



# *Desert Skies*

*Tucson Amateur Astronomy Association*

Volume LV, Number 9

September, 2009



**Clouds Break for a Star Party**

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**Cover Photo:** A scene from the Kitt Peak Star Party for incoming Optical Sciences Graduate Students on August 22nd. Lines formed early as clouds cleared and the Milky Way appeared. It was a great night, but moisture from recent rains dewed up the SCTs quickly, leaving the best views for naked eyes and laser pointers! Two minute exposure, Canon XSI 10-22mm lens @10mm, F/3.5. Imaged by Dean Ketelsen.

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TAAA Board Of Directors	All Board Members		taaabod@tucsonastronomy.org

#### 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

Well, it's already September and we have actually had a very mild Monsoon here in Tucson. For those with an interest in astronomy it has given us a few very good nights to take out the telescopes and get a view of the summer nights we would normally miss. While we could use the moisture here in the desert, I will say that I have enjoyed the ability to see the Summer Triangle and all of the summer constellation offerings. I hope that everyone in the club has had the opportunity to do the same.

The fair weather has also allowed us to make great progress on the construction projects at the dark site. We will hear about the progress at this month's club status meeting. The meeting will also bring updates on the various Special Interest Groups (SIG's), a Treasury update, and information on the ALCon2010 planning. I hope that everyone is able to attend, as the information we are presenting is very important to the future development and activity planning for the club.

Some actions were discussed at the August BOD meeting that would like to make sure everyone takes note of. First, we believe we have worked out the newsletter notification bugs we have experienced. I would like to say thank you to Terri Lappin for her diligence and dedication in finding a way to ensure that everyone is getting the notifications. If you are still having issues with getting the e-mail no-

tices, please see Teresa Plymate or another board member and we will work to resolve it. This resolution will enable us to initiate our follow-up BOD action and that is to change the password to our member's only section on the web site. This is where our newsletters are located. We will begin making changes in the password beginning with our October newsletter notification. Please make sure you note the change on the next email notification so that you will not have a problem getting access to the newsletter.

The last BOD action I would like to bring to everyone's attention is the club's commitment to the Galilean Nights Sidewalk Astronomy events coming up on October 22-24<sup>th</sup>. This is an International Year of Astronomy event when we will be trying to get a telescope and other astronomy activities to as much of the public as possible on those three evenings. We hope you will have an opportunity to participate during one or more of these evening's events. Please look for more information in this and next month's newsletter as well as at the General Meeting.

Clear Skies,

Ken Shaver  
TAAA President

### Meeting Information and Calendar of Events

**TAAA MEETING DATE:** Friday, September 4, at the Steward Observatory Auditorium – Room N210

**TAAA YEARLY STATUS: 6:30 pm**

We will hear about many of the projects and get a detailed status of the many things going on within the club at the General Meeting on September 4<sup>th</sup>. We will cover the project status of the Dark Site, and get a financial funds status report for those projects.

Dark Site – Bill Lofquist and John Kalas  
Club Treasurer's Report - Teresa Bippert-Plymate  
Astronomy Fundamentals Sig -Steve Marten  
Starry Messenger SIG and IYA – Terri Lappin  
ALCON 2010 Update - ALCON2010 committee

**BOARD OF DIRECTORS MEETING:** Wednesday, Sept. 9, 6:30 pm. The meeting is held at Steward Observatory Conference Room N305.

#### STAR PARTIES AND EVENTS:

07 Sept – Astro-Imaging SIG at China Rose  
10 Sept – Astronomy Fundamentals SIG  
12 Sept - TAAA and AF-SIG Star Party at TIMPA  
13 Sept - Fellowship Square Star Party  
18 Sept - Pima County Natural Resources Star Party  
19 Sept - TAAA Star Party at Las Cienegas  
19 Sept - TAAA Star B-Q at Kitt Peak  
22 Sept - Brichta ES Star Party

**NEWSLETTER SCHEDULE:** Deadline for articles: Sat, Sept. 19. The newsletter is published at least one week prior to the following month's General Meeting.

### Club News

#### Member News

We welcome the members who have recently joined the TAAA. 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.)

### Club News (cont.)

#### Astro-Imaging SIG Meeting

Monday, 07 Sept, 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

Thursday, 10 Sept, 6:30 pm

The Astronomy Fundamentals Special Interest Group (AFSIG) will meet on Thursday, 10 Sept, 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.

All members of TAAA and new members particularly are welcome to AFSIG meetings!

The AFSIG Committee

#### TAAA Fall Star-B-Cue at Kitt Peak

September 19 (Saturday)

The TAAA has scheduled a star party and pot-luck barbecue at the picnic grounds up on Kitt Peak on Saturday, 9/19, starting at 4:00 pm. A maximum of 70 TAAA Members and families will be allowed to participate. A gas-fired barbecue grill at the ramada will be fired up starting at 4:30 pm and members are invited to cook their dinners between 4:30 and 6:30 pm. Bring a dish to share with other members. The grill will be turned off at 6:30 pm. Telescope observing will commence after sundown and will be permitted as late as members chose to stay. Be prepared for cold temperatures.

Reservations are required. There will be a sign-up sheet on the table at the back of the lecture hall at the start of the September 4th meeting. Because of the popularity of this event, attendance will be initially limited to TAAA Members and their immediate family members only. If, after all TAAA Members have had an opportunity to sign up, there are any openings or cancellations, the attendance of guests will be considered. If you are unable to attend the September meeting, phone and e-mail reservation requests will be taken on a first-come, first-serve basis *after* 9:00 am Saturday, 9/5. Contact John Kalas at 620-6502 or via e-mail at <jckalas@cox.net>.

It is very important for all attendees to abide by the rules established by Kitt Peak and respect the facility. Adherence to the rules will help to continue TAAA activities on Kitt Peak in the future.

1. No vehicles are allowed above the picnic grounds after 4:00 pm.
2. Only the ramada gas-fired barbecue grill is permitted for cooking food at the picnic grounds. No open fires or use of the personal barbecue grills is permitted.
3. All trash must be placed in the garbage receptacles.
4. Use of cellular phones and radio walkie-talkies is prohibited. All cell phones must be turned off.
5. No alcoholic beverages are permitted.

When leaving the picnic grounds after dark, if possible, use your parking lights until you have reached the main road and are headed downhill after exiting the picnic area.

#### 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 hats, T-shirts, denim shirts, and patches. We take cash and checks.

#### Equipment Coordinator Needed

We have an opening for Equipment Coordinator. This person would be in charge of the club's equipment loaned to TAAA members for their personal use. Equipment is loaned on a 30-day check-out basis. The duties of the coordinator include:

- Tracking of equipment checked out
- Insures return of loaned equipment
- Provides training for non-computerized telescopes
- Coordinates repairs and maintenance of equipment
- Provides storage for club equipment. The storage area should be free of dust, and, if possible environmentally controlled.

If you are interested in this position, please contact any board member on page 2 of the newsletter.

#### Resource Needed:

Registered Professional Civil Engineer

As the club prepares for Phase 2 construction at the Astronomy Complex, a new requirement faces us. We avoided the requirement to submit a drainage and grading report during Phase 1 construction because we cleared less than one acre. In Phase 2, we will clear more land and thereby exceed the one acre exemption. If anyone in the club is a registered professional civil engineer or if anyone knows of such a resource, the club would like to know. If you are aware of this resource, please contact John Kalas at 620-6502 or via e-mail at [jckalas@cox.net](mailto:jckalas@cox.net).

**Club News (cont.)**

**Upcoming Lectures**

Oct 2	<i>Astronomy Essentials</i>	Seasonal Objects Mary Turner
	<i>Invited Lecture</i>	Bill Gates Elliptical Galaxies
Nov 6	Members Night Starts at 6:30pm	
Dec 4	<i>Astronomy Essentials</i>	Claude Plymate Adaptive Optics for the Beginner
	<i>Invited Lecture</i>	Ed Beshore SpaceWatch Program



**Night Sky Network Toolkits**

Below is a list of our Night Sky Network Outreach Toolkits. The Night Sky Network program recognizes the essential role that amateur astronomers can play in the public's understanding of astronomy. The toolkits, developed by the Astronomical Society of the Pacific under contract with NASA, are meant for use in small groups at star parties, either during the early evening hours or after dark. They are also great options for those questionable, cloudy nights.

By far, the Black Hole Survival Kit is the most popular with kids and adults. More than just a demonstration about the environment around a black hole, it demonstrates how matter bends the fabric of space-time. It can be used to explain what keeps a planet in orbit around a star, or why it's easier to launch a spacecraft from the moon rather than the Earth. This toolkit will be highlighted at the

September 26th Starry Messenger Workshop described elsewhere in the newsletter.

- 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
- GLOBE at Night:** light pollution principles
- Supernova!** life cycle of massive stars, touches on life cycle of sun-like stars
- Mirrors and Glass - An inside look at telescopes:** how telescopes work

**Other Resources**

- SolarScope:** provides a white light image of the sun suitable for small group viewing.
- Comet Chef:** an apron (with a comet on it) and chef's hat to wear when mixing up comets

Each toolkit contains several projects. You pick and choose which part you want to use. They contain all the essential materials needed. Each toolkit includes a Resources CD and a training DVD, which you get to keep.

Please make arrangements with Terri Lappin to borrow any toolkit.

**IMPORTANT!!  
TAAA Website Password to Change**

The password for the Members Only area of the TAAA website will be changed with the release of the October newsletter. Make sure you are receiving the newsletter email announcement as this is our method to notify you of the new password. Please contact the treasurer to update your information.



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## Club News (cont.)



### **Black Hole Workshop** **Saturday, Sept 26 9am - noon** **Steward Observatory Conference Room N305**

The first Starry Messenger Workshop will be held on Saturday, September 26th. We are highlighting the Black Hole Survival Toolkit from the Night Sky Network. This is the most popular NSN toolkit with the public and lots of fun to demonstrate. The workshop will start at 9am and end at noon. In addition to experiencing the toolkit, we'll include tips on connecting with your audience. We'll also spend time discussing what participants want from the Starry Messenger SIG.

Three opportunities exist this month for our Starry Messengers. On Sept 13th, east side residents should consider the Fellowship Square Star Party. This is an independent living retirement residence. The event will be attended by 75 adults living at the facility. Two opportunities exist for our west side residents this month. The Pima County Natural Resources Center will have a star party on Sept 18th out past Old Tucson. This is new moon night, so the sky hopefully should be good. The second west side event is on the 22nd at Brichta Elementary, located near Speedway and Silverbell. A nice crescent moon will be in the sky for the kids that evening. These events require 3 telescopes each. Let's help Roger Schuelke get all 9 slots filled. Remember you could also bring a Night Sky Network Toolkit to these events. Details for all these community events can be found elsewhere in the newsletter.

The goal of the Starry Messenger Special Interest Group is to provide an environment in which TAAA members can enhance their knowledge and understanding of astronomy and related concepts and to provide the tools and techniques for explaining astronomy to people of all ages. The concept for the Starry Messenger SIG came about through discussions between Terri Lappin and Loretta McKibben and has been approved by the TAAA Board. Anyone is welcome to participate in the SIG. In fact, by virtue of your involvement in TAAA outreach, you are already considered a member of the Starry Messenger SIG. You can contact the Starry Messenger SIG at [smsgis@tucsonastronomy.org](mailto:smsgis@tucsonastronomy.org) (place @ sign appropriately).



The TAAA will participate in the local Galilean Nights event between October 22nd and 24th. Galilean Nights gives amateur and professional astronomers around the globe an opportunity to hit the streets with our telescopes to show the public the wonders that Galileo observed 400 years ago. We are looking for about 10 members with telescopes to observe from locations such as movie theatres, shopping malls, or parks. Mark your calendars now so you can be sure to be a part of this event.

Details are being planned now. If you want to be a part of the organization of this event, please let Terri Lappin know. Terri can be reached at 520-977-1290 or by email at [tklappin@comcast.net](mailto:tklappin@comcast.net) (place @ sign appropriately).

## Items of Interest

### **Websites: Trips On The Internet Super-Skyway** By Rik Hill

What's in a spectrum?

I have run articles on this topic in the past (Jul. and Nov., 2007) that concentrated on the instrumental end of this science. I hope one or two of the readers took these to heart and built some sort of spectroscopic equipment even if just a transmission grating in front of your camera lens. I will only briefly mention that my original article on a simple but effective spectrograph can be found at:

<http://www.lpl.arizona.edu/~rhill/spect/spect.html>

and the update to DSLR at:

<http://www.lpl.arizona.edu/~rhill/spect/newspect.html>

Any prism that will span your camera lens will suffice to build one of these...and you could always mask the aperture down to fit what prism you have.

A good source to begin a search for supplies to build a spectrograph, especially gratings and prisms, would be Surplus Shed at:

<http://surplussed.com/>

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Now the point here is once you have a spectrograph, what to do? First you need to make a catalog of known stars with your device similar to what is at the end of my original article (above) or like the ones at:

[http://apod.nasa.gov/apod/image/0105/obafgkm\\_noao\\_big.jpg](http://apod.nasa.gov/apod/image/0105/obafgkm_noao_big.jpg)

### Items of Interest (cont.)

or

[http://exoplanet.as.arizona.edu/~lclose/a302/lecture14/Spectra\\_Briley.jpg](http://exoplanet.as.arizona.edu/~lclose/a302/lecture14/Spectra_Briley.jpg)

The reason for doing this is so you can better understand the limits and abilities of your instrument and what the typical star classes look like.

The easiest way to make a spectrum is to mount your spectrograph on your telescope so the dispersion is in a north-south direction and then just open the camera lens for 20-60sec to let it widen the spectrum of the desired object. You will soon figure out how to use your RA drive in bursts to catch fainter objects. Feel free to contact me at the email address below if you need help.

If you want to understand these spectra in greater detail you can explore the classic masterwork "An Atlas of Stellar Spectra" at:

[http://nedwww.ipac.caltech.edu/level5/ASS\\_Atlas/frames.html](http://nedwww.ipac.caltech.edu/level5/ASS_Atlas/frames.html)

This is the very one by Morgan, Keenan and Kellman that established the MKK spectral classification system of stellar spectra. It is a classic masterwork now available to everyone on line. Ain't technology wonderful?

This reference will teach you a lot and present you with dozens of examples of stellar spectra that will show different things like luminosity effects, emission in different spectral classes, metal rich and metal poor stars and variable stars of different types. It will keep you busy for many nights compiling your own such catalog!

You might also consider also making a catalog of planetary nebula spectra as shown at:

<http://www.astrosurf.com/buil/us/spe6/planet.htm>

But again, why do this? Most of these stars and nebulae will not change from night to night. But there are many things that do change. For example, in the last few years Delta Sco first got noticeably brighter and then faded. This was due to the expelling of a gas shell in the triple star system that at first was energized by proximity to the stars within and then as it expanded and cooled, faded. This all presented spectra that changed from night to night:

<http://www.astro.illinois.edu/~jkaler/sow/dschubba.html>

Several times a year there are novae that are within range of amateur spectrographs as seen in the homemade spectrographs of Maurice Gavin in the UK:

<http://www.astroman.fsnet.co.uk/spectro.htm>

By having a good working knowledge of "normal" spectra and your own catalog of spectra with which you can compare these transient phenomena (and others) you

can begin, in your own observatory, to understand what's going on hundreds to thousands of light years out in space, all for just a few dollars and patient observing.

As always, if you know of a particularly good website you would like mentioned here, drop me a line at [rhill@lpl.arizona.edu](mailto:rhill@lpl.arizona.edu)

### IYA Dark Skies Awareness programs.

#### Dark Skies Discovery Sites

Dark Skies Discovery Sites (DSDSs) program is an official International Year of Astronomy Dark Skies Awareness Cornerstone Project. DSDSs are places where the public is educated about light pollution and its many negative effects in the context of being introduced to the exciting sights of a fairly dark sky. Astronomy clubs or individuals can earn the official DSDS designation for their location by agreeing to present, mostly at their own pace and schedule, an ongoing series of programs about light pollution. If you would like to have your site designated as an official Dark Sky Discovery Site, please fill out the online Dark Sky Discovery Site Designation application form at

<http://www.darks skiesawareness.org/dsds-application.php>. To find out more about the DSDS program, visit

<http://www.darks skiesawareness.org/dsds.php>.

### International Earth and Sky Photo Contest on Dark Skies Importance

The International Year of Astronomy 2009 photography contest is open to anyone of any age, anywhere around the world.

Two global projects of the International Year of Astronomy 2009, The World at Night (TWAN) and Dark Skies Awareness, are jointly organizing the International Earth and Sky Photo Contest. The photos should combine some elements of the night sky (e.g., stars, planets, the Moon or celestial events) set against the backdrop of a beautiful, historic, or notable location or landmark somewhere in the World. They must show both the Earth and the Sky. This style of photography is called "landscape astrophotography".

The special theme of the contest is "Dark Skies Importance", so the image should try to impress people about how important and amazing the starry sky is, how it affects our life, and how bad the problem of light pollution has become. The contest organizers encourage participants to view examples of such photos on TWAN galleries. A special photo gallery entitled "Dark Skies Importance"

### Items of Interest (cont.)

(<http://www.twanight.org/newTWAN/galleries.asp?page=1&Sort=Gallery&Value=Dark%20Skies%20Importance>)

is available on TWAN website. Educational article and tips on night sky photography is also available on TWAN

online Education section ([http://www.twanight.org/newTWAN/education\\_page.asp](http://www.twanight.org/newTWAN/education_page.asp)).

More information, like the contest guidelines, can be found at

<http://www.darks skiesawareness.org/photo-contest.php>.

### Member's Events

#### TAAA and AF-SIG Star Party at TIMPA

Saturday, 12 September

Come on out and enjoy the early autumn 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. There is no scheduled talk for this activity, just come out and enjoy. 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. Be prepared for cool temperatures after sunset. Directions to the TIMPA site are located on the outside flap of this newsletter.

#### TAAA Fall Star-B-Cue at Kitt Peak

September 19 (Saturday)

See article in the *Club News* section.

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

Saturday, 19 September

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, and fall is here, so be prepared for cool temperatures after sunset. 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.

#### Rattlesnake Alert!

Be alert for rattlesnakes! Rattlesnakes are generally aggressive only if disturbed. If you see one, keep a safe distance and DO NOT try to interact with it in any way. Snakes are much faster than our reflexes, and should be handled only by professionals. Wear



boots and long jeans. For more information, go to

<http://en.wikipedia.org/wiki/Rattlesnake>

Along with rattlesnakes, other desert critters, such as gophers and ground squirrels, make their home wherever they want. These residents can leave holes and other potential tripping hazards, so be careful when walking.

Want better observing?

Join the group that's keeping the sky dark  
**International Dark Sky Association**  
 Southern Arizona section

We get people to use better lighting, so we'll have a dark sky

Some of the things we do:

- Talks to schools and organizations
- Demonstrations at Desert Museum
- PowerPoint presentations on CD

- Work with government agencies
- Identify non-compliant lighting in So AZ

#### Monthly meetings

2nd Wednesday, 5:30 - 7 pm.  
 3225 N. First Ave

Contact: Joe Frannea  
[sky@sa-ida.org](mailto:sky@sa-ida.org)  
[www.sa-ida.org](http://www.sa-ida.org)

To preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting

**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.

**Fellowship Square Star Party**

Sunday, 9/13/2009

**East**

No. of Scopes: 3

**Fellowship Square** will be hosting Star Spectacular for an estimated attendance of 75 adults at 8111 East Broadway. On Broadway go east until you pass Pantano. Viewing will be at a designated area on our community grounds. Contact person Debbie Harris can be reached at 721-3003 or email [debra.harris@christiancare.org](mailto:debra.harris@christiancare.org). Set-Up Time: 7:00pm. Observing will be from 7:30 pm to 9:30 pm. Sunset: 6:36pm, Dark Sky: 7:29pm Moon Phase: (no moon during viewing).

**Pima County Natural Resources Star Party**

Friday, 9/18/2009

**West**

No. of Scopes: 3

**Pima County Natural Resources** will be holding Star Gazing for an estimated attendance of 35 people at 1548 S. Kinney 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 ¼ mile. Viewing will be near restrooms on left side of road. 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: 7:00pm. Observing will be from 7:30 pm to 9:30 pm. Sunset: 6:29pm, Dark Sky: 7:22pm Moon Phase: (no moon during viewing).

**Brichta ES Star Party**

Tuesday, 9/22/2009

**West**

No. of Scopes: 3

**Brichta ES** will be celebrating Autumnal Equinox for an estimated attendance of 75 students and parents at 2110 West Brichta Drive. West on Speedway to Silverbell, North on Silverbell, West on Brichta Drive (across from Joaquin Murrieta Northwest Park), dead ends into school. Viewing will be probably sports courts behind Multi Purpose Room, north west side of campus. Contact person Liz Dalglish can be reached at (520) 740-3012 or email [ldalglish@sc.pima.gov](mailto:ldalglish@sc.pima.gov). Set-Up Time: 6:00pm. Observing will be from 6:30pm to 8:00pm. Sunset: 6:24pm, Dark Sky: 7:17pm Moon Phase: near First Quarter.

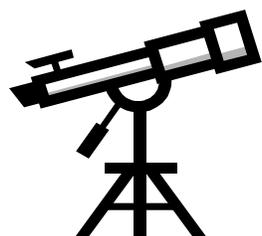
**Dark Skies for September 2009**

**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

Mo/Tu	31/01	3:12	-	4:35	Fr/Sa	11/12	19:57	-	23:10	Mo/Tu	21/22	19:58	-	4:50
Tu/We	01/02	4:09	-	4:35	Sa/Su	12/13	19:56	-	0:14	Tu/We	22/23	20:40	-	4:51
We/Th	02/03		-	-						We/Th	23/24	21:26	-	4:52
Th/Fr	03/04	Full moon	-	-	Su/Mo	13/14	19:55	-	1:24	Th/Fr	24/25	22:16	-	4:53
Fr/Sa	04/05	-	-	-	Mo/Tu	14/15	19:53	-	2:35	Fr/Sa	25/26	23:10	-	4:53
Sa/Su	05/06	-	-	-	Tu/We	15/16	19:52	-	3:46	Sa/Su	26/27	0:06	-	4:54
We/Th	16/17	19:50	-	4:47										
Su/Mo	06/07	-	-	-	Th/Fr	17/18	19:49	-	4:48	Su/Mo	27/28	1:03	-	4:55
Mo/Tu	07/08	20:03	-	20:06	Fr/Sa	18/19	19:47	-	4:48	Mo/Tu	28/29	1:59	-	4:55
Tu/We	08/09	20:02	-	20:42	Sa/Su	19/20	19:46	-	4:49	Tu/We	29/30	2:56	-	4:56
We/Th	09/10	20:00	-	21:23						We/Th	30/01	3:52	-	4:57
Th/Fr	10/11	19:59	-	22:13	Su/Mo	20/21	19:44	-	4:50	Th/Fr	01/02	4:48	-	4:57
<b>Weekend</b>	<b>Sun</b>	<b>Sun</b>	<b>Mercury</b>	<b>Venus</b>	<b>Mars</b>	<b>Jupiter</b>	<b>Saturn</b>							
	<b>Set</b>	<b>Rise</b>	<b>Set</b>	<b>Vi</b>	<b>Rise</b>	<b>Vi</b>	<b>Rise</b>	<b>Vi</b>	<b>Set</b>	<b>Vi</b>	<b>Set</b>	<b>Vi</b>	<b>Vi=Visibility</b>	
	05/06	18:41	6:00	19:24	8	3:33	-3	0:45	1	4:09	-3	19:14	-	-3 brilliant
	12/13	18:31	6:05	18:51	-	3:46	-3	0:36	1	3:38	-3	18:49	-	0 conspicuous
	19/20	18:22	6:09	Rise:	-	3:59	-3	0:28	1	3:07	-3	Rise:	-	3 moderate
	26/27	18:13	6:13	5:17	8	4:12	-2	0:19	1	2:38	-3	5:34	-	6 naked eye limit
	03/04	18:04	6:18	4:55	3	4:25	-2	0:09	1	2:09	-2	5:11	6	9 binoculars limit

By Erich Karkoschka

### 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 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.

### Desert Skies Classified

FOR SALE	Meade 2080 8 inch Schmidt Cassegrain with an installed declination motor and the original case (trunk). Excellent condition. \$800 OBO. Joe Grisillo, 2sonjoe(at)att.net [09/09]
FOR SALE	Winer Observatory has acquired through a donation from an estate hundreds of telescope parts and accessories. All items are for sale at clearance prices. Items include a complete 20-inch Newtonian telescope on a Software Bisque mount, several carbon fiber tube assemblies (some including optics, some empty), FLI CCD cameras, filter wheels, focusers, spiders, secondary mirror holders, large binoculars, instrument rotators, eyepieces, photo accessories, much more. Please see <a href="http://www.winer.org">http://www.winer.org</a> or call Mark Trueblood at 520-455-9263 for details. [09/09]
FOR RENT	The residence at the TIMPA site will be available for rent in April. The house is a 3 bedroom, 1 bath. The rent is \$450/mo. but will be discounted \$100 if the renter is willing to empty the trash cans for TIMPA. They may have additional credits for other duties at the site. Please contact TIMPA President Mike Cummins at 299-0593. e-mail michael(at)mcummins.com
SERVICE	Green laser pointer need repair or tune up? Contact Donald Arndt at (415) 215-2409 or donaldja(at)pacbell.net. 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.

### TAAA Board of Directors Meeting - - August 12, 2009

**Attending:** Board members present (6): Ken Shaver (presiding), Luke Scott, Teresa Bippert-Plymate, John Kalas, John Croft, and George Barber. Members present (2): Bill Lofquist, Claude Plymate. Guests: Doug Isbell, Stephen Pompea

The president called the meeting to order at 6:35 pm.

Minutes from the July Board meeting were approved.

#### Upcoming Meetings

- September is the annual TAAA status meeting. Reports on various club activities including the SIGs, Dark Site, ALCON 2010, and IYA will be given. A Treasurer's report will be presented.

#### Announcements

- The White Sands Star Party will be held 11-12 September. This event will be added to the Master Calendar out-of-area events of interest.

#### Treasurer's Report

- Teresa Bippert-Plymate reported on budget line items for the period from January through July. The club is currently running slightly under budget.

### TAAA Board of Directors Meeting - - August 12, 2009 (cont.)

- Five new members joined in July.

#### Telescope Loan Coordinator

- Richard Dougall is stepping down as the telescope loan coordinator and a member to take over this position is needed. An article describing the responsibilities of the position will be included in the September newsletter.

#### Dark Site Development

- John Kalas presented a break down of Dark Site costs incurred from the start of the process. The current estimate for costs incurred to date is \$120,438.57.
- John also reported that the septic tank has been set and restroom construction is expected to start 13 August.
- Bill Lofquist presented an outline for the fund raising strategy meeting to be held on 15 August.
- John Croft submitted, for the Board's review and comment, a slide show on post-Phase 1 Dark Site development.

#### Astronomy Calendars

- A motion was entered by Ken Shaver and seconded by Teresa Bippert-Plymate to purchase 100 Astronomy calendars for \$650. The motion was approved unanimously.

#### Insurance

- The club received a binder for liability and construction rider insurance for the Dark Site.

#### Web Site

- It was noted that the newsletter e-mail notification process is working.
- Starting on October 1, the password required for access to the members section of the web site will be changed on a quarterly schedule. Members will receive the new password via e-mail.

#### International Year of Astronomy

- Doug Isbell and Steve Pompea discussed the IYA Galilean Nights event to be held on 22 – 24 October. The primary purpose of Galilean Nights is public outreach via sidewalk astronomy. The board discussed participation in the event by setting up scopes at locations around Tucson. Member participation will be solicited.
- Steve Pompea showed a Galileoscope telescope kit which is available for \$20 from the IYA website.

Meeting adjourned at 9:00 pm.

Respectfully submitted,  
Luke Scott  
Secretary

### TAAA ASTRONOMY COMPLEX

#### Phase 1 Construction Update

John Kalas - Construction Coordinator

Construction progress at the Astronomy Complex continues at a rapid pace. One correction from last month's report; The artesian pressure in the area pushed water up the well hole to a depth of 384 feet, not 280 feet. Since last month's report, the following tasks have been completed:

1. Sulphur Springs Valley Electric Coop strung the overhead power lines along E. Perseus Way, completed the electrical connections to the underground electrical system within the site and installed two electric meters; one at the well site and the other south of the bathroom facility. The TAAA will proudly be receiving its first electric bill shortly.
2. Peter Ammon installed the water lines from the well site to the bathroom facility and closed all trenches.
3. Peter installed a temporary pump system to deliver an unlimited supply of water to the bathroom facility area for use by Randy Maddox to construct the bathroom facility.
4. Peter excavated a large hole to accept the septic tank and, after a week's delay due to equipment failure of the tank delivery truck, the septic tank was installed on 8/17.
5. Valley Telephone Coop completed the hookup of all four cable towers at the site. This will allow for telephone and DSL high-speed internet service at the site, should the club elect to purchase it.
6. Peter "plucked" the vegetation from the west side of S. Price Ranch Road and hauled the debris onto the site for burning. He is waiting for some rain in order to complete the grading of S. Price Ranch Road.
7. Peter completed the grading of E. Perseus Way and it now looks like a dirt super highway. Beautiful!

### TAAA ASTRONOMY COMPLEX (cont.)

8. Randy Maddox installed the reinforced concrete footer for the bathroom facility. This most important facility is now underway and it should proceed rapidly.



**Temporary Well Set-up**

9. The tan concrete blocks and matching mortar were delivered to the site. The concrete parking space bumpers were also delivered.



**Bathroom Facility Concrete Blocks & Mortar Delivered**

10. Finally, on 8/21, the vegetation debris pile generated from the clearing of the site and both roads was burned. Sunsites-Pearce Fire Dept. had a truck present for the burn. What a spectacular bonfire; all mesquite and extremely hot!

The following tasks will be performed next:



**Sunsites-Pearce Fire Dept. On-Site for Burn**

1. Continued construction of the bathroom facility by Randy Maddox's crews.
2. Robert Crawford, Sam Rua and I will layout the entire parking lot to facilitate spreading of the gravel, determine locations for the parking bumpers as well as precise location of the two



**"Plucking" Vegetation from S. Price Ranch Road**

3. Construction of the two concrete handicapped parking spaces along with the walkway joining the parking spaces with the bathroom facility.
4. Trenching and construction of the septic system leach field by Peter Ammon.
5. Finishing of the construction of the well house and well pumping system by Peter Ammon.

**TAAA ASTRONOMY COMPLEX (cont.)**



**Septic Tank Installed**

Come to the September monthly meeting to get an even more up-to-date report on the progress with lots of photos. To help members gain a better appreciation of the project, a guided trip to the Astronomy Complex in mid to late September is being proposed for interested members. An announcement will be made at the monthly meeting and information will be sent out on the TAAA Forums list server.



**“Vegetation Debris Pile Burn  
(notice self-induced dust devil)”**



**Bathroom Facility Reinforced Footer Installation**

We hope you can attend. As part of the trip, we would plan to have lunch at Margie’s Corner Café in Sunsites. If there is significant interest in such a trip, we may schedule an additional visit.



**Concrete Parking Space Bumpers Delivered**

**A Report of the TAAA Dark Site Special Meeting  
By Ron Probst**

A special meeting to engage interested TAAA members in discussing the Dark Site was held at Steward Observatory on Saturday Aug. 15 2009. Eighteen members were in attendance, including several who were new to these discussions.

A **status update**, illustrated with many recent photos of the site, was presented. Phase 1 construction completion is expected in late October, with a dedication ceremony

### TAAA ASTRONOMY COMPLEX (cont.)

opening it for use in November following the required approvals by Cochise County. A daytime field trip to the site is planned for September or October, to introduce it to the many interested members who haven't been there.

A round robin of **attendee introductions** at this point showed the range of backgrounds of the members. There were engineers of various types, persons with experience in engineering contracts administration, business management, hydrology, fundraising, and organizational development, and a stray scientist or two. Clearly there is a lot of talent here to be drawn on as we bring this development to reality.

The **Phase 2 components** recommended by the Strategic Planning Group were presented along with a site map to scale showing the complete proposed development through Phase 3. These components are:

- Ten concrete public observing pads, nominally 10x10 feet, with electrical power
- A roll-off roof observatory for the 14-inch telescope donated by Wally Rogers
- An amphitheater/observing pad for the 18-inch Zajak telescope
- A ramada for outdoor education and evening events
- Storage, in the form of three modular steel shipping container-style units
- Four drive-through camper/RV sites
- A number of walk-in tent sites

Cost estimations are being done now for the Phase 2 components for presentation to the membership at the September meeting. For example, commercial packages are being priced for the 14-inch roll-off roof observatory. It is expected that Phase 2 will be funded by member contributions, and probably executed in stages as funds permit. Individual members may have components of interest to them and will want their contributions directed to these components. Phase 2 should cost substantially less than Phase 1, and within reach of internal fundraising. \$10 K in additional donations and pledges was raised in December 2008. This is being held as a Phase 1 construction reserve, with the suggestion that the residual go to this observatory as a significant early enabling capability for Phase 2.

The **Phase 3 components** were also presented: sleeping quarters, an education/activity center, a site manager residence, two additional club observatories, and member pads and member observatories. Most notable has been a change of emphasis, and of language, for major structures: from "clubhouse" to education center, and from "caretaker" to site manager for the residence. These redefinitions of functionality are more in line with our purposes and more grant-language friendly. External funds will be necessary to complete Phase 3. It may be more productive to think of it as a series of discrete projects which will be carried out as funding is obtained, rather than a single large "phase". The Strategic Planning Group has recommended that no Phase 3

components be initiated until Phase 2 is done. This is to maximize site utility for the greatest number of members as early as possible.

Our club construction overseer, John Kalas, repeated an important caveat about **construction methods and costs**: the site is not a private residential development. Under the terms of our Special Use Permit, all construction must be done by contractors with the appropriate commercial—not residential—licenses. This limits the pool of contractors, raises costs, and greatly constrains the possibilities for volunteer club labor. We can't just buy a building kit and go do a barn-raising to put it up, for example. We can do non-construction activities such as landscaping with club members' labor.

Two other points were made about **usage**. First, this will not be a wide-open site available to anyone at any time, like Las Cienegas (which is public land). Security and access control will require keying the gate, with a reservation and key checkout system. Second, due to our status as a nonprofit organization, private ownership of permanently installed features within the site will not be permitted. Private equipment may certainly be stored on site, but features such as observing pads or individual observatories may have to be handled with a leasing arrangement, regardless of how their construction was funded. These are issues for the Policies and Procedures Group, led by John Croft, to grapple with, within the constraints of the law.

There was **general discussion and brainstorming** with many ideas put forth at various times during this information exchange. Fundraising for both facilities construction and ongoing operations were major subjects, at times intermixed. Some suggestions were:

- Design for water collection and re-use. The natural slope of the parcel from east to west will help to enable this.
- Do a surface archaeology walk-through for artifacts before disturbing more areas of the site. This could produce a small on-site exhibit.
- A tiered dues structure could be one way to allocate upkeep costs among members who use the site at different levels of intensity.
- Per-use fees are another means, for example to recover electricity cost from RV users.
- Some members prefer a once-a-year flat rate; others prefer pay-as-you-go to cover operating costs. These are not mutually exclusive. Clearly an issue for Policies and Procedures!
- The 8.4-meter diameter amphitheater pad could be inscribed with smaller diameter circles commemorating other telescopes in the region, e.g. 4-m, 6.5-m, 1.6-m.
- A fundraising possibility is to "buy a mirror" by the square foot in this amphitheater design.
- Another is to sell star-shaped blocks for construction of pathways.
- A review of the top 200 Southern Arizona employers is suggesting organizations to approach. Raytheon is one;

**TAAA ASTRONOMY COMPLEX (cont.)**

the Border Patrol is another.

- The Yahoo user group site for Dark Site discussions needs to be reactivated and advertised to the membership.

**New TAAA Contribution Campaign to Begin with the September Meeting**

By Bill Lofquist

Two important points were made regarding **Phase 2 contributions by members**. First, one-time-and-I'm-done small contributions (~\$20), although well intended and gratefully received, won't get us there. We need contributions in the 3 and 4 figure range. However, second, regularly repeated small gifts do add up this level. So pledges of small amounts fulfilled at intervals to a larger total should be actively solicited as well. We need to maintain a continuous level of motivation among the membership for gifts large and small.

**Special purpose groups** are being formed and further member sign-up is encouraged, for Special Projects, Fundraising, Policies, and Landscaping components of the site development.

In order to raise the funds necessary for beginning Phase 2 of our dark site, we are kicking off the building campaign at our September General Meeting on September 4, 2009. Actually, we took the first steps in this campaign at the December, 2008 meeting. As a result of that announcement a total of about \$10,000 was donated to the Dark Site Fund. So we are on our way toward the next step.

As the Contribution/Pledge Form below indicates, Phase 2 will include the "Public Area" of the Complex. The idea is to build these components as the funds are available. At the September meeting we will present some ideas of the costs of the components. As they get built they will provide very nice facilities for members and guests to observe and enjoy our time at the Complex.

If you would like to contribute to the on-going development of the Complex, please use the form below to send your contribution to TAAA Treasurer, Teresa Plymate.

**TAAA Contribution/Pledge Form for Phase 2 of the Astronomy Complex**

Phase 2 of the development of the TAAA Astronomy Complex focuses on the components of the "public area" of the Complex. This includes 10 Observing Pads with electric service, a Roll-off Roof Observatory for our 14" scope, the Amphitheater, a Ramada, Storage Units, Camper/RV Sites and Tent Sites. These components will enhance our observing opportunities.

All contributions to TAAA are tax-deductible. Please fill in the information below and send it with your check, made payable to TAAA. Send it to Teresa Plymate, TAAA Treasurer, PO Box 41254, Tucson, AZ 85717. Please indicate on your check that it is a contribution to the TAAA Dark Site.

Thank you very much.

<b>Name</b>		<b>Contribution Amount:</b>	
<b>Address</b>			
<b>City</b>	<b>State</b>	<b>Zip</b>	
<b>Telephone</b>	<b>Email</b>		

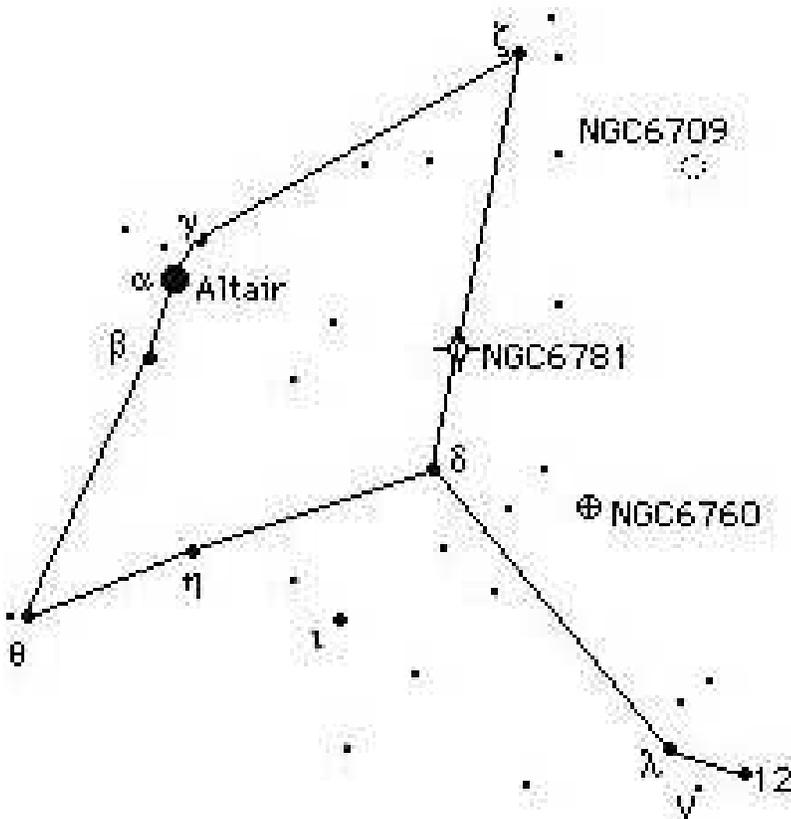
If you would prefer to make a pledge over time, please indicate your preference for spreading out the payments.

## Constellation Report by Chris Lancaster

### Aquila

The Eagle

The constellation of Aquila dates back to about 1200 BC. It was then that early astronomers began seeing it as a bird or, more specifically, the eagle, which was something of a companion or servant to the ruler of the gods, Zeus. Aquila held Zeus's thunderbolts until he decided to use them, and the eagle went to Mount Ida on Zeus's orders to kidnap a young shepherd called Ganymede and bring him to Olympus so he could serve as the gods' cupbearer. In the Far East, Altair, the brightest star of the constellation, represented a royal herdsman who began neglecting his duties when he fell in love with a young maiden, herself preserved in the sky as the star Vega. The sun god, who was the maiden's father, took displeasure in this and separated the two by placing them on opposite sides of a mighty river, and this was the reason given to explain why Altair and Vega appear on opposite edges of the "river" which we call the Milky Way. In addition, Indian folklore describes some of Aquila's stars as the footprints of the god Vishnu. It's not surprising that Aquila's distinctive shape and bright stars have produced such stories among these widely separated cultures.



The individual stars which shine among the star fields of the Milky Way, along which Aquila flies, include Altair, of spectral type A7 IV-V, magnitude 0.8, and a mere 17 light years away. Altair forms one corner of the pattern called the Summer Triangle. (Deneb in Cygnus and Vega in Lyra comprise the other two corners of the triangle.) To the south lies Eta Aquilae, which is a member of the class of giant variable stars called Cepheid variables. Its magnitude changes from 3.7 to 4.5 every 7 days and 4 hours, and in the process undergoes a change in spectral type from G2 to F6. Near the tail of the eagle, approximately one degree to the southwest of Lambda Aquilae, is V Aquilae. This is another variable star ranging between magnitudes 6.6 and 8.4, but what sets this star apart from the others is its deep red color. Its surface temperature is less than 2000 degrees K, which classifies it as a star of spectral type N. Point your telescope in its direction and you should be able to easily distinguish it by its color. It lies at the end of an arc of 7th and 8th magnitude stars curving away from 4th magnitude 12 Aquilae.

Although Aquila does not contain any bright Messier objects, it is, however, host to some deep sky targets which are observable through small telescopes, provided you have dark skies.

One of these is NGC6709, a magnitude 7.5 open cluster located 3.5 degrees south and 14' west of Zeta Aquilae (RA: 18h 51' 29" Dec: +10d 21' 01"). About 30 to 40 stars reside in this modest cluster. NGC6781, one of the 11 planetary nebulae within Aquila, is more of a challenge and can be found about 3/4 of the way along a line drawn from Zeta to Delta Aquilae (RA: 19h 18' 20" Dec: +6d 30' 00"). This is one of the larger and brighter planetary nebulae in this region, but still no brighter than 11th magnitude. It appears as a neatly circular smudge of light about 4 minutes of arc in size. A 6" or larger scope is required to make this dim nebula obvious, although it can just be discerned in instruments as small as 80mm.

Another 11th magnitude object nearby is NGC6760, a globular cluster 2 degrees south and 15' west of Delta Aquilae (RA: 19h 11' 10" Dec: +01d 01' 42"). Use magnification of 80x or more to bring this small globular into view.

There is much more to discover within the boundaries of Aquila. Arming yourself with a medium sized telescope and a good star chart may keep you scrutinizing Aquila for hours.

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.