

PRIME FOCUS

Tri-Valley Stargazers

April 2003



Meeting Info:

What

Newbie's Corner and *Digital Astrophotography*

Who

Chuck Grant, Gert Gottshalk and Sibylle Fröhlich

When

April 18, 2003
Conversation at 7:00 p.m.
Newbie's Corner at 7:30 p.m.
Main Lecture at 8:00 p.m.

Where

Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

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April Meeting

Newbie's Corner

Chuck Grant

This month's beginners section will address what are good things to observe and how to find them during your first few evenings of observing. Everything looks really cool in the pictures in the books or on the web, but what is easy to find and looks good with small telescope? Join us and find out. Then make your initial observing experience more rewarding.

Digital Astrophotography

Gert Gottshalk & Sibylle Fröhlich

Digital still cameras, camcorder and webcams have opened new doors for amateur astrophotographers. Their advantages over conventional film are their higher sensitivity and their linear response which allows for better processing on home computers. As deepsky photography uses high end expensive CCD cameras that may not be accessible for the average amateur, this presentation focuses on regular digital cameras and webcams. These have their applications in the areas of solar, lunar and planetary photography. A growing number of third party suppliers cater to the amateurs in this area and enables them to create images that a few years ago were only thought possible with professional equipment. The averaging and processing of image sequences out of simple webcams with free or share ware software programs results in significant improvement of the final images.

Results of this kind of work will be presented by the members from the astrophotography group at the Wilhelm-Foerster-Observatory in Berlin Germany. We will see the simple setup of the equipment, the capture of raw images, the processing and the final results.



Jupiter, 22. März 2003, 23:30 UT
8" Newton f5, 3 x Barlow, ToUCam + IR
1/33sec, Sibylle Fröhlich

Saturn, 22. März 2003, 20:14 UT
8" Newton f5, 3 x Barlow, ToUCam + IR
1/25 sec, Sibylle Fröhlich

News & Notes

New Star Party Coordinator

Hi everyone! It's Rich Campbell, your new Star Party Coordinator.

How fun is it to stargaze with kids?

Take the best experience you've ever had at the eyepiece, multiply it by 10, and *you're still nowhere near it!* Join the fun at the upcoming school star parties, and if you have any questions, give me a call in the evenings at 209-834-1324.

Clear Skies, Open minds!



Rich Campbell, our new star party coordinator, demonstrating to kids what they'll see when they look through a telescope.

School Star Party Help Wanted

Speaking of school star parties, our new star party coordinator, **Rich Campbell**, could use some help for some upcoming school star parties.

April 15 (Tue.) 7:30 Livermore Livermore PTA's
"Turn off the TV Week"
April 25 (Fri.) 7:30 Danville Cub Scout Troop
May 1 (Thur.) 7:30 Oakley Oakley Science Fair

Even if it's cloudy, Rich will still be doing a presentation for the kids. Let him know if you'll be able to help out with any of these events by contacting him at r_photo@hotmail.com or 209-834-1324 (evenings).

New Members

A big welcome to some of our newest members – **Wes Clark, Daniel Henderson, John Horvath, Richard Prizznick, Anita Wolff, Larry Stewart, David Hill, Chuck** and **Gayle Swafford**, and **Ian Parker**.

We'd also like to say farewell to some members that are moving out of the area – **Chuck Vaughn, Judy & Hal Coupar**, and **Gene Lopata**. May you all have clear dark skies at your new homes.

2003 TVS Meeting Dates

Below are the next few TVS meeting dates. The lecture meetings are held on the third Friday of the month, with the Board meeting on the Monday following the lecture meeting. The *Prime Focus* deadline applies to that month's issue (e.g., the May 5th deadline is for the May issue).

Lecture Meeting	Board Meeting	Prime Focus Deadline
Apr. 18	Apr. 21	Apr. 6
May 16	May 19	May 5
June 20	June 23	June 9

Money Matters

At the March Board meeting, Treasurer **Gary Steinhour** gave us the scoop as to the account balances (as of March 22, 2003) of several TVS accounts:

Checking	\$1,601.12	
CD #1	\$3,904.04	matures 05/17/03
CD #2	\$2,409.33	matures 05/27/03
CD #3	\$2,052.60	matures 04/16/03

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Calendar of Events

Classic Sci-Fi Film Series Chabot Space & Science Center

The movies are shown at the Tien MegaDome Theater. Tickets are \$5 per person and are available at the door, at TicketWeb.com, or the Chabot Box Office, 510-336-7373.

Movies:

The Mummy (1999), May 2-4
War of the Worlds (1953), July 4-6
Mars Attacks (1996), August 1-3

Showtimes:

Friday – Sunday on the first weekend of each month.
Friday & Saturday – 7:30 p.m., Sunday – 4:00 p.m.

Newsletter header image: London, England.

This image was taken on February 4th by astronaut Charles Pettit on board the International Space Station, 203 nautical miles (376 km) above the Earth.

Camera and film info: E4: Kodak DCS760C Electronic Still Camera; film: 3060E: 3060 x 2036 pixel CCD, RGBG array.

Photo and info: Charles Pettit, NASA

Calendar of Events *continued*

April 12, all day

What: *T.J.J. See*
Who: NCHALADA
Where: Mare Island, Vallejo
Cost: Free

NCHALADA (Northern California Historical Astronomy Luncheon and Discussion Association) will be having their next meeting in Vallejo.

The morning session, *T.J.J. See, Mare Island, and Navigation Instruments*, will be held at the Vallejo Naval and Historical Museum from 10 a.m. to 12:30 p.m., hosted by Jim Kern, curator. The afternoon session, *T.J.J. See in Context*, will be held in the T.J.J. See home, 614 Ohio Street from 2 to 5 p.m. The hosts will be Jack and Bunny Clemes, owners of the See home, and the session chair will be Carl Trost. For more info, visit www.nchalada.org.

April 12 and April 15 (two dates, two locations)

What: *The Black Hole at the Center of Our Galaxy*
Who: Dr. Fulvio Melia (University of Arizona)

April 12, 7:30 p.m.

Where: Chabot Space & Science Center, Oakland.
Cost: \$5

April 15, 7:30 p.m.

Where: Morrison Planetarium, S.F.
Cost: \$3

Could Einstein have possibly anticipated directly testing the most captivating prediction of general relativity, that there exist isolated pockets of spacetime shielded completely from our own? Now, almost a century after that theory emerged, just such an entity, with a mass of about three million suns, has been found lurking at the center of

our galaxy. Excitement is mounting in the astronomical community with the growing realization that we are now on the verge of actually seeing this exotic object within the next few years.

Booksigning to follow.

April 13, Noon

What: *The SJAA 2003 Auction & Swap Meet*
Who: San Jose Astronomical Society
Where: Hogue Park, San Jose
Cost: Free (unless you buy or sell stuff)

It's spring and time for the annual migration of astronomical paraphernalia from one garage to another! The day starts with the auction first followed by a swap, to allow people some additional haggling time for those items which 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's an odd year, so Jay Reynolds Freeman will be our auctioneer.

Doors open at 12:00 p.m. 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. A \$1 donation is requested to obtain an auction bidder/seller number. 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. They do not handle charge cards.

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

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Officers

President:

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Board of Directors

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Chuck Grant

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Rich Campbell
r_photo@hotmail.com
209-834-1324 (evenings)

Public Star Party Chair:

Rich Campbell

Historians:

Paul Caswell & Debbie Dyke

Addresses

Mailing:

Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551

Lecture Meeting:

Unitarian Universalist Church
1893 N. Vasco Road, Livermore

Board & Discussion Meetings:

Round Table Pizza
1024 E. Stanley Blvd., Livermore

Web & E-mail

www.trivalleystargazers.org

tvst@trivalleystargazers.org

Eyes on the Skies

Eyes on the Skies is a robotic solar telescope run by Mike Rushford (rushford@eyes-on-the-skies.org). You may access it by visiting www.eyes-on-the-skies.org.

Astro Events

Jupiter Transits

Below is a few listings of transit times for various Jupiter related objects. The abbreviations are fairly straight forward: G=Ganymede, C=Callisto, I=Io, E=Europa, GRS=Great Red Spot, and if you see a 's' next to one of the moons, it means its shadow (e.g., Cs=Callisto's shadow); na means Jupiter is below the horizon or it is daylight at that time.

April

Date	Object	Starts	Transits	Ends
Wed 9	GRS	na	9:10p	11:10p
Thurs 10	C	na	na	8:50p
	I	na	8:00	9:00p
	Is	7:58p	9:00p	10:15p
Fri 11	G	na	na	8:53p
	GRS	8:50p	10:50p	12:50a
	Gs	10:15p	11:40p	1:50a
Sat 12	E	8:50p	10:15p	11:38p
	Es	11:15p	12:25a	2:05a
Sun 13	GRS	2:35a	na	na
	GRS	10:25p	12:25a	2:35a
Mon 14	GRS	na	8:20p	10:20p
Wed 16	GRS	12:10a	2:10a	na
	I	2:10a	3:20a	na
	GRS	na	9:55p	11:55p
Thurs 17	I	8:40p	9:47p	10:55p
	Is	9:53p	10:50p	12:05a
Fri 18	G	9:15p	10:55p	12:45a
	GRS	9:35p	11:25p	1:30a
Sat 19	Gs	2:15a	na	na
	E	11:20p	12:40a	2:10a
Sun 20	Es	1:50a	3:00a	na
	GRS	11:10p	1:10a	na
Mon 21	GRS	na	9:05p	11:05p
Wed 23	GRS	8:50p	10:50p	12:50a
Thurs 24	I	10:35p	11:40p	12:47a
	Is	11:48p	12:45a	2:02a
Fri 25	GRS	10:25p	12:25a	2:15a
Sat 26	G	1:10a	na	na
	GRS	na	na	10:10p
Sun 27	E	1:55a	na	na
	Cs	9:38p	11:30p	2:15a
Mon 28	GRS	na	9:55p	11:55p
Wed 30	GRS	9:40p	11:40p	1:40p

May

Date	Object	Starts	Transits	Ends
Fri 2	I	12:28a	1:33a	na
	GRS	11:20p	1:10a	na
Sat 3	I	na	na	9:10p
	GRS	na	9:05p	10:50p
	Is	na	9:10p	10:25p
Mon 5	GRS	8:50p	10:45	12:45a
Wed 7	Es	na	9:30p	10:25p
	GRS	11:10p	12:20a	na
Thurs 8	GRS	na	na	10:05p

Star Parties

Here's a recap of the upcoming major star parties (for those who need to plan their vacation time):

Desert Sunset Star Party

May 1-4

Enjoy a dark sky star party in the Arizona desert. Visit <http://chartmarker.tripod.com/sunset.htm> for more info.

Riverside Telescope Maker's Workshop (RTMC)

May 23-25

As always, RTMC takes place over the Memorial Day weekend. This year's topic is home observatories.

Shingletown Star Party 2003

June 25-30

Shingletown is 17 miles from Mount Lassen Volcanic National Park. A public star party and community BBQ with the people of Shingletown and Shasta County. The star party takes place on a closed airstrip.

For information, images and more, visit their web site at <http://www.shingletownstarparty.org>.

Yosemite

July 3-5

TVS will host public star parties on Glacier Point in exchange for free park entrance and camping for up to thirty people. Contact **Dave Rodrigues** to reserve a spot on this trip. DaveVRod@aol.com or 510-483-9191.

White Mountain High Altitude Star Party

July 24-27

View celestial wonders in a very dark, low oxygen environment. Space is limited. At press time, the cost per night was unknown, but to give an indication, last year it was \$50 for members, \$55 for non-members. Price includes meals.

Musical Satellites

by Tony Phillips

If light were sound, then chemicals would play chords.

Water: C major. Cyanide: A minor. Chlorophyll: G diminished 7th. (Please note that the choice of chords here is only for the sake of illustration, and not meant to reflect the actual spectra of these chemicals.)

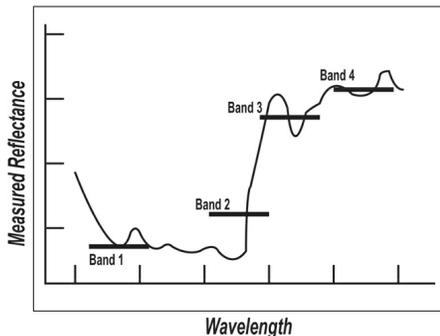
It's a loose metaphor, but an apt one. Musical chords are combinations of frequencies of sound (notes), while chemicals leave unique combinations of dips in the frequency spectrum of reflected light, like keys pressed on a piano. Spectrographs, machines that recognize chemicals from their "chords of light," are among the most powerful tools of modern chemistry.

Most earth-watching satellites, like the highly successful Landsat series, carry spectrographs onboard. These sensors measure the spectra of light reflected from forests, crops, cities, and lakes, yielding valuable information about our natural environment. Current satellites do this in a fairly limited way; their sensors can "hear" only a few meager notes amid the symphony of information emanating from the planet below.

EO-1 could change that. Short for "Earth Observing 1," EO-1 is an experimental NASA satellite in orbit since 2000. It's testing out a more advanced "spectrometer in the sky"—the Hyperion hyperspectral imager. How good is it? If Landsat were "chopsticks," EO-1 would be Gershwin's *Rhapsody in Blue*.

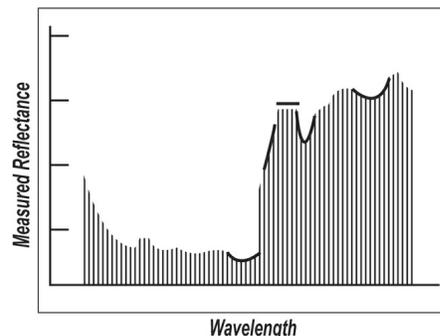
The Hyperion sensor looks at 220 frequencies in the spectrum of visible and infrared light (0.4 to 2.5 microns) reflecting off Earth's surface. Landsat, in contrast, measures only 10. Bryant Cramer, who manages the EO-1 project at the Goddard Space Flight Center, puts these numbers in perspective. "If we flew Landsat over the northeastern United States, it could readily identify a hardwood forest. But using hyperspectral techniques, you probably can...tell the oak trees from the maple trees."

Future earth-watching satellites may use Hyperion-like instruments to vastly improve the environmental data they provide. EO-1 is paving the way for these future missions by taking on the risk of flight-testing the sensor for the first time.



Multispectral Imaging (few bands)

Hyperion instrument distinguishes hundreds of wavelength bands, while current Landsat instrument images only a few.



Hyperspectral Imaging (hundreds of bands)

For farmers, foresters, and many others, this new remote sensing technology will surely be music to the ears.

Read about EO1 at <http://eo1.gsfc.nasa.gov>. Budding young astronomers can learn more at http://spaceplace.nasa.gov/eo1_1.htm.

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

Astronomical insights

by David Feindel

David's away on business and wasn't able to do this month's column. He promises to regale us with tales of his trip, including a trip to the Danish National Science Museum, next month.

News & Notes *continued*

Counting Moons

This just in – Jupiter's moon count is up to 58. Last month it was at 52. Earlier this year it was 39. Last year it was 28. The most recent discoveries were made by a team using the Subaru and Canada-Hawaii-France telescopes on Mauna Kea. The team thinks they can get the number up to 100 by using even more sensitive digital cameras.

For more information about the discovery, visit <http://news.bbc.co.uk/1/hi/sci/tech/2924285.stm>

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What's Up *by Debbie Dyke*

All times Pacific Daylight Savings Time unless otherwise noted.

April

- 1 Tues **New Moon** 11:19 a.m. PST
- 3 Thurs Moon at apogee (251,849 mi/406,209 km) 8:00 p.m. PST
- 6 Sun **Daylight Savings Begins** 2:00 a.m.
- 9 Wed **First Quarter Moon** 4:40 p.m.
- 10 Thurs **Double satellite transit on Jupiter starts at 6:45 p.m.** The Moon watches nearby.
- 11 Fri Bernhard Schmidt born 1879.
- 12 Sat 1961 Yuri Gagarin becomes the first man in orbit (orbit lasted 1h 48m)
“Circling the Earth in the orbital spaceship I marvelled at the beauty of our planet.
People of the world! Let us safeguard and enhance this beauty — not destroy it!”
1981 STS-1 Columbia becomes the first space shuttle launched into space. Its mission lasted two days.
- 13 Sun **The SJAA annual swap meet and auction.** See Calendar of Events for details.
- 14 Mon 1970 Apollo 13 disaster strikes. The oxygen tanks were shaken, not stirred.
1629 Christiaan Huygens born. Over 300 years later, people still have trouble pronouncing his name.
- 16 Wed Mercury at greatest eastern elongation (20°) 8:00 a.m. Look for Mercury below the Pleiades
in the early evening.
Full Moon – the largest of 2003 12:36 p.m.
Moon at perigee – large tides expected (221,437 mi/357,157 km) 10:00 p.m.
- 17 Thurs 1970 The Apollo 13 astronauts return safely to Earth. Whew.
- 18 Fri **Tri-Valley Stargazers general meeting.** 7:30 p.m. at the Unitarian Universalist Church,
1893 N. Vasco Road, Livermore.
- 20 Sun Easter.
Tri-Valley Stargazers discussion meeting. 2:00 p.m. at the Round Table Pizza on 1024
E. Stanley Blvd., Livermore. Discuss astro stuff with your fellow members.
- 21 Mon **Tri-Valley Stargazers Board meeting.** 7:00 p.m. at the Round Table Pizza in Livermore.
1972 Apollo 16 lands on the Moon at Descartes.
- 22 Tues Lyrid meteor peak at 10:00 a.m.
Earth Day.
- 23 Wed Mars 3° north of the Moon 12:00 a.m.
Last Quarter Moon 5:18 a.m.
- 24 Thurs 1990 Hubble Space Telescope deployed from shuttle Discovery.
- 27 Sun Start of the Texas Star Party in Fort Davis, TX. The party continues through May 4.

May

- 1 Thurs Moon at apogee (252,047 mi/406,529 km) 1:00 a.m.
New Moon 5:15 a.m.
- 5 Mon Eta-Aquarid meteors peak at 4:00 a.m.
- 7 Wed Mercury in inferior conjunction as it transits across the Sun (transit not visible in the Bay Area).
- 9 Fri **First Quarter Moon** 4:53 a.m.
- 10 Mon **First Quarter Moon** 11:15 p.m.
Astronomy Day!

Calendar of Events *continued*

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 to sell such as a telescope or more than 5 items? Please e-mail Jim Van Nuland at auction@sjaa.net with a description and a photo of the item or a link to your own web site for some pre-auction publicity and to avoid a crush at the registration table.

Some of the items up for sale include a Bausch & Lomb Criterion 4000 scope, a 4-inch f/15 home built Jeagers refractor, an Orion XT6 dob base, a Meade 16-inch Starfinder Dobsonian (without the mirrors), and *The Universe* DVD.

Visit the SJAA web site for all the details:
<http://www.sjaa.net/swap.html>

April 17, 7:30 p.m.

What: *A Space Child's Mother Goose*, A Night of Rollicking Space Verse and Songs for All Ages

Who: Chabot staff, performers, and you

Where: Chabot Space & Science Center, Oakland.

Cost: \$5

In honor of National Poetry Month, the Chabot staff and invited performers, along with our illustrious audience, will join together to read Mother Goose Rhymes that have been riotously updated for the Space age, sing far out verse set to classic tunes and generally have a rollicking good time. Join us for an evening sure to entertain and amaze!

Little Bo Peep has lost her sheep,
the radar has failed to find them.

They'll all, face to face meet in parallel space,
preceding their leaders behind them.

-Frederick Winsor, *The Space Child's Mother Goose*

April 23, 7:00 p.m.

What: *The STARDUST Mission: Bringing Home a Comet*

Who: Dr. Scott Sanford (NASA Ames)

Where: Smithwick Theater, Foothill College at El Monte Road and Fwy. 280 in the Los Altos hills.

Cost: Free, although it costs \$2 to park (in quarters).

Dr. Sanford will describe the mission, on which he is co-investigator, launched in 1999, to rendezvous with a comet in 2004 and return samples to Earth by 2006. This will be humanity's first opportunity to study the "original" material from which our solar system is built up (and which has been frozen into each comet ever since.)

Dr. Sanford works at the Astrophysics Branch at NASA's Ames Research Center and is a renowned expert in the

field of meteoritics, the study of rocks that fall from space. He has helped discover a number of such rocks in Antarctica. Among his other scientific interests are molecules in the great clouds of cosmic raw material among the stars – some of which may be connected with the development of life in the universe.

This talk is part of the Silicon Valley Astronomy Lecture Series. Call the series hotline at 650-949-7888 for more information.

The talk is co-sponsored by NASA Ames Research Center, Foothill College Astronomy Program, SETI Institute, and the Astronomical Society of the Pacific.

News & Notes *continued*

Thank you Santa! Last month we discovered that someone had paid our Western Amateur Astronomers dues for us. When we asked EAS Treasurer Don Stone (who was present at the WAA meeting) who we needed to reimburse, we were told the following:

About that WAA membership. It's like this: Carter and I and the others were sitting around the table talking when this little Elf came running up and said, "Here's a membership in the WAA, direct from the North Pole, for the Tri-Valley Stargazers who have kept my comings and goings quiet all these years." then the Elf spun on his heels and disappeared as quickly as he had appeared ...and nobody had a thing to say. And the Treasurer, his eyes gleaming, popped the money in the treasury without saying anything either.

New Mexico

Lawmakers approve day to praise UFOs

SANTA FE, N.M. — Believers in space aliens, rejoice!

New Mexicans can now celebrate every second Tuesday in February as "Extraterrestrial Culture Day" after a Roswell lawmaker's proposal won approval in the House.

Some lawmakers scoffed at the idea. But the sponsor of the memorial, Rep. Daniel Foley, R-Roswell, said life on other planets, if you believe in it, surely has its own set of cultural beliefs.

"They have some sort of culture, whether it's something we understand or not," he said.

— Times wire services

News Flash

I was going to type this in, but I figured everyone would think I made it up. So here's the actual newspaper clipping. -Ed.

Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551



PRIMEFOCUS

Tri-Valley Stargazers Membership Application

Member agrees to hold Tri-Valley Stargazers, and any cooperating organizations or landowners, harmless from all claims of liability for any injury or loss sustained at a TVS function.

Name _____ Phone _____ e-mail _____

Address _____

Do not release my: _____ address, _____ phone, or _____ e-mail information to other TVS members.

- Membership category:
- _____ \$5 Student.
 - _____ \$25 Basic. You will receive e-mail notification when the PDF version of *Prime Focus* is available for download off the TVS web site.
 - _____ \$30 Regular. You will receive a paper version of *Prime Focus* in the mail.
 - _____ \$29.95 Subscription to *Sky & Telescope* magazine.
 - _____ \$29 Subscription to *Astronomy* magazine.
 - _____ \$20 Hidden Hill Observatory (H2O) refundable key deposit (key property of TVS).
 - \$ _____ Tax deductible contribution to Tri-Valley Stargazers.
 - \$ _____ TOTAL – Return to: Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551

Membership information: Term is one calendar year, January through December. Student members must be less than 18 years old, or still in high school.