

SJAA EPHEMERIS

Aurora Reports — 5 November 2001

Jane Houston Jones

Jim Van Nuland wrote:

SJAA member Bob Garfinkle reports a reddish glow to the northwest sky, from his home in Union City. Though this note is rather late in the evening, it's entirely possible that we'll be treated to a repeat on Wednesday night. Watch for it!

It's very unusual to see auroral activity this far from the magnetic pole, but it happened last March, that time to the northeast. Watch both directions.

Here at my home near Hoge Park, the sky is generally messed up and specifically lighted by a neighbor doing outdoor work, and I see only whitish haze.

Brilliant Jupiter is sitting very near the moon. Pretty!

My nephew writes from his house on the Wisconsin / Minnesota border:

The Aurora here in Wisconsin/Minnesota is absolutely nuts. 9:30 and there is a huge, bright red streak running from the eastern horizon all the way to the city lights of St. Paul (about 30 miles west). The best view seems to the southeast!?! The northeast is mostly moon and incoming planes. Even my dullard-neighbor and his sodium arc yard light can't drown out the show. It almost seems as if the rays are converging to point perfectly overhead.

Joe Fragola wrote:

It's a bit late now, but I can confirm auroral activity from San Jose. Unfortunately I got home from work tonight a bit later than usual, so I didn't see the alerts until around 8:05 p.m. I had participated at an SJAA school star party a couple of weeks ago at Oak Grove Elementary School (E. San Jose).

I remember the sky to the North being away from the main glow of San

Jose city lights. So I got in my car for a 25 minute drive from home (S. San Jose, near Hoge Park) out to Tully road. I pulled off a dark stretch of road near a house under construction in the foothills. It turned out to be a good decision. The sky from N.N.W. to N.E. had a crimson glow to it ... not too high up (15 - 20 degrees). I watched the show for about 30 minutes. The aurora

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Aurora photographed from Colorado by Ginger Mayfield. The bowl of the Big Dipper can be seen rising.

SJAA Activities Calendar

Jim Van Nuland

December

- 1 General Meeting and Christmas Party.
- 7 Hoge Park star party. Sunset 4:50 p.m., 46% moon rises 0:20 a.m.
- 8 Fremont Peak star party. Sunset 4:50 p.m., 35% moon rises 1:27 a.m.
- 15 Coe and Peak star party. Sunset 4:50 p.m., 2% moon sets 5:44 p.m.
- 21 Hoge Park start party. Sunset 4:54 p.m., 43% moon sets 11:30 p.m.

January

- 4 Astronomy Class I
- 4 Hoge Park star party. Sunset 5:04 p.m., 61% moon rise 11:20 p.m.
- 5 Deep-Sky weekend.
- 12 Deep-Sky weekend.
- 18 Hoge Park star party. Sunset 5:17 p.m., 27% moon sets 10:16 p.m.

26 General Meeting at Hoge Park.
Speaker TBA.

Since it is not practical to guarantee that an official SJAA representative will be present at Coe, Fremont Peak, etc., we will only list dates that are suitable for deep-sky observing, that is to say, when the Moon will be out of the way. It has proved impossible to cover deep-sky sites, especially when the weather prospects are poor. This announcement is being prepared in early November, so we have no idea what will be the circumstances two months hence. Once publicly announced, there is no way to cancel an event.

Hoge Park public events will be covered even in case of bad weather -- at least one member will be there to greet the people and give them the date of the next event.

-- Clear Skies!

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

www.sjaa.net

Aurora

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was more intense toward the N.E. at times.

There were periods of a minute or two where it faded and was hardly noticeable. At other times, the red-denied sky was very obvious ... it almost looked like there was a forest fire off in the distance. Very impressive display. I was also fortunate to be at Hough Park for an SJAA star party on March 30 when we saw a previous auroral display. The dominant colors during that display were green and white. The Moon has come up now, so any ongoing auroral activity is probably washed out. I'm hoping for a repeat performance tomorrow night.



Minuteman Launch — 10 November 2001

Rick Baldridge

The photo was taken near Castle Rock State Park on Skyline Blvd. above Saratoga. The lights of Santa Cruz appear in the foreground through some thin fog. A last-quarter Moon provided the extra illumination. Near the launch point, the red light of Mt. Toro near Salinas appears. The trajectory goes through the stars of Eridanus and

Fornax. Note the 2nd-stage burnout and 3rd-stage ignition point accentuated by a "puff" of smoke that the moonlight illuminated.

The photo was taken with a Tokina 28-85mm zoom set at 28mm at f3.5 on 800-speed Kodak MAX negative film for about a 4 minute exposure for those of you keeping track!

Our Aussie Outback Meteor Diary

Jane Houston Jones

Day One November 11, 2001

The 2001 Leonid Multi-instrument Aircraft Campaign has begun. Researchers arrived on Friday the 9th at Edwards Air Force Base in the Mojave Desert. They will begin outfitting the FISTA aircraft with cameras, go through debriefing and practice with the flux measurement software and hardware. Others drove to Mount Lemmon east of Tucson, and more yet made plans for Fremont Peak. But enough about them. We're off to Alice Springs!

Day two November 12, 2001

This day is lost as we cross the international date line. The good news

is we had two breakfasts.

Day three November 13, 2001

About halfway to Australia, on the flight to Sydney, we looked out the window of the 747. We saw the Large Magellanic Cloud floating there in our galactic neighborhood. Later we saw the Southern Cross, and Venus, with the crescent moon behind us. It was cloudy and rainy most of our first afternoon and evening in Alice Springs.

Day four November 14, 2001

Today we made contact with members of the Alice Springs Astronomical Society, who offered their dark sky site to us for the Leonid nights. It is 4-wheel drive country, and none of them want to stay all night Sunday night. President Matt Pearce suggested an alternate site, a B&B 30 km out of town. We'll scout it tomorrow. We rented a car and for some practice drove to the ANZAC memorial. From that monument to Australian and New Zealand's servicemen, we looked across the town of Alice Springs to the ancient Macdonnell Range of mountains, split at the entrance to town by the Heavitree gap. At night, as Mojo worked on the meteor counting software we all will use in our research, I took my 9x63 binoculars out. Even though the light pollution from the green fluorescent lamps at each bungalow at the Desert Palms resort reduced the limiting magnitude to between 2.9 and 4.8 I saw Mars in upside-down Capricornus. Saturn was near upside down Taurus, which was near upside down Orion. Canopus was rising higher by the hour, and then between Mars and Saturn, near Canopus I spotted the Large Magellanic Cloud, Small Magellanic Cloud, 47 Tucanae, and the Tarantula Nebula. Soon the false cross rose, and I almost spotted Crux low on the horizon. Try as I might, I never did see a faint Leonid.

Day 5 November 15, 2001

Today we scouted a good site, and arranged for it to be our Leonid observing location. The Bond Springs

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Outback Retreat is 30 km away from Alice Springs on the Stuart Highway. Actually it is on a dirt road 6.5 km off the Stuart Highway. If we stayed on the Stuart Highway and drove for 500 more kilometers we would come to the next town, which is Tennant Creek. Our reports will come from here on Leonid Sunday night, November 18 and Monday morning, November 19. The rest of the day was spent working on

Mooning

Upheaval

Dave North

No, I don't mean barfing, though that's pretty much what I feel like doing when I see the name Upheaval Dome used to describe what is doubtless the most spectacular impact crater remnant in the world.

It looks like you're on some weird moonscape from an old science fiction painting...

Perhaps one day it will be renamed, say, to Shoemaker Crater and instead of being a backwater whazzat, it will become one of the crown jewels of the National Park Service (at Canyonlands National Park, which may be the best park we've got, but that's another story for another place).

Close watchers of this column will remember Akkana and I recently tied the knot, with the help of several friends and Mr. Jane Houston Jones Senior (not Mojo, though he was there. Alan Miller, her dad).

Afterward (among other things) we drove to Moab Utah with one major objective in mind: to get inside Upheaval Dome and return alive.

Perhaps you've seen some of Akkana's pictures of it at: <http://shallowsky.com/upheaval.html>

We have tons more, but really!

After we first saw it years ago, Akkana became obsessed with getting down into it, as if a closer view of what's in there might be somehow interesting. Don't get me wrong, I wanted to go too, but her level of need was somewhat more notable, and her

the software (Mojo) and arranging for meteor counting logistics and training on Saturday night (Jane). It's dusk now, and the afternoon clouds are clearing. We'll take another look at the sky when it is dark.

This will be the last report before Leonid night. It's time to put the Ephemeris to bed.

Jane and Mojo reporting from GMT +9.5 hours, 23 degrees 42 minutes South, 133 degrees, 52 minutes East.

planning better too.

The first time we tried some four years ago, we headed down from the topside (very easy to get at by car) and soon realized the vertical difference of several thousand feet was perhaps going to be a problem in the desert heat. Running out of water about half way down was our first clue.

Oops.

So then we plotted routes down

Once inside, what you see is a completely alien, unreal landscape of exploding colors and weird contorted shapes.

the crater wall (possible, it turns out, according to some wildcatter writings on the subject, but getting back up might be a bit challenging).

Okay. So what do you do?

Akkana noticed that there was a Black Diamond off-road route to a spot near the bottom, where there was a rude trail marked that led into the lower end of the crater.

Hmm. After some inspection, we realized the vertical elevation change over the 3-1/2 mile hike was only 400 feet: negligible.

Gotta go.

So we did.

Black Diamond, on offroad routes,

means the same thing it does on ski runs: Not For The Weak Of Heart. There Be Dragons There. Other scary phrases.

Turns out the first description fits it best: there is nothing technically challenging about the road; it simply is narrow, has sharp turns, and if you slip off the edge you fall several thousand feet down a nearly vertical cliff.

It's that last part that gets it the Black Diamond rating.

This perturbed Akkana so much that, when she got to the edge of the cliff, she didn't even slow down. I got to drive back up. Fun!

Anyway, there was about 80 percent cloud cover that day, which helps a lot, since there is no shade on the hike. There really isn't a trail, you just slog your way up the sandy wash that drains the crater basin. At times, it's 30 or 40 feet wide, at others maybe ten feet.

Yes, its source is just the crater. Yes, it's a big crater.

There is a slightly scary climb getting up onto the first shock ring plateau, and a few landslides you have to negotiate inside the crater itself, but mostly it's fairly level going.

Take water, and plan on a hike of about 15-20 miles. The actual distance will be a bit over ten miles, but the problem is the sandy footing: at times it's like walking on a coarse beach, and by the time the day is done you will have become expert at spotting slightly more solid footing to save a little effort.

Once inside, what you see is a completely alien, unreal landscape of exploding colors and weird contorted shapes. If you've seen Zabriskie Point in Death Valley, expand the pallet and make the shapes much weirder, and you have something of the idea.

It's amazing!

It's also obviously tortured. Gene Shoemaker determined it was an impact event, which is very easy to believe looking at it. The pressures and temperatures that deformed these rocks were enormous (you can clearly see they were originally stratified sediment much like the mostly level

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Mooning

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placid layered terrain nearby).

If you'd like to see something of what it looked like, try: <http://timocharis.com/honeymoon/thursday/>

For once, I have some pictures I can show off!

We tried to circumnavigate the inside of the crater, but didn't make it. At the high point, the climb gets to be a fairly tricky scramble that we could have managed, but we were at the last reasonable turn-around time, so we opted out.

This was the best choice in the end, because on the way out we found an obscure entry into the very core of the central ring/peak zone, which took some climbing and scrambling, but what an amazing view!

The Shallow Sky

Holiday Planet Watching

Akkana Peck

The holiday season brings planet watchers some beautifully decorated ornaments hanging in the sky all night — and three gifts: a Saturn occultation, a near-occultation, and a partial solar eclipse.

The solar eclipse occurs on December 14th. It won't be much from here — we'll see less than twenty percent of the sun covered by the moon — but that might be enough to be able to see it with a pinhole viewer (let the sun's image project through a small hole into a light colored surface), and it will certainly be enough to see it using a solar filter over your eye or covering the objective of binoculars or a telescope. It's a good excuse to look at the sun anyway — the sunspots have been spectacular throughout this solar maximum year, so there will almost certainly be something to see.

The near-occultation occurs on November 30, when observers south and east of us will see the moon pass in front of Saturn. Unfortunately, here in San Jose it just misses, and in LA it's

There really isn't an impact crater like it anywhere. Some are larger (though not as well defined) and some are newer and more obvious, but none have this combination of drama, color, size and wonder — not even close.

When we finished out the day, we were absolutely exhausted, and utterly elated.

To have finally gained the core of Upheaval Crater, and to have it turn out to be even more magnificent than expected, and to have finally succeeded on our honeymoon was sublime.

But honeymooning is not a requirement. If you get a chance, go.

If you don't get a chance, make one.

Oh, and in the end, what does this have to do with mooning?

Who cares?

over before moonrise. But if you're contemplating a trip to the midwest or east coast, be sure to take a telescope or binoculars; and if you're staying here, take a look at the moon when it rises — Saturn won't be far away.

The ALPO Jupiter list has been reporting that there's a new small and pale red spot visible in the NEB; a few people have been watching it and imaging it, and it seems to be growing in both size and intensity.

The real occultation happens at the end of the month, December 28th, and we're smack in the middle of the path for this one (weather permitting, of course). The moon will be one day short of full, and Saturn will disappear behind the moon's dark limb at

12:11am, reappearing at 1:28.

<http://www.lunar-occultations.com> is a good site for getting detailed predictions of occultations — much easier to read than the general charts in Sky&Telescope or the RASC Observer's Handbook.

Of course, you shouldn't neglect Saturn on the nights between November 30 and December 28 — it's perfectly placed for observing all month, high in the sky with its rings wide open. This year is a great time to observe the gaps in Saturn's rings — even the narrow gap in the A ring (named after the various people who observed it at different times — Encke, Keeler, DiVico and others) should be visible in a moderately sized telescope with good optics, if we get any luck at all with the weather this winter.

And Jupiter, trailing about two hours behind Saturn, rounds out the feast. The ALPO Jupiter list has been reporting that there's a new small and pale red spot visible in the NEB; a few people have been watching it and imaging it, and it seems to be growing in both size and intensity. In photos it looks mostly like a white spot, but apparently it looks much more red when viewed visually on the limb. What will it become? I've also heard reports that the Great Red Spot (in the SEB) is less red than it was last year (too bad — last year it was looking like it might bloom and turn really red, so we could stop calling it the "great spot formerly known as red").

The lesser gas giants, Uranus and Neptune, are still visible in the western sky just after dark. Mars, too, is visible this month, a little higher in the western sky. It's fairly far from us now, and therefore small — around 7" — but the reports are that the global dust storm is finally abating, and more detail is visible now than could be seen at opposition when the planet was much closer to us with a much bigger apparent size.

Mercury and Venus are both morning planets now, but they're racing back toward the sun and aren't very well placed for observing past the first few days of December.

Sports Weary Observer Reports

Bill Arnett

My eyes were tired after watching both the 49ers and the World Series. So I didn't do much until late. But by midnight the seeing was about 9/10 (normalized for Redwood City :-(Saturn was its usual gorgeous self, minus its usual shadows (it was about a month from opposition). A pesky star complicated satellite identification but I think I caught a glimpse of Enceladus in addition to the Usual Four (plus wide-

ranging Iapetus which is easy if you bother to find it); Mimas eluded me as usual.

Moving half a billion kilometers closer to home, Jupiter seemed to be missing a moon. That's not unusual, sometimes a moon is occulted or transiting. What is unusual is that it was clearly visible near the center of Jupiter's disk as a *dark* spot against the South Temperate Zone. At first I thought it was dust on my optics (of which there is a great deal :-() but it stayed with Jupiter when I slewed a bit. It was much too faint for a shadow. So I resorted to the computer and Starry Night then confirmed it as Ganymede in transit. It was just following the Great Red Spot, which seems even less distinct this year than last. The part

sticking down into the STZ is almost gone and the interior is very pale. I keep hoping each year that it will get darker but it seems to be the opposite. I couldn't see enough detail to figure out what's happening downstream of the GRS but there's something happening there. Maybe the GRS is about to eat a big oval?

Luna was nice, too. Lots of easy rilles around Posidonius and points north. The Apollo 11 trio were easy. Are they easier near lunar sunset? Seems to me I've seen them more often than than in the other half of the month.

I forgot to close the door to my observatory after I opened it up and came back inside for a while to let things cool off. When I went back out there were wet raccoon footprints leading up to the door but I guess he dried his feet off on my carpet since there were no other prints leading away and no actual raccoon inside :-(

Flea Market Results

Gary Mitchell

The SJAA made \$216.50 in commissions at the swap/flea market Sunday. In addition, we received \$55 for that donated telescope tube and accessories, (and we have a happy V.P. since now he doesn't have to store it at his place). Grand total: \$271.50.

San Benito County Passes Lighting Ordinance

Chad Moore

On Nov. 6th, the San Benito County board of supervisors voted 5-0 to approve a lighting ordinance. This caps six months of working with the county, and years of public outreach by Pinnacles National Monument and Fremont Peak Observatory Association. The ordinance, modeled after the Flagstaff one, delineates three night sky protection zones centered on Pinnacles National Monument and Fremont Peak State Park.

The incorporated areas of the county are now drafting lighting ordinances as well. Technical assistance by the US Naval Observatory and media coverage by The Pinnacle newspaper were instrumental in the process.

— Chad Moore Pinnacles National Monument, California

Amateur Telescope Making Class Starting in February

Mike Koop

Under the instruction of Tom Whittemore of Evergreen Valley College, the SJAA will be hosting a mirror making class in the hall at Hough Park.

The class will meet bi-monthly based on the Hough Park star party schedule. The class will meet at 7:30 p.m. on Saturday after a first quarter star party (except when a general meeting is scheduled!) and Thursday 8:00 p.m. before a third quarter star party. Feel free to attend any of the classes which you can.

The class format is casual, with a talk at the beginning followed by a grinding session. The talk will be on all aspects of telescope making, focusing on mirror making in the beginning and scope building at the end, corresponding to where most people are in the class. A Foucault tester will be available to help determine the figure of your mirror along with some advice on how to correct it.

A few SJAA members have partially completed mirrors, so bring those on in to finish them up. Tom has requested that those of you who are interested in ordering a mirror kit, contact him so that we can get a group discount. Tom is planning on making epoxy tools which should be less expensive but a little more work. The club will also fund a 10-inch "Community Mirror" for everyone to work on. So if you want to get a feel for what mirror making is all about, come join us for an evening!

Contact Tom by email at atmclass@sjaa.net.

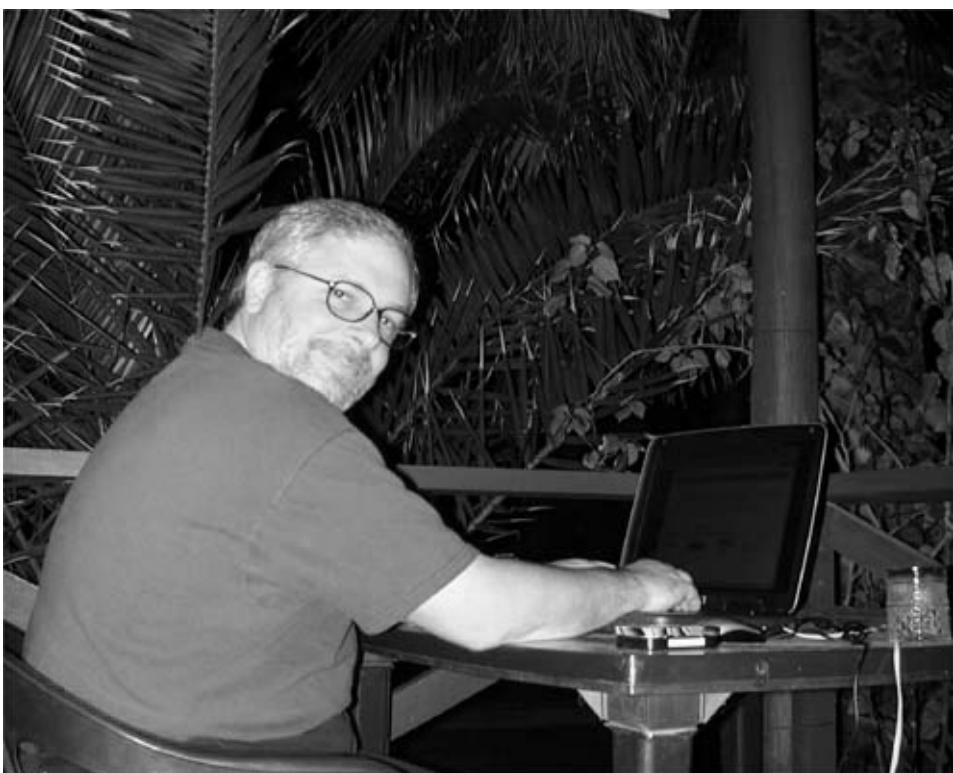
ATM classes for the first half of 2002:

Thursday Classes: Feb. 7, Mar. 8, Apr 5, May 2, May 9, May 30

Saturday Classes: Feb. 16, Mar 23, Apr 20, June 15



Robert Naeye (left) accepts congratulations from Bob Havner after a thoroughly enjoyable survey of the Chandra X-Ray Observatory at the November general meeting of SJAA. Robert is editor of Mercury magazine, the publishing arm of the Astronomical Society of the Pacific.



This is where your Ephemeris editors humbly apologize for any errors, delays, or otherwise disreputable events regarding this month's fishwrap. As you can see, working conditions have been somewhat different from the norm. The Ephemeris is brought to you this month from the heart of the Australian outback, Alice Springs in the Northern Territory. (See the article elsewhere for a diary of our adventures to date.) Thanks to Hewlett and to Packard as well for their excellent laptop computers, to AMD for their truly advanced small devices, and to Telstra for their only moderately annoying internet service.

Celestial Calendar

December 2001

Richard Stanton

	Lunar Phases:	Date	Rise	Trans	Set
LQ	11:52 PST	07	23:36	05:50	13:10
NM	12:47 PST	14	07:47	11:45	15:37
FQ	12:56 PST	22	12:36	18:12	00:01
FM	02:40 PST	30	15:58	00:47	08:35

	Nearer Planets:	R. A.	Dec.
Mercury, 1.40 A.U., Mag. -1.7			
07	07:22 12:06 16:49	17:01.3	-23:56
17	07:57 12:36 17:14	18:10.4	-25:21
27	08:23 13:06 17:49	19:20.3	-24:22

Venus, 1.69 A.U., Mag. -3.9			
07	06:25 11:21 16:16	16:17.3	-20:46
17	06:47 11:35 16:23	17:10.8	-22:47
27	07:06 11:51 16:35	18:05.5	-23:39

Mars, 1.38 A.U., Mag. -0.2			
07	11:45 17:08 22:31	22:05.6	-13:02
17	11:24 16:56 22:28	22:33.1	-10:12
27	11:02 16:44 22:25	23:00.2	-07:15

Jupiter, 4.21 A.U., Mag. -2.7			
07	18:38 02:02 09:22	06:59.6	+22:41
17	17:54 01:18 08:38	06:54.6	+22:49
27	17:08 00:33 07:54	06:49.0	+22:57

Saturn, 8.11 A.U., Mag. 0.5			
07	16:28 23:38 06:53	04:39.6	+20:16
17	15:46 22:56 06:10	04:36.2	+20:11
27	15:04 22:13 05:27	04:33.0	+20:06

SOL Star Type G2V	Intelligent Life in System ?
Hours of Darkness	
11:15	07 07:09 11:59 16:49 16:56.0
11:19	17 07:17 12:04 16:51 17:40.0
11:18	27 07:21 12:09 16:57 18:24.4

Astronomical Twilight:	Begin	End
JD 2,452,250	07	05:37 18:22
260	17	05:43 18:25
270	27	05:48 18:30

Sidereal Time:	
Transit Right Ascension at Local Midnight	
07	00:00 = 04:56
17	00:00 = 05:36
27	00:00 = 06:15

Darkest Saturday Night: 15 Nov 2001	
Sunset	16:55
Twilight End	18:25
Moon Set	19:35
Dawn Begin	05:40
Hours Dark	11:19

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Telescope Loaner Program

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Bill Arnett	bill@nineplanets.org
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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
3	4" Quantum S/C	Hsin I. Huang
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	Iikka 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
6	8" Celestron S/C	Patrick Whalen	11/10/01
11	Orion XT6 Dob	Wai Tuck-Low	1/27/02
12	Orion XT8 Dob	Kevin Roberts	12/12/01
13	Orion XT6 Dob	Tobias Giles	1/12/02
16	Solar Scope	James Turley	1/13/02
23	6" Newt/P Mount	Wensheng Hua	1/27/02
26	11" Dobson	Tajinder Singh	1/12/02
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
21	10" Dobson	Ralph Seguin	Repair
28	13" Dobson	Michael Dajewski	12/31/01
29	C8, Astrophotography	Eric Anderson	11/27/01

Waiting List: Orion 8", Dennis Hong; 4" Quantum S/C, Eric Anderson

Loamer Notes: Please let me know if you have storage space for a telescope or two!

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San Jose Astronomical Association,
P.O. Box 28243
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Sky and Telescope - add \$30 to membership

(Sky & Tel will not accept multiyear subscriptions)

Make checks payable to "SJAA"

Bring this form to any SJAA Meeting
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