

SJAA EPHEMERIS

August General Meeting

The Magnetic Climate of the Sun

Mike Koop

Our Speaker for August is Professor Karel Schrijver from the Lockheed Martin Advanced Technology Center. Karel Schrijver is senior scientist at the Solar and Astrophysics group of the Lockheed Martin Advanced Technology Center in Palo Alto. He completed his education, including his PhD work, and the University of

Utrecht in The Netherlands. His thesis, entitled "Stellar magnetic activity; Complementing conclusions based on solar and stellar studies," laid the foundation for his career, looking both at the large sample of stars and the detailed case of the Sun. After postdoc

positions at the University of Colorado and at The European Space Agency, and

Make note of the date, August 28, 2004 at 8 p.m. at Houge Park

a fellowship of the Royal Academy of

Sciences that brought him back to Utrecht, he joined the Lockheed Martin solar and astrophysics group, now almost nine years ago. While at Lockheed, he authored a textbook, with his former thesis advisor, Cees Zwaan, entitled "Solar and Stellar Magnetic Activity." He works primarily on data from the Michelson Doppler Imager on the Solar and Heliospheric Observatory (SOHO) and from the Transition Region and Coronal Explorer; he is the science lead on the Atmospheric Imaging Assembly for the future Solar Dynamics Observatory. He is a member of the editorial boards of Solar Physics, Living Reviews in Solar Physics, and Astronomical Notices. He has been on several NASA strategic planning teams, and is currently a member of the Space Studies Board of the National Academies. Professor Schrijver's talk is entitled, "The magnetic weather and climate of the Sun and its environment". Please join us for an enlightening evening.

Websites of Interest:

Karel Schrijver's Home Page: <http://www.lmsal.com/~schryver/>

LMMS Solar and Astrophysics Lab: <http://www.lmsal.com/solarsites.html>

SJAA Activities Calendar

Jim Van Nuland

August

- 5** ATM class at Houge Park. 7:30 p.m.
- 6** Astronomy class at Houge Park. 7:30 p.m. Peter Jenniskens on Meteor Observing.
- 6** Houge Park star party. Sunset 8:09 p.m., 65% moon rise 11:41 p.m. Star party hours: 9:00 p.m. to midnight.
- 7** Dark Sky Star Party at Coyote Lake Park, Gilroy. Potluck at 7 p.m. Sunset 8:08 p.m., 46% moon rise 00:09 a.m.
- 11** Perseid Party at Calero County Park. (see page 4)
- 12** Perseid Party at Villa Montalvo. (see page 4)
- 14** Deep sky weekend. Sunset 8:00 p.m., 1% moon rise 5:50 a.m.
- 20** Houge Park star party. Sunset 7:52 p.m., 19% moon sets 10:26 p.m. Star party hours: 9:00 p.m. to midnight.
- 21** ATM Class at Houge Park. 7:30 p.m.

28 General meeting. The Magnetic Weather and Climate of the Sun and its Environment by Karel Schrijver from Lockheed 8 p.m.

September

- 2** ATM class at Houge Park. 7:30 p.m.
- 10** Astronomy class at Houge Park. 7:30 p.m.
- 10** Houge Park star party. Sunset 7:22 p.m., 11% moon rise 3:37 a.m. Star party hours: 8:30 to 11:30 p.m.
- 11** Dark Sky Star Party at Coyote Lake Park, Gilroy. Potluck at 7 p.m. Sunset 7:21 p.m., 5% moon rise 4:41 a.m.
- 16** ATM Class at Houge Park. 7:30 p.m.
- 18** Deep sky weekend. Sunset 7:10 p.m., 16% moon sets 9:32 p.m.
- 24** Houge Park star party. Sunset 7:01 p.m., 88% moon sets 3:37 a.m. Star party hours: 8:00 to 11 p.m.
- 25 General meeting.** Slide and Equipment Night. 8 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>

Astronomy Textbooks

The astronomy knowledge of our club members is pretty high. One could even say that if we knew half as much as we think we do, that would still be a lot. But we also like to increase our knowledge. To that end we take courses, peruse the net and attend talks.

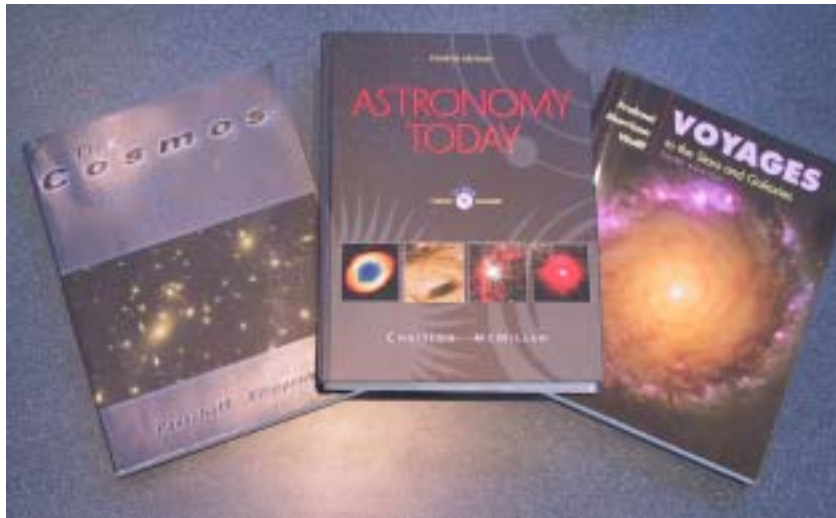
Another educational vehicle is, of course, books. I took it upon myself to check out some astronomy textbooks. The textbooks reviewed here are *Astronomy Today* by Eric Chaisson and Steve McMillan (referred to in this article as Chaisson) and *The Cosmos: Astronomy in the New Millennium* by Jay M. Pasachoff and Alex

Filippenko (referred to in this article as Filippenko). We also checked out *Voyages to the Stars and Galaxies* by Andrew Fraknoi et. al. (referred to in this article as Fraknoi) but did not read the entire text so we only mention it in general terms.

This review will compare these books as reference books. Although we read these cover to cover (just like school, ough) the amateur astronomer is going to use these books to look things up. This means we are dependent on the Index. We gave ourselves some hunting exercises to see which book did best. The way we scored this, Chaisson narrowly edges out Filippenko. Details are in the web version of this article which includes other details removed for space.

Both books progress just the way you would expect, basically from the earth out. Both books are generously illustrated and filled with Hubble photographs. Chaisson uses a small version of the electromagnetic

spectrum to indicate whether each photo is taken in radio, infrared, visible light, ultraviolet, X-ray or Gamma Rays. However, the description of the picture usually indicates when it is anything other than visible light. Chaisson also uses overlays including a nice version of the Hertzsprung-Russell diagram. When reading Chaisson, it often seems like the picture that the text refers to is on another page; it actually became



annoying after a while.

In e-mail conversations with some of the authors, a common theme was that it is possible to give the student too much information. Andy Fraknoi takes the tack that some things have to be taken out of the text so his most recent textbook does not include any mention of Olbers' paradox. Alex Filippenko warns that users can be bogged down in too much detail.

Both books make some attempt to separate the mathematics from the general flow of the discussion. Filippenko does this better. The math is sequestered in sections labeled "Figure It Out". Chaisson apparently moves some of the math out to the book's companion website. Filippenko also gives more information about the personal side of astronomy, giving some information about present astronomers and what they are working on.

Chaisson has distinct advantages for

teachers and students. While Filippenko has one set of questions at the end of each chapter, Chaisson has 5 or more including project ideas. Also, Chaisson gives the answers to two of these sections in the text. Filippenko has some advantages in the appendices which are more complete than Chaisson.

Anyone who has heard Alex Filippenko speak will not be surprised to know that his book is a more friendly read. His book includes Peanuts cartoons, a picture of Tiger Woods and a picture of Albert Einstein riding a bike. Chaisson maintains a serious tone.

Filippenko does a better job with stellar spectra. The star spectrum for the different star classes are

compared better and only Filippenko includes a detailed look comparing ionized calcium and the H-epsilon line of hydrogen. This doesn't represent the detail level of the book in general.

The edition of Filippenko that we read had a softcover and no CD-ROM. It did contain some star charts inside the front and back covers. Chaisson has a CD-ROM that includes the book and also a program, the SkyChart III, Student Version. Fraknoi has a soft cover and includes a CD that has a version of the popular program The Sky and that gives it the prize for best CD inclusion.

All of these books are excellent. If you were taking a college astronomy course (not from Filippenko or Fraknoi) and could pick a text you would go with Chaisson because of the larger number of review questions and answers. If you are just trying to teach yourself astronomy, you will like Filippenko best (and pay about \$25 less) and that makes it our pick in a very close contest.

Opposites Attract

Dave North

After July's two full Moons, we won't see another until near the end of August, after the Perseids have pretty well died down. If you stayed up to see them, you may have watched the late moonrise, often a nice reward for losing all that sleep.

This particular full Moon will have quite a strong libration, principally in the North. It's one of those nifty opportunities to see some of that stuff on the far side, and if I have the calcs right there will also be a small terminator up there throwing some shadows for relief.

When you get that close to the limb foreshortening takes a strong grip on what you see. Because of that, it's not easy to predict what might look good or not, but it only takes a few minutes to look and find out for yourself.

Full Moon is, of course, also the time of weak tides.

Of course?

Well, yeah. The thing is, at that point the Sun and Moon are opposition. To state the obvious, that means they are opposite each other in our sky. Which also means their gravitational influences are pulling against each other, to some extent canceling each other out.

The Moon has the weaker gravity of course, but because of proximity it has the stronger influence. So even the Sun can't completely overcome its tidal pull.

The result is the "neap" tide, or lowest high tide (and of course we'll also see the highest low tide about six hours later).

I think "neap tide" is a neat phrase.

Oh wait, did I say six hours? If you're visiting in Texas, that won't be true.

Over most of the earth, there are two tidal bulges and two tidal troughs -- each bulge will be opposite (and slightly trailing) the Moon. The other two are 90 degrees off. The near bulge is easy enough to get -- that water is closer to the Moon and therefore "tugged into the sky" just a little bit.

The other opposing bulge is for the opposite reason. It's further from the Moon so there's less attraction than at any other point on Earth, so it tends to just slough away. So in that case it's sort of pushed into the sky, though that's an awful way to say it.

Good thing I'm not a real scientist or I'd probably be in trouble.

And for another small digression, astrologers probably just love it that the Moon and Sun both actually do have an observable effect on our lives here on Earth. But I'm not an astrologer either, so I can say it's all just a bunch of hooley anyway.

Oh, I was talking about Texas.

Tides are basically a great big wave that rolls slowly around the earth each day. As you've already seen, they get bigger and smaller depending on the relationship of the Sun and Moon.

They also depend on the topography of the oceans and the land that interferes with their flow. Because the Gulf of Mexico is pretty constricted from the main Oceans surrounding it, the tides are somewhat crippled and there are only really two per day.

This is not uncommon. The same situation prevails also in the Mediterranean Sea, but it's so cut off from the major flow of The Wave that the tides can more or less simply be ignored for navigational purposes.

The opposite effect can be seen in the

famous Bay of Fundy, where a massive tidal bore causes the water level to shift suddenly by several feet, and tidal differences typically run well over 20 feet in a day.

Nevertheless, most coastal zones will see a very significant tide because of the Moon. Those tides are a critical part of the dynamic that 'sucks' nutrients up from the bottom of the continental shelves (where they have simply fallen in the form of dead plants and animals and, well, fish poo).

Without that recirculation the coastal zones wouldn't have their heavy fish populations. Fishermen's Wharf would be a mere shadow of itself.

The implication is, of course, that the highest high tide (spring tides) happen at new Moon, and average tides at first and third quarter.

So if you live anywhere near the seashore, you can observe the Moon even when it's not up.

Just watch the water level rise or fall!

If you'd like to get a closer look on how this works locally (or anywhere else in the world) I highly recommend the wonderful (and free!) program xTide to run on your Linux (or other Unix) machine.

With it you can view tidal patterns, including graphs, for just about any time or place you can think of. It's surprisingly granular.

Those of you who are operating-system challenged can always take an afternoon to set up a dual-boot machine. Who knows, after a while you might even find a use for your original OS.

Scallops and Wisps

Akkana Peck

I don't know about you, but with Jupiter getting so low in the sky and most of the other planets hiding behind the sun, I've been doing most of my planetary observing on the web recently. At saturn.jpl.nasa.gov, to be specific: the home of the Cassini-Huygens probe, which entered Saturn's system last month, crossed the ring system and has been sending back some phenomenal pictures.

Pictures that I don't understand at all. What's up with the scalloped edges of the Encke gap, that narrow division at the outer edge of the A ring? Orbital dynamicists are feeling vindicated because one of the theories of the formation of that gap, involving a moon, Pan, orbiting within the gap itself. I haven't yet seen a good explanation of why it happens, though. There's also a narrow ring *inside* the already narrow Encke division. That's a bit more detail than we can see from the backyard!

The ring pictures also show density waves, concentric and spiral light and dark bands apparently caused by complex gravitational interactions between the ring particles and Saturn's extensive satellite system. The close-up of the F ring, that mysterious ringlet outside the main ring system which showed a "braided" appearance in Voyager photos, shows light and dark zones, ribbons and wisps running inward toward the small moon, Prometheus, which is one of the two thought to be responsible for the F ring's odd shape.

In addition, Cassini has shown that in addition to the ice and rock particles known to comprise the rings, there's also a fair amount of ... dirt. The dirt is apparently quite similar to the composition of Phoebe, one of Saturn's moons, which may lend credence to the idea that the rings represent the

breakup of one or more Saturnian moons.

The probe's ultraviolet camera also detected a burst of oxygen at the edge of the ring system. Perhaps we saw a satellite collide with the rings! No one seems sure yet.

We've seen a few tantalizing pictures of Titan, Saturn's cloud-shrouded moon – but they don't show much yet. Stay tuned! We'll be seeing a lot more Titan information as Cassini's journey continues.

If you rise early (or stay up late), you can see Saturn for yourself, low in the predawn sky. Don't expect to see scalloped edges in the Encke gap, or even to see the gap at all, with the planet so low; but it's always a pretty sight. Venus, still in crescent phase, shines about ten degrees above Saturn.

Uranus, in Aquarius, reaches opposition on August 27th, when it will be magnitude 5.7, visible with the naked eye on a dark night. Neptune, a good binocular challenge at magnitude 7.8 in Capricornus, trails an hour behind Uranus, and reaches opposition on the 6th. Both are low in the southern sky, reaching only about forty degrees of elevation. Pluto, in Ophiuchus, transits in early evening at a somewhat higher elevation. Use a good finder chart and a telescope of moderate size (it helps to have 12" or more of aperture, but good observers have spotted Pluto in much smaller instruments) and you shouldn't have too much trouble. The most distant planet is slowing as it comes to the end of retrograde motion, so it won't appear to move very much against the background stars this month. This makes Pluto easier to find from one night to the next (or from one weekend to the next), but also makes its motion less obvious when you try to compare views from one night to the next to verify which one

moved.

Early in August, Jupiter is low in the western sky at sunset, but it closes with the sun and disappears before month's end. Mercury and Mars are too close to the sun to be observable this month.

A Meteoric August for SJAA

It's a meteoric August at SJAA. First, we have Peter Menniskens class on Meteor Observing on August 6. Then we have the Perseids which are expected to peak on or about August 12. We have two excellent dates/locations for you to observe this annual meteor shower. One is at Villa Montalvo with Mike Koop (e-mail at koopm@best.com). The other is with Jim Van Nuland (e-mail at jvn@svpal.org) at Calero County Park.

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.

Chasing the Planet Venus

Ernie Piini

I've chased many solar eclipses in my lifetime but chasing the 'shiny lady' across the face of the sun on June 8, 2004 was a totally different and exhausting experience.

Aware of this upcoming and rare historic transit for many years, my daughter, Elaine, and I arranged to go to Egypt with Jen & Vic Winters of Astronomical Tours to view the 6 hour, 13 minute, duration of the transit. This tour offered a better than 94 percent promise of clear skies, a chance to visit Luxor, the Valley of the kings, and see the famous pyramids.

But fate interfered on January 24, 2004. At 6:00 a.m. on a Saturday morning I went out to the front yard to pick up the morning newspaper. While bending awkwardly, reaching for the paper, my right hip joint jumped out of its socket. I quickly realized I did not have a leg to stand on. The dislocation was very painful. The heavy rain pummeled my body and my head was in the gutter gushing with rain water. I tried frantically to arouse my wife, Barbara, or any neighbor, but it took an anxious 10 minutes before she came looking for me. She called 911 and soon the local fire truck and an ambulance came to bring me to a nearby hospital. They put me asleep and returned the hip ball back into its socket. (I had both left and right total hip replacements done in 1991.)

While on the ground that morning I realized that no way could I go to Egypt and perhaps have this happen to me while out in the desert far from medical help. So, we canceled the Egyptian tour.

The next best thing was to plan a trip to the East Coast to catch an early morning view of the near 3rd contact

position of Venus. We contacted Audie and Margie Barnett of Hartville, Ohio, whom I have gone on many Eclipse Chasing trips with the New Jersey Amateur Astronomers Inc. (AAI) organization and they offered to join us in the chase for Venus. We communicated and planned our trip via e-mail.

We also contacted Beth Yule, our AAI tour agent from New York City, who graciously set us up with hotel accommodations just a few blocks from "Ground Zero" a must see on this trip.



Before this day, June 8, 2004, no human alive has ever seen a Transit of the planet Venus. Not since 122 years ago on December 6, 1882 has the planet Venus crossed the face of our sun.

This photo was taken at Revere Beach Blvd. in Boston, MA, by Elaine and Ernie Piini from San Jose, CA. using a Canon "Rebel" digital camera attached to a C-90 telescope with a Baader ND-5 filter. A Takahashi "Sky Patrol" equatorial mount was used to track the sunrise event.

Photo #8708A, ISO 400, 1/4000 second exposure taken at 09:49 UT (5:49 a.m. EDT).

We also visited Ellis Island where we searched their files for important information on my dad, who came to America from Switzerland in 1923.

We also received excellent weather forecasting from none other than meteorologist, Jay Anderson, a

Canadian who provides climate forecasts for all solar eclipses. Although the weather on the east coast is always a challenge to predict—with rain, thunderstorms, and snow possible—nothing like good old California sunshine. We were able to zero in on an acceptable location the evening before the transit.

I have been chasing Venus since its first reappearance in the evening sky in the latter part of 2003. I faithfully followed its rise every evening towards maximum elongation in April 2004, maximum

brilliance on May 1st, and finally now as it crosses the sun on June 8th. In between views I marveled at its proximity to the waxing moon on March 24th, and was thrilled with its encounter with the Seven Sisters of the Pleiades cluster on April 3rd, when it formed the end of a handle of a mini dipper. Of course the most thrilling view was to catch it silhouetted against the face of our sun on that Tuesday morning in Boston overlooking the Atlantic Ocean from Revere Beach Blvd.

We woke around 3:00 a.m. the morning of the transit and saw the waning moon outside our hotel window signaling a chance for clear skies! While setting up our equipment the fog rolled in from the Atlantic and delayed our seeing the sun for about 25 minutes. Elaine saw the big round spot on the sun first with her binoculars. I finally saw it through the camcorder as did the Barnett's nearby. What a sight! We enjoyed about 45 minutes of clear skies before a cloud bank from the west obscured the 3rd contact "eye-drop" effect and the remaining egress. (The "eye drop" effect is akin to that seen

Continued on page 6

Continued from page 5

when our sun nears the ocean horizon at sunset.) But we saw what we worked so hard to capture.

Our photographing equipment consisted of a Canon GL-1 camcorder with a Rokunar 2X video lens and a Baader ND-5 solar filter. Along side on a Takahashi "Sky Patrol" equatorial mount we also attached a Celestron C-90 telescope with a Baader ND-5 filter and took photos with a Canon "Rebel" digital camera. Acceptable results were obtained from both units.

On November 6, 1993, Joe Shrock and I had traveled to Canberra, Australia to see and photograph the smaller planet Mercury. We brought with us a hefty telescope eyepiece projection system that magnified the small 10-arc-second wide planet (1/194th the apparent diameter of the sun) up to a 12 inch sun diameter image on our screen. The telescope consisted of a 5-inch, double folded refractor (72-inch focal length) with input fed by a simple heliostat. But our afternoon dilemma was a very strong wind that began when the transit began. The image jittered excessively but we caught Mercury using Joe's camcorder. A better still

photo of the transit was obtained with a separate C-90 telescope using a 12 mm eyepiece projection on Kodachrome 200 film. (see Astronomy Magazine, April 1994, p. 87).

In summary, our quest to see the famous rare spot, three times the diameter of the planet Mercury, appear on the face of our sun had to be one of the most exciting views of our lifetime. In only eight more years we'll see it again in California on June 6, 2012.

Solar System Stats for August 2004

Adapted from the Observer's Handbook published by The Royal Astronomical Society of Canada which in turns 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	10 ^h 26 ^m	5 ^h 37 ^m	9 ^h 47 ^m	11 ^h 19 ^m	7 ^h 25 ^m	22 ^h 31 ^m	21 ^h 06 ^m	8 ^h 46 ^m
	11	10 ^h 35 ^m	6 ^h 13 ^m	10 ^h 11 ^m	11 ^h 27 ^m	7 ^h 31 ^m	22 ^h 30 ^m	21 ^h 05 ^m	9 ^h 24 ^m
	21	10 ^h 15 ^m	6 ^h 53 ^m	10 ^h 35 ^m	11 ^h 34 ^m	7 ^h 36 ^m	22 ^h 29 ^m	21 ^h 04 ^m	10 ^h 02 ^m
Dec.	1	+7°32'	+19°04'	+14°36'	+5°34'	+21°45'	-10°08'	-16°40'	+18°00'
	11	+4°34'	+19°43'	+12°24'	+4°48'	+21°35'	-10°16'	-16°45'	+15°15'
	21	+5°52'	+19°53'	+10°04'	+3°59'	+21°25'	-10°25'	-16°50'	+12°06'
Dist (AU)	1	0.80	0.58	2.63	6.19	10.00	19.14	29.06	1.015
	11	0.67	0.65	2.65	6.28	9.93	19.08	29.06	1.013
	21	0.61	0.73	2.66	6.35	9.84	19.05	29.09	1.012
Mag	1	-0.7	-4.4	1.8	-1.8	0.2	5.7	7.8	
	11	1.6	-4.3	1.8	-1.7	0.2	5.7	7.8	
	21	4.1	-4.3	1.8	-1.7	0.2	5.7	7.8	
Size	1	8.4"	28.9"	3.6"	31.8"	16.6"	3.7"	2.3"	31'31"
	11	10.0"	25.5"	3.5"	31.4"	16.7"	3.7"	2.3"	31'34"
	21	10.9"	22.8"	3.5"	31.0"	16.8"	3.7"	2.3"	31'37"

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Submit

Submit articles for publication in the
SJAA *Ephemeris*. Send articles to
the editors via e-mail to
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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
6	8" Celestron S/C	Richard Savage
7	12.5" Dobson	Tom Fredrickson
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
33	10" Deep Space Explorer	Glen White
34	Dynamax 8" S/C	Yuan-Tung Chin
35	Meade 8" Equatorial	Patrick Lewis
37	4" Fluorite Refractor	Gary Hansen
38	Meade 4.5" Digital Newt	Tej Kohli
39	17" Dobson	Ron Gross

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
8	14" Dobson	Jan Lynch	10/9/04
10	Star Spectroscope	Bill O'Shaughnessy	9/11/04
11	Orion XT6 Dob	Lia Klofas	8/6/04
12	Orion XT8 Dob	Christopher Salander	7/23/04
13	Orion XT6 Dob	Steve Van Lare	7/28/04
15	8" Dobson	Scott Pelger	10/5/04
26	11" Dobson	Vivek Kumar	10/10/04
28	13" Dobson	Anupam Dalal	8/1/04
35	Meade 8" Equatorial	Peter Young	8/28/04
36	Celestron 8" f/6 Skyhopper	Grant Webb	7/28/04
40	Super C8+	Mike Macedo	9/11/04
41	18" Sky Designs Dob	Ken Frank	9/23/04
42	11x80 Binoculars	Ritesh Vishwakarma	10/10/04

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	?
9	C-11 Compustar	Bill Maney	Indefinite
14	8" f/8.5 Dob	Colm McGinley	9/19/04
21	10" Dobson	Michael Dajewski	Repair
29	C8, Astrophotography	Joe Huber	9/6/04

Waiting list:

8	14" Dobson	Jim Song
10	Star Spectroscope	Jim Albers
33	10" Deep Space Explorer	Jason Yoon

San Jose Astronomical Association Membership Form

New **Renewal** (Name only, plus corrections below)

Membership Type:

- Regular — \$15
 Regular with Sky & Telescope — \$48
 Junior (under 18) — \$6
 Junior with Sky & Telescope — \$39

Subscribing to Sky & Telescope magazine through the SJAA saves you \$10 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

Bring this form to any SJAA Meeting
or send (with your check) to

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