SJAA EPHEMERIS

SJAA Activities Calendar

Jim Van Nuland

January

5 Dark Sky weekend. Sunset 5:04 p.m., 4% moon rises 6:15 a.m. Henry Coe Park's "Astronomy" lot has been reserved.

11 Houge Park star party. Sunset 5:10 p.m., 14% moon sets 8:44 p.m. Star party hours: 7:00 until 10:00 p.m.

11 Beginner's Workshop/Laboratory. Practical setup and use of your telescope. On the basketball court at Houge Park, 7 p.m. See article on the right.

19 General Meeting at Houge Park. 8 p.m. Dr. Jeff Moore of NASA will tell us of the Pluto Express Jupiter Encounter Update.

26 Dark Sky weekend. Sunset 5:21 p.m., 77% moon rises 10:06 p.m.

February

1 Astronomy Class at Houge Park. 7:30 p.m. The topic will be Using Astronomy Charts Efficiently.

1 Houge Park star party. Sunset 5:32 p.m., 21% moon rises 4:05 a.m. Star party hours: 7:00 until 10:00 p.m.

2 Dark Sky weekend. Sunset 5:33 p.m., 13% moon rises 4:58 a.m.

9 Dark Sky weekend. Sunset 5:41 p.m., 11% moon sets 8:47 p.m. Henry Coe Park's "Astronomy" lot has been reserved.

15 Houge Park star party. Sunset 5:47 p.m., 72% moon sets 3:50 a.m. Star party hours: 7:00 until 10:00 p.m.

16 General Meeting at Houge Park. 8 p.m. Our speaker is UCB astronomer Dr. Frank Marchis, on the topic of Binary Asteroids.

20 Lunar Eclipse party at Houge Park. Sunset 5:52 p.m.,100% moon rises 5:44 p.m.

Partial starts	5:44	-1 degree elevation
Totality start	7:01	13
Mid-time	7:26	18
Totality ends	7:51	23
Partial ends	9:08	37

29 Houge Park star party. Sunset 6:01 p.m., 37% moon rises 2:48 a.m. Star party hours: 7:00 until 10:00 p.m.

29 Astronomy Class at Houge Park. 7:30 pm. Topic to be announced.

29 Dark Sky weekend. Sunset 4:59 p.m., 61% moon rise 11:22 p.m.

The Board of Directors meets at 6:00 p.m. preceding each general meeting. All are welcome.

January General Meeting

Dr. Jeff Moore

Jan. 19, 2007 - 8 p.m. - Houge Park

The New Horizons spacecraft was launched on January 19, 2006. In February of 2007, it flew by Jupiter. Its instruments took images and recorded other data including information on a new storm that is 2/3 the size of the Earth. Dr. Moore will show photos of the Jupiter system and discuss some of the other discoveries from the Jovian system. The New Horizons spacecraft will arrive at Pluto in 2016.

Dr. Moore earned his first degree in History. He was a tank platoon leader in the U.S. Army. Later, he earned his master's and doctorate in geology from Arizona State University. He moved to NASA Ames Research Center in Mountain View in 1991.

New Beginner's Workshop Laboratory

Rob Hawley

In response to requests from members, I will be starting a Laboratory section where I will help people use their scopes. This laboratory will be held approximately once per quarter. The first section will be Jan 11 at 7 p.m. (note earlier time) at Houge. Bring your scope to Houge and we will set up on the tennis court away from the public event. I will help you learn how to use your scope and will help you find objects using your scope.

In the summer I would like to move the laboratory from Houge down to Coyote Lake Park. The details and schedule of this have not been settled. Summer allows us to begin later and the darker skies of Coyote will allow us to step up to more serious objects. Please let me know whether you could make a Friday night class that began after 9 p.m.

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

DEEP SKY OBSERVING

by Mark Wagner

January 2008 third quarter to new moon observing list. The list begins in the north and moves southward. Objects are within roughly a one hour section of right ascension that is at a comfortable elevation to the east at astronomical dark. This list is just a sampling of the full list which is at http://www.resource-intl.com/Deep.Sky.Jan.08.html.

Object	Const.	Type	Size	Mag	R.A.	Dec.
Arp 213	Cam	GX	5.3' X 3.9'	10.5	04 07 47	69 48 00
	Homogeneous round galaxy with ill-defined edges					
Arp 210	Cam	GX	3.7' X 1.8'	11	04 30 49	64 50 00
	NGC 1569, 380x,bright, very elongated, asymmetric.					
NGC1502	Cam	OC	7	5.3	04 42 00	62 20 00
	Kemble's Cascade, beautiful group.					
NGC1501	Cam	PN		13.3 P	04 42 00	60 55 00
	moderately bright, irregularly round, weakly annular.					
N1624	Per	C+N	5x5	10.4	04 40 37	50 27 41
	About 1/2 dozen stars, some definite nebulosity.					
NGC1545	Per	OC	18	8	04 20 00	50 15 00
	many dim components, cluster is large.					
NGC1528	Per	OC	25	6.2	04 15 00	51 14 00
	Awesome open cluster, easily seen in the finder.					
NGC1513	Per	OC	12	8.8	04 10 00	49 31 00
	Nice little cluster with the brighter foreground stars.					
N1514	Tau	PN	136"x121"	10.9	04 09 17	30 46 33
	263x showed uneven, mottled, dumbbell-like shape					
B7	Tau	DNB		5	04 17 25	28 33 00
	Large, irregular, with brighter (B 10) in SE part					
NGC1750	Tau	OC	45		05 03 00	23 39 00
	Three overlapping open clusters combine in binoculars.					
NGC1647	Tau	OC		6	04 46 00	19 04 00
	Looked like wishbone 12x60s					
N1662	Ori	OC	20	6.4	04 48 29	10 55 48
	Sparse cluster with notable multiple star system.					
N1587	Tau	GX	1.7x1.5	11.7	04 30 40	00 39 43
	Fairly bright, large; bright core, trio w/ N1588 N1589.					
N1762	Ori	GX	1.7x1.1	12.6	05 03 37	01 34 25
	Faint, small, oval ~N-S.					
N1637	Eri	GX	4.0x3.2	10.8	04 41 28	-02 51 29
	A nice face on circular galaxy, ... with a stellar core					

Note: Source catalogs are Messier, Arp, Abell Planetary, Abell Galaxy Cluster (AGC), Hickson Compact Galaxy (HCG), Sharpless HII Regions, Barnard Dark Nebulae, Herschel 400-I, Herschel 400-II. Herschel 400-I are identified as NGCXXXX, Herschel 400-II as NXXXX.

Wasting Away Again in Margaritifer

Akkana Peck

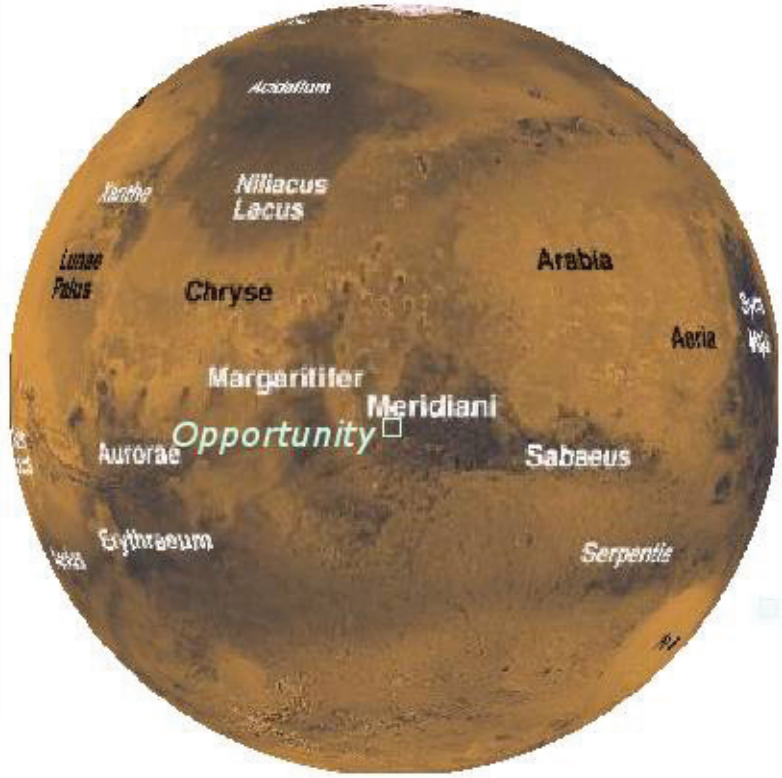
Of course, Mars is the big news this month – it was at opposition on Christmas eve, and the next month or two are ideal for observing it.

This year's opposition will not be as close as the oppositions of the last few years. But here's the good news: Mars will soar about as high in the sky as it gets – 80°! That makes a huge difference in how much detail you can see.

When you observe Mars regularly, it helps to know that the Martian day is longer than ours by 39.5 minutes. That means that if you look at Mars at the same time each day, you'll be looking roughly nine degrees farther east tomorrow than you were today. A simpler way of looking at it is that to see the same thing you saw tonight at 9:00, tomorrow you'll have to look at 9:40.

So what's there to look at this month? For the first week of January, dark features Mare Cimmerium and Mare Tyrrhenum are visible around 9 p.m. on the 1st. They blend together – it's hard to tell where one ends and the other begins, but you shouldn't have any trouble seeing them both in a telescope. Later in the evening, Syrtis Major rotates into view. This large Africa-shaped area is the easiest and most prominent dark feature on Mars. Near the limb, just south of Syrtis Major, is the huge impact basin called Hellas. It's usually very light colored, from fogs and frosts that accumulate in the basin, and if you look at Mars around 10:30 or 11 p.m. in the first few days of the month it'll be easy to mistake Hellas for the south polar cap. The real south polar cap will be very small – it's just barely fall in Mars' southern hemisphere, so the only polar cap you're likely to see easily is the northern one.

If you want to challenge yourself with more subtle features, look for an elongated dark area called Cerberus Fossae just north of the equator, flanking the lighter area known as Elysium (a lava covered plain). As viewed from a spacecraft, the Fossae are cracks in the lava plain, rather like some of the rille complexes on the moon, but Mars is too far away for a telescope to show that level of detail. This area also has some smaller features with wonderful names like Trivium Charontis and the Propoutis Complex which you might be able to see on a steady night.



By the second weekend in January (the 12th), Tyrrhenum and Cimmerium have rotated out and in their place you'll see the fairly similar Mare Sirenum stretching across the planet's southern hemisphere. The northern hemisphere is more challenging: it's mostly pale and featureless, but you're actually looking at Mars' great shield volcanoes, Olympus Mons and the three Tharsis volcanoes. See if you can see lighter areas where the volcanoes are: sometimes the region sports orographic clouds, the kind that are formed by air rushing up the slope of mountains (like you'll sometimes see over Mt. Hamilton when the rest of San Jose's sky is clear).

On January 19th, Sirenum is on the limb and in the south you're looking at Lacus Solis, sometimes called the "Eye of Mars". If you catch it at the right time, you'll see why it's called that! Beginning to rotate in are Mare Erythraeum and Argyre. Erythraeum is one of the most interesting and complex areas of Mars for the visual observer: it has all kinds of complex fingers and shapes, and if you get lucky with the seeing you'll be amazed at how much detail you can see there. If you're a sketcher you'll love this area.

In the north, Mare Acidalium is just starting to rotate into view. The darkness of Acidalium should make it easier to see the north polar cap. The area on the edge of Acidalium also has my favorite Martian feature name: Niliacus Lacus.

If you get spectacular seeing and want a tough challenge, try for Valles Marineris, the biggest canyon in the solar system. I've never seen it myself, but I've heard

Continued on page 4

The Shallow Sky

continued from page 3

that it's just barely possible, with sharp eyes, a great scope and steady air.

By January 26th, Erythraeum is starting to rotate out. A "bay" at its trailing edge bears my other favorite Martian feature name: Margaritifer Sinus. You can spend many a happy hour "Wasting away in Margaritifer." Rotating in is Sinus Meridiani, an odd elongated dark "bay" which usually stands out very nicely from what's around it, with equally dark Sinus Sabaeus adjoining it. In the south, Acidalium and Niliacus Lacus are still visible.

Finally, around the end of the month, Syrtis Major and Hellas finally rotate in. If you didn't stay up late to get a good look at them as January opened, now's your chance. In the south, try for the subtle dark feature called Nilosyrtis.

As you observe Mars you might wonder, "Where are the Rovers?" Those spunky rovers just keep on exploring, and it's fun to think about them rolling around up there while you're looking at them. (Of course, you can't see anything as tiny as the rovers themselves.)

Spirit's landing site is Gusev Crater, a minor feature you won't find on a normal Mars map. It's near the northeast edge of Cimmerium (see the attached map). A good time to look is Jan 5, when it will be near the meridian around 9 p.m.; or wait a few days if you want to look later in the evening, when Mars is higher in the sky.

Opportunity is much easier to spot: its landing site, Sinus Meridiani, is a well known feature that you shouldn't have any problem seeing in a telescope. A good time to look for it is Jan 26, when it'll be pointing our way around 9 p.m..

Sick of Mars yet? Are there any other planets to see?

Saturn rises in mid-evening and is visible most of the night. It's in the belly of Leo, fairly close to M95, though, alas, not quite close enough to get them in the same field unless you have a scope that will show more than a degree and a half.

Uranus is visible in the early evening sky; Venus and Pluto are visible at dawn, and Jupiter joins them in the latter half of January. The other planets are too close to the sun to be observed usefully this month.

RASC Calendars and Handbooks

Gary Mithcell

The popular RASC Observer's Handbook and astronomy calendars have arrived! They'll be available at our general meetings until they're gone. This year we also ordered a supply of the Beginner's Observing Guides.

The Observer's Handbook is $18, the Calendar is $10, and the Beginner's Guide is $15. As before, the SJAA orders them in bulk, so this is a significant discount, (retail is $25.95 for the Handbook, $14.95 for the calendar, and$19.95 for the Beginner's Guide). The club only makes about a dollar each on these, which goes toward our loaner scope program.

If you'd like one but can't make it to a meeting, contact me to make other arrangements: wb6yru@ix.netcom.com.

For more information on these books, see the RASC web site: http://www.rasc.ca, click on Publications.

Board News

Gary Mitchell

The Board approved some minor changes to the bylaws to improve the way the board operates. The full text of the current bylaws is available on our web site.

The first change is to clarify a quorum of the board making the minimum number of directors fifty percent of the total board (nine directors) instead of fifty percent of the filled seats. The specific change is to Article 3, Section 13, first sentence. Old "A quorum shall consist of 50% of filled Directorships in attendance." New: "A quorum shall consist of 50% of the Directorships." If there isn't a quorum, the club will still function, but the board may not vote in anything new. If fewer than fifty percent of the seats are filled, this change would force the board to hold elections as soon as practical.

The second change will allow directors to abstain during a vote. As is, the bylaws have been interpreted to mean directors must vote yes or no, abstention votes effectively count as no votes. So, a director may not recuse himself from a vote, not even if there is a conflict of interest. The specific change is to Article 3, Section 13 and Section 14, (it's the same change to the same wording in each section). Old: "Every act or decision done or made by a majority of the directors present at a meeting duly held at which a quorum is present is the act of the Board of Directors..." New: "Every act or decision done or made by a *simple* majority of *affirmative votes versus negative votes* of the directors present at a meeting duly held at which a quorum is present is the act of the Board of Directors..."

The membership will be asked to ratify these changes at the next general meeting.

Hesiodus Sunrise Ray

Jane Houston Jones

Lunar sunrise and sunset rays are shafts of light which shine through gaps or notches in crater walls and mountains to illuminate the lunar surface. They occur only at very low angles of light - during lunar sunrise or sunset. Sunrise and sunset rays can range from thin parallel to triangular illuminations. Don't confuse them with impact craters, which are the debris blasted out by crater forming impacts on Copernicus and other young craters.

One of these rays, the Hesiodus Sunrise Ray, is a favorite of mine. It's easy to find the crater, which is just south of Rupes Recta, or the Straight Wall. Lunar ray spotting gained popularity about 10 years ago thanks to an article about the Hesiodus light ray in the July 1996 issue of Sky & Telescope. A gap in the neighboring crater Pitatus provides an opening for the shaft of light to cross the floor of this crater at various times throughout the year. Since that time, many amateur astronomers have calculated when the sunrise or sunset will strike a crumpled or broken crater wall and create these short-lived light shows.

Hesiodus is a crater 28 miles in diameter to the west of Pitatus, with a pass into the latter and with gaps in its north wall. Pitatus is a magnificent lagoon-like ring, 50 miles in diameter, on the southern shore of Mare Nubium. The light of the rising Sun shines westward through the two crater's common gap and bisects Hesiodus. Two weeks later, the eastward shining light of the setting Sun bisects Pitatus. Several times a year the geometry of Earth, Sun and Moon allow the light path to pass exactly through the low spot creating the ray.

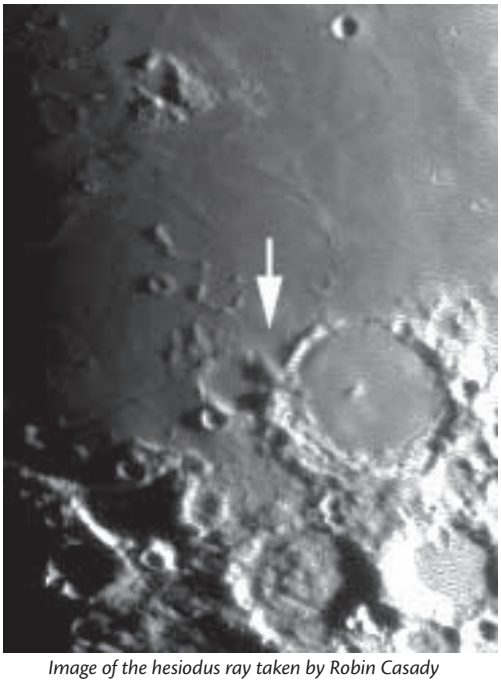
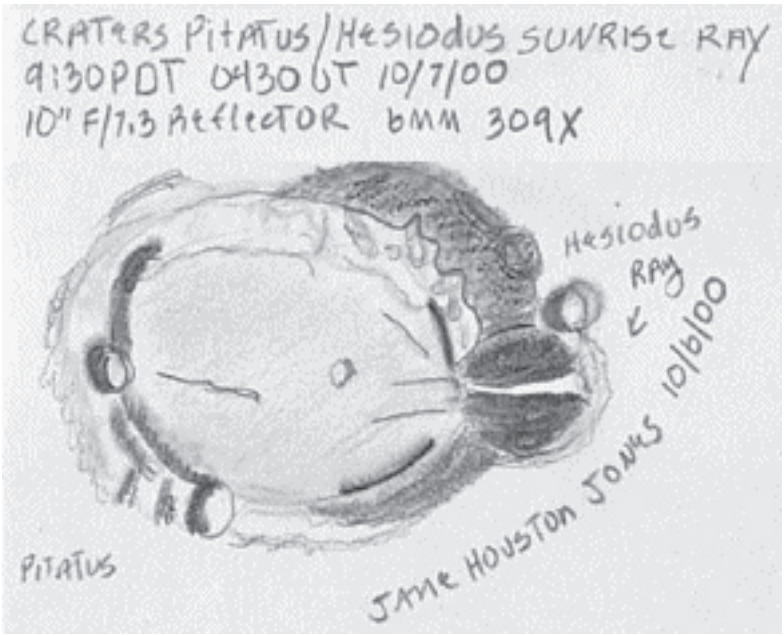


Image of the hesiodus ray taken by Robin Casady

On October 19, 2007 I had mostly been showing people the Straight Wall, Plato, Cassini and Mons Huygens during our monthly sidewalk astronomy night.

My eye drifted from the Straight Wall to Pitatus and Hesiodus. The center of Pitatus was bathed in sunlight, which cast a shadow on its central peak. The crater floor looked convex or dome-like to me. And guess what, the Hesiodus Ray, a narrow triangular shaft of light, illuminated the dark floor of Hesiodus.



Sketch of the ray by the author, Jane Houston Jones

You'll find predictions for about 75 rays, including the Hesiodus and Pitatus Rays, on the Robinson Lunar Observatory website. http://www.lunar-occultations.com/rlo/rays/rays.htm .

There are many opportunities to see each of these two fleeting shafts of light next year. The first dates listed are January 16 and 31, 2008, calculated at the geographic center of the US.

Now get out and catch some rays!

New Board Members Needed

Rob Hawley

We have two openings on the board of directors; one now and one in February. The club will hold Elections for board members at the February meeting on Feb 16, 2008, provided candidates are available.

Board members need to support the purpose of the club and be willing to offer their advice. While many board members also volunteer to make the club activities happen, others only have the time to attend the monthly meetings. Either contribution is valuable.

While it is not a formal requirement, I strongly recommend that anyone thinking about joining the board attend at least one board meeting. That will give you a better idea of the dynamic of being a board member and what issues the board is focusing on. (Ed. Note: See Board Member Requirements at the bottom of page 7).

In 2008 a major focus will be revitalizing the loaner program. The board has already voted to remove several scopes from the program. We will also likely be voting to purchase products where the program is lacking.

In addition, we have the routine business of making sure that the 270+ members of SJAA get their newsletters, that star parties happen, and determining what events SJAA is interested in supporting. Basically the nuts and bolts of making the club happen.

If you are interested please drop me an email at president@sjaa.net. Alternatively feel free to just attend the next board meeting or subscribe to the board mailing list.

Silicon Valley Astronomical Lecture Series

Joel Primack and Nancy Abrams on January 23, 2008 at 7 p.m.

Andrew Fraknoi

On Wednesday, Jan. 23, 2008, at 7 pm., Astronomer Joel Primack of the University of Califor.nia, Santa Cruz and Philosopher and Attorney Nancy Abrams will give a multimedia presentation entitled:

The View from the Center of the Universe: Discovering Our Extraordinary Place in the Cosmos

as part of the Silicon Valley Astronomy Lectures 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 and driving directions.

No background in science will be required for this program, which unites science with the humanities.

Remarkable discoveries in the last decade are transforming "cosmology," the study of the universe as a whole. Our cosmos appears to be made mostly of dark matter and dark energy, with the stars and galaxies we can see making up only a tiny fraction of it. We are beginning to understand the first few minutes after the Big Bang and the way in which the structure of the universe arose.

Joel Primack and Nancy Abrams' program is both a progress report and philosophical reflection on our modern view of ourselves and our place in the cosmos. Using the latest science, cosmic images and visualizations, plus music, themes from myth, and even cartoons, they will illustrate how the new ideas about the universe have widespread cultural implications.

Joel Primack is an award-winning physicist and cosmologist, who writes for both his colleagues and the public. Nancy Abrams is a former Fulbright Scholar and student of mythology. While working for the Congressional Office of Technology Assessment, she invented a method called "scientific mediation" that lets government agencies make intelligent decisions despite scientific uncertainty. Together they teach a course on "Cosmology and Culture" at the University of California, Santa Cruz and have written a popular book, published in 2006, with the same title as this lecture.

This interdisciplinary program is something of a departure from our usual series of lectures, but should intrigue and challenge everyone interested in the meaning of science for our times.

The program is co-sponsored by:
* NASA Ames Research Center
* The Foothill College Astronomy Program
* The SETI Institute
* The Astronomical Society of the Pacific.

Publication Statement
SJAA Ephemeris, newsletter of the San Jose Astronomical Association, is published monthly.

San Jose Astronomical Association,
P.O. Box 28243
San Jose, CA 95159-8243

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.**

Telescope Loaner Program

Rob Hawley

The loaner program is intended to give SJAA members a chance to try out various technologies and sizes of scopes. The program contains small, simple scopes intended for beginners as well as larger intermediate/advanced scopes. Current membership in SJAA is required during the period of the loan.

All scopes in the inventory are now available for loan. For information please contact SJAA Loaner Program. Scope loans are normally for six months. After that time we would prefer to give another member a chance to try out the scope. You may keep the scope until a member asks for it as long as your membership is current. **You must return the scope within 30 days if your membership lapses.**

To request a scope, contact the loaner program. Most scopes are stored by the last member that borrowed the scope. Once we receive your request we will get in contact with that member to arrange for a transfer. Note that this may take a couple of weeks since we have to coordinate your, the other member's, and the loaner program's schedules.

Available Scopes

These scopes are available for loan as of Dec. 10, 2007.

Scope Number	Scope Description
44	4.5" f/8 Orion Skyview Newt
43	4.5" f/8 Orion XT Dob
32	5.5" f/7.6 Signature Dob
11	6" f/8 Orion XT Dob
23	6" f/8 Edmund Newt on EQ Mount
34*	*8" f/10 Dynamax S/C
14	8" f/8.5 Homemade Dob
33	10" f/4.5 Orion DSE Dob
45	10" f/5 Dob, Earletron
9*	*C-11 f/10 Compustar
7	12.5" f/7 Homemade Dob
10*	*Star Spectroscope

Scopes marked with an asterisk are not Newtonian Reflectors.

For the latest information and for a list of scopes already loaned see http://www.sjaa.net/loaners/sjaaloan.html

Board Member Requirements

Mark Wagner

The following requirements for SJAA board members are from the by-laws:

Article 3, Section 17:

"The Board of Directors shall consider a person qualified to fill a vacancy if that person has been an Active Member for one (1) year, or has attended three (3) bimonthly board meetings, or has attended six (6) monthly board meetings."

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☐ **New** ☐ **Renewal** (Name only if no corrections)

Membership Type:

☐ Regular — $20
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☐ Junior (under 18) — $10
☐ Junior with Sky & Telescope — $43

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.)

☐ **I'll get the Ephemeris newsletter online**
http://ephemeris.sjaa.net Questions?
Send e-mail to membership@sjaa.net

Bring this form to any SJAA Meeting
or send to the club address (above).

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