



SJAA EPHEMERIS

Stardust In A Wild Crowd

Mary Kohlmeier

On February 7, 1999, a Delta II rocket from Florida's Cape Canaveral Air Station was launched with the purpose of becoming the first-ever spacecraft sent to bring a comet sample back to earth. The most critical phase of this mission was realized on January 2, 2004 when NASA's Stardust space craft successfully navigated through a hazardous environment of gas and particles in a coma around the comet Wild 2 (pronounced "Vilt 2"). Flying within 240 kilometers (149 miles) of the comet,

passive aerogel collectors trapped samples of the coma and interstellar dust. Detailed pictures were also taken of the comet's surface.

Dr. Scott Sandford from the Astrophysics Branch of the NASA Ames Research Center at Moffett Field spoke to SJAA last June about the Stardust Mission. We contacted him

following this successful phase of the program for his comments.

"It is clear that the camera worked well and we should ultimately have about 70 images of the cometary nucleus."

- Dr. Scott Sandford

"We are still trying to sort through our data and determine what we have. It is clear that the camera worked well and we should ultimately have

about 70 images of the cometary nucleus. The best images should have resolutions of about 30 meters per pixel. The acoustic dust flux monitor confirms that we ran into dust grains in the coma and suggests that our collector probably gathered in about 500 particles larger than 15 microns in size, so our primary science goal is well in hand. I am still waiting to see how the mass spectrometer (CIDA) performed.

"Some of the dust flux monitor data and spacecraft engineering data suggest that the spacecraft took a bit of a pounding on its way through the coma, but all indications are that the Whipple shields in the front of the spacecraft successfully protected everything.

"Now we can stop biting our knuckles for the comet encounter and start biting our knuckles for the Earth return..." NASA's Stardust spacecraft begins its 2 year, 1.14 billion kilometer (708 million mile) trip back to Earth with a landing scheduled for January 15, 2006. Analysis of the samples could reveal much about comets and the history of the solar system.

More information on the Stardust mission is available at <http://stardust.jpl.nasa.gov>.

SJAA Activities Calendar

Jim Van Nuland

February

- 7 General meeting**, Dr. Alex Filippenko, UC Berkeley, speaking on The Case for Cosmic Anti-Gravity. **This is the Annual Meeting, election of Board of Directors.** 8 p.m.
- 12 ATM class** at Houge Park. 7:30 p.m.
- 13 Houge Park star party.** Sunset 5:45 p.m., 41% moon rise 2:05 a.m. Star party hours: 7 to 10 p.m.
- 13 Astronomy class** at Houge Park. 7:30 p.m.
- 14 Deep sky weekend.** Sunset 5:46 p.m., 30% moon rise 3:17 a.m.
- 21 Deep sky weekend.** Sunset 5:53 p.m., 1% moon sets 7:32 p.m.
- 27 Houge Park star party.** Sunset 5:59 p.m., 52% moon sets 1:39 a.m. Star party hours: 7 to 10 p.m.
- 28 ATM Class** at Houge Park. 7:30 p.m.

March

- 6 General meeting**, 8 p.m.
- 11 ATM class** at Houge Park. 7:30 p.m.
- 12 Houge Park star party.** Sunset 6:13 p.m., 56% moon rise 1:10 a.m. Star party hours: 7 to 10 p.m.
- 13 Deep sky weekend.** Sunset 6:14 p.m., 44% moon rise 2:18 a.m.
- 20 Annual Messier Marathon** at Henry Coe State Park. Sunset 6:20 p.m., 1% moon sets 6:20 p.m. See page 6.
- 26 Astronomy class** at Houge Park. 7:30 p.m.
- 26 Houge Park star party.** Sunset 6:25 p.m., 35% moon sets 0:25 a.m. Star party hours: 7:30 to 10:30 p.m.
- 27 ATM Class** at Houge Park. 7:30 p.m.

The Board of Directors meets 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>

Foothill College Lecture Series

Andy Fraknoi

Wednesday, February 11 at 7p.m.

Dr. Eugene Chiang of the University of California at Berkeley, will give a non-technical illustrated talk on: "The Search for Planet X: Exploring the Solar System Beyond Neptune" in the Smithwick Theater at the Foothill College. Dr. Chiang will discuss how new discoveries are revealing an array of interesting new objects – including several mini-planets – at the outskirts of our planetary system.

Foothill College is located at El Monte Road and Freeway 280 in Los Altos Hills. The event is free and open to the public. Parking on campus costs \$2. Call the series hotline at 650-949-7888 for more information. The series is co-sponsored by: NASA Ames Research Center, The Foothill College Astronomy Program, The SETI Institute and The Astronomical Society of the Pacific.

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.

Mooning

Now and again a strong lunar libration will creep over the general observer's horizon and appear in the 'popular' press. Usually it's one of the 'easy' ones -- the sun is high over the limb.

More interesting to me, and harder to find, are those chunky librations where the terminator is near the edge.

Even more fun, they are usually best seen just before and after the full phase. What else is going on then anyway?

Traditionally my favorite target has been Mare Orientale. This month will be no exception.

On the evening of February 5, conditions may just be pretty hot. The terminator should be approaching the limb all evening, which makes for subtly changing light. There's a notable western libration shaping up, and a very strong tilt of the south toward us.

Since Orientale is more or less west-south-west, that might be a pretty good combination.

Might?

Okay, figuring this out with an acceptable degree of precision is something of a pain. And this time of year, it tends to be a little wasteful.

For one thing, if you think it's going to be a good shot, it's pretty darn easy to just take a peek that night. Even steady binoculars will tell you if it's worthwhile to set up a scope and go for it.

For another, the weather tends to shut us out, and all that careful research is down the drain.

But there is compensation: I've made similar observations through sucker holes while it's raining! You can get a pretty good look at Orientale even if you can't use much magnification, since it's huge.

Nudge to new scope owners: easy target if you have a map.

And of course there's a slight cool factor to observing in the rain (just set up under an overhang while the object

On The Edge

Dave North

is low enough to bring into view – but you knew that).

(You also know Mare Orientale means Eastern Sea, and that it's on the west side because the naming conventions were changed as part of the runup to the Apollo landings.)

I'd recommend this as an interesting effort for anyone who hasn't hunted near full.

But Orientale is hardly the only such target, and this is also a general call-to-arms – a suggestion that when you think there's nothing to do near full other than go to the SJAA meeting, you might also at least take a glance at the edges of the Big Light Bulb and see some things that might surprise you.

A couple of notable examples:

Pythagoras when the north limb is librated ... away! (Which it will be on the fifth, but maybe to better advantage on the 4th and 3rd. Take a look.) Under the right light, you can look at it almost edge-on, seeing the terraces in the crater walls almost as if you were looking at it from the opposing rim. A very different view.

When the tilt is just about opposite from the one we'll get (northeast turned toward us) you may catch sight of the terminator on Mare Humboldtianum. This is seldom mentioned in any observational guide and normally looks like a minor feature on maps or globes, but if you catch it in the right light you'll see something almost as surprising as Mare Orientale, and more accessible – it's better placed for us.

In theory, of course, you can see the terminator in similar 'on the edge' positions just before and after the new phase. But in reality, the sun is so close, the glare so bright, and the available observing time so short (before your target sets) that it's almost impossible to see any detail.

So your only real chance to nail this kind of thing is just before and after full. The few days trailing Bright Night

Continued on next page

Continued from previous page

are the best time to see Mare Crisium, the Gang Of Four and several other great features. And on the runup, you have the Aristarchus Plateau, Rumker, Rima Sirsalis, the huge Western Basins ... oh well. You get the idea.

Once again, I'm making the case for taking at least a glance at that time of month when you often think there's nothing to see at all. But while you're at it, keep in mind the librations.

To get a rough idea what's up, you can just consult your observer's guide. For a bit more comprehensive view, most astro software includes at least some basic information about the phases.

And of course there's the Hitchhikers Guide on shallowsky.com.

I'd give the complete URL, but I've been working on doing something a little silly this month.

I wanted to see if it's possible to write this column without (save for the title and last word) actually naming the Moon.

Nope.

February Speaker

Dr. Alexei Filippenko

Alex Filippenko, Professor of Astronomy, UC Berkeley will be speaking at the February SJAA meeting.

In 1998, observations of very distant exploding stars (supernovae)

provided intriguing evidence that the expansion of the Universe is speeding up with time, rather than slowing down due to gravity as expected. New, completely independent data greatly support this conclusion, which resurrects the idea of a long-range "antigravity" effect first

Alex Filippenko, to speak at the February SJAA Meeting. Einstein's Biggest Blunder? The Case for Cosmic "Antigravity" Houge Park Meeting Hall Saturday, February 7, 2004 8:00 pm.

proposed by Albert Einstein and later renounced as his "biggest blunder." The vacuum appears to be filled with repulsive "dark energy," perhaps consisting of quantum fluctuations out of nothing! Unless the effect changes

sign in the future, the fate of the Universe is to expand forever, at progressively faster rates. The discovery of the accelerating universe, in which Alex Filippenko played a leading role, was voted the top "Science Breakthrough of 1998" by Science

magazine, and it made the cover story in the 25 June 2001 issue of TIME magazine.

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This is actually one exposure showing Saturn and some of its moons. With full brightness the moons appear but the planet is just a big white oval. Reducing brightness brings out a few details on the planet but the moons disappear. Saved both versions of the picture and placed the plausible Saturn over the big oval in the moon picture. Added some Photoshop black paint where necessary to produce this picture. Photo by Paul Kohmiller January 3, 2004. The moons from left to right are: Rhea, Dione, Tethys, Enceladus and Titan.

Astro Quips

Astronomer #1: So anyway, the cop pulls me over and asks if I realized that I had just run a redlight. So I said that I did not see the light as being red, because it must have blue-shifted as I was approaching it.

Astronomer #2: And he let you go?

Astronomer #1: No. He gave me a speeding ticket instead.

Editor's Semi-Dark Matter

Ø As in previous years, the Andrah Foundation of Michigan, through it's local representatives, Paul and Ann Summers, have given \$500 to SJAA. This is to promote education and public awareness of Astronomy. We thank Paul and Ann, and the Andrah Foundation, for their generosity. – JVN

Ø The Mars Center at NASA Ames Research Center at Moffet Field is open to the public. Visit web site <http://www.arc.nasa.gov>.

Ø **Errata:** In the January issue the landing sites for the Spirit and Opportunity rovers were transposed. Spirit lands at Gusev Crater and Opportunity lands at Meridiani Planum.

Ø A hardcopy version of Don Machholz's book on the Messier Marathon (see page 6) has been spotted at Borders.

Saturn in Thin Air and a Double Double

Akkana Peck

Keep a telescope handy, keep an eye on the sky for holes in the clouds, and get ready to look at Saturn! It's perfectly placed for observing this month: already up at sunset, it's high in the sky by the time darkness falls, and at its highest, before 11pm, it soars to within fifteen degrees of the zenith, about as high as planets ever get.

Why am I always talking about how high planets are, and observing them when they get high in the sky? Well, generally, the higher a planet appears in the sky, the steadier it will appear. There are two reasons for this.

First, you're looking through less air when you're looking straight up than when you're looking

horizontally toward the horizon. This isn't immediately obvious: how can there be more air looking in one direction than in another? Here's an easy way to visualize this: take a compact disc, and pick a point on the outside of the center ring.

That's you: the clear part in the middle of the CD, below you, is the earth, and the printed or rainbow part of the CD, above you, is the atmosphere. (In reality, the atmosphere would be tiny compared to the size of the earth, but let's not worry about that now.) Next, measure from "you" straight out to the edge of the disc. You don't need a number: if you don't have a ruler handy, just use any straight object you have handy, hold one end at "you" and mark the other end where it intersects the edge of the disc. Now swing your measuring stick by a right angle, so that now it goes from "you" out along a tangent to the "earth". Now the imaginary "you" is looking at the horizon. See how much farther it is to the edge of the "atmosphere"? That's that much more mucky air that you're looking through when you watch something rise or set compared to when it's nearly overhead.

I said there were two reasons. The other is that air close to the ground tends to be turbulent because of all the heat held in the ground even at night. When you look toward the horizon, nearly all the air you're looking through will be showing heat waves – it's as though you were trying to observe over a bonfire.

That doesn't mean you can't look at things near the horizon. I do it all the time! (Though Dave sometimes makes fun of me for my hobby of watching astronomical objects rise and set through trees.) Just be aware that you probably won't see as much detail then as you will when the object is higher in the sky.

Okay, back to the planets. Saturn is a month past opposition, so there won't be as much shadow of the planet on the rings as you'll see in a few months. That means it may look a bit less three-dimensional this month than it will as we pull away from it, even though it's closer now. See if you can see the shadow grow, week to week! The ring tilt this month is 26 degrees, slightly less than last year's

maximum; the angle will widen gradually over the next few months and then decrease for the rest of the year. The difference won't be that great, though; we'll still see plenty of ring face for the next several years.

Jupiter rises in the early evening, after it's fully dark, but should be high enough to show plenty of detail before the evening gets too late. It, too, will rise high in the sky by the time it transits (after midnight), though not as high as Saturn.

On February 7, starting at 10:42pm, we'll be treated to a relatively rare event: a double satellite transit, in

which Callisto, Ganymede, and Ganymede's shadow all cross the face of Jupiter at the same time. A similar but even

“...due to the inclination of Jupiter's orbit multiple satellite events have become much rarer ...”

better event happens at 9:37 on the night of the 26th, when we'll see Europa, Io, and Io's shadow right behind Io (so we may be able to see a very rare "crescent shadow"); and if this isn't enough, the great red spot will also be visible, south of Io. A few years ago, double satellite or shadow transits were common, and we only got excited about a triple transit. But alas, due to the inclination of Jupiter's orbit (it's farther from the plane of our orbit now than it was a few years ago) multiple satellite events have become much rarer, and we have to take what we can get. So take a look on the night of the 7th, if the weather permits.

Mars, shrunk to a tiny dim ghost of its former self, is nonetheless still visible in the evening sky most of the evening, setting around midnight. It will be difficult to see many features on its six arcsecond disk, though it can be done; more interesting may be to notice its phase. We normally don't think of outer planets as having a phase, but Mars gets noticeably gibbous when it's more than a few months before or after opposition.

Venus, too, is visible in the evening sky, much lower than Mars (and lower than its excellent apparition last month) and setting much earlier. Its phase will be fairly close to half.

Mercury, Uranus and Neptune are all too close to the sun to be observable this month. Pluto has moved into the morning sky, in Serpens Cauda near Xi and Nu Serpentis, and might be findable by a dedicated Plutocrat.

One last comment: the latter half of this month is a good time to look for the "zodiacal light", a faint band of light extending from the horizon upward along the ecliptic after dark. It's fairly faint – usually dimmer than the Milky Way in surface brightness – and will only be visible from dark sky sites when moonlight isn't interfering. More about the zodiacal light and what causes it, next month.

Spirit Night at JPL

Morris "Mojo" Jones

January 3, 2004, 7:30 p.m. -- Wouldn't it be fun to be in the media room at JPL on the night of a landing on Mars? I am part of the media this Saturday night, complete with a seat at a table, a net connection for my laptop, and the privilege of asking questions of JPL management at press briefings.

My media connection? I'm a reporter for the SJAA Ephemeric, and correspondent to member clubs of the Astronomical Association of Northern California.

Earlier today I filled out a security form that specified my addresses

and employers for the past five years, presented my driver's license and passport, and was rewarded with an official PRESS badge with the label "Restricted, no escort required." (If you're foreign press, you have to be escorted. There's a small army of JPL employee volunteers acting as foreign press escorts over the weekend.)

Of course it has been an eventful Saturday evening here at JPL, but I dove right in to my role. At an afternoon press conference, everyone was focused on the potential failure of the landing. I decided to ask a somewhat lighter question to the four program managers.

"What time will it be in Gusev crater when Spirit lands? And what will the days be like for the engineers and scientists during operation of the mission?"

There I was live on NASA-TV sitting next to a reporter from the Associated Press asking my fun little question. I think the managers really enjoyed the question because it took them away from this focus on Mars failures.

They answered that it would be



Mojo poses in front of a Mars sandbox with a fully-deployed rover model.

about 2 in the afternoon, Gusev crater time, when Spirit lands. And during the operation there are two shifts of engineers and scientists working the mission -- a martian day shift, and a martian night shift. Both teams are tied to the martian sol clock, so their shifts would begin about forty minutes later every day. It's torturous on your body

clock, but nobody really minds.

The other interesting fact they pointed out is that Opportunity would land

in a spot about 12 hours (martian time) away from Spirit, so the operation teams will be in completely opposite phase.

As I write this, I'm enjoying the NASA-TV theater of "polling" flight controllers prior to EDL – entry, descent, and landing. It seems absurd to me, since there's no way to abort the

landing and "go around" if some system isn't nominal, but it makes for good drama. After all, they're watching events that took place nine minutes ago, and can't issue a command to the spacecraft that would be received for nine minutes. Eighteen minutes round trip is impossible reaction time when events change so quickly during EDL.

But now it's time to wait for word of the landing.

11:00 p.m. -- Perfect landing! It was certainly a thrilling hour, and a treat to get to sit in the briefing room with all those illuminati sharing the celebration.

By the time this is published, Spirit's mission should be well under way, and we'll all know if Opportunity has been able to

duplicate Spirit's success.

While there really wasn't much difference between being here and watching NASA-TV from home, being here and reporting first hand was very special. Signing off, live from NASA JPL in Pasadena. Sleep well, Spirit.

We Remember Columbia 2/1/2003

Commander Rick Husband
Pilot William McCool
Mission Specialist Michael Anderson
Mission Specialist Kalpana Chawla
Mission Specialist David Brown
Mission Specialist Laurel Clark
Payload Specialist Ilan Ramon

It's Messier Marathon Time Again!

Bob Havner

The San Jose Astronomical Association will be hosting the 2004 Messier Marathon on March 20/21 at Henry Coe State Park. The Messier Marathon is an attempt to find 109 of the Messier objects in one night! The French comet hunter Charles Messier created the catalog to identify objects that could be mistaken for comets. Today's list represents 110 of the most famous deep sky objects in the night sky. While being a favorite goal of amateur astronomers to complete over time, late March offers an opportunity to find 109 of the Messier objects in a single night. Don Machholz brought the Messier Marathon to the SJAA with an article titled "Messier Marathon" in the September 1978 SJAA newsletter. In the article, he invited members to join him on Loma Prieta Mountain in March for the event. Using star atlases, a planisphere, and his own comet hunting records, Don developed the observing order, or search sequence, the same list used by most marathoners to this day. The first San Jose Astronomical Association Messier Marathons were held on the nights of March 23/24, 24/25, 30/31 and March 31/April 1, 1979.

About fifty club members turned out at these events. Of those about a dozen participated in the actual

marathon. On March 30/31 Don Machholz and Gerry Rattley found 108 objects each, missing only M74 and M33! Amazingly on the night of March 12/13, 1980 Don successfully found all 109 objects without star charts, relying only on search instructions he previously recorded on cassette tapes! The 2003 Messier Marathon will be held at the overflow parking area at Henry Coe. Directions can be found at <http://www.sjaa.net/directions.html>.

Although not required, we recommend pairing up with someone as a way of verifying observations. Observing lists will be available at the site. There will be 3 lists; a short list of bright,

easy to find objects for novice astronomers, a half list for those who would rather not make it an all niter, and the long list for you die hard marathoners.

There are two books written by SJAA members on the subject of the Messier Marathon. Don Machholz's booklet, *The Messier Marathon Observer's Guide*, gives a detailed search sequence, finder charts, and star hopping information. It also points out that less complete Messier Marathons may be run at every time in the year. Robert Garfinkle's book, *Star-Hopping; Your Visa to Viewing the Universe* (Cambridge University Press, 1994, 1997) has a chapter with instructions and the list for doing a Messier Marathon. Autographed copies of Don Machholz's booklet, *The Messier Marathon Observer's Guide* will be available at the SJAA meetings for \$10.00 each. Also check out the SEDS Messier page <http://www.seds.org/messier/xtra/marathon/marathon.html>. They have many helpful links to images and lists.

You will want to have a planisphere and a good star atlas, preferably plastic or plastic coated, to locate constellations and for star hopping to the objects. As always, come prepared for cold weather and a long night; bring

plenty of warm clothing and hot drinks. This is a great time for those that are new to astronomy to be introduced to the deep sky. Don't expect to get them all if this is your first time, just have a good time and enjoy the ones you do find. You will get a good start on completing your own Messier list.

Come out to Henry Coe with us for a night of astronomy and start (or perhaps finish) your Messier list.

Messier Marathon
Henry Coe State Park
March 20/21, 2004

There is a \$4.00 per vehicle night use fee.

Celestial calendar

February 2004

Richard Stanton

Lunar phases:	Date	Rise	Trans	Set
FM	00:47 PST	06	18:08	00:28 07:43
LQ	05:40 PST	13	00:52	06:03 11:07
NM	01:18 PST	20	07:26	12:51 18:25
FQ	19:24 PST	27	10:35	18:02 00:39

Nearer planets:		R. A.	Dec.
Mercury, 1.36 A.U., Mag. -1.2			
07	06:19 11:13 16:07	20:10	-21:24
17	06:33 11:39 16:45	21:16	-17:58
27	06:42 12:07 17:32	22:23	-12:15

Venus, 1.00 A.U., Mag. -3.7			
07	08:58 14:57 20:56	23:54	-01:12
17	08:45 15:00 21:15	00:37	+04:00
27	08:31 15:02 21:33	01:18	+09:06

Mars, 1.54 A.U., Mag. +1.1			
07	10:19 17:02 23:46	01:59	+12:59
17	09:56 16:47 23:38	02:24	+15:13
27	09:35 16:33 23:31	02:49	+17:16

Jupiter, 4.46 A.U., Mag. -2.5			
07	19:54 02:17 08:39	11:14	+06:23
17	19:09 01:33 07:57	11:10	+06:50
27	18:24 00:49 07:14	11:05	+07:20

Saturn, 8.39 A.U., Mag. +0.6			
07	14:15 21:33 04:50	06:30	+22:39
17	13:34 20:51 04:09	06:28	+22:42
27	12:53 20:11 03:28	06:27	+22:45

SOL Star Type G2V	Intelligent Life in System ?
Hours of Darkness	
10:31 07 07:07	12:23 17:39 21:21 -15:29
10:11 17 06:57	12:23 17:50 22:00 -12:11
09:49 27 06:44	12:22 18:00 22:38 -08:33

Astronomical twilight:	Begin	End
JD 2,453,042	07	05:37 19:04
052	17	05:27 19:13
2,453,062	27	05:15 19:23

Sidereal time:	Transit Right Ascension at local midnight
07	00:00 = 08:59
17	00:00 = 09:38
27	00:00 = 10:18

Darkest Saturday Night: 21 Feb 2004	
Sunset	17:54
Twilight	19:20
Moon set	19:33
Dawn begin	05:23
Hours dark	10:03

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Submit

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

SJAA loaner scope status

All scopes are available to any SJAA member; contact Mike Koop by email (koopm@best.com) or by phone at work (408) 473-6315 or home (408) 446-0310 (Please leave message, phone screened).

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
7	12.5" Dobson	Tom Fredrickson
8	14" Dobson	Craig Colvin
10	Star Spectroscope	Keng Teh
14	8" f/8.5 Dob	E. Clay Buchanan
16	Solar Scope	Bob Havner
19	6" Newt/P Mount	Daryn Baker
23	6" Newt/P Mount	Wei Cheng
24	60mm Refractor	Al Kestler
26	11" Dobson	John Bunyan
27	13" Dobson	Steve Houlihan
28	13" Dobson	Jim Albers
35	Meade 8" Equatorial	Patrick Lewis
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
11	Orion XT6 Dob	Steve Codraro	3/4/04
13	Orion XT6 Dob	Michael Hewitt	3/2/04
32	6" f/7 Dobson	Sandy Mohan	1/28/04

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	?
3	4" Quantum S/C	Hsin I. Huang	3/16/04
6	8" Celestron S/C	Richard Savage	4/24/04
9	C-11 Compustar	Bill Maney	Indefinite
12	Orion XT8 Dob	Jason Yoon	3/8/04
15	8" Dobson	Mike Koop	Repair
21	10" Dobson	Michael Dajewski	Repair
29	C8, Astrophotography	Tajinder Singh	2/22/04
33	10" Deep Space Explorer	Glen White	3/19/04
34	Dynamax 8" S/C	Yuan-Tung Chin	4/24/04
36	Celestron 8" f/6 Skyhopper	Ion Coman	1/19/04
37	4" Fluorite Refractor	Gary Hansen	4/15/04
39	17" Dobson	Ron Gross	2/3/04

Waiting list:

39	17" Dobsonian	Frank Williamson
	8" Dob	Vinod Nagarajan
	Any telescope	Mike Van Meter, Al Garcia

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