

EPHEMERIS

June 2011

SJAA Activities Calendar

Jim Van Nuland

The Shallow Sky

Ringling in the Spring

Akkana Peck

May (late)

- 27 Astronomy Class at Houge Park. 8:30 p.m. Topic: Star Parties - where are they, how to prepare for and enjoy them.
- 27 Houge Park star party. Sunset 8:19 p.m, 20% moon rises 3:06 a.m. Star party hours: 9:30 until midnight.
- 28 Dark-Sky weekend. Sunset 8:20 p.m, 13% moon rises 3:36 a.m.

June

- 4 Dark-Sky weekend. Sunset 8:24 p.m, 11% moon sets 10:58 p.m.
- 10 Houge Park star party. Sunset 8:28 p.m, 73% moon sets 2:21 a.m. Star party hours: 9:30 until midnight.
- 11 General Meeting. Board meeting at 6:30; General Meeting at 8:00
- 24 Astronomy Class at Houge Park. 8:45 p.m. The topic: Eyepieces, filters, finders and accessories.
- 24 Houge Park star party. Sunset 8:32 p.m, 34% moon rises 1:35 a.m. Star party hours: 9:45 until midnight.
- 25 Dark-Sky weekend. Sunset 8:32 p.m, 25% moon rises 2:07 a.m.

July

- 2 Dark-Sky weekend. Sunset 8:32 p.m, 4% moon sets 9:35 p.m. Henry Coe Park's "Astronomy" lot has been reserved.
- 8 Houge Park star party. Sunset 8:31 p.m, 60% moon sets 12:59 a.m. Star party hours: 9:30 until midnight.
- 16 General Meeting. Board meeting at 6:30; General Meeting at 8:00
- 22 Astronomy Class at Houge Park. 8:30 p.m. The topic: Summer Constellations / Highlight Objects. (outdoors)
- 22 Houge Park star party. Sunset 8:24 p.m, 50% moon rises 12:06 a.m. Star party hours: 9:30 until midnight.
- 30 Dark-Sky weekend. Sunset 8:17 p.m, 0% moon sets 8:09 p.m. Henry Coe Park's "Astronomy" lot has been reserved.

The Board of Directors meets before each general meeting at 6:30 p.m. All are welcome to attend.

Saturn is well placed in the evening sky, already high in the sky as night falls. It transits at about 8pm and 50 degrees up, high enough to be in fairly clear air so we can get a good look at it.

Its rings are tilted about seven degrees to us — starting to open wide enough to show the structure of the rings.

If you're new to Saturn observing, the rings are the place to start.

With any telescope, no matter how small, you'll usually be able to see two rings with a gap between them: the thinner "A ring" on the outside, the thicker "B ring" inside it. The gap between them is called the Cassini division (named for the astronomer Giovanni Domenico Cassini — the spacecraft came later). It's almost 3,000 miles wide. Its inner edge is caused by a resonance with Saturn's moon Mimas, which orbits with exactly half the period of particles at the inner edge of the division.

But within the gap is more complex structure, so there's a lot more going on than just the effects of one moon.

Inside the B ring is another ring, the C or "Crepe" ring. Much less bright than A and B, the C ring can be a challenge

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<http://www.sjaa.net>

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to see. It doesn't take a big telescope — I've seen it with an 80mm refractor, and I'm sure it's possible to see it with even smaller optics — but its faintness makes it curiously vulnerable to sky glow and bad seeing. If you don't see it at all at first, don't despair — keep trying, and one night it will pop out and you and you'll wonder what all the fuss was about.

The C ring, curiously, probably has about the same particle density as the Cassini division, and they both have a richly complex structure in photos from the Cassini spacecraft, especially the ones that are backlit, showing the rings as the sun shines through them from the other side. Not a view we're able to get with our earthbound telescopes, alas.

Your next challenge is at the outer edge of the A ring: the thin, dark hairline crack most commonly known as the Encke division. But it was probably seen first by James Edward Keeler or Francesco deVico, and there's some controversy over whether ever Encke

saw the feature that now bears his name. Whatever you call it, it's a challenge to observe: steady seeing and a reasonably large telescope (say, a good 6" or larger) make it

easier, but again, it's definitely possible with a smaller scope with a good night, a good eyepiece and some patience. This gap is created by a small moon named Pan which orbits within the gap itself, clearing out ring particles as it goes.

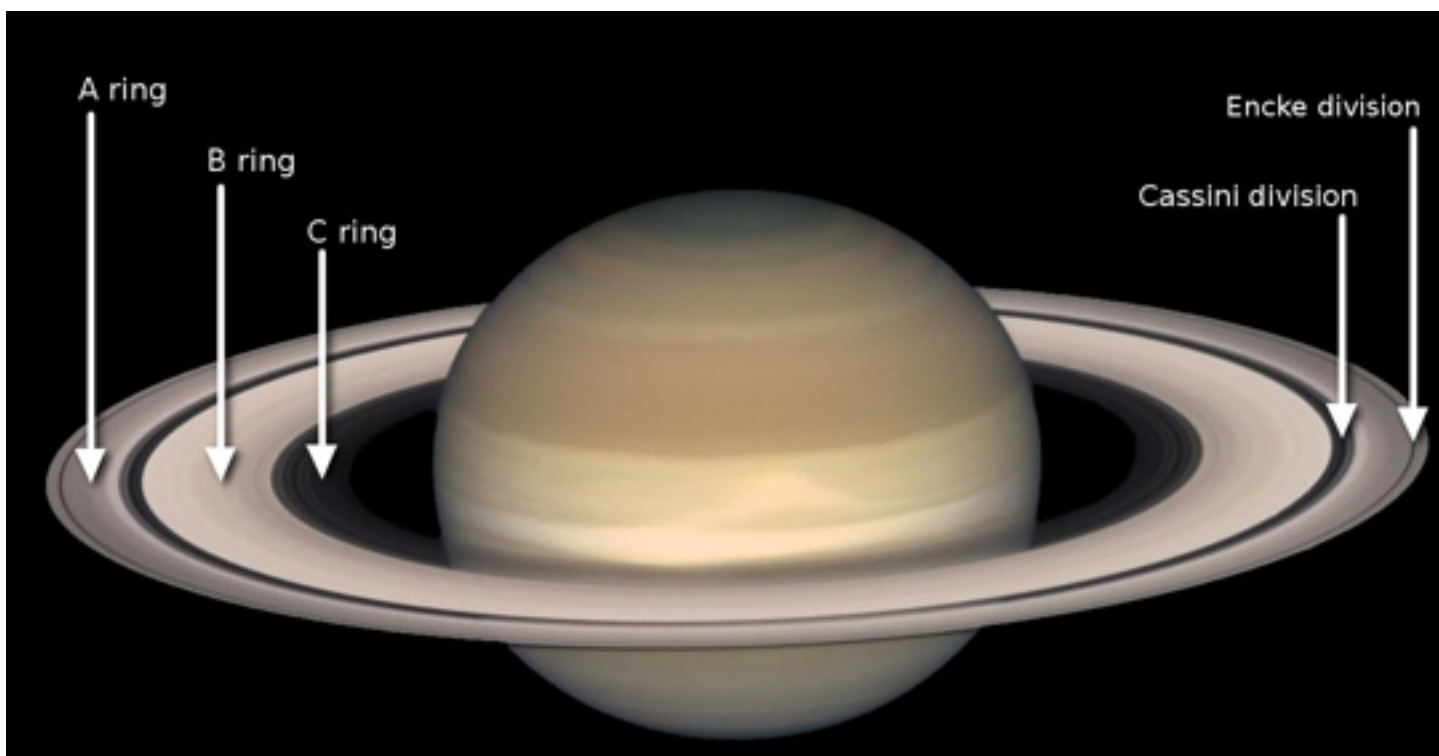
Of course, Saturn has an atmosphere

too, with colored cloud bands similar to Jupiter's ... but much more subtle. You probably won't see the swirls and festoons you see when looking at its larger neighbor, but study it anyway: every now and then a storm or other interesting feature shows up.

Around the middle of the month, Saturn passes by the close double star Porrima (Gamma Virginis), with their approach on the 14th. Porrima is a tough target these days, but you might have a chance with a big telescope and steady air.

Aside from Saturn and the moon, there's not much going on in our evening shallow skies. Jupiter, Mars, Venus, Uranus and Neptune are all up in the morning, while Mercury sneaks back into the early evening sky by the end of the month. Pluto, though, is visible all night, transiting a few hours after midnight. It never gets very high, only about 33 degrees, so it's still not an ideal time to chase the faint planet — but if you do go after it, give a thought to New Horizons, which passed the orbit of Uranus a few months ago while winging its way out to distant Pluto. It's now over 2/3 of the way there, but it'll still be several more years before it gets there.

“The C ring...probably has about the same particle density as the Cassini division, and they both have a richly complex structure in photos from the Cassini spacecraft, especially the ones that are backlit, showing the rings as the sun shines through them from the other side.”



Talks at Berkeley

You are invited to a public talk by Andrew Fraknoi entitled: "The Top Tourist Sights of the Solar System: Where Bill Gates' Great-Granddaughter Might Go on Her Honeymoon"

Date: Wednesday, June 29, 2011

Time: 1pm-2pm

Place: The Lawrence Hall of Science, University of California, Berkeley

Astronomer and popular lecturer Andrew Fraknoi will explore the most intriguing future tourist destinations among the planets and moons in our cosmic neighborhood, including the 4,000 mile lava channel on Venus, the towering Mount Olympus volcano on Mars (three times the height of Mount Everest), and the awesome Verona Cliffs on the moon Miranda (which are the tallest "lover's leap" in the solar system).

Andrew Fraknoi is the Chair of the Astronomy Department at Foothill College and the former Executive Director of the Astronomical Society of the Pacific. He was selected as the 2007 California Professor of the Year by the Carnegie Endowment. For more about Andrew Fraknoi, see <http://www.foothill.fhda.edu/ast/afraknoi.htm> and <http://www.seti.org/page.aspx?pid=486>

For the daytime talk with Fraknoi, attendees would have to pay admission to LHS: \$12.00 Adults (ages 19–61), \$9.00 Student/Senior/Disabled (ages 7–18; 62 plus), \$6.00 Children (ages 3-6; children under 3 are admitted free), Free for Members



You are invited to a public seminar: Are We Alone?

See and hear from three pivotal planet-hunters of the NASA Kepler Mission to find planets around Sun-like stars— especially Earth-size planets that could be inhabited.

Date: Thursday June 30 2011

Time: 7:00-9:30 p.m.

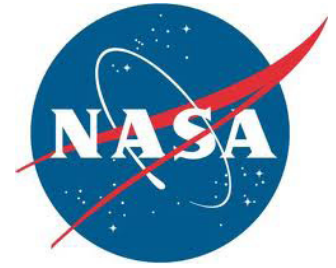
Place: Lawrence Hall of Science, University of California, Berkeley

Once you realize that every star is a whole sun unto itself, the question naturally arises: "Do stars have planets that could be homes to more or less intelligent beings like ourselves?" It has been only in the last 15 years that we even knew for sure that other stars had planets and now it's the NASA Kepler mission that is unfolding riches of data that now allow us to begin cataloging planets orbiting stars other than the Sun and take some of the very first steps to answer that question, "Are we alone?" This seminar features a panel of key investigators in the NASA Kepler Mission Science Team who will share their insights, inspirations, late-breaking findings, and hints about what new discoveries we might be hearing from the mission in the future.

"Astronomers have cracked the Milky Way like a piñata, and planets are now pouring out so fast that they do not know what to do with them all." — Dennis Overbye, New York Times, Feb 2, 2011

Panelists:

- Bill Borucki, Principal Investigator, NASA Kepler Mission, Ames Research Center, Mountain View, CA
- Natalie Batalha, Co-Investigator and Deputy Science Team Lead for the NASA Kepler Mission, Professor of Physics and Astronomy at San Jose State University, and lead author of the published article about the discovery of the first nearly Earth-size rocky planet.
- Gibor Basri, Co-Investigator for NASA Kepler Mission and professor in the Department of Astronomy at University of California, Berkeley
- Moderator: Andrew Fraknoi, Astronomical Society of the Pacific, and Chair of Astronomy Department at Foothill College, Los Altos Hills, CA



Milky Way Safari

Dauna Coulter and Dr. Tony Phillips

Safari, anyone? Citizen scientists are invited to join a hunt through the galaxy. As a volunteer for Zooniverse’s Milky Way Project, you’ll track down exotic creatures like mysterious gas bubbles, twisted green knots of dust and gas, and the notorious “red fuzzies.”

“The project began about four months ago,” says astrophysicist Robert Simpson of Oxford University. “Already, more than 18,000 people are scouting the Milky Way for these quarry.”

The volunteers have been scrutinizing infrared images of the Milky Way’s

inner regions gathered by NASA’s Spitzer Space Telescope. Spitzer’s high resolution in infrared helps it pierce the cloaking haze of interstellar gas and dust, revealing strange and beautiful structures invisible to conventional telescopes. The Milky Way Project is helping astronomers catalogue these intriguing features, map our galaxy, and plan future research.

“Participants use drawing tools to flag the objects,” explains Simpson. “So far they’ve made over a million drawings and classified over 300,000 images.”

Scientists are especially interested in bubble-like objects believed to represent areas of active star formation. “Every bubble signifies hundreds to thousands of young, hot stars. Our volunteers have circled almost 300,000 bubble candidates, and counting,” he says.

Humans are better at this than computers. Computer searches turn up only the objects precisely defined in a program, missing the ones that don’t fit a specified mold. A computer would, for example, overlook partial bubbles and those that are skewed into unusual shapes.

THE MILKY WAY PROJECT

HOME TAKE PART ABOUT TUTORIAL LOG IN GALACTOMETER™

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IMAGES SERVED
242,766

Days Ago	Images Served
8 Days Ago	1053
7 Days Ago	1362
6 Days Ago	1856
5 Days Ago	1321
4 Days Ago	1574
3 Days Ago	2451
2 Days Ago	1883
Yesterday	1444
Today	2020
Today	2436

GALACTOMETER™

The response to the Milky Way Project has been fantastic! Now we’ve created the Galactometer™! Here you can find the current total image count as well as a graph of the recent daily count of images served up by the project.

Each classification on the site can be made up of many individual drawings. The MWP community has now drawn an incredible

1,224,579

objects! These could be bubbles, galaxies, star cluster or others. If you want to be part of this amazing project, [CLICK HERE!](#)

Volunteers study infrared images of our galaxy from the Spitzer Space Telescope, identifying interesting features using the special tools of the Milky Way Project, part of the Citizen Science Alliance Zooniverse web site.

"People are more flexible. They tend to pick out patterns computers don't pick up and find things that just look interesting. They're less precise, but very complementary to computer searches, making it less likely we'll miss structures that deserve a closer look. And just the sheer numbers of eyes on the prize mean more comprehensive coverage."

Along the way the project scientists distill the volunteers' data to eliminate repetitive finds (such as different people spotting the same bubbles) and other distortions.

The project's main site (<http://www.milkywayproject.org>) includes links to a blog and a site called Milky Way Talk. Here "hunters" can post comments, chat about images they've found, tag the ones they consider especially intriguing, vote for their favorite images (see the winners at <http://talk.milkywayproject.org/collections/CMWS00002u>), and more.

Zooniverse invites public participation in science missions both to garner interest in science and to help scientists achieve their goals. More than 400,000 volunteers are involved in their projects at the moment. If you want to help with the Milky Way Project, visit the site, take the tutorial, and ... happy hunting!

You can get a preview some of the bubbles at Spitzer's own web site, <http://www.spitzer.caltech.edu/>. Kids will enjoy looking for bubbles in space pictures while playing the Spitzer concentration game at <http://spaceplace.nasa.gov/spitzer-concentration/>

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

GSSP **Golden State Star Party**

The Golden State Star Party is a 4 night dark sky event held each summer at Frosty Acres Ranch in North-Eastern California, near Mount Lassen, alongside rural Adin, California. GSSP has dark skies from horizon to horizon, and room for 100s of astronomers. The Star Party starts June 29. For more information see: <http://www.goldenstatestarparty.org/>

CalStar

The annual CalStar star party starts September 29. It is located at Lake San Antonio, south of King City. More information will be available soon. Check <http://www.sjaa.net> for the latest news.

Directions to Hogue Park

Hogue (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.

John Delaney, 1914 - 2011

Jim Van Nuland

John Delaney, one of the founders of the San Jose Astronomical Association, has died at age 96.

He was on the first Board of Directors, formed in May 1955. In July, the board members signed the Articles of Incorporation. He was a member of SJAA until just a few years ago.

He made at least two large (for their time) telescopes, one a 12.5 incher. That mirror was incorporated into one of the club's loaner telescopes about 1980, which was used until 2010.

John worked for Ames Research Center from 1940 until retirement in 1974, interrupted for several years of military service.

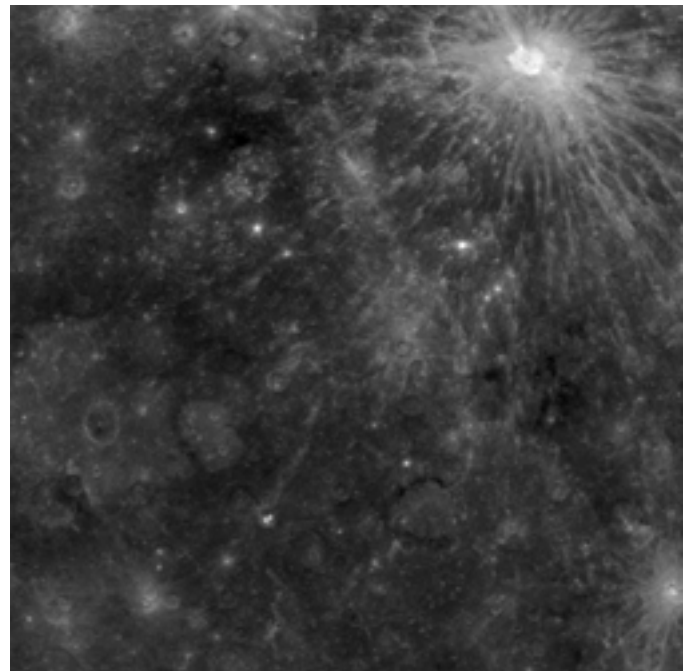
The Last Month In Astronomy

04-MAY-2011 **Comet Elenin** Astronomer Leonid Elenin discovered the comet also known as C/2010 X1 on December 10, 2010. The comet may be visible to the naked eye near the time of its closest approach mid-October 2011. At that time, it will be 22 million miles away. Some speculations about how close it might come or how it might affect Earth weather have no scientific basis. <http://www.jpl.nasa.gov/news/news.cfm?release=2011-135&rn=news.xml&rst=2989>

02-MAY-2011 **Space helps Windows** A gas sensor built to measure atomic oxygen in space including outside of the International Space Station is being used by a German window maker to make more energy efficient buildings. The ISS measures oxygen in the “vacuum” of space because of its corrosive effects including degrading optical surfaces. http://www.esa.int/esaCP/SEMPMEZGRMG_index_0.html

28-APR-2011 **Voyagers Leaving** The 2 Voyager probes are about to leave the last part of the solar system. It is now in the heliosheath which is 3 to 4 billion miles in thickness. It might “pop free” within the next 5 years. The plutonium based energy source should keep the Voyagers running until 2020 or later. http://science.nasa.gov/science-news/science-at-nasa/2011/28apr_voyager/

25-APR-2011 **First images from Messenger** The Messenger spacecraft has sent back the first images from its orbit around Mercury. See the image on the right. The image was acquired on April 10, 2011. The bright crater is called Kuiper. Messenger is the first spacecraft to orbit Mercury. During its one year planned mission 75,000 images will be transmitted to Earth. Image Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington. <http://lunarscience.arc.nasa.gov/articles/new-images-from-mercury-orbit>



21-APR-2011 **Mars Orbiter sees atmospheric changes** The Mars Reconnaissance Orbiter (MRO) has discovered evidence that the total amount of atmosphere on Mars has changed dramatically as the planet's tilt changes. The radar evidence is a large deposit of frozen carbon dioxide below the surface of the south pole. When the planet's tilt is greater than it is now, the Lake Superior-sized chunk of dry ice melts. According to Roger Phillips of Southwest Research Institute (Boulder, CO), “When you include this buried deposit, Martian carbon dioxide right now is roughly half frozen and half in the atmosphere, but at other times it can be nearly all frozen or nearly all in the atmosphere”. The MRO's Shallow Radar is one of 6 instruments on board the spacecraft. <http://www.jpl.nasa.gov/news/news.cfm?release=2011-123>

21-APR-2011 **Plump UV Stars** NASA's GALEX spacecraft is helping to find out why some of the most massive stellar explosions seem to occur in the smallest galaxies. The answer may be that massive stars in small galaxies stay massive but similar sized stars in large galaxies are whittled away over time so that by the time they explode they are not so large. The mystery was first pointed out by Neil deGrasse Tyson and John Scalzo. They noticed supernovae in places where there don't seem to be any galaxies at all. They proposed that dwarf galaxies were the actual source of the explosions and new data from the Palomar Observatory bears this out. <http://www.jpl.nasa.gov/news/news.cfm?release=2011-122>

20-APR-2011 **Electricity at Saturn** There is an electrical connection between Saturn and Enceladus which forms an auroral footprint. This connection had been proposed ever since a similar connection between Jupiter and IO was discovered. Marcia Burton, a Cassini scientist at JPL says “The footprint discovery at Saturn is one of the most important fields and particle revelations from Cassini and ultimately may help us understand Saturn's strange magnetic field. It gives us the first visual connection between Saturn and one of its moons.” <http://www.jpl.nasa.gov/news/news.cfm?release=2011-120>

It Must Be Astronomical ...

Loaners

The loaner program offers members a means to try scopes of various sizes and technologies before you buy. For more information please see the loaner program web page: <http://www.sjaa.net/loaners>

“FAR” (the 365 Days of Astronomy Theme Tune)

*You ponder the universe and a look comes
across your face*

*You try to fathom distances of all the stuff
in space*

*But you can't wrap the bacon of your mind
around the fig*

*Of all the terms required to describe how
big is big*

*So let me get specific
and use words scientific
Go whip out your thesaurus
for this exacting chorus*

This stuff is Far!

- George Hrab, <http://www.astroengine.com/2009/02/far-the-365-days-of-astronomy-theme-tune-by-george-hrab/>

School Star Parties

Completed Events

	Total Sched.	Good Sky	Partial Success	Cloudy Fail	Cancel at noon
Jul	1	1			
Aug	4	4			
Sep	0				
Oct	7	5	1		1
Nov	13	9	3		1
Dec	8	1	2	0	5
Jan	8	2	2	0	4
Feb	6	6			
Mar	11	3	1		7
Apr	5	1	2		2
May	2	2			
Total	61	34	11	0	20

As of mid-May

Check out the podcast:
<http://365daysofastronomy.org/>

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Members Email Lists:
<http://www.sjaa.net/majordomo.html>

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 San Jose, CA 95159-8243

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Articles for publication should be submitted by the 10th of the previous month. The PDF version is generally available by the 24th of the previous month and the HTML version by the last day of the previous month.

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San Jose Astronomical Association Membership Form

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

Membership Type:

- Regular — \$20
 Regular with Sky & Telescope — \$53
 Junior (under 18) — \$10
 Junior with Sky & Telescope — \$43

Subscribing to Sky & Telescope magazine through the SJAA saves you \$5 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

I prefer to get the Ephemeris newsletter in print form (Add \$10 to the dues listed on the left). The newsletter is always available online at <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). Please make checks payable to "SJAA".

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<http://www.sjaa.net/SJAAmembership.html>

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