



SJAA EPHemeris

Lasers in the Sky with Diamonds

Bill Arnett

As authorized by the board at the last meeting, I purchased a green laser pointer with the intent of using it for pointing out constellations at our star parties and classes. It does indeed work pretty well but there are a couple of caveats. First, it is badly affected by light pollution; it works much better in dark skies than in bright ones. In a bright sky the beam is easy to see if you're the one holding the pointer, but if you're more than a few feet away from the origin of the beam it can get pretty dim. In reasonable suburban darkness (i.e. my backyard) I can see the beam from 10 or 12 feet away from the origin; that should be fine for star parties. Secondly, it works better in damp weather. I guess the deal there is that it has more water droplets to reflect off of. How these two factors will balance out at Hougé is anybody's guess. I think we'll just have to try it for a while.

Dark adaptation really matters, too. When you first go out from a bright room the beam is hard to see. But it only takes a few seconds before it starts to work. It's a little funny: at first it seems like it doesn't quite reach to the stars :-).

The beam itself is just gorgeous: a nice pure green line with bright sparkles that constantly dance around (dust motes, I guess). Lasers in the sky with diamonds!

The reason it works so much better than a red laser is slightly controversial. One theory is that the human eye is more sensitive to green light. That's true, but I don't think it's the right explanation. When I aim both red and green laser pointers at a distant white object they both make spots of about the same brightness. But there's a line in the air from the green one only. I think the answer is scatter from air molecules and espe-

cially dust and water droplets. That's more efficient for green light than red (same reason that the sky is blue; this would work even better for blue lasers but they're way too expensive).

What this thing really excels at is as a replacement for a Telrad. I used a couple of bungee cords to attach it to my dob and align it to the optical axis (not a good system, but adequate for a test). So when I want to point the dob I just swing roughly in the right direction, push the button and move until the beam is in the right place. It's easy to get within a fraction of a degree of the intended target (assuming of course, that you know where it is :-) and *much* easier than trying to peer thru a telrad. And way more fun! As soon as the price comes down (a few years, I would guess) I think it will be the end of the line for Telrads. A green laser is a *lot* better. (Unless there are photographers around; the laser would almost certainly mess up their images. Telrads may survive for those cases.)

Maybe the best thing is when you're looking at something and someone comes up and says, "Hey, that's neat, where is it?" you can just flash on the beam and the best imaginable indication of location flashes into the sky!

You can see the beam through the eyepiece, too. That's useless except for initially aligning, but it's kind of fun. It might be useful to attach one of these to a binocular for finding and pointing out dimmer objects.

The backscatter beam is not bright enough to affect one's dark

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SJAA Activities Calendar

Jim Van Nuland

January

- 5 Astronomy Class I, Hougé Park, 7:30 p.m. Mike Koop
- 5 Hougé Park star party. Sunset 5:05 p.m., 82% moon sets 3:50 a.m.
- 13 General Meeting: Craig Wandke on the Apollo Missions.
- 19 Hougé Park star party. Sunset 5:19 p.m., 16% moon rises 4:17 a.m.
- 20 Fremont Peak star party. Sunset 5:19 p.m., 10% moon rises 5:09 a.m.
- 27 Coe and Peak star party. Sunset 5:26 p.m., 11% moon sets 8:30 p.m..

February

- 2 Astronomy Class II, Hougé Park, 7:30 p.m.
- 2 Hougé Park star party. Sunset 5:34 p.m., 67% moon sets 2:38 a.m.
- 10 General Meeting: Dr. Kevin Zahnle, a theoretical physicist at NASA Ames Research Center, will speak on "Asteroid 4769 Castalia vs. Planet Venus: Home Movies of Big Bolides." Plus board election! Vote early and vote often!
- 16 Hougé Park star party. Sunset 5:49 p.m., 31% moon rises 2:11 a.m.
- 17 Fremont Peak star party. Sunset 5:49 p.m., 22% moon rises 3:04 a.m.
- 24 Coe and Peak star party. Sunset 5:56 p.m., 3% moon sets 7:22 p.m.

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

www.sjaa.net

Lasers in the Sky

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adaptation. But as with all lasers, one must be careful to avoid getting the beam directly in someone's eye. While it isn't as bad as looking at the sun with a scope, it's still not a good idea. At public parties we'll have to be careful about children.

The cost is \$235 + shipping; see <http://www.skypointer.net/>

A Different Kind of First Light

Ed Greenberg

My niece, Marie (8 years old), is in town from New York for Thanksgiving, and a fine young lady she is. Intelligent, articulate, and billed to be interested in "the stars."

During the afternoon, I was working on Skymap 7, installing files from the CD onto the hard disk, etc., and Marie wandered over. I made some comment about "this is how we know what is in the sky" when Marie started pointing out planets.

Marie then asked me to align Skymap for "here" and "tonight".

To do this, I had to add Danville to the location file in Skymap, and we spent about 30 minutes on latitude and longitude to do that. We were finding locations on Street Atlas, and moving the coordinates into location.dat, with Marie converting degrees and minutes into decimal degrees. We did Danville, Syosset, New York, and also a decent approximation of Plettstone, where I plan to be this weekend.

Finally, we did time zones. With the aid of a magic marker and an apple, we demonstrated not only that New York was at 75 Longitude and San Francisco at 120, but also that 120 Longitude corresponds to 8 hours earlier than GMT. Marie "got" that 15 degrees = 1 time zone, and correctly noted that we had earlier entered a longitude coordinate of 120 degrees for Danville.

Most of us in the Bay Area know that Thanksgiving Day was predicted for

rain in the evening, and I had no intention of taking out the telescope, but as the sun set, we were looking at only partly cloudy skies over Danville.

I took out my XT8 (Orion Dob) and pointed it east at Jupiter and Saturn. The street was not 100% dark, but with no street lights, just house lights, I could see the Pleades naked eye, as well as most of the really bright stars.

With Jupiter in a 25mm eyepiece, I went in and got Marie. I said, offhand, "Look for Jupiter and his four moons." As her eye hit the eyepiece, she gave that little gasp that you get when somebody sees their first object in a telescope.

Then she said, "There's only three moons. Where's the fourth moon?" I looked, and sure enough, we could only see three. Io was just coming out of occlusion.

We looked at Jupiter under higher power (166x — my highest) and then went over to Saturn at both 48x and

"There are only three moons. Where's the fourth moon?"

166x. Got major gasps on these. I told Marie how to move the scope to keep the object in view. Torre, my brother-in-law, went in to get his wife, Chong, to see. I told Marie to keep Jupiter in view for Chong, which she did. I said, "After Aunt Chong gets out here, I'll teach you how to point the scope at different things."

"Me?" she squeaked.

"You," I replied.

Now, finding something as bright as Jupiter or Saturn in a Telrad is not a challenge for most of us, but she took less than two minutes to have Saturn in the sights, and in the eyepiece. Dead on. Next we looked at Aldebaran. Then back to Jupiter. Then we were changing eyepieces on each object. We visited the Pleades. Back to the two planets.

Now we've picked up a crowd. Marie is holding court at the telescope. She's telling people, proudly, what they are going to see. She's not only doing astronomy, she's doing sidewalk astronomy! Her first night.

With her mother's permission, I

presented her with a set of binoculars (I have two in the truck) and a copy of *Touring the Universe Through Binoculars*. Fast as a meteor, she had those puppies on the planets, on the Pleades, and just bouncing around saying, "Wow!"

Things started to cloud up, fog up and dew up, and Marie and her mother had to leave, so we broke and went inside. I closed by presenting Marie with her very own red flashlight — one that Jane Houston Jones had given me.

Loaner Scope #8

Bob Havner

[Last month we published the first of what we hope will become a series of articles written by SJAA members who have borrowed telescopes from the loaner program. If you have spent time with one of the SJAA loaner scopes, we would like to hear from you! Email to ephemeris@sjaa.net. -ed]

I'd like to start by saying thanks to Mike Koop for all his work on the loaner scope program. It is a real asset to the SJAA members to have such a variety of instruments for use. This summer I had an opportunity to play around with scope #8, a 14" truss tube dob. I brought the scope to my friend's home in Gilroy for my first look through it. M13, the Hercules Cluster was my first choice. Looking at M13 with the 14" was like seeing a new object for the first time. An incredible amount of individual stars, even at low power, jumped into view. I spent a few hours with it that first night before putting it to bed.

The following day I disassembled the scope into its major components. After repairing some of the fasteners. I reassembled and collimated the scope. That first attempt took about 45 min. The secondary was a little difficult to get set properly but once set it seemed to stay fairly well aligned. After a few set-ups the time was cut down to about 15 to 20 min. The base is fitted with castors and while this made for easy relocation it made for a very unstable

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mounting. Setting up on grass or dirt helped, but it was still a little unsteady. A Telrad and a 60mm finder scope are mounted to the scope. The 60mm with the supplied 20mm eyepiece provided an excellent wide field view for finding objects.

Although it required a bit of work to get the scope to a dark site, my efforts were rewarded with some incredible views. My family has a camp on the Stanislaus River near Dorrington. On a moonless night many deep sky objects are visible to the naked eye. I

brought the 14" there on such a night. After dark, the Milky Way rose from the southern horizon to beyond the zenith. The entire sky was alight with stars. Looking through the eyepiece, clusters and nebulae showed bright against the inky black background. The nebulae were the highlights, detail I had never observed before. I was also able to successfully complete my list of Messier objects finding M33 from Lick observatory and M74 at Fremont peak.

I would recommend scope #8 for anyone who won't mind a little effort for some pretty big rewards. Thanks again to Mike and the SJAA.

"Are Good Planets Hard to Find?"

Topic of Discussion

January 24th at Foothill College

On Wednesday evening, January 24th, at 7 p.m., Drs. Frank Drake and Peter Ward will discuss the controversial "Rare Earth" hypothesis in the Silicon Valley Astronomy Lecture Series, at Foothill College in Los Altos Hills. Admission is free and the public is invited. Call the series hotline at 650-949-7888 for more information.

This non-technical program will focus on the question of whether or not habitable planets (like our own Earth) are rare in the cosmos. Dr. Ward, a geologist and zoologist at the University of Washington, is co-author of a much-debated book called "Rare Earth," which suggests that scientists may be too optimistic about finding earths and life among the stars. Dr. Drake is an astronomer at the University of California, Santa Cruz, and one of the founders and the Chairman of the SETI Institute. He is widely known for conducting the first radio search for possible signals from extra-terrestrial civilizations, and for the Drake Equation, a way of organizing our estimates for the number of such civilizations that might be out there.

There will be an opportunity for questions from the audience after what should be an exciting discussion.

The program will be held at the Foothill College Smithwick Theater in Los Altos Hills. From Interstate 280, exit at El Monte Road and travel west to the campus. Visitors must purchase a required campus parking permit for \$2.

The non-technical program is cosponsored by NASA's Ames Research Center, the Astronomical Society of the Pacific, and the SETI Institute. Over 900 people attended several of the lectures in this series last year. Seating will be on a first-come, first-served basis. Children over 13 are most welcome.

The Shallow Sky

A New Year For Planet Watchers

Akkana Peck

Hope you had decent weather for the Christmas morning partial solar eclipse! Alas, those of us in North America entirely miss out on its companion total lunar eclipse on January 9th.

But we can console ourselves with some great views of the planets. Jupiter and Saturn are high in the sky in early evening and observable most of the night.



North is up in this sketch by Akkana Peck showing her view of some of the interesting Jupiter features visible this year.

Jupiter continues to be very active this year; in addition to the Great Red Spot becoming red again after so many pale years, there's been an unusual amount of activity in the north equatorial band, with several light-

colored rifts visible in the band through even a small telescope, and a pronounced split in the south band almost all the way around the planet. Meanwhile, festoons, ovals, and transits of the moons and their shadows come and go, keeping the Jupiter observer interested with a constantly changing panorama.

Saturn is beautiful as always; now that we're past opposition, observers can watch the shadow of the planet on the rings lengthen from week to week, while watching the moons (how many can you see?) and gauging how much of the subtle color you can see in its bands (some observers have reported that the planet seems more colorful this year than last).

Venus continues its excellent evening apparition, hanging high in the

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Shallow Sky

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western sky for hours after sunset. It crosses from slightly gibbous to slightly crescent this month, and grows to half an arcminute in diameter by the end of the month (about 2/3 the size of Jupiter's disk). By the end of the month, it will be joined by Mercury, low in the sky after sunset. Mercury reaches greatest elongation on the 28th, showing a waning third-quarter phase.

Mars rises after midnight and is well placed for early morning observing. It's still small and you'll have to work hard to see any detail, but it's growing in brightness and apparent size as it approaches its next opposition, this coming June.

Neptune and Uranus are buried in twilight low in the sunset sky; Pluto is on the other side of the sun, low in the dawn twilight.

Mooning

Cast Your Shadow In The Sky

Dave North

We won't cast ours, which is why I won't be talking about the wonderful Lunar eclipse we won't be seeing on the 9th. But with any luck we'll see some nice pictures from other folks who will see it.

It's fun to see one at sunrise or sunset, though, because that's exactly what you are doing: casting your shadow on the Moon.

So if you ever get a chance at such a time, be sure to look.

Just to add insult to injury, however, that day has another distinction: it's also the day the Moon will be highest in the sky for January. The folks who do get to see it will see it very well indeed.

And that's also the beginning of my "Official Moon Season."

Why? When highest elevation happens between full Moon and first quarter, the Prime Time for evening viewing (just after Sunset to sometime before midnight) are when the moon is Way Up In The Sky. And that generally starts in January.

Throughout that timeslice, if you walk out and look at the Moon, you'll note it's pretty high in the sky most of the time during the evening.

That means, of course, less air in the way ... which means better seeing. Which means more detail. Which is the point.

So, since we can't look at the eclipse, what can we look at on this auspicious First Official Day Of Prime

There's no such thing as a full moon. Don't believe me? Take a look.

Mooning With Our New Christmas Telescope or maybe just A New Toy For Our Old Telescope?

Probably, the way these things go, rain.

But if that doesn't happen, you have to contend with that horror of knowitall amastronomers: the Wicked Nasty (Don't Look! It will BURN OUT YOUR EYES!!) Full Moon.

Of course it won't.

First point: there's no such thing as a full moon. Don't believe me? Take a look.

After the sun sets and the Moon starts coming up, right at the top there will be a terminator and a little dark slice... in fact, the only time there isn't a terminator is at eclipse, when there is a (very soft) terminator!

Unfortunately, the libration will be mostly in the off direction (though quite weak; only around a degree).

And if you look, you might see something pretty darn interesting.

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A quintet of SJAA board members look through the box of publication goodies available for members at the December meeting and holiday social event. From left to right, Jim Bartolini, Akkana Peck, Bill O'Shaughnessy, Gary Mitchell, and Bill Arnett. Photo by Mark Taylor.

Mooning

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Mare Humboldtianum. Up north. If we're lucky and I figured things right, the terminator should be running just about across the middle of it. In this kind of high relief, sometimes you can see not only the inner walls of this huge impact artifact, but also the first shock ring.

It's not quite as well-defined as the younger Mare Orientale of great repute, but it is much easier to see, and that counts for a lot.

If you do get a good look, you won't forget it.

At about 300 miles across, you're talking about one whopping impact. In good light, it's downright amazing, and the very best time to see it is not long after nearly full Moon.

If the seeing really screams, there is a weird porous, granular look to the floor that tells you what looks smooth sometimes isn't at all.

At other times of the year you can get more favorable librations (and so see more of it) but you'll not see it so high in the sky any other time.

It was named for a naturalist (Alexander von Humboldt) who wandered all over the earth, exploring new territory. When Johann Madler was casting about for a name (I don't know why he got the honor) he decided someone who explored the edges of the earth would be a good inspiration for the edge of the Moon.

One thing you won't see is how heavy the middle is: Lunar Prospector found a heavy mass concentration right at the center of the mare.

This phenomenon is not well understood, though many of the maria have similar "central gravity peaks." But the strength and centralized location of the Humboldtianum mascon was not well understood before Prospector.

So don't fall down when you visit there: you might not be able to get back up again!

Another thing you won't see is Belkovich, a bruiser of a crater that smacked into the northeast side of our featured mare. It has a great central mountain range, sawtooth jagged, that

reminds me of the Sierras viewed from the eastern slope.

Why am I telling you this? Because, if you come back to the moon —just after full — over and over ... eventually you'll see it. And I think you'll get a kick out of it.

For tonight, just wander down the terminator and see what you can see. The edges of several other concealed maria should be just visible, along with some interesting craters (Humboldt, for example). What? Yeah, there's a Humboldt Sea and a Humboldt Crater, which is named after Alexander's brother Wilhelm, who was a Philologist. Whazzat? It means he read a lot about writing, then wrote about his reading. If

that sounds loony to you, then maybe he should have a crater named after him....)

You also might enjoy Gauss, and aside from having a neat name, Endymion (near Mare Humboldtianum) is almost always pretty.

I'd like to hear your comments on what you see; send some email to d@timocharis.com and let me know where I went wrong (or right).

On the other hand, if it rains, go to <http://timocharis.com/twelve> and check out the scope I built this year.

It has nothing to do with anything, but what the heck, if you haven't anything better to do...

Hawaiian Eyes

Jane Houston Jones

Brrr! Temperatures were hovering around 45 degrees here in Northern California last week. My Hawaiian-made 12.5 inch f/5.75 LITEBOX truss-tube travel scope was yearning for some action in warmer climes. We made some plans to visit and observe with our sidewalk astronomer buddy

"Oh my gawd! That is sooooo Jupiter!"

(and the telescope's maker) Barry Peckham in Honolulu. Mojo and I are members of the Hawaiian Astronomical Society and get over there a couple times a year for new moon star parties.

November can be clear and glorious and it can be also be rainy and windy in Hawaii. 36 inches of rain fell on the Big Island in a 2-day period a few weeks ago. We had a little bit of both weather types over the new moon weekend. A side observing trip to Molokai Ranch was scrapped because of the iffy weather. It was destined to be a shallow sky weekend, with a few suckerhole views of deep sky objects. But we made the best of it with friends, scopes, sun, sand and saved the little umbrellas in our Mai Tai's in case we

needed shelter from the gentle Hawaiian rain.

We began our observing with Mars the day after Thanksgiving. Marvin the Martian and K-9 took us on a nostalgic rocket ride from the red planet to the Moon, Earth and even to Planet X (with flybys of planets A through V thrown in for added measure). Liquid sunshine in the guise of rainbows arced all over paradise.

Saturday night was the H.A.S. star party at Dillingham Airfield. Two dozen brave souls drove to the North Shore of Oahu, and about a dozen of these set up telescopes, ranging from a red Astroscan to the LITEBOX duo, my 12.5 inch Strider and Barry's 15 incher. Venus was our early-evening target. In between rain showers and clearing we hopped as fast as we could to our favorite 20 or so deep sky objects. After a few looks at Jupiter and Saturn, a sky show for a large and late arriving family, and some star-hopping guidance for new observers we were ready to call it a night. The local all-night diner beckoned, and we obeyed.

Sunday night however, was gloriously clear. We watched for Venus to appear in the western sky before

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Hawaii Observing

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sunset, and glimpsed our fair ladyfriend high in the Hawaiian sky. The moon, less than one day old at 5:30 pm HST (07:30 UT on Sunday 11/26) was barely discernable above the highrises of Waikiki Beach. The smallest sliver of a moon was visible for a few minutes before we left for our night of observing. We had decided to do some sidewalk astronomy with our two LITEBOX telescopes that night. We set up on a corner flanked by beach, park, zoo and Waikiki glitter. Tiki torches flickered on the beachwalk. There was not much breeze and we were comfortable in our tee-shirts and sandals. Over the course of the next four hours we entertained honeymooners, tour bus drivers, beach boys and store clerks. Groups of local teenage girls, elderly Japanese tourists, and even two wheelchair-bound



Ephemeris co-editor Morris Jones sets up his new 14.5" f/4.8 LITEBOX truss dobsonian at the SJAA holiday party. Photo by Jane Houston Jones.

visitors all got the thrill of a lifetime on the streets of Waikiki Beach. They all saw Jupiter with its three, then four moons. They saw the mighty great red spot. They saw the rings of Saturn, and 5 of the Saturnian satellites. Friends called friends on their cell phones to insist they get down to see the planets.

Several starry-eyed visitors stayed for nearly the duration of our planet-show. Barry ticked off numbers of visitors and we had near or over one hundred at the eyepiece by the time we packed up for the night. That's a lot of Hawaiian eyes at the eyepiece. I'll bet most of these people had no clue they would get such a fantastic free show on a warm late-autumn night on a pacific isle. We were paid in hugs, smiles, wows, gasps and shrieks. We were paid very well.

My favorite comment, uttered in teenage girlish glee. "Oh my gawd! That is sooooooooooo Jupiter!"



VP and loaner chairman Mike Koop examines a new spyglass scope found in the "white elephant" gift exchange at the holiday party. Photo by Morris Jones.

Celestial Calendar

January 2001

Richard Stanton

	Lunar Phases:	Date	Rise	Trans	Set
FQ	14:31 PST	02	12:07	18:06	00:19
FM	12:24 PST	09	15:51	00:28	08:00
LQ	04:35 PST	16	00:04	05:59	11:41
NM	05:07 PST	24	08:21	12:23	16:28

	Nearer Planets:	R. A.	Dec.
Mercury, 1.23 A.U., Mag. -2.4			
07 08:02 12:50 17:37	19:47.9	-23:17	
17 08:16 13:19 18:22	20:56.6	-19:05	
27 08:10 13:33 18:57	21:52.4	-13:04	

Venus, 0.68 A.U., Mag. -5.3			
07 09:55 15:25 20:55	22:24.7	-11:06	
17 09:38 15:23 21:08	23:02.7	-06:22	
27 09:18 15:18 21:28	23:27.1	-01:32	

Mars, 1.63 A.U., Mag. +0.6			
07 02:04 07:26 12:47	14:26.5	-13:12	
17 02:54 07:09 12:24	14:49.0	-15:00	
27 01:42 06:52 12:02	15:11.4	-16:38	

Jupiter, 4.43 A.U., Mag. -2.6			
07 13:47 20:55 04:08	03:59.2	+19:45	
17 13:06 20:14 03:27	03:57.3	+19:42	
27 12:26 19:35 02:47	03:56.8	+19:43	

Saturn, 8.62 A.U., Mag. +0.6			
07 13:29 20:27 03:28	03:30.2	+16:46	
17 12:49 19:46 02:48	03:29.2	+16:45	
27 12:09 19:07 02:09	03:29.0	+16:47	

SOL Star Type G2V Intelligent Life in System ?			
Hours of Darkness			
11:12 07 07:23 12:14 17:06 19:14.0	-22:21		
11:02 17 07:20 12:18 17:16 19:57.3	-20:42		
10:49 27 07:15 12:21 17:27 20:39.4	-18:25		

Astronomical Twilight:

JD 2,451,916	07	Begin	End
926	17	05:49	18:47
936	27	05:45	18:56

Sidereal Time:

Transit Right Ascension at Local Midnight			
07 00:00 = 07:00			
17 00:00 = 07:39			
27 00:00 = 08:19			

Darkest Saturday Night: 20 Jan 2001

Sunset	17:19
Twilight End	18:50
Moon Set	18:35
Dawn Begin	05:48
Hours Dark	10:59

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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
23	6" Newt/P Mount		Raghu Srinivasan
30	7" f/9 Newt/Pipe Mount		Mike Koop

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		Bob Havner	2/2/01
8	14" Dobson		Andrew Pierce	1/6/01
10	Star Spectroscope		Steven Nelson	3/9/01
11	Orion XT6 Dob		David Findley	3/9/01
13	Orion XT6 Dob		Ilkka Kallio	11/29/00
15	8" Dobson		Gerard Braun	2/17/01
16	Solar Scope		Jack D. Kellythore	2/26/01
19	6" Newt/P Mount		Li-Chung Ting	12/22/00
27	13" Dobson		Bill Maney	1/22/01
28	13" Dobson		Michael Dajewski	3/2/01

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	?
6	8" Celestron S/C		Lee Barford	1/7/01
7	12.5" Dobson		Doug Hendricks	1/8/01
9	C-11 Compustar		Paul Barton	Indefinite
12	Orion XT8 Dob		Nick DeMonner	2/27/01
21	10" Dobson		Ralph Seguin	Repair
24	60mm Refractor		Al Kestler	1/7/01
26	11" Dobson		David Cameron	3/8/01
29	C8, Astrophotography		Bruce Horton	12/29/00
31	8" f/8 Dobson		Robert Morgan	12/17/00
32	6" f/7 Dobson		Sandy Mohan	3/8/01

Waiting List

XT6 dob, Li-Chung Ting

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