clusters, forming a pipe of hydrogen blowing off the elliptical galaxy and pointing at 9:30 in our eyepiece view at 220 and 440 power. The x-ray images we see of this object do not do justice to the visual observations. All pictures I have ever seen of the jet show the galaxy overexposed as a bright oval with no detail and the jet appears outside the oval, almost like a nearby companion cluster or small galaxy. The 60 inches of light gathering power, and the 50 mm eyepiece view for 440 power, showed the jet forming within the galaxy itself. It was worth the trip to the southland just to see this object with my own eyes!

Speaking of quasars, we also observed magnitude 17 Q957 +561 A and B, the variable double quasar in Ursa Major. This "double" quasar is the first example found that demonstrates Einstein's prediction of gravitational lensing. This is a single quasar that has two nearly identical images caused by the gravitational effect of an (unseen) intervening galaxy. Here's a picture of the quasar and the galaxy, compliments of the Hubble Space Telescope. <http://www.astr.ua.edu/keel/agn/q0957.html>

We also observed our nearest quasar, only 2 billion light-years away, magnitude 12.8 3C273 in Virgo. The strange name "3C273" comes from a radio survey that detected many strong radio sources in the sky such as this quasar. Not only do these objects emit prodigious amounts of energy (more than 100 times an ordinary galaxy), they also change in brightness on very small timescales.

At midnight on our first night, we walked over to the 100-inch Hooker telescope, and got to stand outside on

the catwalk as the dome rotated. We got a cook's tour (thanks to a friend who is the telescope operator on the 100-inch adaptive optics system), and then went into the control room, the shop, saw where the 100-inch gets bathed and realuminized, and then, back to the 9-inch thick, 1900-pound 60-inch mirror, for more peeks into the past.

A night on Mount Wilson isn't your typical star party, and although a deep sky observer may get antsy waiting for a telescope operator to cycle through the crowd to the next object, it was a deeply satisfying new moon observing weekend. I wonder what Mr. Hubble stored in his locker on those observing nights long ago?

## Loaner Notes

Thanks to Jay Freeman for donating new 25 and 10 mm Plossl eyepieces and a mirror diagonal to the loaner program.

As *always* the loaner scope program could use volunteers with space to store telescopes. If you could store or help maintain one or more of the loaner telescopes, contact Mike Koop. Find Mike's contact information in the loaner column on the back page of the *Ephemeris*.

**SJAA Board of Director  
Elections at the February  
meeting. *Be there or be  
nominated!***

## Learn to be an ATM

Learn to make a telescope! Class begins Thursday, February 7, at 7:30 p.m. at Houge Park. *It's easier than you think* and a lot of fun! See the December issue of the *SJAA Ephemeris* for more information. (*Oh, and ATM means "amateur telescope maker."*)

## The Shallow Sky

### Observing Jupiter Akkana Peck

Jupiter is at opposition this month!

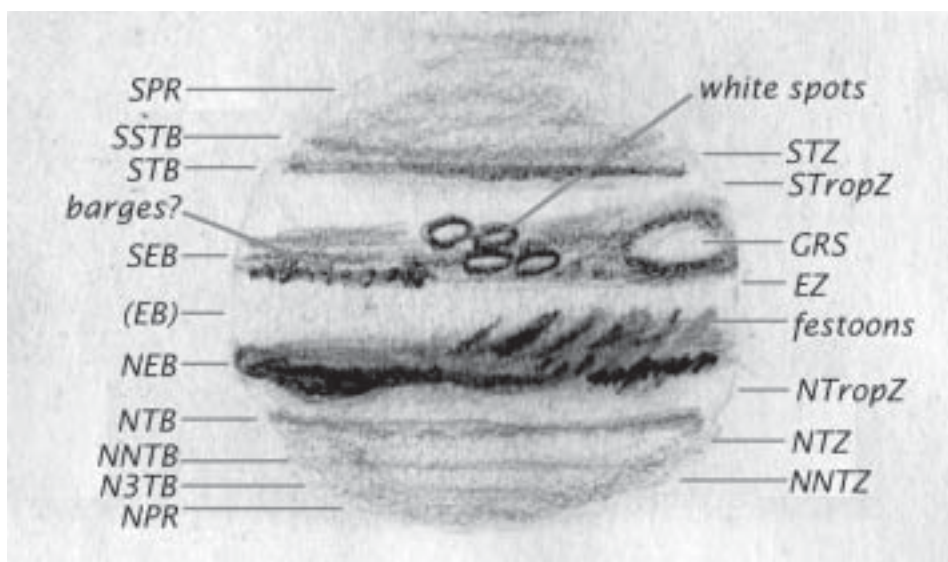
This means that it's your best chance (until next year) to observe all the fascinating detail of Jupiter's turbulent atmosphere. This year it's been phenomenally active, much more so than most years. The ALPO Jupiter mailing list ([http://groups.yahoo.com/group/ALPO\\_Jupiter/](http://groups.yahoo.com/group/ALPO_Jupiter/)) has been buzzing with discussions of the many new storms which have appeared on Jupiter this year.

Even better, it looks like we're having better seeing here this winter (at least when it's not cloudy or raining!) than we've had for several years. And Jupiter is big enough that you can see lots of detail in just about any telescope — I've done plenty of observing and sketching the giant planet through my 80mm f/7 refractor.

To follow discussions like that, or to track your own observations from night to night, you need to know a little about the terminology of Jupiter's atmospheric features. I've added labels to this sketch made at Fremont Peak a few years ago by member Jane Houston Jones, using a 7" refractor. South is up in the sketch.

The dark and light bands are formed by clouds of different temperatures, heights, and compositions within Jupiter's atmosphere. The dark bands are called "belts," or, sometimes, "bands," in contrast with the off-white "zones" between them. They appear brownish or reddish to most observers. Belts are named and abbreviated according to position on Jupiter: Equatorial Belt, South Temperate Band, and so on. The NEB, SEB, and the two Polar Regions are easy targets and should show up in any telescope, perhaps even high-powered binoculars if mounted on a tripod. Most of the other belts are more difficult to see, and require steady seeing and good optics. Note that even with the excel-

*Continued on next page*



## The Shallow Sky

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lent seeing and excellent optics when this sketch was made, the EB was not visible. This is fairly typical - it's one of Jupiter's more elusive features. The highly detailed banding in the north polar region (e.g. separating the NNTB from the N3TB from the polar region) is also difficult and takes very steady skies.

The Great Red Spot (GRS) is Jupiter's most famous feature. A huge storm which has been raging as long as humans have had telescopes to look at Jupiter, it changes color and location over the years. It is fairly pale now, as the sketch shows (though it may be a little darker this year than last year, when the sketch was made). It sits within a hollow in the STB, called the "Great Red Spot Hollow", and often the hollow, where the dark band separates to make room for the GRS, is more obvious than the spot itself.

Festoons are another commonly observed feature. Blueish, in contrast with the reddish belts, they usually sweep out of the temperate bands (especially the NTP) into the EZ.

"Barges" are dark spots that migrate within a band. They aren't well understood; they may be areas of cooler cloud. This year Jupiter is also showing some noticeable dark stripes, particularly in the NEB.

A treat in the past few years has

been the collection of white ovals, especially leading and following the GRS in the STB. White ovals can be either cyclonic or anticyclonic storms. On a night of steady seeing, an amazing amount of detail can be seen, and what initially appears to be a split in a band can turn out to be a complex of white spots of all sizes. ALPO and

## *A huge storm which has been raging as long as humans have had telescopes ...*

other observing groups track these white ovals, and issue alerts as they appear, disappear and merge, and have reported an unusual amount of activity in the last few years.

Are there other planets to look at? Sure!

Saturn is running a couple of hours ahead of Jupiter. Look for the bright object sharing the head of Taurus with Aldebaran, then point your telescope and enjoy the lovely view of the wide-open rings (tilted about 25 degrees from horizontal, still enough to follow the outer ring all the way around the far side of the planet). With the rings that open, it's also easier than usual to see the thin gap in the outer ring, and ambitious observers can look for the radial "spokes" in the B ring which show up in Voyager and other spacecraft photos. We unfortunately

just miss the daytime occultation of Saturn on the 20th (hop in the car and drive south to northern LA county if you don't want to miss it), but Saturn will make a close approach around 3-4pm on that day, and should be a nice sight in a low-power telescope or binoculars.

Mars is still visible in the early evening sky, getting lower as the month progresses. It's too far away to show much detail through a small earthbound telescope, though. Later in the month, Venus returns to evening skies, showing a nearly full phase. Mercury moves into the morning sky, but stays low and close to the sun. The outer three planets — Uranus, Neptune, and Pluto — are all too close to the sun to be easily observable this month.

Palm pilot users: I wrote a couple of new Palm programs to show the moons of Jupiter and Saturn (and the GRS and shadow transits on Jupiter). They're free (and open source) for anyone who can use them. Go to <http://www.shallowsky.com/software/astro.html> for more details.

## Andrah Foundation supports SJAA

As in previous years, the Andrah Foundation of Michigan, through its local representatives, Paul and Ann Summers, have given \$750 to SJAA. This is to promote education and public awareness of Astronomy. We thank Paul and Ann, and the Andrah Foundation, for their generosity.

## For Sale

Questar field model, 3.5 inch Pyrex mirror, 2X Barlow, Nikon camera adapter and set of 5 eyepieces in a case. Asking \$1805 or make offer. (408) 296-1772 (Santa Clara).

## Upcoming Meeting Events

**April 28**, Auction XXII (Sunday).

**May 18**, Tom Castellano on the Transit Search Project.

## Cheated Again

David North

You might look at this month as the Bad Moon month. Just about everything that could go wrong will, and some other things I don't know about probably will also.

First, there will be a magnificent occultation of Saturn February 20th, visible from most of the United States.

One problem: this is not part of the "most" named above. We're above the line, and won't see it.

No big deal, mind you: it happens in midafternoon anyway.

Hardcore fans can drive to Los Angeles, where it will barely make the cut (and a bit north of that, for the truly hardworking occultation viewer, will be the graze zone.

Sometime in February (no doubt) notifications of the exact location of this zone will start to appear virtually everywhere on the internet, so don't worry — you'll know where it is).

On the other hand, it will be a very good lunar observing night, if the weather holds (and typically in February, it won't...)

There will be an interesting occultation of Vesta earlier that day, but: not from here. No, for that you'd have to travel quite a distance.

And, as a final insult to deep sky observers, just before the month slips away (on the 27th, actually) we'll see the biggest, brightest full Moon of the year.

A bonus: it will be high in the sky, too.

That last note is the only one a lunar observer need concern himself with this month.

We're going to be right in the heart of the best time of year for evening Moon observation.

In February, March and April

especially, the first quarter Moon (and the days immediately after) will be at their highest elevations for the year.

This, of course, also means there will be less turbulent atmosphere between us and the Moon.

The weather, if clear, should also be somewhat steady to excellent, just because I say so. (Theory indicates the seeing should average more steady nearer the summer months, and perhaps it does, but for some

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***Just about everything that could go wrong will, and some other things I don't know about probably will also.***

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weird reason the late winter and early spring clear nights often have utterly spectacular seeing, which maybe doesn't clock out to be a great average, but wonderful on the days when you can see).

Of course, another advantage to such nights is the Moon transits shortly after sunset. For some folks, that might be a bit early to get home after work, but for quite some time after that the Moon will be high.

This is ideal for getting in some early observing — some nights even before dinner.

So, we will miss this month's occultations, but it might turn out to be a pretty good month for plain old observing (depending, as usual, on the weather).

And I just can't complain about that.

Weather is a good thing.

## Celestial Calendar

February 2002

Richard Stanton

Lunar Phases:	Date	Rise	Trans	Set
LQ 05:32 PST	04	00:42	05:53	10:51
NM 23:40 PST	11	07:50	11:53	16:03
FQ 04:01 PST	20	10:21	18:22	01:25
FM 01:16 PST	27	17:51	00:09	07:39

Nearer Planets:	R. A.	Dec.
Mercury, 0.89 A.U., Mag. 1.6		
07 05:52 10:58 16:03	20:01.0	-17:40
17 05:34 10:37 15:39	20:17.6	-18:48
27 05:35 10:41 15:48	21:01.0	-17:48

Venus, 1.69 A.U., Mag. -4.0		
07 07:29 12:47 18:04	21:47.4	-14:50
17 07:24 12:55 18:28	22:35.5	-10:27
27 07:15 13:02 18:50	23:22.1	-05:37

Mars, 1.85 A.U., Mag. 0.9		
07 09:28 15:50 22:11	00:51.7	-05:29
17 09:06 15:37 22:08	01:18.2	+08:22
27 08:45 15:24 22:04	01:45.0	+11:06

Jupiter, 4.52 A.U., Mag. -2.5		
07 14:01 21:23 04:49	06:27.9	+23:22
17 13:19 20:41 04:08	06:25.5	+23:25
27 12:38 20:01 03:28	06:24.4	+23:27

Saturn, 8.83 A.U., Mag. 0.7		
07 12:12 19:22 02:35	04:26.2	+20:00
17 11:33 18:43 01:56	04:26.5	+20:04
27 10:55 18:05 01:18	04:27.5	+20:09

SOL Star Type G2V	Intelligent Life in System ?
Hours of Darkness	
10:30 07 07:05 12:22 17:39 21:23.1	-15:20
10:10 17 06:54 12:22 17:50 22:02.4	-12:01
09:48 27 06:41 12:20 18:00 22:40.6	-08:23

Astronomical Twilight:	Begin	End
JD 2,452,312 07	05:37	19:07
322 17	05:27	19:17
332 27	05:15	19:27

Sidereal Time:	
Transit Right Ascension at Local Midnight	
07 00:00 = 09:01	
17 00:00 = 09:40	
27 00:00 = 10:20	

Darkest Saturday Night: 9 Feb 2002	
Sunset	17:41
Twilight	19:09
Moon Rise	05:38
Dawn Begin	05:35
Hours Dark	10:26

**SJAA Astronomical Pocket Diaries and 2002 Observer's Handbooks on sale at the February General Meeting!**



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## 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	Tim Roberts
7	12.5" Dobson	Bruce Horton
8	14" Dobson	Jack D. Kellythorne
10	Star Spectroscope	Steven Nelson
15	8" Dobson	Daron Darr
19	6" Newt/P Mount	Ilkka Kallio
24	60mm Refractor	Al Kestler
27	13" Dobson	Gene Schmidt
32	6" f/7 Dobson	Sandy Mohan

### 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
3	4" Quantum S/C	Tobias Giles	4/4/02
6	8" Celestron S/C	Dan Wright	4/4/02
11	Orion XT6 Dob	Wai Tuck-Low	1/27/02
12	Orion XT8 Dob	Kevin Roberts	12/12/01
13	Orion XT6 Dob	Peter Yoon	4/4/02
23	6" Newt/P Mount	Wensheng Hua	1/27/02
31	8" f/8 Dobson	Jan Lynch	1/27/02

### 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	?
9	C-11 Compustar	Paul Barton	Indefinite
14	8" f/8.5 Dob	Dennis Hong	1/28/02
16	Solar Scope	James Turley	4/12/02
21	10" Dobson	Ralph Seguin	Repair
26	11" Dobson	Tajinder Singh	4/12/02
28	13" Dobson	Michael Dajewski	3/31/02
29	C8, Astrophotography	Eric Anderson	11/27/01

**Waiting List:** 4" Quantum S/C - Eric Anderson; C8 astrograph - Kevin Roberts; 14" Dobson - Doug Hendrix; XT6 - Barry Sorensen; 4.5" newt - Annette Reyes; Misc. - Hans Ernst, Sandy Mohan

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