

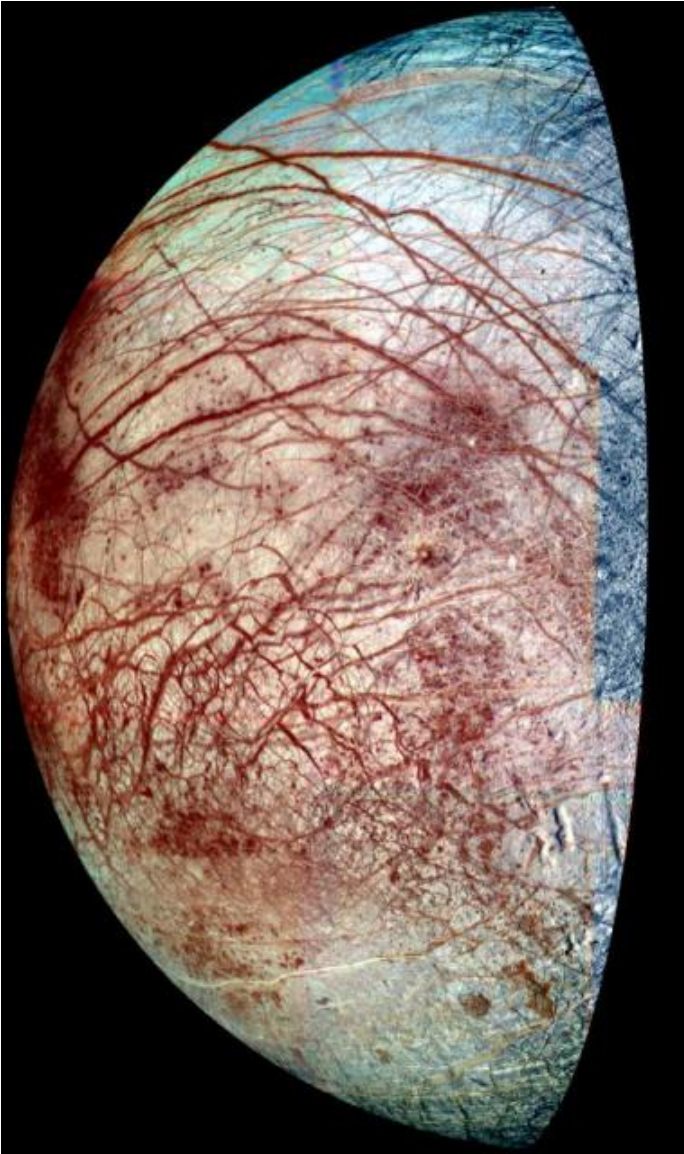


# Desert Skies

Tucson Amateur Astronomy Association

Volume LV, Number 2

February, 2009



Europa, a moon of Jupiter, appears as a thick crescent in this enhanced-color image from NASA's Galileo spacecraft. The view combines images taken in violet, green and near-infrared filters in 1995 and 1998. (NASA/JPL/University of Arizona)



Reddish spots and shallow pits pitter the enigmatic ridged surface of Europa in this view that combines information from images taken by NASA's Galileo spacecraft during two different orbits. (NASA/JPL/University of Arizona/University of Colorado)

## Inside this issue

- ◆ School star parties
- ◆ Constellation of the month
- ◆ Name Badges
- ◆ Summary of 2008 Star Parties
- ◆ Cosmic Microwave Background—a Historical Footnote

**Cover Photo:** The *Galileo* space probe showed Europa's surface is anything but smooth. Its surface is covered with vast crisscrossing systems of mountain-sized ridges, jumbled regions of seemingly chaotic terrain and patches that suggest upwellings of new surface materials from below.

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**Membership in the TAAA**

**Annual Fees**

- Individual membership ..... \$25.00
- Family (includes two adults plus minor children) ..... \$30.00
- Youth under 18 years must join as a family upon parental or guardian acknowledgement of participation in TAAA events. Ask the Treasurer for the required form.

**Discounts (one discount allowed, subtract from above rates)**

- Seniors (over 60 years) ..... \$2.00
- College Students, Teachers (K - 12) ..... \$8.00
- Youth under 18 yrs (form required, contact the treasurer)..... \$13.00

**Options (add to above membership rates)**

- Tucson society of the Astronomical League (TAL) fees..... \$ 7.50
- Sky & Telescope Magazine 1 year (12 issues) ..... \$32.95
- Astronomy Magazine 1 year (12 issues) ..... \$34.00
- 2 years (24 issues) ..... \$60.00
- Postage for New Member Pack ..... \$ 4.80

**Donations** are accepted for the following funds: SA-IDA/Light Pollution, TIMPA, Education, 30" Telescope & Land, and General/Undesignated.

**Renewal Information**

- Your membership expires as indicated on your mailing label.
- TAAA members may join the Tucson society of the Astronomical League (TAL) at the time they join or renew.
- Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at anytime. Rates are given above. Allow 3 months for processing. Subscriptions must be sent through the TAAA. *Do not send money directly to the*

*magazines.* To change an individual subscription to the group rate, pay the subscription amount to the TAAA treasurer. Include your magazine renewal notice.

- Please include a note explaining what you are paying for. Credit cards are not accepted. Write one check or money order for fees plus any options or donations. Make it payable to TAAA and send to:

Tucson Amateur Astronomy Association  
PO BOX 41254 Tucson, AZ 85717

**Mailing Address or Email Changes** - Send to address above or email the treasurer.

**TAAA Mission Statement** - The mission of the Tucson Amateur Astronomy Association is to provide opportunities for members and the public to share the joy and excitement of astronomy through observing, education and fun.

**Desert Skies Publishing Guidelines** - All articles, announcements, news, etc. must be submitted by the newsletter deadline. Materials received after that date will appear in the next issue. The editor retains all submissions unless prior arrangements are made. Submissions should be submitted in Word compatible files via e-mail or on a recordable media.. All material copyright Tucson Amateur Astronomy Association or specific author. No reproduction without permission, all rights reserved. We will not publish slanderous or libelous material! Send submissions to:

George Barber  
TAAA/Desert Skies Editor  
15940 W Ridgemoor Ave  
Tucson AZ 85736

**Join our Email Lists on YahooGroups**

- Announcements: <http://tinyurl.com/e7o3y> (TAAA news, no posting allowed, 15/month)
- TAAA Forum: <http://tinyurl.com/hwoau> (general astronomy discussion, posting allowed, 75/month)
- TAAA Dark Site: <http://tinyurl.com/3d8ts9> (discussion of dark site issues, posting allowed)

### President's Message

This month will be very busy for the club on several fronts. We will be proceeding on several activities with the Dark Site including closing on the land transfer and submittal of the development plans for permits. It is very important that the permit submittals get done this month as we are closing in on deadlines outlined in the Special Use Permit granted us by the Cochise County Planning and Zoning committee last year. Once these permits are in and the building contracts are put in place, we will need to organize the plans, rules and guidelines needed for the future use and development of the site.

TAAA has also been asked to host the 2010 Astronomical League Convention (ALCon). In order to plan this event we will be organizing a committee that will be in charge of putting together all of the details. There will be a lot to do in order to ensure a successful event and that will require a volunteer committee that has a variety of ideas and expertise. If you are interested in participating in this event, please contact me or another board member.

Last but definitely not least, this year is the International Year of Astronomy. We would like to plan events in cooperation with the IYA themes and the TAAA Mission that will bring astronomy to as many people as possible this year. It is exciting that our astronomy passion is being given a special focus this year and we would be remiss if we did not take advantage of the attention it is being given. Please take some time and visit the IYA website (<http://www.astronomy2009.org/>). We plan to have more here in the newsletter, in future meetings and on our website on the activities that TAAA will participate in throughout the year.

Dark Skies,

Ken Shaver  
TAAA President

### Meeting Information and Calendar of Events

**TAAA MEETING DATE:** Friday, Feb. 6, at the Steward Observatory Auditorium - Room N210

**ASTRONOMY ESSENTIALS:** 6:30 pm  
Title: Tell me about... (An orientation for new members)  
Speaker: Terri Lappin

Are you new to the TAAA? Have you been a member for a while but don't feel like one? Are you enjoying all the benefits of membership? Do you know what those benefits are? Terri Lappin, TAAA Treasurer, wants to make you feel at home. She'll describe some lesser known TAAA programs as well as the latest on our more prominent programs. Long time members are welcome to attend.

**GENERAL MEETING:** 7:30 pm  
Title: Unmasking Europa: The Search for Life on Jupiter's Ocean Moon  
Speaker: Richard Greenberg, UA Lunar and Planetary Lab

Tides heat Jupiter's moon Europa and stress its icy crust. The distinctive tectonic cracks and ice floes demonstrate active linkages between the surface and the underlying deep global ocean, which have provided a variety of evolving environmental niches. These processes were recent, and thus most likely continue today. A habitable biosphere might extend from the ocean up to within a few centimeters of the surface. Longer term changes in environmental conditions may have driven biological adaptation, as well as provided opportunity for evolution. Life on Europa might be relatively accessible to spacecraft exploration, but at the same time vulnerable to contamination.

Dr Richard Greenberg recently authored the book "Unmasking Europa: The Search for Life on Jupiter's Ocean Moon". He received his PhD from MIT in 1972. He is a Professor of Planetary Sciences and Professor of Teaching and Teacher Education at the University of Arizona. He also founded the University's Science and Mathematics Education Center. His research concerns planetary dynamics, including formation, evolution, and tidal effects.

**BOARD OF DIRECTORS MEETING:** Wednesday, Feb. 11, 6:30 pm. The meeting is held at Steward Observatory Conference Room N305.

**STAR PARTIES AND EVENTS:**  
29 Jan - Vesey ES Star Party  
02 Feb - Astro-Imaging SIG at China Rose  
10 Feb - Cragin ES Star Party  
12 Feb - Astronomy Fundamentals SIG  
17 Feb - St. Cyril School Star Party  
21 Feb - TAAA Star Party at Las Cienegas  
23 Feb - Prince ES Star Party  
24 Feb - Painted Sky ES Star Party  
28 Feb - Pima County Natural Resources Star Party  
28 Feb - Whipple Observatory Star Party  
28 Feb - TAAA and AFSIG Star Party at TIMPA  
03 Mar - Lyons Elementary Star Party

**NEWSLETTER SCHEDULE:** Deadline for articles: Sat, Feb. 21. The newsletter is delivered at least one week prior to the following month's General Meeting, March 6, 2009.

**Club News**

**Member News**

We welcome these members who have recently joined the TAAA: Robert Buecher, Nancy Edwards, Richard Ferguson, Bradley Fisher, Antonio Flores, Eliat Goldman, Larry Howie, Everett Lindsay, Ted Moskal, and Paul Ross. Glad to have all of you join! New members can pick up a members pack at a meeting if they didn't request it by mail. Hope you'll make it to our star parties or meetings so we can all get to know you. (Updated membership lists are available at our website after logging in as a member. You can also pick one up at most meetings.)

**Astro-Imaging SIG Meeting**

Monday, February 2, 7pm  
China Rose, NE corner Speedway/Rosemont

Our presentations feature CCD images, planetary webcams, and film. Come see some of the state of the imaging art over some Chinese food. Just show up and enjoy the show! For more information, contact Steve Peterson.

**Astronomy Fundamentals Special Interest Group AFSIG for February**

The Astronomy Fundamentals Special Interest Group (AFSIG) will meet on Thursday, February 12, at 6:30 pm in room 253 of the Environmental and Natural Resources Building (USGS and Weather Service) on the northeast corner of Sixth Street and Park Avenue on the campus of the University of Arizona.

J.D. Metzger will present Part 3 in a series of talks intended to help beginners find their way around the night sky and locate objects of interest. This month we'll discuss personal computer planetarium programs. A planetarium program can be a valuable tool in learning the night sky and planning an observing session. But planetarium programs vary widely in capability and price, from fairly simple freeware to very complex and expensive software packages. Deciding whether you need a planetarium program, and choosing a planetarium program that meets your needs can be real challenges. J.D. will present some basic information and offer some advice that may be of help to you in making those decisions.

**TAAA Apparel**

Looking for a special gift or a way to make that fashion statement? Try on something from our fine line of club apparel. We have got hats, T-shirts, denim shirts, and patches. We take cash and checks.

**Upcoming Lectures**

If you have a suggestion for either an Astronomy Essentials or Invited Lecture, or if you want to give one yourself, let Terri Lappin know. See page 2 for contact information.

Mar 6	<i>Astronomy Essentials</i>	Ken Shaver IYA 2009 Activities
	<i>Invited Lecture</i>	Astrophoto SIG Presentations
Apr 3	<i>Astronomy Essentials</i>	Mary Turner Seasonal Objects
	<i>Invited Lecture</i>	David Levy NASA's Reduced Gravity Mission
May 1	<i>Astronomy Essentials</i>	OPEN
	Members Night Presentations by TAAA Members	



**Night Sky Network Toolkits**

The TAAA has a wonderful resource available for outreach events. Below is a list of the Night Sky Network Outreach Toolkits developed by the Astronomical Society of the Pacific under contract with NASA. These toolkits are specifically developed for amateur astronomers and are perfect for those early hours at a star party before its dark enough to observe. Some projects are well suited for use when it's dark. They are best when used in a small group as you might have around your telescope at a school star party.

Here's a complete list of the NSN Outreach Toolkits we have:

- PlanetQuest:** explains planet detection techniques
- Our Galaxy, Our Universe:** scale model of the Milky Way galaxy and the Universe
- Black Hole Survival Kit:** what is a black hole and how does it affect objects nearby
- Telescopes - Eyes on the Universe:** explains basic principles of optics, the human eye, and observing
- Shadows and Silhouettes:** covers lunar phases, eclipses, and transits
- Exploring the Solar System:** scale model of solar system and NASA exploration of planets



## Club News (cont.)

**GLOBE at Night:** light pollution principles

**Supernova!** life cycle of massive stars; touches on life cycle of sun-like stars

**SolarScope:** provides a white light image of the sun suitable for small group viewing.

We appreciate all who have put the toolkits to use in past years. In 2008, we logged 12 public outreach events where the toolkits were used. This is more events than in any previous year since 2004 when the Night Sky Network began.

Each toolkit contains several projects. You pick and choose which part you want to demonstrate. They contain essentially all the materials needed. All NSN toolkits include a Resources CD and a training DVD. You can request a copy of the CD and DVD set from Terri Lappin (give her a week or so to make them up). The CDs contain PowerPoint presentations, along with scripts and background information should you be presenting to a larger audience.

Anyone can borrow the toolkits, TAAA membership is not required. Contact Terri Lappin (see page 2) to make arrangements. Terri can also provide one-on-one training for all toolkits.

### TAAA Website – Login/Password Required

The TAAA website now has more resources for members viewing. Members must login using the user name and password that has been distributed by email. If you haven't received the email message, it may mean we do not have your latest email address in our records. Please contact Terri Lappin who will update your information in our records. This is also how to ensure that you receive the newsletter. We currently have a common user and single password that everyone uses. You do not enter your email address or any other personal information to gain access to the member's pages. Should you not have email and want the user name/password, contact any board member.

### Basha's Shop & Give



shop & give

#23178

Basha's has an excellent program to support local non-profit groups like the TAAA. It's called Shop & Give. This is a no-brainer fundraiser for the TAAA. If you shop at Basha's and have a "Thank you" card, the next time you go through the checkout, give the cashier our ID number: #23178 for the Shop & Give program. They can look up the number using our name, too. It's that easy! Just do it once. At the end of the program next spring, Basha's will make a donation to the TAAA based on the total sales of every Thank You card linked to our number. We can receive up to \$5000, but that will require lots of people to sign up. Anyone can participate, so give our number to family and friends. We could use a few more participants to assure that we receive a donation from Basha's. If you participated last year, you need to give our ID number again, or your sales won't count. Thanks to everyone who participates.

### What's your name? - Name Badges to be Ordered

How many of us have struck up a conversation with another member and then can't recall the person's name to whom we're talking? Its embarrassing asking someone you may sit next to every month, "What's your name?"

All members are entitled to one name badge. Family memberships are entitled to two name badges. You're under no obligation to pay for the nametag - they're free. Your only obligation is to wear it to TAAA events. The cost to the TAAA is about \$6; if you want to help offset this cost, you can through a donation. If you want more name badges than you're entitled to, you may purchase them at \$6 each.

Terri Lappin is taking names for the badges until February 20th. Please see Terri at the February meeting, or call/email her (see Page 2). She needs two pieces of information:



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### Club News (cont.)

1. What first and last name (exact spelling) goes on the name badge?
2. Do you want a magnet or pin on the back?

The name badges can be picked up at the March meeting. They can not be mailed to you.

#### Star party efforts for 2008

By Roger Schuelke

TAAA Star Party Volunteer Coordinator

Over the years, TAAA members have generously shared their knowledge and enthusiasm of the wonders of our night sky at free public school star parties. And last year was no exception. I became your faithful volunteer coordinator in February. By April, I had a mechanism in place to keep records from which I could extract some numbers and I thought I would share these numbers with you.

We scheduled 45 star parties from April to December last year. Some of these benefited only a few parents and students. I attended one with Bill Lofquist where we only saw about 25 kids and parents. Others were much larger, serving over 100 (or perhaps more) students. At the Wilson ES event on November 19th, with the help of some Project ASTRO people, we had over 10 scopes and there must have been 200 kids and parents. (This may be an exaggeration but it just seemed like I had kids backed up at least 10 deep the whole 2.5 hours at my scope.) All of these events required volunteers. A total of 52 members made it to at least one of those 45 events. In total there were 132 volunteer-events. That means a few of you volunteered for more than just a few star parties. Thanks to all of you who did volunteer. I know the kids appreciated your gracious generosity. Two volunteers accounted for 16 percent of those volunteer-events. I would especially like to thank Byron Skinner and Doug Nelson for their efforts in making last year another successful community Star Party year for the club.

### Member's Events

#### TAAA Star Party at Las Cienegas (Empire Ranch)

Saturday, February 21

Las Cienegas (formerly Empire Ranch) has been our normal dark-sky observing site for quite a number of years. Please try to arrive before sunset. Stay as long as you like, but let everyone know when you are ready to leave; someone may be taking astro-images. Bring a telescope if you have one, but you don't need one to attend. Any member would be glad to let you look through their telescope. And, there are now restroom facilities at the site... Las Cienegas is at 4000 feet so be prepared for cold temperatures. Attendees should park their vehicles either perpendicular to the airstrip facing toward the center of the strip, or parallel to the airstrip along either side facing west. That way, when you are ready to leave, you will not have to back up and turn on your bright white backup lights. See the directions to Las Cienegas on the outside flap of this newsletter.

#### TAAA and AFSIG Star Party at TIMPA

Saturday, February 28

Come on out and enjoy the winter skies! TIMPA star parties are great for both beginners and experienced observers. Our novice members can get help with observing issues or equipment problems, as there are many experienced members there who would be happy to help. If you don't own a telescope, come anyway, because there are lots of telescopes set up and everyone is invited to look through them. This is a great way to check out different telescope designs before you make that all important decision to buy. We'll do our best to get you the answers you need. If you have friends or relatives who are curious about amateur astronomy, feel free to bring them along. The TIMPA site features a large parking area, and full restroom facilities. Directions to the TIMPA site are located on the outside flap of this newsletter. Don't forget to dress warmly!

The new observatory at TIMPA, featuring a 14-inch telescope, should also be open for use.

### Items of Interest

#### An interesting historical footnote - CMB first observed in 1937

By Claude Plymate

We are all familiar with the story of how in 1965 Bell Labs scientists Arno Penzias and Robert Wilson serendipitously discovered the 3° Cosmic Microwave Background (CMB). They, of course, couldn't have correctly interpreted their observations without having some preexisting theoretical context. Working in the late 1940's, George Gamow, Ralph Alpher and Robert Herman realized that the

radiation from the early hot Universe must still be with us, ever cooling as the Universe expands. In 1948, they were able to calculate this residual radiation temperature to now be around 5K (5° above absolute zero). Robert Dicke and colleagues of Princeton later realized that such a low background temperature would radiate in the microwave spectrum and might be detectable. They erected a small antenna and were actively seeking detection of the CMB when they learned of Penzias' and Wilson's observations. This has come to be regarded as one of the most important astrophysical discoveries of the 20<sup>th</sup> century -

### Items of Interest (cont.)

right up there with Hubble's discovery of the expanding Universe.

What few now realize is that the first observation of the 3K CMB actually took place in 1937! Walter Adams and Theodore Dunham Jr. used the Mt. Wilson 100" Hooker Telescope to obtain spectra of CN (cyanogen) molecules in the interstellar medium. Their CN spectra were that of absorption features imparted onto the spectrum of background stars by the intervening interstellar molecules. From its spectrum, Adams was able to determine several properties of the interstellar CN including its apparent temperature. In a 1941 paper, Adams' wrote that an "interesting and somewhat amusing subject is that of the temperature of these gases in space.

We are accustomed to dwell upon the intense cold of outer space far removed from the heat of any near-by star and we are quite right in doing so. A thermometer placed in interstellar space would show a temperature of about 3° above absolute zero." Unfortunately, without the theoretical understanding of the cosmological background temperature developed later, Adams was unable to realize the significance of his observations and the discovery lay all but forgotten for decades. What could have been one of the significant discoveries of the 20<sup>th</sup> century has now become little more than an obscure, if interesting footnote in the history of science.

1, "What Lies Between the Stars", PASP V53, #312, pp 73-83

### Public Star Parties and Community Events

All members are asked to support the TAAA School Star Party program and other community events listed below. TAAA either sponsors or co-sponsors these events. These are great opportunities for beginners as you may only need to know a few objects in the sky. Even without a telescope, you can be valuable in other capacities. Sign up sheets for many events can be found at the meeting or contact a TAAA officer.

**Vesey ES Star Party**  
Thursday, 1/29/2009

**Southwest**  
No. of Scopes: 4

**Vesey Elementary** will be hosting Vesey Family Science Night for an estimated attendance of 100 students and parents at 5005 S Butts Rd. Take I-10 to I-19 and continue to Irvington exit and turn right at stop sign (go westbound). Continue west on Irvington for several miles, past stop sign at Camino De Oeste, for about ½ mile. Watch for Vesey Elementary School sign on right and turn left at Butts Rd then take 2nd driveway on left, which leads to the school. Viewing will be on the east side of the building outside of the cafeteria (dark parking lot and easy access to the astronomers to set up equipment) Contact person Jennifer Culbertson can be reached at 908-4600 or email [jennifer.culbertson@tusd1.org](mailto:jennifer.culbertson@tusd1.org). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 8:00pm. Sunset: 5:59pm Dark Sky: 6:54pm Moon Phase: near First Quarter.

**Cragin ES Star Party**  
Tuesday, 2/10/2009

**Central**  
No. of Scopes: 5

**Cragin Elementary** will be hosting Science Night for an estimated attendance of 125 students and parents at 2945 N. Tucson Blvd. From Grant and Campbell: take Grant west to Tucson Blvd, turn left (north); School is on corner of Tucson Blvd and Blackledge. (Between Glenn and Ft. Lowell). School Viewing Area Location: Field near Ramada on West side of school. Contact person Tina Zadro can be reached at 795-4470 or email [tina@williamsonandyoung.com](mailto:tina@williamsonandyoung.com). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 8:30 pm. Sunset: 6:10pm Dark Sky: 7:04pm Moon Phase: near Full Moon.

**St. Cyril School Star Party**  
Tuesday, 2/17/2009

**Central**  
No. of Scopes: 4

**St. Cyril School** will be celebrating An Evening under the Stars for an estimated attendance of 100 students and parents at 4725 E. Pima Street. Heading east on Speedway, turn left on Swan. St. Cyril School is located one block north at Swan and Pima. The school is located on the northeast corner of Swan and Pima. Viewing will be on Cougar Court or backfield. Contact person Mrs. Ardemis Martin can be reached at 881-4240 or email [ardemism@stcyril.com](mailto:ardemism@stcyril.com). Set-Up Time: 6:45pm. Observing will be from 7:15 pm to 9:15 pm. Sunset: 6:16pm Dark Sky: 7:10pm Moon Phase: (no moon during viewing).

**Prince ES Star Party**  
Monday, 2/23/2009

**North-Central**  
No. of Scopes: 2

**Prince Elementary School** will be holding YSEF Star Party for an estimated attendance of 40 students and parents at 125 East Prince Road. Take Prince west from 1<sup>st</sup> Ave. Prince Elementary is on the north side of Prince just west of Amphitheater Middle School (marked with a giant pirate face on the side of its gym). The front office for check in is at the flagpole. Viewing will be in the loop parking lot west of the office. Contact person Doug Hall can be reached at 696-6350 or email [youthscienceeducation@yahoo.com](mailto:youthscienceeducation@yahoo.com). Set-Up Time: 6:45pm. Observing will be from 7:15 pm to 9:15 pm. Sunset: 6:24pm Dark Sky: 7:17pm Moon Phase: near First Quarter.

## Public Star Parties and Community Events (cont.)

### Painted Sky ES Star Party

Tuesday, 2/24/2009

### Northwest

No. of Scopes: 4

**Painted Sky ES** will be preparing Star Spectacular for an estimated attendance of 125 students and parents at 12620 N Woodburne Ave. Go north on Oracle to 1st Ave and turn left (west). Continue as road curves north, past second stoplight at Tangerine (Safeway on right) to the next street, Woodburne and turn left (west). School is 1/8th mile further on right. Viewing will be on the athletic field. Contact person Suzi Cook can be reached at 520-696-3820 or email [scCook@amphi.com](mailto:scCook@amphi.com). Set-Up Time: 6:45pm. Observing will be from 7:15 pm to 8:45 pm. Sunset: 6:22pm Dark Sky: 7:15pm Moon Phase: (no moon during viewing).

### Pima County Natural Resources Star Party West

Saturday, 2/28/2009

No. of Scopes: 2

**Pima County Natural Resources** will be hosting Exploring the Night Sky for an estimated attendance of 35 people at 3500 West River Road. Take Speedway, which turns into Gates Pass Road. Continue on Gates Pass Road, until it dead ends at Kinney Rd. Go left on Kinney Rd, past Old Tucson, then take a right on Hal Gras Rd (keep an eye out for this turn - it's not well marked, but we'll have a sign up for the Star Party event). Follow the road about 1/4 mile. We'll set up near the restrooms. Viewing will be near Ironwood Picnic Area, TMP Contact person Sandy Reith can be reached at 520-615-7855 or email [Sandy.Reith@pima.gov](mailto:Sandy.Reith@pima.gov). Set-Up Time: 6:00pm. Observing will be from 6:30 pm to 8:30 pm. Sunset: 6:25pm Dark Sky: 7:18pm Moon Phase: near First Quarter.

### Whipple Observatory Star Party

Saturday, February 28

See the Stars through a Telescope

Free and open to the public

Smithsonian Institution,

Fred Lawrence Whipple Observatory Visitors Center near Amado, Arizona.

Observing will begin after 7 p.m. with telescopes provided courtesy of the Tucson Amateur Astronomy Association (TAAA) and the Sonoran Astronomical Society (SAS).

- |        |   |
|--------|---|
| 5 p.m. | Visitors Center opens                           |
| 6 p.m. | Informal lecture presented by Observatory staff |
| 7 p.m. | Observing begins (next to Visitors Center)      |

On view: Venus, Saturn, double stars, star clusters, the Pleiades, and a crescent Moon.

Dress for cool evening temperatures. Small flashlights and binoculars are useful to bring. Lecture seating is limited, so you might want to bring a lawn chair.

Please cooperate with staff directing parking when you arrive. The parking spaces nearest the building are reserved for TAAA/SAS members and their telescopes. Visitors should park along the driveway or in the parking area outside the gate or along the road as directed. (Please note: Visitors will be allowed to park cars next to the building in the space usually reserved for telescopes until 5 p.m. At that time, visitors will have to move their cars to other parking spaces so that telescopes may be set up.)

For more information call 670-5707. In case of threatening weather, call 670-5707 after 4 p.m. on the 28th for information about star party cancellation.

<http://www.cfa.harvard.edu/flwo/starparty.html>

### Lyons Elementary Star Party

Tuesday, 3/3/2009

### East

No. of Scopes: 5

**Lyons Elementary** will be celebrating Family Science Night for an estimated attendance of 150 students and parents at 7555 E. Dogwood St. From Kolb and Speedway take Kolb Rd. south, past Golf Links to Escalante. Turn left (east) on Escalante and proceed about 3/4 mile to Evergreen. Turn right (south) on Evergreen and proceed about half a mile to Dogwood, turn right (west) and proceed 1/4 mile to school. Viewing will be on the playground area behind the school. Contact person Sandy Blitz can be reached at 584-6600 or email [sandra.blitz@tusd.k12.az.us](mailto:sandra.blitz@tusd.k12.az.us). Set-Up Time: 6:45pm. Observing will be from 7:15 pm to 9:15 pm. Sunset: 6:27pm Dark Sky: 7:20pm Moon Phase: near First Quarter.

SAIDA NEEDS MORE HELP FROM MORE TAAA MEMBERS. AFTER ALL, WE WILL ALL BENEFIT FROM DARK SKIES IN OUR AREA !!!

For more information, go to: [www.sa-ida.org](http://www.sa-ida.org)

Or feel free to contact:

John Polachek  
President of SAIDA  
E-mail: [jpolach@dakotacom.net](mailto:jpolach@dakotacom.net)  
Telephone: 743-1362

SAIDA meets on the second Wednesday of each month from 5:30 to 7:30 PM in the IDA office located at 3225 N. First Ave, just North of Ft. Lowell. And.....

WE USUALLY HAVE PIZZA !!!



**Telescopes for Borrowing**



Free service



Only for Members

Don't own a telescope?  
Our Loaner Program is your answer!

These telescopes are in the program

- Sears 60mmf/15 on equatorial mount
- Unitron 62mmf/14.5 on equatorial mount
- Meade 90mm ETX
- Coulter Odyssey8 8-inch f/4.5 Dobson
- Meade 8-inch f/4 Schmidt-Newtonian LX D-55
- Meade 10-inch f/4.5 on equatorial mount
- Meade 10" LX200 GPS (requires training session)

Beginners, here's your chance to learn and observe the sky before buying any equipment. The Loaner Program is available to any current member after meeting requirements detailed in the TAAA Loan Policy. Contact the Equipment Loan Coordinator (see page 2) or any club officer for details about these telescopes.

**Dark Skies for February 2009**

**DARK SKIES** (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm, 20=8pm, 22=10pm, 0=12am  
**RISE, SET, VISIBILITY** for sun and bright planets: rise for morning object, set for evening object

Sa/Su 31/ 1 23:21 - 5:54	Tu/We 10/11 19:29 - 19:40	Sa/Su 21/22 19:37 - 5:36
Su/Mo 1/ 2 0:25 - 5:53	We/Th 11/12 19:30 - 20:45	Su/Mo 22/23 19:38 - 5:37
Mo/Tu 2/ 3 1:32 - 5:53	Th/Fr 12/13 19:31 - 21:48	Mo/Tu 23/24 19:39 - 5:36
Tu/We 3/ 4 2:41 - 5:52	Fr/Sa 13/14 19:31 - 22:50	Tu/We 24/25 19:40 - 5:34
We/Th 4/ 5 3:48 - 5:52	Sa/Su 14/15 19:32 - 23:51	We/Th 25/26 19:40 - 5:33
Th/Fr 5/ 6 4:50 - 5:51	Su/Mo 15/16 19:33 - 0:51	Th/Fr 26/27 20:13 - 5:32
Fr/Sa 6/ 7 5:44 - 5:50	Mo/Tu 16/17 19:34 - 1:49	Fr/Sa 27/28 21:14 - 5:31
Sa/Su 7/ 8 - - -	Tu/We 17/18 19:34 - 2:44	Sa/Su 28/ 1 22:18 - 5:30
Su/Mo 8/ 9 Full Moon	We/Th 18/19 19:35 - 3:35	Su/Mo 1/ 2 23:24 - 5:29
Mo/Tu 9/10 - - -	Th/Fr 19/20 19:36 - 4:20	Mo/Tu 2/ 3 0:32 - 5:28
	Fr/Sa 20/21 19:37 - 5:00	

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn	Vi=Visibility
Sa/Su	Set	Rise	Rise Vi Set	Vi Rise	Vi Rise	Vi Rise	Vi	
31/ 1	17:55	7:16	5:54 5 21:32 -4	6:29	9 6:57	- 20:49	1	-3 brilliant
7/ 8	18:01	7:10	5:41 3 21:31 -4	6:20	8 6:35	7 20:20	1	0 conspicuous
14/15	18:07	7:04	5:41 4 21:27 -4	6:12	8 6:13	5 19:50	1	3 moderate
21/22	18:13	6:57	5:46 4 21:18 -4	6:02	7 5:51	3 19:20	1	6 naked eye limit
28/ 1	18:19	6:49	5:52 6 21:02 -4	5:52	7 5:29	2 18:50	1	9 binoculars limit

By Erich Karkoschka

**TAAA Board of Directors Meeting - 14 January 2009**

**Attending:** Board members present (8): Ken Shaver (presiding), Keith Schlottman, Terri Lappin, Luke Scott, George Barber, Bill Lofquist, John Kalas, and Teresa Plymate. Members Present (3): Liz Kalas, Claude Plymate, Mary Lofquist.

The president called the meeting to order at 6:30 pm.

Minutes from the December board meeting were accepted unanimously.

**Treasurer's Report**

The club had no non-routine expenditures during the month.

The board reviewed and revised the 2009 budget. The budget will be submitted for approval at the next board meeting.

<b>TAAA Board of Directors Meeting - 14 January 2009 (cont.)</b>
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**Dark Site Land Development**

John Kalas reported on the status of design components required for the building permit. The architect is working on the master plan for Phase 1 construction. The goal is to have all plans needed for a building permit complete by the end of January. The building permit must be submitted to Cochise County not later than 28 February.

Robert Crawford is working with attorneys to finalize the well-share agreement.

Bill Lofquist is working on fund raising and community relation activities.

Keith Schlottman entered a motion for the TAAA to not purchase title insurance for the Dark Site property. The motion was approved unanimously.

The board approved, by unanimous vote, a Certificate of Corporate Resolution authorizing Ken Shaver and Bill Lofquist to execute, on behalf of TAAA, all instructions in connection with the Dark Site property transfer from the Perseus Group to TAAA.

**Newsletter**

The board reviewed the electronic newsletter notification process and will strive to distribute the e-mail announcing availability of the newsletter not later than the last Friday of the month.

**Master Calendar**

The board reviewed and revised the TAAA master calendar for 2009.

**Nominating Committee**

John Kalas will organize the nominating committee for club officers.

Meeting adjourned at 8:45 pm.

Respectfully submitted,  
Luke Scott  
Secretary

<b>Desert Skies Classified</b>
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FOR SALE	Almost new 8"XLT SCT ASGT with "Flash" upgradeable. Excellent condition. Works "dead on". Used about 4 times as "get and go" scope for public events, etc. Purchased this year (2008). Still under warranty. Includes a 2" back and 2" Williams Optics Diagonal. \$1200. List price \$1615. Contact Jerry Farrar 520-731-1104 (C#.520-403-2404).e-mail.jandkfarrar@msn.com [04/09]
FOR SALE	Meade LX 200 12" go to telescope Multi coated, ultra high, Schmidt-Cassegrain catadioptric, D=304.8mm F=3048mm F/10 with a solar filter, Orion superwide 22mm, Meade super Plossi 26 mm, Meade Barlow 2x telenegative amplifier, planet filters, and of course everything that the scope came with. Works great in excellent condition optics are perfect. Only used scope about 10 to 15 times. Works perfectly. Selling for \$2,500.00 paid \$6,000 including accessories. Moving to china on Jan 20th so please call before the 20 <sup>th</sup> of Jan. Ask for James. 480-797-3061, <a href="mailto:jedwards@libertyone.com">jedwards@libertyone.com</a> [04/09]
FOR SALE	12" LX-200GPS. Comes with field tripod, Meade super wedge, 3D counterweight system, Losmondy mounting plate system. Needs focuser if used for imaging. \$3,000.00. Contact Jim Charboneau <a href="mailto:StellarObservatory@starband.net">StellarObservatory@starband.net</a> . [04/09]
FOR SALE	Vixen GP-D2 German Equatorial Mount with tripod. Made in Japan, this is Vixen's latest version of their famous GP line. White, excellent condition must see. List price \$1,169, asking \$799, neg. Call J.D. At 760-8248. [02/09]
FOR SALE	Meade 8 inch LX90 (in original box) including heavy duty tripod, 3 eyepieces, 2 diagonals, optical and Telrad finder scopes, Barlow lens, filter. Purchased from Sky works in 2002 for \$2,335. Sale price of \$1,300 includes your choice of several astronomy or viewing books. Jim Smith at <a href="mailto:sawtell1190@q.com">sawtell1190@q.com</a> or 572-1221 [02/09]
SERVICE	Green laser pointer need repair or tune up? Contact Donald Arndt at (415) 215-2409 or <a href="mailto:donaldja@pacbell.net">donaldja@pacbell.net</a> . Typical repairs cost \$25-50, including return shipping.

Your ad will run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call or e-mail the newsletter editor.

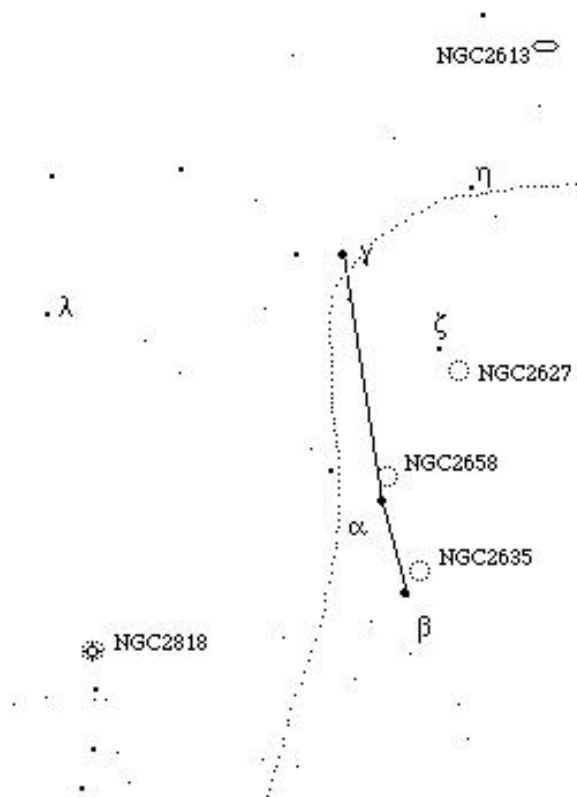
## Constellation Report by Chris Lancaster

### Pyxis

The Compass

The giant constellation of the ancient ship Argo is, in modern times, broken up into the 4 distinct, smaller constellations of Vela (the sail), Carina (the keel), Puppis (the poop deck), and this month's constellation of Pyxis (the compass). The French astronomer Nicolas-Louis de Lacaille chose the navigational device to name this group of stars southeast of Canis Major, even though the mythical ship Argo sailed before the invention of the compass. Composed of magnitude 3.5 and dimmer stars, it takes some effort to point out Pyxis, but if you gauge the distance between Sirius, the brightest star in the sky, and the tip of the tail of Canis Major, then extend that line about the same distance to the southeast, you'll be in the general area of the southern limit of Pyxis. Then moving your gaze directly north to the same declination as Sirius will send your eyes across the entire expanse of Pyxis. Pyxis' three brightest stars form a simple straight line running roughly north-south. Pyxis is on the meridian at 10:30 pm on February 15th.

One of the best deep sky objects of Pyxis is the one that also rises the earliest and is at the highest declination. This is NGC2613, a moderately bright edge-on spiral galaxy. It is located at RA 8h 33m 22s Dec -22d 58' 24", or 3.5 degrees north north-west of Eta Pyxididis in the northwest section of the constellation. It glows at magnitude 11.2 and presents itself as a pronounced spike of light. It spans 7.3' in its long dimension and is 1.8' thick, with sharp edges along its length.



An interestingly similar trio of stars and star clusters repeats itself in the southern half of Pyxis. Once you master finding the first cluster, you should have no problem finding the other two since they are all the same distance from marker stars of similar brightness. Starting with the cluster farthest to the north, NGC2627, first find magnitude 4.9 Zeta Pyxididis. Then move 39' southwest to this magnitude 8 cluster. It is fairly large, covering 11', and has several bright (magnitude 11) stars interspersed with others which range downward to magnitude 13 and fainter. NGC2627 shows a noticeable elongation. For your setting circles, NGC2627 is located at RA 8h 37m 18s Dec -29d 57' 00".

Move 3.5 degrees south southeast to 3.7 magnitude Alpha Pyxididis as a starting point for finding NGC2658. This star cluster is 32' north of this brightest star of Pyxis. The cluster is small and faint (magnitude 9), but richer in stars than NGC2627. (RA 8h 43m 24s Dec -32 39' 00".)

Near the southern boundary of Pyxis is a third cluster, 2.3 degrees south southwest from where we left NGC2658. Once again, start with Beta Pyxididis and move practically the same distance as we have before (this time 38') to the northwest, or dial up RA 8h 38m 30s Dec -34d 46' 00". This cluster, designated NGC2635, is the most challenging. It is very dim at magnitude 11.2, and covering only 3' of sky. Many small telescopes will fail to resolve the 13th magnitude stars, but those with large apertures and high magnification will show a subtle but pleasant cluster in an irregular triangle shape.

Probably the most unique object in Pyxis is the one I've saved for last. Incidentally, if you're viewing Pyxis early in the evening, it will be the last object to come into view as Pyxis rises since it is located in the far southeast corner of the constellation. NGC3818 is a combination star cluster and planetary nebula. Though it is not as striking as M46, also a cluster/planetary combination located nearby in Puppis, it is in the same category. This object sits in a very empty spot in the sky, so star hopping is difficult. If you can zoom in to coordinates RA 9h 16m 00s Dec -36d 37' 00", then do so. Otherwise, move about 7.5 degrees east of Beta Pyxididis. Look for a tight triangle of 4.6, 7, and 5.9 magnitude stars in your binoculars or finder scope, and then move 47' due north. About 9' of sky is covered by this delicate star cluster, and embedded within is a faint, 13th magnitude planetary nebula of about 40" in size. The nebula itself is not too difficult to spot since it has decent surface brightness, but a fairly large aperture is helpful. It is quite evident at high power in an 11" telescope with dark skies.

These cold nights of February present a wealth of stars and deep sky objects to view, even in the more withdrawn constellations like Pyxis. But braving the weather to meet the challenge of hunting down some of these dim objects makes for a rewarding night of observing.

Tucson Amateur Astronomy Association  
P.O. Box 41254  
Tucson, AZ 85717

Address Service Requested

Please consider renewing your membership on time. Renewal month and dollar amount appears on your address label. Magazine subscriptions are not included. TAL fee is included if participating in TAL. See details on page 2.

### Directions to TIMPA and Las Cienegas

#### Directions to TIMPA Site

GPS coordinates: 32 deg 15.868' N, 111 deg 16.390' W

##### **From the North:**

1. Take Ina Rd. west about three miles past I-10.
2. Turn left (south) on Wade Rd.. Wade Rd. becomes Picture Rocks Rd. when the Rd. bends to the right (west).
3. Take Picture Rocks Rd. west to Sandario Rd..
4. Turn left (south) on Sandario Rd. to Manville Rd..
5. Turn right (west) on Manville Rd. to Reservation Rd..
6. Turn left (south) on Reservation Rd. (dirt Rd.) and go about two miles. The TIMPA entrance is on the left.

##### **From the East:**

1. Take Speedway Blvd. west and it turns into Gates Pass Rd..
2. Go over Gates Pass and continue west to Kinney Rd..
3. Turn right (north) on Kinney Rd. and continue past the Desert Museum.
4. Kinney Rd. bends left at the entrance to Saguaro National Park West and becomes Mile Wide Rd..
5. Take Mile Wide Rd. west about five miles to Reservation Rd.. Mile Wide Rd. ends at Reservation Rd. and you must turn right (north) onto Reservation Rd..
6. Take Reservation Rd. north about one mile. The entrance to TIMPA will be on the right.

#### **NOTE**

A gate card is required for TIMPA access. Please **DO NOT** ask the caretakers for entry to the TIMPA SITE. A list of TIMPA key keepers is available on the TAAA website, or by contacting a board member. For scheduled TIMPA star parties, a designated TAAA representative will provide access to the site.

#### Directions to Las Cienegas (Empire Ranch)

GPS coordinates: 31 deg 47.356' N, 110 deg 37.913' W

Take I-10 East from Tucson. Take Exit 281 (Route 83 Sonoita-Patagonia Highway South). Travel south on Route 83 for about 19 miles, watch for green and white milepost 40 sign on the right side of the road. Approximately ¼ mile past milepost 40, turn left into Las Cienegas. The road is dirt and is "washboarded" so go carefully. At about 2.9 miles, there is a fork in the road. Stay to the right. When the road ends in a "T", take a left. Cross over a concrete section of the road down in a wash. Just up the hill from the wash (about .2 mile), turn left. 0.1 mile ahead will be the end of an abandoned airstrip with a covered ramada. The club members have been setting up several tenths of a mile down the runway. If you arrive after dark, as a courtesy to other members, use only your parking lights to approach the set-up location.