

SJAA EPHEMERIS

Astronomy Education

Astronomers are always interested in learning more about astronomy. With an entire universe to explore, why would anyone want to stop learning about the cosmos. The purpose of this club is to help members learn and also to teach others. That's also the purpose of this newsletter. In this issue you will see many opportunities to learn and even some special opportunities to teach.

First, of course, are the SJAA General Meetings. These meetings generally occur on the Saturday nearest the full moon. We have had many excellent speakers in the past and Steve Gottlieb's talk on March 26 at 8 p.m. continues this tradition (see page 2 for more info). We also have Astronomy classes. The next two such classes showcase the two most regular columnists of this newsletter. Dave North talks about the

moon on March 18 and Akkana Peck discusses the planets on April 1 (no fooling).

Second, there are the lectures that are available in the Bay Area. Our personal favorite is the Silicon Valley Astronomical Lecture Series at Foothill College. We call these the "Fraknoi Talks" because Andrew Fraknoi hosts these lectures and, with little budget to speak of, finds 5-6 interesting speakers each year. The next such lecture is March 2 featuring the "Bad Astronomer" Phil Plait. More details on Dr. Plait's talk is on page 10. Another set of lectures has started at the Lawrence Hall of Science in Berkeley – more details on pages 8-9.

Third, there are classes taught at colleges and universities. Once again we must mention Andrew Fraknoi who teaches "Physics for Poets" at Foothill college. The next class starts in April and there is more information on page 7.

Finally, and most importantly, there are the opportunities to teach others. The new Bay Area Project ASTRO coordinator, Christina de Leon, talks about Project ASTRO on page 6. It is a very important activity to consider. We also do some teaching at the star parties: both at Hogue Park and at many schools in the South Bay area. This is what Jim Van Nuland calls "making the brain-photon connection". The Hogue Park star parties are scheduled as shown on the front page of every Ephemeris and the school star parties schedule is shown at <http://www.svpal.org/~jvn/current.htm>.

We hope you enjoy this expanded issue of the SJAA Ephemeris.

SJAA Activities Calendar

Jim Van Nuland

March

- 3** ATM class at Hogue Park. 7:30 p.m.
- 4** Hogue Park star party. Sunset 6:05 p.m., 31% moon rise 3:27 a.m. Star party hours: 7:00 to 10:00 p.m.
- 5** Dark sky weekend. Sunset 6:06 p.m., 20% moon rise 4:24 a.m.
- 12** Dark sky weekend. Sunset 6:13 p.m., 10% moon sets 9:09 p.m. Messier Marathon at Coe.
- 18** Astronomy class at Hogue Park. 7:30 p.m. Dave North on the moon.
- 18** Hogue Park star party. Sunset 6:18 p.m., 63% moon sets 3:09 a.m. Star party hours: 7:30 to 10:30 p.m.
- 19** ATM class at Hogue Park. 7:30 p.m.
- 26** **General meeting.** 8 p.m. Steve Gottlieb on verifying the NGC and IC catalogs.
- 31** ATM Class at Hogue Park. 7:30 p.m.

April

- 1** Hogue Park star party. Sunset 6:31 p.m., 45% moon rise 2:19 a.m. Star

- party hours: 7:30 p.m. to 10:30 p.m.
- 1** Astronomy class at Hogue Park. 7:30 p.m. Akkana Peck on the planets.
- 2** Dark sky weekend. Sunset 6:31 p.m., 30% moon rise 4:08 a.m. DST
- 3** DST begins. Advance Clock at 2 a.m. to 3 a.m.
- 9** Dark sky weekend. Sunset 7:38 p.m., 2% moon sets 8:56 p.m.
- 15** Hogue Park star party. Sunset 7:43 p.m., 46% moon sets 2:49 a.m. Star party hours: 8:30 p.m. to 11:30 p.m. **Astronomy Day.**
- 16** ATM Class at Hogue Park. 7:30 p.m.
- 24** **Auction XXV – SJAA/Bay Area Astronomical Auction starts at noon.** No general meeting in April.
- 28** ATM Class at Hogue Park. 7:30 p.m.
- 29** Astronomy class at Hogue Park. 7:30 p.m.
- 29** Hogue Park star party. Sunset 7:56 p.m., 60% moon rise 2:07 a.m. Star party hours: 9:00 p.m. to midnight.
- 30** Dark sky weekend. Sunset 7:57 p.m., 48% moon rise 2:49 a.m.

24 hour news and information hotline: (408) 559-1221

<http://www.sjaa.net>

Auction XXV

Jim Van Nuland

It's spring, and time for the annual migration of astronomical paraphernalia from one garage to another! On Sunday, April 24, 2005, an astronomical auction and swap meet will be conducted at Houge Park in San Jose, sponsored by the San Jose Astronomical Association. The SJAA Auction is a great opportunity for beginners to purchase their first telescope at a great price! Experienced observers often find equipment they need for their next observing project, from OIII filters to finders to star charts. All kinds of interesting items are found in the auction. We will have the auction first, followed by a swap, to allow people some additional haggling time for those items that were optimistically priced by the seller in the auction, or to sell those odds and ends items which were better off being in a swap. It is an odd year, so Jay Freeman will be our auctioneer. Those who have observed his performance in previous auctions have learned to appreciate his skillful evaluation of classical astronomical items on the spot. Great entertainment for all!

Doors open at 12:00 p.m. (or only slightly before) to register material for the auction, and view the auction material. The club reserves the right to accept only appropriate material for the auction so that the auction will run smoothly. The auction will begin at 1 p.m., and will run as long as needed. Seller may specify a minimum bid, which if not met, will return the item back to the seller with no commission applied. After the auction, buyers and sellers settle up using one check to (or from) SJAA and claim their items. Seller pays 10% commission, with a cap of \$50 for any one item. We do not handle charge cards. There is no fee for bidder cards.

After the auction, material for the swap meet will be allowed into the hall, about 3 p.m. or perhaps earlier. Sellers are

encouraged to bring items that would interest the astronomical audience such as astronomical, science, computer, or tech items. The SJAA reserves the right to turn away inappropriate items for the swap. Joe Sunseri of Earth and Sky Adventure Products will be there with many fine new and used items. At the swap, each buyer pays the seller. Sellers are to keep track of their sales, and pay a 10% commission, as for the auction. There are no table fees. All commissions from the auction and the swap are tax-deductible, as SJAA is a 501(c)(3) educational organization.

Do you have a large item such as a telescope? Please email the auction team at auction@sjaa.net with a description of the scope and a picture if possible. We will add it to the auction website for some pre-auction publicity. This allows the bidders to find out how much that APO scope is really worth, so you will be more likely to sell it. Do you have 5 or more items? We suggest pre-registering at the above email address as much as possible to avoid a crush at the registration table. For more about SJAA, visit our web site at <http://www.sjaa.net> or email Jim Van Nuland at the above address. See you there!

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.

SJAA March General Meeting

Steve Gottlieb on the NGC and IC catalogs – March 26, 2005

Our speaker on March 26 will be Steve Gottlieb who is working on improving the NGC and IC databases. The talk starts at 8 p.m. and all are welcome. There is no charge and the talks are held at Hogue Park.

In 1864, a General Catalog of nebulae was published which included around 2500 objects cataloged by William Herschel and an equal number from his son, John. Work from other observers was added creating a 7800 entry database called the New General Catalog (NGC) of Nebulae and published by J. Dreyer. Updates came in the form of Index Catalogs (IC). Between the NGC and IC there are more than 13,000 objects of which 90% are actually galaxies. (The distinction between "spiral nebulae" and galaxies was not made clear until Hubble's discoveries in 1923). Some items in the NGC are also known as Messier objects. For example, M31 = NGC 224.



Photo by Tom Polakis

Steve Gottlieb's 25 years as an astronomer includes working on catalogues and is an active member of SFAA. He has written a number of deep-sky observing articles including articles for Sky & Telescope and Astronomy magazines. He has a deep-sky website with Jim Shields called Adventures in Deep Space (<http://www.angelfire.com/id/jsredshift/>)

Real Class

Dave North

It's Moon Month at the Beginning Astronomy Class (Friday, March 18, 7:30pm). Well timed, too. I imagine there are a few new members who have had their first rush of Mooning and are curious what more there might be. Also, the Moon is at a very high elevation in the evenings — good seeing is often had this time of year.

So here's a little homework for those who will be attending the class, and some useful stuff for those who Have A Life.

First, every budding mooner needs a map. Rukl's Atlas Of the Moon is terrific, but maybe a little too detailed to start with. Skypub's map is not real easy to use, and maybe has too much stuff on it. So I came up with the ideal Beginner's Moon Map: <http://timocharis.com/astro/moonmap/moonmap.jpg>

If you're extremely cool and like .png better, just use that extension to the URL instead. For reasons I can't recall, there's also a .pdf there. Unfortunately it has some features marked — I'm sure you have better ideas of what to hunt down. Then again, those listed are not a bad start. There is plenty of open area, so if you make a bunch of copies you'll be able to mark stuff you saw and look it up later, or alternately look up interesting things and mark them on your map, then go hunt them down.

Here's something I probably won't bother addressing in class: what kind of telescope is best?

An expensive one.

Okay, just kidding. The Moon has a lot of very high contrast features (most of them, in fact, because of the harsh difference between light and shadow when there's no air to scatter light).

High contrast sharp lines are the easiest thing to resolve. Consequently, any well-figured telescope is fine. Any type. And of course, aperture helps because of the simple laws governing resolution.

Some of the most noted Moon observers tend toward a 10-inch long-focus newt, but that's partly because they usually don't have much money. But worry not. All decent telescopes will do great on the Moon. I admit it is a nice luxury if it can track, but I also admit the very best views I've had were through my 12.5-inch dob. Go figure. Carefully.



Do I need a Moon Rate if I get a tracking drive? No.

Trust me. I don't even want to talk about it any more.

Oh well, okay. The Moon has (like all orbiting bodies) an elliptical orbit. During some parts of it's orbit it moves faster than others. A 'Moon Rate' is an average and you'll still get drift. But — even without it the drift is small enough to ignore easily.

What about Computer Drives? They usually work great if you have one. If you don't, why bother?

Another popular question: do you need a Moon Filter? No. It's handy when looking at the entire disk at low magnification at a public star party where people might be looking at other things. And a full-disk view of the Moon will be one of the most popular sights, so that's a consideration.

But for personal viewing, no you don't. If that's all the magnification you can use that night, just take a bright light out with you so you don't get dark adapted and you'll find the view quite pleasant. When mooning at Mt. Wilson it's customary to leave the dome lights

on. Folks can chat, read, play cards while waiting for their turn in line.

Most of the time you'll be looking with as much power as the sky will allow, and if you get a good night you may find the view is too dim! So crank it up and skip the filters.

Hmm. Some folks say color filters help them see more contrast, but that doesn't work for me. About the only thing that ever did was a single polarizing filter. They're very useful when viewing during the day and/or twilight because you can arrange the polarizer to minimize atmospheric scatter.

Okay, I read the column. Should I go to the class?

Definitely.

Last year I brought free candy.

The Black and White Ball

Akkana Peck

Maybe you were lucky enough to hear Dr. Dale Cruikshank's talk on the Cassini mission at last month's meeting.

In addition to discussing a lot of the images we've already been seeing on the web, he showed us some closer ones that most people hadn't seen, and discussed the implications of what the spectroscopic results have been showing.

Some of the most spectacular images were not of Titan, not of Saturn itself, but of another moon: Iapetus. Iapetus is the strange Saturnian moon which has one very light side, made of ice, and another side which is dark from unknown materials. No one (yet) knows why Iapetus is like this.

It turns out that the dark side of Iapetus is the leading edge — the side that goes first as Iapetus, tidally locked like our own moon, revolves around Saturn. The obvious implication is that Iapetus is sweeping up some sort of black dust that's hanging around in that part of Saturn's orbit — perhaps kicked off the intriguing dark moonlet called Phoebe, or perhaps from places unknown. The close-up pictures sent back by Cassini pretty well confirm this.

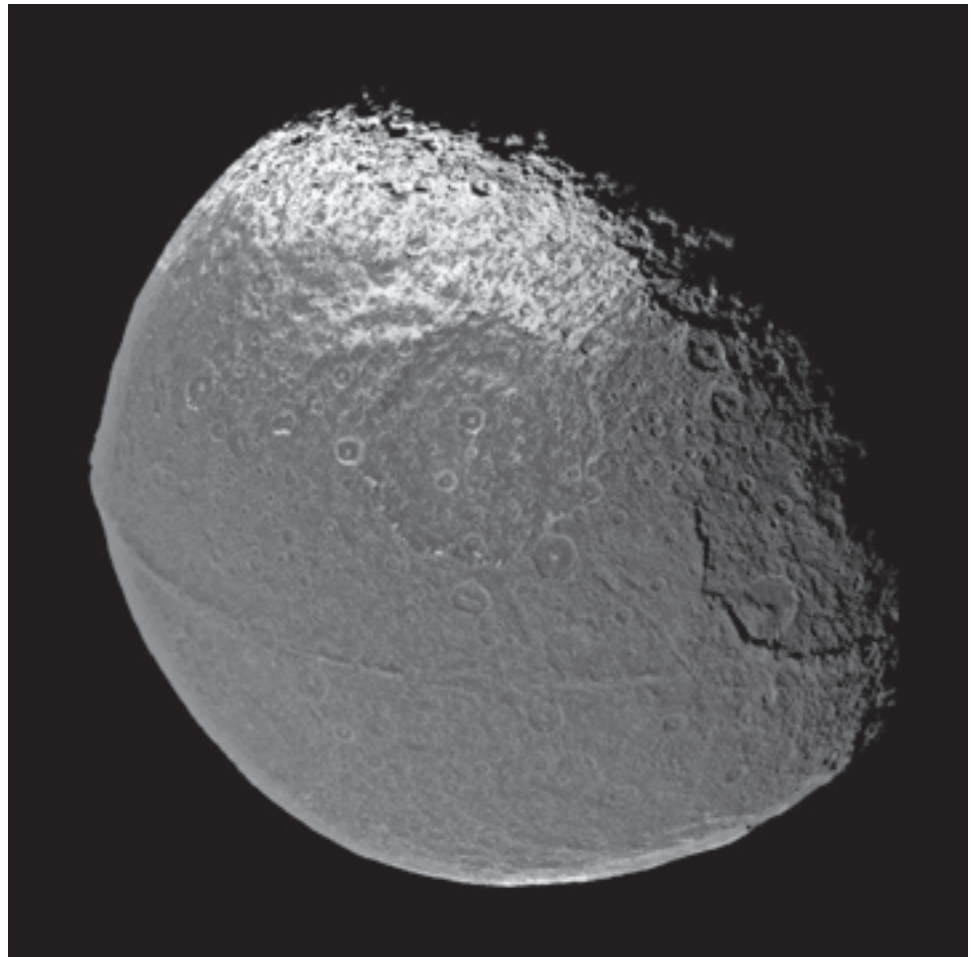
But this is primarily a column for planetary observers, not armchair science readers. So what does this mean to you, the backyard observer?

Well, your backyard 6" is not going to show you those fascinating streaks and white-rimmed craters that Dr.

Cruikshank showed us. But you should be able to see the light side and the dark side, by comparing Iapetus to nearby stars in order to make magnitude estimates, like the AAVSO variable-star observers do. It just takes a little planning. It occurred to me that I'd never looked.

Jane Houston Jones wondered about that, too, and has done the research to tell us when to look to see Iapetus' extremes. Iapetus has a long period — about 79 days — so this is a project which will take several months at minimum.

mid-day here, but Iapetus won't have moved much by the time it gets dark here. Compare the 11.9th magnitude dark side of Iapetus to a star an arcminute and a half to the northwest, at magnitude 12.75, another star about two and a half times as far in the same direction (the apex of a nice shallow



The scene is dominated by a dark region, called Cassini Regio, that covers nearly an entire hemisphere of Iapetus. An ancient, 400-kilometer wide (250 miles) impact basin appears just above the center of the disc. Iapetus is 1,436 kilometers (892 miles) across. Cassini acquired the images in this mosaic with its narrow angle camera on Dec. 31, 2004, at a distance of about 172,400 kilometers (107,124 miles) from Iapetus. Credit: NASA/JPL/Space Science Institute

I fired up XEphem with the Guide Star Catalog to take a look at the next eastern and western elongation dates.

On the eastern elongation of March 15, with Iapetus' dark side pointed toward us, the actual time of elongation will be

nearly isosceles triangle with Iapetus and Titan as its bases) at magnitude 12.23, or Saturn's other moons Tethys (mag 10.3) and Enceladus (mag 11.8).

The next western elongation, on April

Continued on page 5

Iapetus: East is least and West is best

Jane Houston Jones

24, unfortunately coincides with the full moon so chasing down tenth and eleventh magnitude objects is a little more challenging. Try looking early, when the moon is still low in the sky and Saturn is high. Worse, none of the stars near Iapetus are brighter than twelfth magnitude. Since Iapetus' bright side will be facing us, it should shine at about tenth magnitude, so you might be best off comparing it to Saturn's moons Rhea, magnitude 9.8, Dione, mag 10.2, or Tethys, 10.3. Iapetus is about eight arc minutes west of the rest of the Saturnian system.

I'll post charts which should help in finding Iapetus on these dates, and details for some of the other dates Jane lists, on my web site: <http://www.shallowsky.com/iapetus/>

In other planet news: Jupiter is rising earlier, and is visible most of the evening, though it doesn't transit until after midnight, and it never gets much higher than 45 degrees.

Mercury makes its best evening appearance of the year in the early half of March, reaching greatest elongation on the 12th. After that it sinks rapidly, but this is the best chance this year to catch Mercury in the few days that it takes to swell into a large but slim crescent before it disappears in the sun's glare around the 22nd. Watch it every day, and you'll be amazed at how fast it changes.

Venus is too close to the sun to be observed this month, as are Uranus, Neptune, and Pluto. Mars rises a few hours before the sun, and is catchable by early risers.

Finally, the end of March and beginning of April is a good time to look for the Zodiacal light. Look for a faint column of light rising up along the ecliptic just after the sky gets dark: this is light reflected from dust in the ecliptic plane, left over from the formation of the solar system.

Saturn's moon Iapetus is brighter at western elongation and fainter at eastern elongation, which makes it a great observing project when the Saturn system is in our evening skies...like right now.

I was reading about Saturn's satellites in the RASC 2005 Observers Handbook in early January, just as I was observing the Cassini orbiter's first close-up images of Iapetus on my computer. Not everyone who takes a look at Saturn observes Iapetus, although it's Saturn's third largest moon. Iapetus is easier to locate near Saturn at both inferior and superior conjunction, when it is closest to the planet and visible to the north and south of the planet, respectively. But its 79 day orbit takes Iapetus far outside the usual planetary eyepiece view. In fact Iapetus is 3 times further from Saturn than Titan, or 12 ring diameters from Saturn when it shines the brightest.

The magnitude of Iapetus varies from 10.1 at western elongation to 11.9 at eastern elongation. We have known for a long time that the leading side of Iapetus is dark as coal, while the trailing side is bright as snow. We are looking at the bright trailing side of tidally locked Iapetus when it is at western elongation, and we are looking at the dark leading side of the moon at eastern elongation.

Why this is so is still under debate, as it has been for the past 334 years. Cassini discovered Iapetus in 1671 and he made the note that he could only see Iapetus on one side of Saturn and not on the other side. The dark area of Iapetus is called Cassini Regio, in his honor, and may be dark because the leading side of Iapetus collides with or alters dust from the moon Phoebe. Stay tuned as the Cassini instrument teams study the Iapetus data, and release their findings. Cassini will have one more flyby of Iapetus in September 2007. This year, on January 1, Cassini flew by Iapetus at a distance of 40,000 miles. The 2007 flyby will be from a distance of 763 miles.

To find Iapetus at either conjunction or elongation, and compare its brightness to nearby stars, use your favorite planetarium program to calculate the extreme magnitudes of Iapetus, and to compare it to nearby stellar magnitudes. SJAA's Akkana Peck created some Iapetus charts which should help you find Iapetus on March 15 and April 24, as it swings from eastern to western elongation. You'll find that and a few other dates charted here as well: <http://www.shallowsky.com/iapetus>.

Below is a list of key Iapetus observing dates. (Ed. Note: Also, please see the chart on page 11).

<i>Eastern Elongation</i>	<i>Inferior Conjunction</i>	<i>Western Elongation</i>	<i>Superior Conjunction</i>
March 15	April 5	April 24	February 23
June 4	June 25	July 14	May 14
August 25	September 14	October 4	August 3
November 13	December 3	December 22	October 23

Give a Child The Universe at a Classroom Near You

Christina de Leon

Project ASTRO is looking for amateur and professional astronomers who would like to work with teachers and students in 3rd - 9th grade classrooms. This is a great opportunity to share your love of astronomy with an enthusiastic audience and help kids learn about science.

Through Project ASTRO, you will be paired in a one-on-one partnership with a Bay Area teacher at a school near you. Together, educators and astronomers attend a 2-day summer workshop where participants learn to do hands-on, inquiry-based astronomy activities that involve students in the excitement of scientific discovery.

Project ASTRO partners receive "The Universe at Your Fingertips", a rich curriculum resource book as well as access to books, videos, and telescopes from our lending library. Throughout the year, partners are invited to attend follow-up workshops that demonstrate astronomy activities from "The Universe at Your Fingertips" and telescopes available in the lending library.

The project emphasizes ongoing partnerships, which fosters a nurturing environment for students to learn. During the school year, astronomers make at least four visits to their adopted classroom at mutually convenient times. The program has been operating since 1993 in the Bay Area. Previous participants often report that being a Project ASTRO Volunteer has been one of the most satisfying volunteer endeavors they have undertaken.

Astronomer applications are now being accepted for the 2005 - 2006 school year. The deadline is May 6 and space is limited to 35 partnerships. All participants must attend a hands-on training workshop, which will be held August 19 & 20, 2005, at the San Mateo County Office of Education in Redwood City.

Astronomer application forms are available from:

Christina de Leon, Project ASTRO
Astronomical Society of the Pacific
390 Ashton Avenue
San Francisco, CA 94112
Tel. 415-337-1100 ext. 101
E-mail: cdeleon@astrosociety.org

Information and forms can also be found on the Web at: <http://www.astrosociety.org/education/astro/bayarea/volunteer.html>

Project ASTRO, a program of the nonprofit Astronomical Society of the Pacific, began with support from the National Science Foundation and the NASA Office of Space Science. It has now expanded to 12 other sites around the country and has trained over 1,300 astronomer-teacher partnerships.

Wow and Cool

Paul Kohlmeier

This school year was my first year with Project ASTRO. I had a lot of reservations about trying to teach Astronomy to grade school kids but it has been a lot of fun. You might have the same reservations so let me set things straight. You are not given strict curriculums to follow. You can construct a class visit any way that you and the classroom teacher want. In my class, the teacher gives me nearly carte blanche.

In South Bay schools, grade school science shows up mostly in 5th and 8th grades. I was assigned a 5th grade class in East San Jose. I thought maybe that was too young and I would lose their attention early. This did not happen. They have been very interested. Every class there is some astro factoid or picture that gets a "wow."

Another problem I thought I would have is preparing enough stuff for the classroom visit. My teacher generously gave me from 8:30 to 10:15. For my first class I thought I would tackle just three things: lunar phases; the seasons and naming the planets. During the Project ASTRO workshop, we were warned that we might not have enough planned for our first Project ASTRO visits. I didn't leave the classroom until 11:30. And I had a couple of cheesy magic tricks planned if I ran out of astronomy material. I didn't get to use any of them until visit #5!

The support of the Project ASTRO community is also something to keep in mind. There is a forum on the ASP website and the lending library includes slides, materials and scopes. I borrowed some solar scopes and a "solar science kit". I can't tell you how many times I thought the kids would think an activity was lame and instead they said "cool." As long as you don't say certain code words like "test" and "homework", it's all cool.

Project ASTRO also gives the astronomer more freedom than the teacher has in some surprising ways. For one thing, you may have heard that teachers have a strict limit on how much they can buy for the classroom and call it a donation. Project ASTRO astronomers have no such limitation because you are actually donating to Project ASTRO (and the ASP) and they will send you a letter (or e-mail) thanking you for your donation.

My teacher partner passed along a statement from a student who said "I don't like science except when the astronomer comes". Statements like that will be your salary in Project ASTRO.

It's Messier Marathon Time Again!

Bob Havner

The San Jose Astronomical Association will be hosting the 2005 Messier Marathon on March 12/13 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.

The 2005 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.

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.

Autographed copies of Don Machholz's booklet, *The Messier Marathon Observer's Guide* will be available at the SJAA meetings and at the site for \$10.00 each.

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.

There is a \$5.00 per vehicle per night use fee at Henry Coe State Park.

Andrah Foundation supports SJAA

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

Physics for Poets

Andrew Fraknoi

2005 is the 100th anniversary of Einstein's "miracle year"- when the scientist named "Person of the Century" by Time Magazine published his first ideas on the theory of relativity and put forward other notions that would revolutionize our understanding of the universe. Special events and public programs are being scheduled throughout the world.

To help celebrate, Foothill's astronomy instructor Andrew Fraknoi is offering a Physics 12: "Physics for Poets: Everything You Wanted to Know about Einstein's Work but Were Afraid to Ask", on Tuesday and Thursday evenings from 6 to 8:30 P.M., April 5 to June 21, 2005.

This non-technical course introduces students to some of the most exciting areas of modern physics, with a focus on Einstein's contributions. The approach is non-

Editor's Semi-Dark Matter

Orion, the telescope company that offers SJAA members a discount, was recently sold to Imagonova. Early indications are that there will not be an immediately noticeable change in the Orion product line or its retail store in Cupertino.

Meade recently introduced a Richey-Chretien line of scopes. Considering these scopes include the mount, the price point for RC scopes is one-third of what it was before this announcement. As this is written, the new scopes are not being shipped but reservations are being taken at Meade dealerships.

March is the 350th anniversary of the discovery of Titan by Christian Huygens. Sorry it took so long to get to know 'ya but we seem to be a shy species.

SJAA Yosemite Public Star Party 2005

Jim Van Nuland

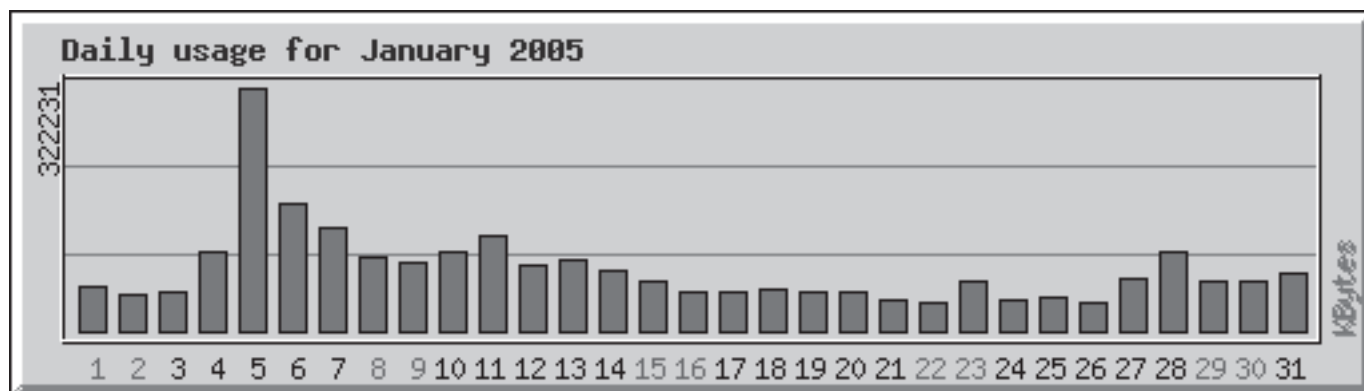
The annual SJAA Yosemite star party will be held on August 5 and 6, at Glacier Point in Yosemite National Park. Up to 30 people will be given free admission and camping, in exchange for two public events on Friday and Saturday evenings. The rest of the time we can be tourists. We are expected to have at least one scope per two people, and attend both star parties.

The camping is rough by modern standards: no dining room, no showers, no hot water. Read about it on my Yosemite page at <http://www.svpal.org/~jvn/yosemite.htm>, or contact me with questions.

If you can tolerate the limitations, tell me the number of people you'll have, and the number of scopes that will be set up for the public. E-mail <mailto:jvn@svpal.org>, or phone 408-371-1307 10 am to 10 pm. Priority is given to SJAA members. The August new moon is on August 4, so this is an ideal date.

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Comet Machholz tests SJAA Website Capacity



As you can see in the graphic above, SJAA website hits sharply spiked in early January. The cause was Comet Machholz. Or more specifically, it was Don Machholz's excellent article in the October 2004 issue of the Ephemeris. On January 5, the Astronomy Picture of the Day <<http://antwrp.gsfc.nasa.gov/apod/astropix.html>> posted a striking image of <<http://antwrp.gsfc.nasa.gov/apod/ap050105.html>> Comet Machholz. The first link in the caption pointed to Don Machholz' article. This chart summarizes the web server activity for sjaa.net during January. Thanks to Morris Jones, not only for bringing this to our attention but most importantly, for his exceptional skills with hosting our website.

Alien Earths

Source Material for this article from Alan Gould

The UC Berkeley Lawrence Hall of Science (LHS) is hosting the exhibit "Alien Earths" until May 8, 2005. The LHS is located on Centennial Drive below Grizzly Peak in the Berkeley Hills. In addition to the exhibit, a lectures series is given and the next set of these talks will be on March 20 – see the following article for more details.

The exhibit Alien Earths was developed by the Space Science Institute in Boulder, Colorado with funding from the National Aeronautics and Space Administration (NASA) and the National Science Foundation. It is a hands-on exhibit that covers the search for life, as well as orients individuals to both the possibilities and the obstacles that figure into exploring space. The exhibit is divided into four areas:

Our Place in Space
Star and Planet Formation
Planet Quest
Search for Life

Interactive and multimedia presentations in the exhibit will allow visitors to:

- Set planets in motion around a star and see what happens
- Experiment with an infrared camera
- Listen to sounds from space
- Learn about microbes, the most abundant life form on Earth and possibly elsewhere

Admission to LHS is \$8.50/adults; \$6.50/ youth (5-18), full-time students, senior citizens, and the disabled; \$4.50/children 3-4; and free for children two and under. For general information call (510) 642-5132. The Lawrence Hall of Science website is at <http://www.lawrencehallofscience.org> and it includes driving directions.

SETI Institute and the NASA Kepler mission are cosponsors of the LHS run of the Alien Earths exhibit.

Alien Earths Lectures at LHS

Alan Gould

Schedule of talks for March 20, 2005

12:30 - Dr. Margaret Race – **“Looking for ET– Bring ‘em Back Alive... and Carefully”** – perspectives from an expert in the field of planetary protection, analyzing issues of cross-contamination both in space and on Earth.

1:30 Dr. William Borucki – **“The Search for Habitable Planets Around Other Stars”** – Over 100 giant planets orbiting other stars have already been found by ground-based telescopes. Dr. Borucki will describe future space-based missions necessary to find habitable Earth-sized planets, including the upcoming Kepler mission based at NASA Ames Research Center.

2:30 Dr. Emma Bakes – **“How does life evolve? An exploration of Titan and Europa as possible alien habitats”** – Water has always been nominated as one of the essential ingredients for life and our own planet Earth yields conclusive proof. However, the main requirements for sources of extraterrestrial life might be thought of as a substance as the triple point (i.e. existing as a solid, a liquid and a gas at the same time) and a source of energy to fuel its organization into single celled organisms. We discuss the types of potential life which may inhabit Europa and Titan and how this may predict the nature of extraterrestrial life in other star systems.

About The Speakers

Dr. Margaret Race, a biologist at the SETI Institute, works closely with NASA in studying scientific, policy and public issues associated with solar system exploration. She has served on three major studies with the National Research Council (NRC) Space Studies Board involving planetary protection, and recently completed work on two major NASA projects related to Mars exploration- one that developed scientific protocols for the quarantine and testing of returned Martian samples, and another that analyzed the technical and scientific issues associated with human missions to Mars. Her studies also focus on legal and regulatory aspects of Mars sample return proposals; public involvement in the review and approval process for sample return; ethical implications of solar system exploration, and educational outreach about Astrobiology both through schools and the mass media.

Dr. William Borucki is the Principal Investigator of the NASA Kepler mission designed to detect Earth size planets in the habitable zones of stars. He has been immersed in photometry work for over 20 years and is a recognized leader in the field.

Dr. Emma Bakes has all the time in the world – not Earth, however, but an exotic moon orbiting a distant planet in our solar system. Bakes, a SETI Institute scientist and NASA Astrobiology Institute (NAI) lead team member, studies the chemical evolution in the atmosphere of Titan, Saturn’s giant satellite and the only known planetary companion in our solar system swaddled in a thick atmosphere. Rich in large, complex carbon- and nitrogen-bearing chemicals, Titan’s dense smog-like haze is thought to be similar to the primitive atmosphere of early Earth. Inside Bakes’ powerful Sun Microsystems processor, the smoggy shroud evolves at breakneck speed. Millions of years of complex chemical reactions condense into hours. And what results may help us learn more about how life emerged and survived on Earth. Emma Bakes got her Ph.D. 14 years ago and in the interim has done research at Princeton University, worked as a professor at Vassar College and a Principal Investigator at the SETI Institute and NASA Ames Research Center. She has written two books on Astrophysics and Astrobiology and has chaired a NASA space mission concept to sample the outer solar system. She is currently involved in research concerning the origins of life, planetary atmospheres, star formation and space medicine. Her passions are exploration, discovery and pioneering new ground in the sciences, medicine and in everyday life. However, by far the greatest source of wonder has been her fellow human beings. See also: <http://quest.arc.nasa.gov/people/bios/women/eb.html>



Photo Courtesy of SETI

Dr. Phil Plait to talk on March 2, 2005 at 7 p.m.

Andrew Fraknoi

Author and astronomer Phil Plait of Sonoma State University will give a non-technical, illustrated talk on: "Bad Astronomy (In Everyday Life and the Movies)" in the Smithwick Theater, Foothill College, El Monte Road and Freeway 280, in Los Altos Hills, California. Free and open to the public. Parking on campus costs \$2. Call the series hot-line at 650-949-7888 for more information.

Will a giant asteroid soon destroy civilization? Can an egg stand on its end only during the spring equinox? Were the Apollo Moon Landings the biggest

hoax of all time? Do toilets flush one way just north of the equator and the other way just south of it? Astronomer, popular author, and web-master Phil Plait will take the audience on a good-humored guided tour through some of the misconceptions and mistakes people (particularly people in Hollywood) have about science.

Dr. Plait is an astronomer and a NASA Educational Resource Director (which, he points out, spells NERD) at Sonoma State University. He worked on Hubble Space Telescope data for 10 years,

studying such astronomical phenomena as black holes, quasars, and the birth and death of stars. He runs the popular web site "Bad Astronomy" (at www.badastronomy.com) and has written a book by that name, published by John Wiley. He has debated Moon Hoax believers in print, on the radio, and television and is regular columnist for "Night Sky" magazine.

No background in science will be required for this talk, which will interest both fans of astronomy and critical thinking. Bring the whole family for a fun evening.

Solar System Stats for March 2005

Adapted from the Observer's Handbook published by The Royal Astronomical Society of Canada which in turn gets this data from the U.S. Naval Observatory's Nautical Almanac Office and Her Majesty's Nautical Almanac Office and contributions by David Lane, St. Mary's University, Halifax NS.

		Mercury	Venus	Mars	Jupiter	Saturn	Uranus	Neptune	Sun
RA	1	23 ^h 34 ^m	22 ^h 21 ^m	19 ^h 09 ^m	13 ^h 08 ^m	7 ^h 30 ^m	22 ^h 36 ^m	21 ^h 14 ^m	22 ^h 48 ^m
	11	0 ^h 29 ^m	23 ^h 08 ^m	19 ^h 39 ^m	13 ^h 04 ^m	7 ^h 28 ^m	22 ^h 38 ^m	21 ^h 15 ^m	23 ^h 25 ^m
	21	0 ^h 46 ^m	23 ^h 54 ^m	20 ^h 10 ^m	13 ^h 00 ^m	7 ^h 28 ^m	22 ^h 40 ^m	21 ^h 16 ^m	0 ^h 01 ^m
Dec.	1	-3°18'	-11°41'	-23°07'	-5°31'	+21°56'	-9°39'	-16°09'	-7°39'
	11	+4°54'	-7°05'	-22°14'	-5°08'	+21°59'	-9°27'	-16°03'	-3°47'
	21	+8°36'	-2°10'	-21°01'	-4°41'	+22°01'	-9°14'	-15°58'	+0°17'
Dist (AU)	1	1.21	1.70	1.83	4.63	8.39	21.05	30.96	0.991
	11	0.96	1.71	1.75	4.55	8.53	21.03	30.88	0.993
	21	0.71	1.72	1.68	4.49	8.68	20.98	30.78	0.996
Mag	1	-1.2	-3.8	1.2	-2.4	-0.1	5.9	8.0	
	11	-0.5	-3.8	1.1	-2.4	0.0	5.9	8.0	
	21	1.8	-3.8	1.0	-2.4	0.0	5.9	8.0	
Size	1	5.5"	9.8"	5.1"	42.5"	19.7"	3.3"	2.2"	32'17"
	11	7.0"	9.7"	5.3"	43.3"	19.4"	3.3"	2.2"	32'12"
	21	9.5"	9.7"	5.6"	43.9"	19.1"	3.3"	2.2"	32'07"

mathematical, with humor, analogies, and demonstrations. No background in science or math will be required; the instructor specializes in explaining scientific ideas in everyday language.

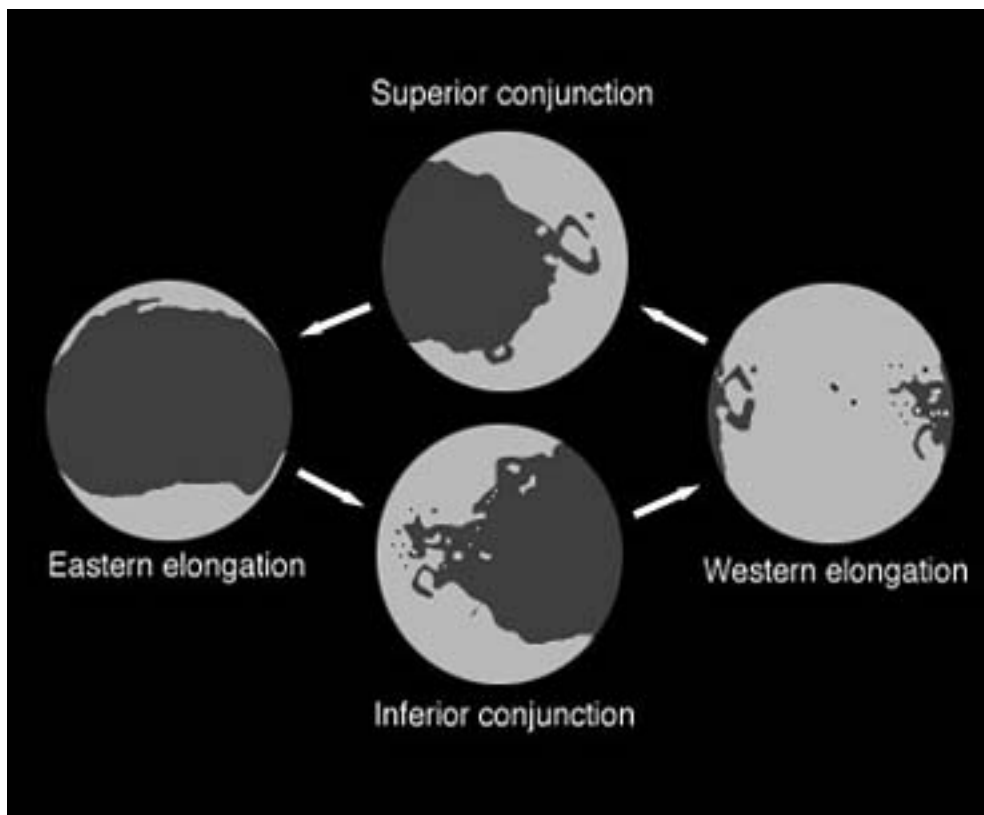
The course emphasizes key ideas that form the basis of our modern concepts of space, time, matter, and energy:

- * The theory of how atoms work
- * Energy, heat, and the arrow of time
- * The special theory of relativity: what happens when you travel close to the speed of light)
- * The general theory of relativity: gravity, space-time warps, and black holes
- * Quantum mechanics: the bizarre rules that govern the world inside the atom

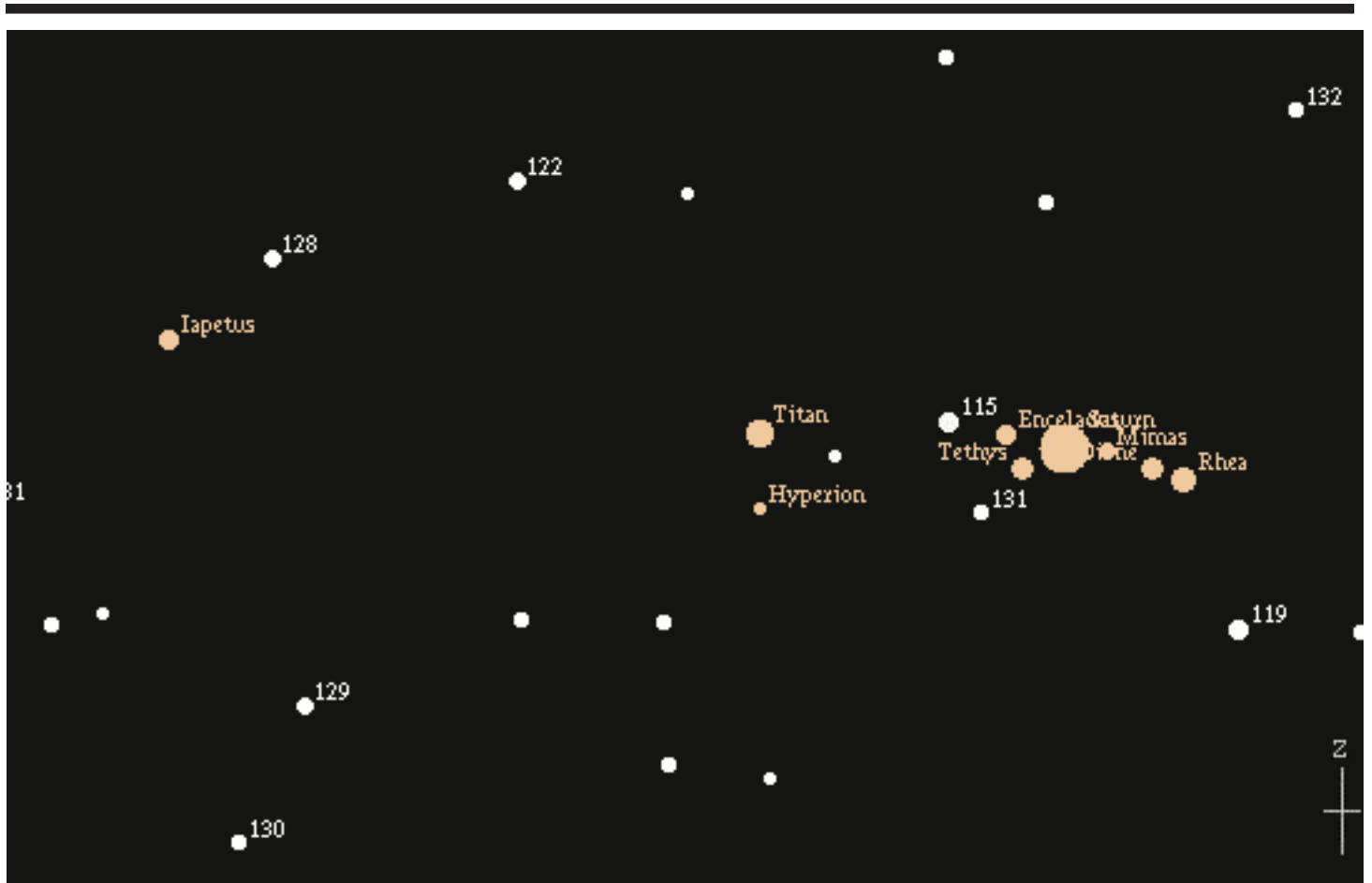
In addition to examining the physics and physicists involved with these areas (including a survey of Einstein's life and some myths about it), the course will also look briefly at the effects that such physics ideas have had on the humanities, including poetry, fiction, music, and the public view of scientists. It concludes with a look at the work of Stephen Hawking, whose innovative ideas combine work from many of these areas and take some of Einstein's ideas to the outermost limits of cosmic possibility.

For registration information for the Spring Quarter at Foothill College in Los Altos, see <http://www.foothill.edu/reg/spring05.html> On-line registration begins March 14th, which just happens to be Einstein's birthday. Anyone can register for Foothill evening classes. For a course syllabus in pdf format, see: <http://www.foothill.edu/psme/Physics.12.Web.pdf>

Iapetus (from Jane Houston Jones - see article on page 5)



This graphic shows the bright and dark features on Iapetus, and was derived from Voyager data. Remember that Iapetus is tidally locked with Saturn, so as Iapetus orbits, the same side is always facing Saturn. Graphic and caption courtesy of Jane Houston Jones.



These charts show the eastern (above) and western (below) elongations for Iapetus. The charts are cropped to fit the page but the full version are available through the HTML version of this article via <http://ephemeris.sjaa.net>. These charts are courtesy of Akkana Peck.



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Submit

Submit articles for publication in the
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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
3	4" Quantum S/C	Hsin I. Huang
7	12.5" Dobson	Tom Fredrickson
8	14" Dobson	Jan Lynch
14	8" f/8.5 Dob	Colm McGinley
16	Solar Scope	Bob Havner
19	6" Newt/P Mount	Daryn Baker
23	6" Newt/P Mount	Wei Cheng
24	60mm Refractor	Al Kestler
27	13" Dobson	Steve Houlihan
32	6" f/7 Dobson	Sandy Mohan
34	Dynamax 8" S/C	Yuan-Tung Chin
38	Meade 4.5" Digital Newt	Tej Kohli
40	Super C8+	Mike Macedo

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
10	Star Spectroscope	Jim Albers	3/18/05
11	Orion XT6 Dob	John Durant	4/12/05
13	Orion XT6 Dob	Ravinder Pal Singh	4/14/05
36	Celestron 8" f/6 Skyhopper	Saman Behjat	2/28/05

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	Karthik Ramamurthy	4/8/05
9	C-11 Compustar	Bill Maney	Indefinite
12	Orion XT8 Dob	Mike Koop	Transit
15	8" Dobson	Scott Pelger	2/5/05
21	10" Dobson	Michael Dajewski	Repair
26	11" Dobson	Vivek Kumar	2/10/05
28	13" Dobson	Anupam Dalal	2/1/05
29	C8, Astrophotography	Mark Ziebarth	3/10/05
33	10" Deep Space Explorer	Ion Coman	4/22/05
35	Meade 8" Equatorial	Mike Koop	Repair
37	4" Fluorite Refractor	Steve Sergeant	4/15/05
39	17" Dobson	Rob Hawley	2/28/05
41	18" Sky Designs Dob	Len Bradley	2/12/05
42	11x80 Binoculars	Ritesh Vishwakarma	2/10/05

Waiting list:

37	4" Fluorite Refractor	Bob Leitch
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San Jose Astronomical Association Membership Form

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