

# *Desert Skies*

*Tucson Amateur Astronomy Association*

Volume LVI, Number 2

February, 2010



Official Dark Site Name: Chiricahua Astronomy Complex

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**Cover Photo:** The finished Phase 1 officially named Chiricahua Astronomy Complex. Photo by John Kalas.

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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, TAAA Astronomy Complex, 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

We have had a great start to 2010. The Chiricahua Astronomy Complex had some obstacles to work around but is once again moving forward. I would like to acknowledge all of the effort and dedication by John Kalas in resolving these issues as well as the quick response and cooperation from our contractor Randy Maddox. Thank you everyone. We should be able to obtain the permits need to open the facility soon.

Even though the International Year of Astronomy has officially come to an end, there are still events taking place that are a direct result of the IYA. We recently participated in the Math Moves U event at the U of A. This Raytheon sponsored program involved volunteers from Raytheon, NOAO and TAAA where we helped 500 Middle School students build Galileo scopes. Thank you to everyone who showed up to help make this event a huge success. I would especially like to thank David Acklam for organizing and coordinating the volunteer activities.

The ALCon2010 planning committee has put together what promises to be a convention to remember. The web site is updated with all of the latest information and on-line registration is now available. If you do not have access to a computer, you will also find the registration

form and information in the next *Reflector*, the Astronomical League newsletter. We have a great list of speakers, activities and sponsors so don't miss out. It is not often we have an event of this caliber in our own backyard.

Finally, I would like to Thank Paul Moss for his years of dedication as our School Star Party Scheduling Coordinator. His schedule has required that he step down from his position but I would like everyone to join me in thanking him for his years of outstanding service. This is a very important position for TAAA as our School Star Party program is at the heart of our club's mission of public outreach. We will need to fill this position as soon as possible. If you have been looking for a very rewarding activity to help the club with, we would like your help. Please see the article within this newsletter that describes the duties and responsibilities of this position.

Dark Skies,

Ken Shaver  
TAAA President

### Meeting Information and Calendar of Events

**TAAA MEETING DATE:** Friday, February 5, at the Steward Observatory Auditorium - Room N210

**ASTRONOMY ESSENTIALS:** 6:30 pm

Title: GLOBE at Night  
Speaker: Connie Walker

Everyone is a citizen of the world. At some level, we should all be its stewards with accountability toward preserving its environment. One component of that is the preservation of dark skies or the prevention of light pollution. The preservation of dark skies is important for many reasons including astronomy, energy conservation, cost, safety, wildlife and even human health. The GLOBE at Night program endeavors to bring about awareness of these issues through a yearly 2-week campaign. This campaign enlists the help of people to record the brightness of the night sky in their community by matching its appearance toward the constellation Orion with star maps of progressively fainter stars. People submit their measurements on-line and a few weeks later a resulting map of light pollution levels worldwide is created. Over the last 4 annual 2-week GLOBE at Night events, 35,000 measurements have been contributed from over 100 countries. The upcoming campaign takes place March 3 -16, 2010. For more information on GLOBE at Night, visit [www.globeatnight.org](http://www.globeatnight.org).

**GENERAL MEETING:** 7:30 pm

Title: Presentations by the TAAA Astro-Imaging SIG

Astronomers have been interested in creating images of celestial objects since 1839, when the first photograph of the moon was taken by Louis Daguerre. Technology has changed, but the thrill of obtaining astronomical images is still as powerful as ever. Whether taken for scientific pursuits or simple "eye-candy" pleasure, whether obtained with a space telescope or a basic refractor, astronomical images always provide us with a better understanding of the amazingly beautiful universe available to us all.

The TAAA is fortunate to have members at all levels of imaging expertise, from newcomers to experienced amateurs. The Astro-Imaging SIG meets monthly to share ideas and encourage each other in this sometimes frustrating, sometimes exciting, but always rewarding aspect of our hobby. Our February meeting will be hosted by the SIG. Be prepared to learn about the latest imaging techniques, to see some stunning astro-images, and maybe even see some astronomical objects that you never even knew existed!

**BOARD OF DIRECTORS MEETING:** Wednesday, February 10, 6:30 pm. The meeting is held at Steward Observatory Conference Room N305.

## Meeting Information and Calendar of Events (cont.)

### STAR PARTIES AND EVENTS:

01 Feb - Astro-Imaging SIG at China Rose  
 03 Feb - St. Michael's Parish Day School Star Party  
 06 Feb - TAAA and AF-SIG Star Party at TIMPA  
 10 Feb - Lauffer Middle School Star Party  
 11 Feb - Dunham Elementary Star Party  
 11 Feb - Astronomy Fundamentals SIG  
 12 Feb - Pueblo Magnet HS Star Party  
 13 Feb - Pima County Natural Resources Star Party  
 13 Feb - TAAA Star Party at Las Cienegas

17 Feb - Prototron Circuits Star Party  
 17 Feb - Twin Peaks ES Star Party  
 18 Feb - Booth-Fickett Magnet Star Party  
 19 Feb - Amphi Middle School Star Party  
 27 Feb - SM-SIG Workshop

**NEWSLETTER SCHEDULE:** Deadline for articles: Sat, February 20. The newsletter is published at least one week prior to the following month's General Meeting.

## Club News

### Member News

We welcome these members who have recently joined the TAAA: Mike Laskowski and William Silvey. 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.)

### Paul Moss Stepping Down School Star Party Coordinator Position Open By Terry Lappin

Paul Moss, after 5 years of dedicated service to the TAAA school star party program, will be stepping down as the program's coordinator. Paul has been our main contact point for teachers and other community leaders who request star parties from the TAAA. He has played a vital role in essentially every star party during the past 5 years, outside of our TIMPA and Las Cienegas events. Each TAAA member and literally thousands of youth and adults have Paul Moss and Roger Schuelke, our volunteer coordinator, to thank for those star parties. We would not have the successful program that we do without the dedication and enthusiasm of both Paul and Roger. Be sure to thank Paul personally for his 5 years of service to the TAAA

With the resignation of Paul, we are looking for an individual who can work closely with teachers and other youth leaders to coordinate the scheduling of star parties. This individual will need good organization and communication skills. Most contact comes through phone and email. The most difficult part of the job may be denying a star party because our schedule fills. The coordinator makes sure that specific conditions have been met by the school. In particular, the school contact needs to provide directions to the school and instructions about where the telescopes will be set up. Once all is in place, an announcement is written for the newsletter and the webpage. The final step in the coordinator's role is

making the sign up sheets for the meeting. Assuring that we have enough volunteers for the events is Roger's job.

Paul Moss, or any board member, can give you more information about this very important position that needs immediate filling.

### Nominating Committee

It's that time of the year again when the club must select three members to serve on the nominating committee. The responsibility of the committee is to find capable candidates for the offices of President, Vice-President, Treasurer, Secretary, and Members-at-Large (3) for the next elections in May. Anyone interested in being considered for the Nominating Committee may volunteer at the February monthly meeting on 2/5 or contact any current board member.

### Astro-Imaging SIG Meeting

Monday, February 1, 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, February 11

At the next AF-SIG meeting on February 11<sup>th</sup> Terri Lappin will be our guest speaker and she will discuss the Starry Messenger SIG and their concept about workshops, NSN kits and getting people into outreach. Ben Bailey will be making a presentation on pronunciation of astronomical objects. Also, there will be a discussion of the Greek alphabet. Come and join us for an interesting discussion.

**Club News (cont.)**



**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.

it works, and the various features you can see when observing in white light and hydrogen-alpha. During the workshop, to be held on Saturday, March 13 at TIMPA, you will make and use a white-light solar filter for your telescope, at a very modest cost. This will be followed by an afternoon solar observing session.

To help us prepare, please sign up at the next TAAA meeting, or email George Barber (mall[at]tucsonastronomy.org) or Dennis Dawson (dennisldawson[at]gmail.com). Let us know the aperture and type of telescope you plan to use, so that we can plan to have enough Baader film for everyone's scope. Or, you can obtain the adequate amount yourself and bring it to the workshop.

**Introduction to Fundamentals of Astronomy**

The AF-SIG is once again going to be offering its popular "Introduction to Fundamentals of Astronomy".

This will be happening in the fall - October 23, October 30 and November 6.

Over the span of those three Saturdays we will cover Basic Astronomy, Equipment Basics and Observing Basics. As you can see, this is a power-packed three days and we need your help. We are looking for enthusiastic women and men to assist our outstanding teachers in their presentations. Experience is welcome but not necessary. There will be at least 2 orientation and training sessions before the main event.

If you love astronomy and you are willing to be a part of this educational and fun event please contact me (Bob Gilroy) at fundamentals[at]tucsonastronomy.org.

**Upcoming Lectures**

Mar 5	<i>Invited Lecture</i>	Amateur Backyard Observatories Various presenters
Apr 2	<i>Astronomy Essentials</i>	Seasonal Objects
	<i>Invited Lecture</i>	Native American Astronomy Dr. Carol Locust
May 7	<i>Astronomy Essentials</i>	Member's Night Meeting starts at 6:30pm No Astronomy Essentials Lecture

**Astronomy Fundamentals Special Interest Group**  
Solar Observing Program at March 11 AF-SIG meeting

Dennis Dawson and George Barber will be leading a solar observing workshop for the AF-SIG in March. The workshop will focus on how to safely observe our nearest star. The March meeting will concentrate on our Sun, how



**Night Sky Network Toolkits**

Below is a list of our Night Sky Network Outreach Toolkits. The Night Sky Network program recognizes the essential



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## Club News (cont.)

role that amateur astronomers play in public astronomical education. The toolkits, developed by the Astronomical Society of the Pacific under contract with NASA, are meant for use at star parties, either during the early evening hours or after dark. They are also great options for those questionable, cloudy nights. With each use of a toolkit we are closer to qualifying for the next toolkit which has been rumored to be about comets.

**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

**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.

**GLOBE at Night:** light pollution principles

**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 essential materials. Each toolkit includes a Resources CD and a training DVD, which you get to keep. Individual training in their use is available.

Please make arrangements with Terri Lappin to borrow any toolkit.



Starry Messengers SIG -  
Opening Minds to the Universe

Starry Messenger Workshop      Saturday, February 27  
Steward Observatory Room N305      9am - noon

Membership interest and support in the Starry Messenger SIG is growing. Each month more inquiries about the Starry Messenger SIG are made. Members are offering their assistance for the SIGs projects... Loretta and Terri appreciate this and see it as evidence that the membership desires what the SIG has to offer.

This month the Starry Messenger SIG is offering a morning workshop on Saturday, February 27th. We are building the workshop around the *Telescopes - Eyes on*

*the Universe* Night Sky Network toolkit. We will venture outside the visible part of the spectrum just enough to give our members a better understanding of scientific research being conducted by professional and advanced amateur astronomers. Participants will leave the workshop with a better grasp on radio, infrared, ultraviolet, x-ray, and gamma ray astronomy. Don't worry if this sounds all too advanced. With only 3 hours to work with, we won't go into much detail - just enough so you will know why these wavelengths are important and where amateurs are able to make useful contributions. In addition, our database of objects for public star parties should be well on its way to reality by the time of the workshop. Loretta will give us an update on that project. The workshop will start at 9am and end at noon. A sign up sheet for the workshop will be at the Feb 5th meeting, or send an email to [smsgig\[at\]tucsonastronomy.org](mailto:smsgig[at]tucsonastronomy.org). There is no charge for this workshop. For more information, contact Terri or Loretta (see page 2 for contact info.)

Please remember to support at least one of the 9 community star parties scheduled this month. They are well scattered across the city so you should find one near your home or work. If you will miss the February 5th meeting, contact Roger Schuelke so he knows which event you will support. See page 2 for his contact information.

Over the next few months, the TAAA will be participating in two major outreach events. The first one is the Tucson Festival of Books on March 13 and 14. We will have some of the Night Sky Network toolkits at this event. This is a daytime event, so we'll also have a few solar telescopes. At last year's event 50,000 people attended and this year it's expected to be more. In April, the TAAA will once again support the Sharing the Sky Star Party. We'll have some daytime hands-on activities for kids and adults, solar telescopes, and an evening of observing. Since we hope our Starry Messengers will be supporting these two outreach events, we do not plan to meet as a SIG during the months of March and April.

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. By virtue of involvement in the TAAA's astronomy outreach programs, you are considered a member of the Starry Messenger SIG. The Starry Messenger SIG is currently led by Terri Lappin and Loretta McKibben. If you are interested in becoming a Starry Messenger leader, talk to Terri or Loretta. The SIG leaders write newsletter articles, plan workshop and meeting activities, and contribute to the planning of outreach events.

#### New Astronomical Object Descriptions

Do you have a favorite way to describe the planet Saturn to the public at star parties? Or the Sombrero Galaxy? We need YOU to help the Starry Messenger SIG build a web-

### Club News (cont.)

accessible archive of Star Party Astronomical Object Descriptions.

Why do this? As amateur and professional astronomers, TAAA members have always reached out to the community and shared their knowledge. This archive will be a convenient web-based resource, a knowledge base, for anyone who wants to correctly describe astronomical objects when working with the public. It will be useful for amateur astronomers new to working with the public, and even the seasoned expert can quickly and easily find, view, print, and use them using the TAAA web pages.

The TAAA Web Team, led by Terri Lappin, is working on creating the special web pages ready on the web site to store and manage the descriptions. A prototype will be released in the next few months, so we need descriptions to populate the archive. To contribute, let us know which of your favorite objects you would like to describe. Or, if you would like for us to choose the objects, let us know. Then the Starry Messenger SIG will send to you a sample description, guidelines for writing the main description for each object (which should be about 1 minute long when read aloud), as well as information on the database entries, and the editing and approval process.

What facts does the public enjoy most about an object? How is it best described to a patron at a star party? Here is your chance to help create a wonderful repository of TAAA knowledge and experience. Please send an email to [tucsonastronomer@gmail.com](mailto:tucsonastronomer@gmail.com) or contact me or Terri Lappin if you want further information and are interested in contributing. We need your help. Thanks!

-Loretta McKibben  
[tucsonastronomer@gmail.com](mailto:tucsonastronomer@gmail.com)  
 TAAA Starry Messengers SIG Co-founder  
 TAAA Web Team Programmer and Member

### Starry Messenger in our Midst

George Barber

How many of us can say we are never bored? For George



Barber, it seems easy. Just consider his hobbies. Many of us have seen his photos and videos from his SCUBA diving trips. He's traveled to many beautiful places around the world. He collects minerals he's found at the Tucson Gem and Mineral

Show. He enjoys watching movies and playing *Monopoly*. If all that's not enough, there's also his interest in astronomy. Wow! What an interest he has!

George was born and raised in the Lansing, Michigan area. His childhood was spent living in a rural area next door to a dairy farm. Whether it was the easy access to a dark night sky, the *Apollo* moon missions, or the NASA *Pioneer* and *Voyager* space missions, George's interest in science and astronomy was firmly established early in his life. In middle and high school, he read every astronomy book he could get his hands on. He took many advanced science classes in high school. He didn't have a telescope, but he had binoculars. He remembers a trip to Tennessee where he borrowed a relative's binoculars and could see the moons of Jupiter. George says, "Mostly, though, it was the vast beauty of it all that absorbed me."

Always interested in how things worked, George knew early on that he wanted to become an engineer. After obtaining a Bachelor of Science in Electrical Engineering from Michigan State University in 1980, he landed a job in Fort Worth, Texas, where he worked 18 years with automated test equipment for the defense industry. Oddly, George didn't do much astronomy in Fort Worth. But one day, he says, "I literally had an awakening...I suddenly realized that "Hey, I have enough money to afford a really good telescope!" That's when I purchased my Meade LX-10, and engaged the hobby of amateur astronomy." He was a member of Fort Worth's astronomy club for two years and then had the opportunity to change employers and come to Tucson.

George had already joined the TAAA when he moved here in 1999. His first TAAA activity was a Perseid Meteor Shower watch at TIMPA. George has been Editor of *Desert Skies* for many years. He has been a TAAA board member, serving as a Member-at-Large, for the past three years. He has given some of our Astronomy Essentials Lectures and has been a presenter at some of the AF-SIG meetings and classes. He also gives presentations at other events such as the Grand Canyon Star Party. Imagine his surprise when after one of those lectures, a member of the audience complimented him on the lecture saying that he really enjoyed it. In chatting with this person, George learned it was science fiction writer Ben Bova with whom he was speaking!

George is an active participant in many of our outreach activities. In addition to the school star party program, he has been a Project ASTRO partner for 5 years. He is currently working with a class at Picture Rocks Intermediate School. He's also working with a group of students at Maxwell Middle School. He has used the Night Sky Network *Black Hole Survival Toolkit* more often than any TAAA member. His dedication to teaching school kids extends all the way to Boston, MA where his sister teaches. Twice now, he's taken the toolkit to Boston. What do the airport authorities think of someone packing lead weights in their suitcase? George's TAAA activities aren't enough...George also volunteers as a telescope operator for Flandrau. He's also a member of the Green Valley Astronomy Club, and the Sedona *Sirius Lookers*.

Why does George support astronomy outreach programs?  
 George's response:

### Club News (cont.)

First of all, it's fun! It's a chance to meet people, and to share something truly unique. When I am engaged in a star party (or other activity), I am passing on the wonder of discovery. For every person who looks through an eyepiece, there is something there which they have most likely never seen. I think that people have a natural curiosity about the universe around them, and even a need to experience it. The activities that TAAA conducts give people a chance to see the larger world around them. I enjoy the opportunity to learn about astronomy and the Universe, and I want to share that with others. In my opinion, we all need a break from the mundane and everyday, a chance to encounter the larger, natural world we really live in. Astronomy lets you literally look up and wonder.

His main telescope for public observing is his 8" Meade LX-10 Schmidt-Cassegrain. He matches that with his 31mm Nagler eyepiece, giving a great wide-field view that is well-matched for open clusters and extended objects. Easy set up/take down and a clock drive make this an excellent choice. It isn't computerized, but George quickly finds objects suitable for public observing using a Telrad.

If you aren't yet involved in outreach programs, give thought to why the TAAA school star party program is important to George.

Since I don't have the disposition to enter politics, I consider my volunteer activities one of the most

positive ways I can influence the future and change the things I don't like. We are in the midst of a budget crisis for education, with cutbacks on some of the things I consider important. If each of us can volunteer even a short amount of time and expertise, we can give the students, and adults, opportunities that would otherwise never happen. I still remember a time, when I was in high school, that a representative from *Dow Chemical* came and gave a demonstration in the auditorium. I ate it up! Each of us, by volunteering, has the chance to make that kind of a positive impression on a young mind. Who knows what may someday result?

George encourages anyone who enjoys looking at objects through their telescope, and talking about astronomy, to give a school star party a try. He suggests starting with a smaller school star party. He says, "With fewer 'customers', there will be less pressure, and you will feel more at ease." Maybe sign up with a TAAA member you know; there are a lot of knowledgeable members who are willing to help you with your first event. Then, pick just two or three objects for an evening; learn about them and how to place them in your telescope. George believes you will find it to be an exciting chance to learn and share.

George certainly is dedicated to the TAAA. Give him thanks for so much he offers to us and to our community.

### Member Events

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

Saturday, 06 February

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. 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 cold temperatures. Directions to the TIMPA site are located on the outside flap of this newsletter.

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

Saturday, 13 February

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.



### Items of Interest

#### Websites: Trips On The Internet Super-Skyway

By Rik Hill

We have had a lot of cloudy weather these last few months that has frustrated observers, particularly solar amateur astronomers as there has been some low level activity. Have you ever thought of getting into radio astronomy, even in a simple manner? I have found a lot of websites that will get you inspired and on your way.

An excellent overview page is located at:

<http://www.starkenburg-sternwarte.de/radio/links.htm>

I liked all the imbedded links covering a wide range of types of observing, equipment, clubs and other resources.

To get the uninitiated started there's a nice FAQ at:

<http://www.radiosky.com/faq.html>

This will familiarize you with terms and issues connected with radio observing.

A page just containing a large list of links to all sorts of radio astronomy activities, clubs, schools and such is posted at:

<http://www.radiosky.com/rsplinks.html>

This webpage gives step-by-step how to use off-the-shelf components for the electronically challenged:

<http://phoxes.com/Classroom/tabid/54/EntryID/9/Default.aspx>

[Default.aspx](http://phoxes.com/Classroom/tabid/54/EntryID/9/Default.aspx)

One point here though. If you use an off the shelf receiver, make sure it does not have any automatic gain or squelch control. This will kill any noise between broadcast stations. It's the noise you will be trying to pick up!

A tutorial on building equipment is found at "Purdie's Amateur Radio Tutorial Pages":

<http://my.integritynet.com.au/purdic/radio-telescope.htm>

This link is for the electronically adept.

For those that have some familiarity with electronics and electronic components we have one website that will take you through steps on building a receiver with a TV tuner:

<http://www.mtmscientific.com/radiotelescope.html>

There's a good collection of links to other radio astronomy websites at the bottom of the page.

Solar observing (especially for type III flash activity of flares, which precedes the optical flares by 5-10 min.) is

one of the easiest types of radio observing. You can see and hear these at:

<http://www.radiosky.com/suncentral.html>

These can be observed directly and/or by their effects on radio propagation in our upper atmosphere.

Jupiter observing is perhaps the second easiest type of amateur radio astronomy. The Radio JOVE Project (NASA) gives good instruction on how:

<http://radiojove.gsfc.nasa.gov/>

and the Society of Amateur Radio Astronomers has a good page for Jupiter observing at:

<http://www.radiosky.com/rjcentral.html>

as does Bob Greef with the Norwich Astronomical Society and Breckland A.S.:

[http://www.ukaranet.org.uk/uk\\_amateurs/bobgreef/](http://www.ukaranet.org.uk/uk_amateurs/bobgreef/)

A PDF file of an article on Jupiter observing, from Radio User magazine, is posted on line as well:

<http://www.reeve.com/Documents/RadioScience/Jupiter%20Complete.pdf>

Lastly, you can get involved in radio meteor observing. A good overview on the subject from the International Meteor Org. is posted at:

<http://www.imo.net/radio>

with lots of links to other radio meteor sites.

The Radio Meteor Observers Bulletin is "is an independent initiative of some workers in the field of radio meteor scatter observations and data reduction". It is an informative bulletin at:

<http://www.rmob.org/index.php>

They have a "latest news" RSS page at:

<http://217.169.242.217/rmob/data/newsen.xml>

The Jordanian Astronomical Soc. is very active in this branch of astronomy. They have built a very good website with a large number of links at:

<http://www.jas.org.jo/radio.html>

So now you have a reason to turn off the TV (unless it's football of course) and turn on the radio on those cloudy days and nights!

As always, if you know of a particularly good website, or silly ad, you would like to mention here, drop me a line at [rhill\[at\]lpl.arizona.edu](mailto:rhill[at]lpl.arizona.edu).

### 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.

**St. Michael's Parish Day School Star Party**      **East**  
Wednesday, 2/3/2010      No. of Scopes: 5

St. Michael's Parish Day School will be preparing for Band Concert and Star Party for an estimated attendance of 150 students and parents at 602 N Wilmot. Travel East

on Speedway; South on Wilmot, East on 5th Street into parking lot of St. Michael's Parish Day school. Viewing will be in the park behind the school (Harold B. Wright Park). Contact person Haley Campbell can be reached at 722-8478 or email [hcampbell@stmichael.net](mailto:hcampbell@stmichael.net). Alt. Contact: Judi Breault, Cell: 780-1254, E-mail:

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

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.

[jbreault@stmichael.net](mailto:jbreault@stmichael.net). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 8:30 pm. Sunset: 6:03pm Dark Sky: 6:58pm Moon Phase: (no moon during viewing).

**Lauffer Middle School Star Party**      **South-Central**  
Wednesday, 2/10/2010      No. of Scopes: 4

**Lauffer Middle School** will be preparing for Star Gazing for an estimated attendance of 100 students and parents at 5385 E. Littletown Road. Speedway to I-10 East, Exit at Valencia Road, East on Valencia Road to Little Town Road, East on Little Town Road ¼ mile, school first left. Viewing will be on the north soccer field. Contact person Kristina Gregg can be reached at 520-545-4940 or email [kristinag@susd12.org](mailto:kristinag@susd12.org). Alt. Contact person Ava Bemer can be reached at 520-790-4154 or email [avab@susd12.org](mailto:avab@susd12.org). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 8:00pm. Sunset: 6:10pm Dark Sky: 7:04pm Moon Phase: (no moon during viewing).

**Dunham Elementary Star Party**      **East**  
Thursday, 2/11/2010      No. of Scopes: 3

**Dunham Elementary** will be hosting Family Science Night for an estimated attendance of 75 students and parents at 9850 E. 29th St. East on Speedway to Harrison; turn south on Harrison; head south on Harrison to 29th Street; turn east on 29th and go east about 3 blocks; Dunham Elementary is at 9850 E. 29th St. on the south side of the street. Viewing will be on the main playground. Contact person Martha West can be reached at 731-4200 or email [Martha.West@tusd1.org](mailto:Martha.West@tusd1.org). Alt. Contact person Virginia Blee can be reached at 400-2103 or email [virginia.blee@tusd1.org](mailto:virginia.blee@tusd1.org). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 9:00 pm. Sunset: 6:10pm Dark Sky: 7:05pm Moon Phase: (no moon during viewing).

**Pueblo Magnet HS Star Party**      **South**  
Friday, 2/12/2010      No. of Scopes: 6

**Pueblo Magnet HS** will be holding a Star Party for an estimated attendance of 250 students and parents at 3500 South 12th Avenue. South on I-10 to I-19. Exit on Ajo Way; turn left. East on Ajo Way to 12th Avenue; turn left. North on 12th; turn left. Viewing will be on the football field. Contact person Lolly Levine can be reached at 520.225.4300 or email [lolita.levine@TUSD1.org](mailto:lolita.levine@TUSD1.org). Alt. Contact person Stacey Litvak can be reached at email [Stacey.litvak@TUSD1.org](mailto:Stacey.litvak@TUSD1.org). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 9:00 pm. Sunset: 6:11pm Dark Sky: 7:05pm Moon Phase: (no moon during viewing).

**Pima County Natural Resources Star Party**      **West**  
Saturday, 2/13/2010      No. of Scopes: 3

**Pima County Natural Resources** will be planning Night With the Stars 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 miles. We'll set up near the restrooms. 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). Alt. Contact person Wendy Burroughs can be reached at 520-240-4825 or email [wendy.burroughs@pima.gov](mailto:wendy.burroughs@pima.gov). Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 9:00 pm. Sunset: 6:12pm Dark Sky: 7:06pm Moon Phase: (no moon during viewing).

**Prototron Circuits Star Party**      **South-Central**  
Wednesday, 2/17/2010      No. of Scopes: 4

**Prototron Circuits** will be holding Az Technology Council for an estimated attendance of 50 people at 3760 E. 43rd Place. From Speedway, go south on Alvernon. Stay Left after 29th Street and exit to S. Palo Verde Rd. Proceed .3 miles and turn left at E. 44th Street. Drive .2 miles and turn left on S. Dodge. Take first right on E. 43rd Pl and continue to address 3760. Viewing will be Parking Lot in front of Prototron Circuits. Contact person Kevin Pizzuto can be reached at 520-745-8515 or email [KevinP@prototrons.com](mailto:KevinP@prototrons.com). Alt. Contact person Ken Shaver can be reached at 520-990-3914 or email [eye-soar@vailaz.com](mailto:eye-soar@vailaz.com). Set-Up Time: 6:45pm. Observing will be from 7:15 pm to 9:15 pm. Sunset: 6:16pm Dark Sky: 7:09pm Moon Phase: Crescent.

**Twin Peaks ES Star Party**      **Northwest**  
Wednesday, 2/17/2010      No. of Scopes: 6

**Twin Peaks ES** will be preparing for Stellar Science Night for an estimated attendance of 250 students and parents at 7995 W. Twin Peaks. Take I-10 north. Take exit #246 onto N. Casa Grande Hwy toward Cortaro Rd. Turn left on W. Cortaro Farms Rd. W. Cortaro Farms Rd becomes Cortaro Rd Ramp. Bear right on Cortaro Rd. Turn right on N Silverbell Rd. Turn right on Twin Peaks Rd. Viewing will be in the courtyard. Contact person Monica Baden can be reached at 579-4750 or email [m.f.baden@maranausd.us](mailto:m.f.baden@maranausd.us). Alt. Contact person Jacque Thompson can be reached at 520-403-5988. Set-Up Time: 6:30pm. Observing will be from 7:00 pm to 8:30 pm. Sunset: 6:16pm Dark Sky: 7:09pm Moon Phase: Crescent after New Moon.

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

**Booth-Fickett Magnet Star Party** **Central**  
 Thursday, 2/18/2010 No. of Scopes: 6

**Booth-Fickett Magnet** will be hosting Science Fair/ Math Night for an estimated attendance of 350 students and parents at 450 S. Montego Drive. Head east on Broadway to Kolb turn right (south). Go 2 blocks to Calle Arturo (first street that you can turn left on off of Kolb-- you'll see the big school marquee), turn left (east), go about 2 blocks. There will be a marked gate on your right. Viewing will be outside the Math/Science Center. Contact person Scott Seidler can be reached at 731-3887 or email [Scott.Seidler@tusd1.org](mailto:Scott.Seidler@tusd1.org). Alt. Contact person Ed Goldberg can be reached at 403-0808 or email [Edward.Goldberg@tusd1.org](mailto:Edward.Goldberg@tusd1.org). Set-Up Time: 6:45pm. Observing will be from 7:00 pm to 8:00pm. Sunset: 6:17pm Dark Sky: 7:10pm Moon Phase: Crescent.

**Amphi Middle School Star Party** **Central**  
 Friday, 2/19/2010 No. of Scopes: 2

**Amphi Middle School** will be planning Science and Engineering Fair Night for an estimated attendance of 50 students and parents at 315 E. Prince Rd.. From Speedway, take Stone north 2.5 miles to Pastime (two blocks north of Prince), turn right (east). Halfway down the block on right side is entrance to football field (between Stone and 1st). The gate will be unlocked for you. Viewing will be Play-ground between the baseball fields and the tennis courts on the east side of the school. Contact person Aaron Miller can be reached at 520-696-6285 or email [amiler@amphi.com](mailto:amiler@amphi.com). Alt. Contact person David Torres can be reached at 520-743-2289 or email [dtorres@amphi.com](mailto:dtorres@amphi.com). Set-Up Time: 6:45pm. Observing will be from 7:15 pm to 9:15 pm. Sunset: 6:17pm Dark Sky: 7:11pm Moon Phase: First Quarter.

**Desert Skies Classified**

Wanted	Used research-grade CCD camera. Thinking about upgrading to a newer, better CCD camera? Let me help by buying your old one! Preferences for USB 2.0 data/control connection, 1 1/4" nosepiece included, minimum array size 512x512, max pixel size 15 microns, 100,000 electron well, 16-bit, low noise, thermoelectric cooling, decent software control. Something similar to the SBIG ST-402ME would be ideal. Email Mark Meanings at cosmiclettuce AT yahoo DOT com. [05/10]
FOR SALE	Coronado P.S.T (Personal Solar Telescope). Includes eyepiece, very nice case, Orion equatorial tripod with manual slow motion controls. Asking \$450. Contact Lyle Kolze, (608) 346-5957, lkolze[at]yahoo.com [05/10]
FOR SALE	Classic criterion dynascope 6" f8 telescope with German eq mount \$200. celestron 8" wedge \$100. Steve, 975-0098. [05/10]
FOR SALE	ETX-80 beginners 80 mm go-to refractor used twice. Includes tripod, two eyepieces, erecting prism, two books, star chart, planisphere, and backpack. \$220. Byron 520-647-7836. [03/10]
FOR SALE	Coulter 13.1 inch mirror blank in original box /w receipt. \$70. Sky and Telescope mag. 1979 to 1999, complete \$50. obo contact Scott henning,@326-7039. [03/10]
FOR RENT	The residence at the TIMPA site is available for rent. 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.

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

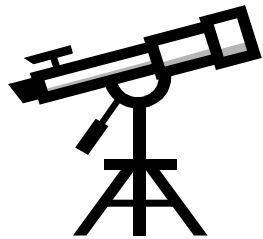
- Work with government agencies
- Identify non-compliant lighting in So AZ

**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

**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**  
**Meade10-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 2010**

**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**

Su/Mo	31/01	19:21	-	20:03	Th/Fr	11/12	19:30	-	5:47	Su/Mo	21/22	1:45	-	5:38
Mo/Tu	01/02	19:22	-	21:12	Fr/Sa	12/13	19:30	-	5:46	Mo/Tu	22/23	2:45	-	5:37
Tu/We	02/03	19:23	-	22:19	Sa/Su	13/14	19:31	-	5:45	Tu/We	23/24	3:42	-	5:36
We/Th	03/04	19:23	-	23:25						We/Th	24/25	4:33	-	5:35
Th/Fr	04/05	19:24	-	0:29	Su/Mo	14/15	19:32	-	5:44	Th/Fr	25/26	5:19	-	5:34
Fr/Sa	05/06	19:25	-	1:32	Mo/Tu	15/16	19:52	-	5:43	Fr/Sa	26/27	-	-	-
Sa/Su	06/07	19:26	-	2:32	Tu/We	16/17	20:47	-	5:43	Sa/Su	27/28	FULL MOON		
					We/Th	17/18	21:43	-	5:42					
Su/Mo	07/08	19:27	-	3:27	Th/Fr	18/19	22:40	-	5:41	Su/Mo	28/01	-	-	-
Mo/Tu	08/09	19:27	-	4:17	Fr/Sa	19/20	23:40	-	5:40	Mo/Tu	01/02	19:43	-	19:56
Tu/We	09/10	19:28	-	5:02	Sa/Su	20/21	0:42	-	5:39	Tu/We	02/03	19:44	-	21:05
We/Th	10/11	19:29	-	5:40						We/Th	03/04	19:45	-	22:12

Weekend	Sun	Sun	Mercury	Venus	Mars	Jupiter	Saturn							
Sa/Su	Set	Rise	Set	Vi	Rise	Vi	Rise	Vi	Set	Vi	Set	Vi	Vi=Visibility	
30/31	17:54	7:16	5:49	3	18:13	9	7:34	-1	19:36	1	21:57	1	-3 brilliant	
6/07	18:00	7:11	5:59	4	18:27	7	6:57	-1	19:16	2	21:28	1	0 conspicuous	
13/14	18:06	7:05	6:10	6	18:42	6	6:21	-1	18:57	5	20:59	1	3 moderate	
20/21	18:12	6:58	6:19	8	18:56	4	5:46	-1	18:37	9	20:30	1	6 naked eye limit	
27/28	18:18	6:50	6:27	-	19:09	3	5:14	-1	18:17	-	20:00	1	9 binoculars limit	

By Erich Karkoschka

**TAAA Astronomy Complex**

**Phase 1 Construction Update**

John Kalas - Construction Coordinator

At the January monthly meeting, Bill Lofquist announced the new name of the astronomy complex; the Chiricahua Astronomy Complex. This is a fitting name for our fantastic facility.

On December 21, 2009, the final inspection of the bathroom facility was conducted. Unfortunately, four discrep-

ancies were found. Three of the deficiencies were minor and were corrected the next day. The major issue was the water fountain. It was specified as handicapped compliant on the architectural drawings but the installed water fountain was not ADA certified despite being installed at the proper handicapped accessible height. We are not exactly sure why this happened. The county demanded that it be replaced and a new compliant fountain should be installed early in the week of 1/25. A follow-up re-inspection will be requested immediately after the water



**TAAA Astronomy Complex (cont.)**

fountain is changed out. That should result in a certificate of occupancy for the bathroom facility. When that is achieved, I will call for the final review of the entire complex based on the Special Use Permit and the associated conditions letter issued by Cochise County Planning & Zoning.



Bathroom facility awaiting new water fountain

On 1/12, I visited the complex to assemble and install shelf systems in the utility room and well house. The utility room shelves were stocked with paper towels, toilet paper, liquid hand soap and waste basket liners. Red lights were installed in the four outdoor lighting fixtures of the bathroom facility and a battery-operated emergency lantern was installed in the well house.



Shower room

Bill Lofquist and I visited the site on 1/17 to install the bathroom facility accessories:

- Mirrors, paper towel dispensers, hooks and waste baskets were installed in both bathrooms.
- Fire extinguisher and first-aid kit were installed in one of the bathrooms.
- Garden hose and heavy-duty electrical extension cord were hung in the utility room.

Randy Maddox, bathroom facility contractor, agreed to paint the shower area walls with an elastomeric paint to improve the sealing of the concrete block walls and make future cleaning of the shower easier. He also installed weather stripping around all of the four bathroom facility



Utility room with storage shelves & supplies

doors to help minimize dust penetration into the rooms. Randy will also install automatic door closers on the two bathroom facility doors that open outward to prevent damage during windy conditions.

After about six months of unsuccessfully trying to purchase the landscape lights specified for parking lot lighting, I was finally able to buy the lights on-line. They require a minor modification to prepare them for easy installation and removal.

The following tasks will be performed next:



### TAAA Astronomy Complex (cont.)



Bathroom with accessories

TAAA (J. Kalas) will install ground lighting inside the parking area (to be used for public events only).

TAAA (J. Kalas) will install the club sign on the side of the entry road outside of the gates.

TAAA (J. Kalas) will install the accessories in the shower room including; a floor water dam, shower curtain, clothing hook, shower caddy and bench.

TAAA (J. Kalas) will install the end of the Innerduct conduit in the well house for computer connections between the utility room and the well house.

TAAA (J. Kalas) will install a deadbolt in the well house door for improved security.

Unfortunately, the unexpected failures found during the final inspection of the bathroom facility deprived the TAAA of the use of the Chiricahua Astronomy Complex in January. We expect the site to be approved for use in early February. As soon as we receive authorization from the county to use the site, we will make the announcement to the club and invite members to start using it.

Thanks for your patience.

### ASTEROID OCCULTATION REPORT BY MARK MEANINGS

Observing and recording asteroid occultations is fun and easy, and unlike most other aspects of observational astronomy, something actually HAPPENS while you watch! All you need is a means of telling time (by way of the WWV on shortwave radio, for example), a recording device (like an MP3 player with a microphone), and the ability to see stars down to about 11th magnitude (which means you'll need at least an 8" telescope and a pretty dark sky).

One thing that I'd like to see happen in the near future is to set up a series of synchronized observations in the Tucson area. This would allow us to collect some very useful data not only on the path of the occultation shadow (which will help in making orbital parameters more precise), but also direction, velocity, size, and shape of the asteroid. Plus, if you report your observation with IOTA, you'll be part of history!

If you'd like to participate in a synchronized observation, please contact me at [cosmiclettuce\[at\]yahoo .com](mailto:cosmiclettuce@yahoo.com). Also, if you'd like more detailed occultation information for a specific location, just send me your latitude, longitude, and altitude to the same email address.

#### Likely Occultations for Tucson -- February 2010

UT Date	UT Time	Asteroid	Star	Star Mag
2010 Feb 5	13:03:00	191 Kolga	TYC 5636-00417-1u	11.2
2010 Feb 6	04:56:42	485 Genua	TYC 0041-00193-1u	10.8
2010 Feb 11	07:39:00	1765 Wrubel	TYC 1989-01408-1u	10.3
2010 Feb 27	03:47:42	231 Vindobona	TYC 0836-01387-1u	11.7
2010 Feb 28	04:17:12	304 Olga	TYC 0814-02651-1u	10.7

### TAAA Board of Directors Meeting - 13 January 2010

**Attending:** Board members present (6): Ken Shaver (presiding), Luke Scott, Teresa Bippert-Plymate, John Croft, George Barber, and John Kalas. Members present (6): Terri Lappin, Liz Kalas, Claude Plymate, Bob Gilroy, Michael Terenzoni, and Bill Lofquist

**Call to Order:** The President called the meeting to order at 6:30 pm.

**TAAA Board of Directors Meeting - 13 January 2010 (cont.)**

**Minutes:** Minutes from the December Board meeting were approved unanimously.

**Member Feedback**

- Teresa Bippert-Plymate reported that she had received a suggestion to drop "Amateur" from the club's name. The Board noted that this had been proposed in the past and that, at that time, a majority of members preferred to not change the club's name.

**Announcements for Record**

- "Chiricahua Astronomy Complex" is the official name for the TAAA dark site.
- A nominating committee needs to be formed by the February meeting. An article soliciting volunteers will be included in the February newsletter.

**Upcoming Meetings**

- The April invited lecture will be on Native American astronomy.

**Treasurer's Report**

- Teresa Bippert-Plymate reviewed the club's finances and reported that the current balance of the club checking account is \$48323.04.

**Flandrau Science Center**

- Michael Terenzoni presented an update on the Flandrau Science Center and discussed with the Board how the club could disseminate information on Flandrau school science programs. The president will follow-up with the school star party coordinator.
- Flandrau is now part of the College of Science.
- An article describing volunteer opportunities with Flandrau and the Mt. Lemmon Sky Center will be placed in the February newsletter.

**Web Team**

- Terri Lappin reported that web site programming is progressing with the implementation of cascading style sheets.
- PHP scripting language will be used to handle individual member log-ins. The goal is to have this feature in place by summer.

**Tucson Festival of Books**

- A motion was entered and seconded to approve expenditure of \$400 for registration for the Tucson Festival of Books. The motion was approved unanimously. Terri Lappin will follow-up on the registration process.

**Chiricahua Astronomy Complex**

- John Kalas reported that the restroom failed the final inspection due to the water fountain not being ADA compliant. The contractor has been authorized to purchase and install an ADA compliant water fountain.
- Landscape lighting which is required for public events remains out-of-stock and has not been purchased. Alternate lighting fixtures may have to be purchased.
- Restroom accessories have been purchased.
- A motion was entered and seconded to approve a \$100 donation to the Sunsites-Pearce Volunteer Fire Department thanking them for burning dark site debris. The motion was approved unanimously.

**2010 Budget**

- Teresa Bippert-Plymate presented the 2010 budget for discussion. A motion was entered and seconded to approve the 2010 budget in the amount of \$9330. The motion was approved unanimously.

**TAAA Forum**

- The TAAA Forum is currently closed to non-members. The Board decided that no change will be made at this time.

### TAAA Board of Directors Meeting - 13 January 2010 (cont.)

#### TAAA Calendar

- Claude Plymate proposed that the Board consider creating and selling its own calendar instead of the Astronomy or Sky and Telescope calendars, and showed an example from an on-line source. Claude Plymate and Bill Lofquist will investigate further and report to the Board.

Meeting adjourned at 9:20 pm.

Respectfully submitted,  
Luke Scott  
Secretary

### Constellation Report by Chris Lancaster

## Auriga

The Charioteer

Auriga is mainly considered to be a charioteer, but it also has a dual role as a goat herder. In some depictions it appears as a man on a chariot, but carrying a goat and three kids in his arms. The identity of Auriga is said to be either the Greek character of Hephaestus, or his son, Erechtheus. These two were both crippled, and thus came to invent the chariot to add to their mobility.

Auriga is easily found if you look to the northeast in the early evening. It forms the shape of a pentagon [with Capella and Beta Tauri (formerly Gamma Aurigae) forming two of the corners opposite each other] north of Orion and sandwiched between Gemini and Perseus.

In the late fall and early winter, Auriga is above the horizon before the sun sets, and by virtue of its northerly declination, it remains in the sky all night, making a slow march toward the west while the constellations farther to the south reach the obscuring earth sooner. Acting as a regional beacon is the sixth brightest star in the sky, Capella. This is a star which is similar to the sun in color and temperature (a spectral type of G8 for Capella and G2 for the sun), but it is a giant star producing the light of 160 suns and thus shining at magnitude +0.1 from a distance of 42 light years. Capella approximates the appearance of the sun if our star were observed from a distance of only a few light years.

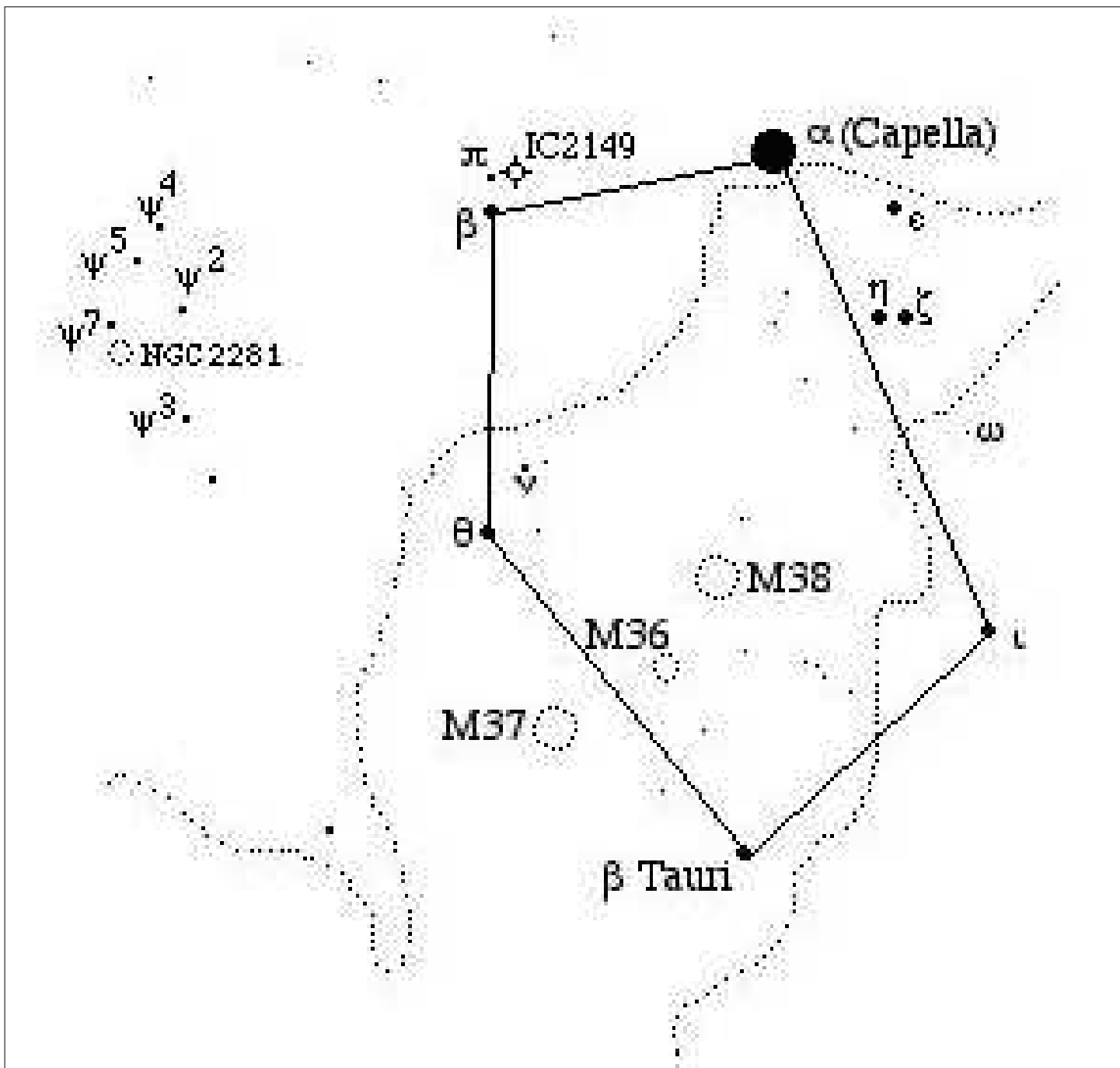
Auriga is immersed in the Milky Way, so we don't have to look long for some excellent star clusters. Charles Messier cataloged three in his studies of the constellation--M36, M37, and M38. M37 (mag. 6.2) sits just outside of the pentagon shape and is sure to be a favorite. It is the largest, brightest, and richest of the three, containing over 100 stars near 12th magnitude and brighter and perhaps 500 overall. It rivals the appearance of a loose globular cluster with its dense population of stars. If you draw a line one-third the distance between Theta Aurigae and Beta Tauri and move not quite two degrees southeast you will easily spot M37 (RA 5h 53m Dec +32d 33').

Using the same line connecting Theta Aurigae and Beta Tauri will enable us to find M36 (mag 6.5). This time, look half way between the two stars and about the same distance to the northwest as we used for M37. M36 (RA 5h 36.3' Dec +34d 08') contains about 60 young stars, the brightest of which are all of spectral class B2 through B8, which means they have hot surface temperatures near 20,000 degrees Kelvin. It is the smallest of the trio but shining slightly brighter than our next target which sits 2.3 degrees to the northwest. This is M38 (mag. 7.0; RA 5h 28.7' Dec +35d 50'), a cluster also boasting many hot A and B type stars with some G-type giants interspersed. When looking at M38, you should also spot a small magnitude 8.2 cluster half a degree to the southwest which is NGC1907. Measuring 7' in diameter, it is less than half the size of M38.

Near the Psi complex of stars is NGC2281. This star cluster measures about 15' across and presents itself as a semi-circle or bowl shaped collection of magnitude 7 and dimmer stars. Look for NGC2281 at RA 6h 49.3' Dec +41d 04', or about 3/4 of a degree to the SSW of Phi7 Aurigae.

For a real challenge, try IC2149. This is a tiny planetary nebula measuring 9" across and glowing weakly at 11th magnitude. While actually spotting the nebula is difficult, its location is easy to pin down since it is about 2/3 of a degree west of Pi (p) Aurigae, which in turn is just north of Beta Aurigae, the NE corner of the pentagon. More precisely, NGC2149 is located at RA 5h 56.3m Dec +46d 07.5'. With sufficient aperture and good seeing, you may have a shot at spying its 14th magnitude central star.

Constellation Report by Chris Lancaster



To the area southwest of Capella is a group of three stars, Epsilon, Zeta, and Eta, which comprise an asterism called "the kids." They are in the shape of a tall isosceles triangle, and the star at the point, Epsilon, is of special interest in part due to the fact that it is an eclipsing binary star of spectral type F0 with an exceptionally long period of 27.06 years, with each phase of deepest eclipse lasting an entire year by itself. Furthermore, its distance is estimated to be near 2,040 light years, so to shine at magnitude 3 (3.8 in eclipse) to an observer on Earth indicates that it is one of the most luminous stars known, producing 60,000 times the light of the sun.

Tucson Amateur Astronomy Association  
P.O. Box 41254  
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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.