

# Desert Skies

Tucson Amateur Astronomy Association

Volume LVI, Number 9

September, 2010



Rupes Recta on the Moon

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Cover Photo: Imaged by Rik Hill

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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**

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

Are you getting the full benefit of your membership in TAAA? For a club with roughly 400 members, TAAA offers more benefits to members than one might expect. Yet we have some that tend to be under-utilized.

A prime example is our scope loaner program. The club frequently receives donations of telescopes, and some of those end up in our loaner inventory. Members may borrow these scopes *at no charge*. While we do ask that you take good care of them, we won't make unreasonable demands on how they are used. Perhaps you'd like to use one at a club star party, or maybe borrow one to see whether you like it before you purchase your own. Maybe you'd like to use one as a demo scope at a scouting event, or to show the kids in your own child's science class at school. Whatever the purpose, we have plenty of telescopes available. Sadly, most of the time these scopes are packed away in storage rather than inspiring someone with an incredible view of the heavens.

Another club benefit program that you might consider taking advantage of is our library program. Like the telescope loaner program, the library program offers a *no cost* benefit. Members may browse our inventory of as-

tronomy books and check them out. The books are in a cabinet that we roll out in the front of the meeting room at every general meeting. If you've never looked in the cabinet, come check it out at the next meeting! We have plenty of books covering a wide variety of topics. If you're spending every cloudy night glued to your TV or on the internet, why not check out a book and learn some astronomy the old-fashioned way!

If you have suggestions about how we can improve these TAAA member benefit programs, or others, please mention them to any Board member. Also, if you have a telescope, astronomy book, or other astronomical equipment that you would like to donate to the club, let us know. Remember that even non-cash donations may be tax-deductible since TAAA is a 501(c) (3) charitable organization.

Don't forget to attend this month's general meeting - what an excellent way to kick off your holiday weekend! With the end of summer, we can all look forward to some fun nights ahead this fall.

Keith Schlottman

### Meeting Information and Calendar of Events

**TAAA MEETING DATE:** Friday, Sept. 3, at the Steward Observatory Auditorium - Room N210

**ASTRONOMY ESSENTIALS:** 6:30 pm

Title: Astronomy Fundamentals Special Interest Group

Speaker: Bob Gilroy

Activities of the Astronomy Fundamentals SIG over the past year and those being planned for next year will be presented by Bob Gilroy, chair person of the SIG. The Astronomy Fundamentals SIG is dedicated to those new to astronomy and the TAAA.

**GENERAL MEETING:** 7:30 pm

Title: TAAA Status Report for 2010

Speaker: Various officers and leaders of TAAA

We will devote the September meeting to bring us all up to date on TAAA activities. Over the past few years, the offerings of the TAAA have expanded greatly, so it's easy to overlook what's going on in either a SIG or a project. We'll hear reports from the Starry Messenger SIG and the brand new Cosmology and Space Exploration SIG as well as reports about the Chiricahua Astronomy Complex and our other projects. Please come to hear what's up, what to expect over the next year, and maybe consider how your skills and gifts could be applied to some TAAA activity that piques your interest.

**BOARD OF DIRECTORS MEETING:** Wednesday, Sept. 8, 6:30 pm. The meeting is held at Steward Observatory Conference Room N305.

#### STAR PARTIES AND EVENTS:

04 Sept - TAAA Star-B-Cue at Kitt Peak  
 09 Sept - Astronomy Fundamentals SIG  
 10 Sept - Cub Scouts Pack 772 Star Party  
 11 Sept - AF-SIG Solar Observing at Fort Lowell Park  
 11 Sept - TAAA Star Party at Las Cienegas  
 11 Sept - TAAA Star Party at CAC  
 11 Sept - TAAA and AF-SIG Star Party at TIMPA  
 13 Sept - Astro-Imaging SIG at China Rose  
 21 Sept - Brichta Elementary Star Party  
 25 Sept - SM-SIG Workshop

**NEWSLETTER SCHEDULE:** Deadline for articles: Sat, Sept. 18. 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: Steven Churchill, Heath Custer, and Russ Sage. Glad to have all of you join! New members can pick up a member's 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.)

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

September 4 (Saturday)

The TAAA has scheduled a star party and pot-luck barbecue at the picnic grounds up on Kitt Peak on Saturday, 9/4, 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. Kitt Peak allows the club to observe as late as we want. Be prepared for cool temperatures and mosquitoes.

Due to the fact that this event is on the day after the TAAA monthly meeting on Friday, 9/3, it is advised that members interested in attending contact John Kalas ASAP (contact info below). There will be a sign-up sheet on the table at the back of the lecture hall at the start of the September 3rd 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. Phone and e-mail reservation requests will be taken on a first-come, first-serve basis. 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.

### Help Needed – CAC Site Maintenance Committee

John Kalas – CAC Site Director

The maintenance requirement for the club site is more than I had anticipated. With the completion of Phase 1 development and the pending construction activity for Phase 2, the maintenance requirements will continue to increase. Another consideration is the Arizona Dept. of Transportation's Adopt-A-Highway program that the club signed up for back in June. This twice-a-year highway clean-up would also be coordinated by this Maintenance Committee. If you would be interested in volunteering to help on this committee, please contact me by phone at 620-6502 or via e-mail at [jckalas@cox.net](mailto:jckalas@cox.net).

### Astro-Imaging SIG Meeting

Monday, Sept. 13, 7pm

China Rose, NE corner Speedway/Rosemont

Due to the Labor Day holiday, our meeting has been moved to the 13<sup>th</sup>. This month, Steve Petersen will present an introduction to astrophotography. He will provide the information you need for getting started in astro-imaging. 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.

### AFSIG Meeting, September 9, 2010

Most of us do our observing of the Solar System and deep sky objects with our eyes, binoculars and telescopes. However, there are other ways to learn about the universe and the objects that occupy it. Our own TAAA President, Keith Schlottman, will be our guest speaker for our AFSIG Meeting on September 11th. He will talk to us about "Spectroscopy" and what we can learn from this different way of looking at the universe.

Come and join us for this interesting discussion – U.S.G.S Building – Room 253, NE corner Park Ave & 6th St., 6:30 pm.

Also, mark your calendars for October 14th. That is the launch date for our Solar System Observing Program – sign-up sheets will be at the September and October general meetings. See article in *Club News* section.

### 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.

**Club News (cont.)**

**Coordinator Needed**

Our TAAA Apparel coordinator will be stepping down due to other commitments this summer. This opens a position for a new person or team to volunteer. If you've been looking for a way to get more involved and help the TAAA, this might be just the ticket. Contact one of the board members if you are interested.

**Cosmology and Space Exploration SIG**

Al Anzaldua and Jim Butler would like to recruit members to a new SIG that would explore the latest events in cosmology and space exploration. We have 6 members currently, and are looking for others. Our first topic was *The Presence of Water in the Solar System*. Our second topic will be *Working on an Asteroid*. Please email us at butlerjamesr@yahoo.com and [alanzaldua706@yahoo.com](mailto:alanzaldua706@yahoo.com)

**Lunar Observing Program**

How much do you know about the Earth's Moon? It is our nearest celestial neighbor and it is very fascinating indeed! Would you like to learn more about it? Well, we do have a Lunar Observing Program sponsored by the Astronomy Fundamentals special interest group. The Lunar Observing Program consists of locating a list of prominent (and some not so prominent) lunar features, which can be seen at different stages of the lunar cycle. It is a guided observing program meaning that there will be regularly scheduled, leader-led, observing sessions to aid in finding features and completing the requirements. After completing requirements for observing all of the targets, the observer will receive an AFSIG Lunar Observing Certificate. Additionally, each of the required targets is also part of the Astronomical League's Lunar Club. So, you can be well on your way to fulfilling that goal, if you so desire. For more information, please contact Mary Turner at [umurf@earthlink.net](mailto:umurf@earthlink.net) or Bob Gilroy at [rgilroy1@cox.net](mailto:rgilroy1@cox.net).

**Solar Observing Program**

On Saturday, Sept.11, we will meet from 9 am until noon at Fort Lowell Park (Craycroft @ Glenn) near the southeast corner. Just look for the telescopes. Bring your kids. Bring water and something to nibble on. You don't need to have a telescope; others will have them if you don't. Hopefully the sun and monsoons will accommodate us and produce some spots and other phenomena while we're viewing. Hope to see you there.

The Solar Observing Program (like all of our observing programs) is open to all members of TAAA at no charge. It is a guided program which means that at the scheduled observing sessions, there is someone there to guide you in finding the features needed for successful completion of the program. You can join the program at any time and can either attend the guided sessions or work on your own. A certificate is awarded at the completion of all the requirements. The beauty of this observing program is that our sun offers great flexibility in observing and recording the different features - you don't have to be concerned about light pollution, night vision, or traveling great distances to find dark skies.

If you are interested in participating in the Solar Observing Program or if you just want to be added to our email list to keep you posted about our activities and solar news, email Dennis Dawson at [dennisldawson@gmail.com](mailto:dennisldawson@gmail.com) or Bob Gilroy at [bobgilroy@tucsonastronomy.org](mailto:bobgilroy@tucsonastronomy.org) for all of the particulars.

**TAAA Newsletter Editor Position**

By George Barber

I have happily and proudly served you by being your newsletter editor for ten years now. Due to the Raytheon layoff this last April, I am actively seeking employment in a new engineering position. I am seeking employment locally, but will also consider opportunities requiring my relocation. With this in mind, we are seeking someone to take up the position of newsletter editor should I need to leave the Tucson area. If possible, I would like to help train a new individual to assume this responsibility.

The newsletter editor assembles all the articles for the newsletter each month. Articles are collected, then



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## Club News (cont.)

organized and proofread. Finally, the electronic version of the newsletter is created and sent to the webmaster. I usually dedicate one Sunday per month to perform this task. Additionally, I send out an email a week in advance to inform everyone of the approaching deadline. The ideal candidate will possess the following:

- Proficient in Microsoft Office Word and Publisher, or a similar software package
- Strong writing and proofreading skills
- Able to perform under a deadline
- Good interpersonal skills
- Adept at using a PC or MAC
- A personal computer, internet connection, and email account is mandatory

If you are interested in this position, please contact me or a board member. Our email addresses are on page 2 of the newsletter.

### Basic Astronomy Course Coming in October

The Astronomy Fundamentals SIG is offering, once again, "Introduction to Fundamentals of Astronomy". It will be held on three successive Saturdays starting October 23rd. Each Saturday we will present a different set of topics – all of which are directed toward the novice observer – it is also a nice refresher course for the seasoned amateur.

#### October 23rd

We will cover Basic Astronomy, including celestial motion, the celestial coordinate system, and types of celestial objects.

#### October 30th

The subject will be Equipment Basics, including telescopes, mounts, eyepieces, filters, and other observing accessories.

#### November 6th

We will discuss Observing Basics, including locating objects, seeing conditions, and hints and tips on observing various types of objects.

The classes will be held at the regular AFSIG meeting location: Room 253 in the USGS building at 6th and Park on the UA campus. Each day will consist of several presentations, with frequent breaks and a break for lunch. We expect the class to run from 9:00 AM until mid-afternoon on each day.

November 6th we plan to have a pot-luck dinner followed by an observing session at our TIMPA location.

Enrollment will be limited to 20 attendees, so don't miss out. You may enroll in all of classes, or just the ones that interest you.

You may register by emailing me at [fundamentals@tucsonastronomy.org](mailto:fundamentals@tucsonastronomy.org) with your name, email address and phone number. If you cannot attend all

three dates, please list the dates you will be attending. Your registration will be confirmed via email. Also, there will be signup sheets at the general meeting.

### New Observing Program - The Solar System

On October 14<sup>th</sup>, AFSIG is launching a new observing program – The Solar System Observing Program. We live in a mini universe that we call our Solar System consisting of eight (or is it nine??) planets. In addition there are planetesimals, the Asteroid Belt, the Kuiper Belt, and the Oort cloud – there are comets and meteors. Now is the time to learn firsthand about this interesting place and observe the planets, planetesimals and other interesting objects.

To register, please reply to [fundamentals@tucsonastronomy.org](mailto:fundamentals@tucsonastronomy.org) with your name, email address and phone number. There will be sign-up sheets at the general meeting.

Date: October 14

Place: U.S.G.S Building – Room 253  
NE Corner 6th St. and Park Ave.

Use parking on East side of building (free after 5pm and on Saturdays)

Time: 6:30 pm

### Constellation Observing Program

Our first Constellation observing session was held at TIMPA on August 14th. We observed and drew Cygnus, Aquila and Lyra. Our next guided observing session will be on September 11th at TIMPA. We will be looking at Vulpecula and Hercules – plus we will review constellations from last session. The gate will be open between 6:30 pm and 7:00 pm. You will need time to set up and see what references are available before it gets dark. That will make working on the constellations more rewarding when it does get dark.

Suggested items to bring to help in your Constellation Hunter program:

- Constellation outlines for Lyra, Cygnus, Aquila, Vulpecula, and Hercules
- red flashlight (white flashlight covered with a red balloon works well)

- Pencils

- Chair

- small table or clip board to hold things together

- notepad

- planesphere (star map)

- sky atlases if you have them (we will have some for references)

- binoculars

This program is open to all TAAA members at no charge and all are welcome. If you haven't signed up for this

## Club News (cont.)

program and want to participate, please email Paul and Cathy Anderson [m44m46@live.com](mailto:m44m46@live.com) or call 625-5035.

### Volunteer Positions Available

The Astronomy Fundamentals SIG has openings available for knowledgeable members and for those just learning. This October we are presenting our 3<sup>rd</sup> basic astronomy course "Introduction to Fundamentals of Astronomy". We are having our teacher orientation sessions throughout September and the 1<sup>st</sup> week of October. So, it is now time! If you are ready to serve, to share a little of what you know (and what we can teach you) now is the time to step up. You will be rewarded: not only do you get the satisfaction that comes with helping others, but you will also learn in the process and have fun doing it.

Please respond to [fundamentals@tucsonastronomy.org](mailto:fundamentals@tucsonastronomy.org) with your name, address and phone number. You will be contacted shortly.

Thank you,  
BoB Gilroy  
*Astronomy Fundamentals Special Interest Group*

### TAAA 2011 Calendar

We need your Photos!

We are investigating putting together a custom TAAA calendar for 2011. For this, we're soliciting photos from club members. Any photo of interest would be considered including astro-photos, star parties, home observatories, club events, etc. We hope to get far more submissions than can possibly be printed so no promises are made that your photo will be included. We're sure all the photos will be excellent and we'll have a hard time choosing the finalists for a calendar but want to select from a variety of themes. By submitting a photo, permission to publish it in the calendar will be assumed. They will, of course, not be used for any other purpose and full photo credit will be given. We may also want to montage some of the photos.

We should be able to handle most common formats. If you have something you'd like to submit, please send it to [plymate@noao.edu](mailto:plymate@noao.edu) or [teresa@as.arizona.edu](mailto:teresa@as.arizona.edu).

Thanks!!

### Outreach Event at Pima County Public Library

School age students between 8 and 12 years old (and their parents and younger siblings) were invited to have fun and learn more about astronomy at Outer Space Base III at the Joel D. Valdez Main Library on Saturday, August 14, 2010. The event started off with a one-hour

presentation by Mike Terenzoni from UA Science Flandrau. During the Virtual Planetarium program, participants had an opportunity to discover the solar system on an 8-foot screen, guided by Mike's expert narration. The discussion ranged from the Sun and our Moon to the planets to their moons and other solar system objects. The planetarium

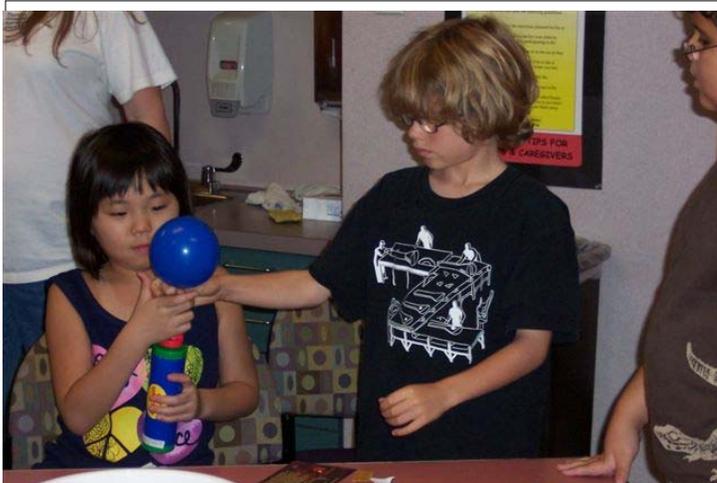


program "Starry Night Pro" was used to dramatize how the inner and outer solar system worked. The presentation included showing the phases of the moon (there was even an astronaut "floating" above the moon) and showed the sky, as it would look that night (and the next few nights) with Starry Night Pro. Mike introduced the images, provided historical and scientific information and there was a productive question and answer session with the audience.



In the next hour, Terri Lappin aided by Jim and Susan Knoll (Starry Messenger SIG) from the Tucson Amateur Astronomy Association helped students learn more about nuclear fusion and the life cycle of stars using marshmallows and balloons. As Terri explained: "We simulated the Proton-Proton interaction taking place inside stars using marshmallows. Two marshmallows represented the two protons found in Helium. We then

Club News (cont.)



The program was a big success and thoroughly enjoyed by all who attended.

Just as background: This is the third Outer Space Base program presented at the Joel D. Valdez Main Library. The program was developed to promote science, technology, engineering and math in students in a fun and interactive way. The first program, held in 2008, featured a real time downlink with NASA and the International Space Station. Students got to ask an astronaut on the station questions and the whole program was shown on the NASA channel.



smashed 3 Helium atoms together to make Carbon, which is the end stage of a star like our sun. We then used balloons to represent 3 different stars: a sun-like star, a 3 solar mass star, and a 9 solar mass star. We talked about the elements up to Iron being produced inside the two larger stars, and all the rest of the elements being produced in a supernova (we popped those balloons) which scatters them into space. The sun-like star became a white dwarf (no supernova) surrounded by a planetary nebula, the 3 solar mass star became a neutron star, and the largest star became a black hole. The kids related materials they use daily with elements that were made inside supernovas". The program was very interactive and

Many thanks to Terri Lappin, Jim Knoll, Susan Knoll, Dennis Dawson, Ben Bailey and Hunter Bailey in their joint effort with Flandrau to make this public outreach a success.

Upcoming Lectures

Oct 1	<i>Astronomy Essentials</i>	Mary Turner Seasonal Objects
	<i>Invited Lecture</i>	Dimitrios Psaltis Theoretical Astrophysics
Nov 5	<i>General Meeting</i>	Members Night Starts at 6:30pm, no Astronomy Essentials Lecture
Dec 3	<i>Astronomy Essentials</i>	<i>Tentatively Scheduled</i>
	<i>Invited Lecture</i>	Don McCarthy James Web Space Telescope



fun and kept participants interested for the full 45 minutes. During the two hour event...and afterwards everyone had an opportunity to go outside and look through two solar telescopes. Dennis Dawson, coordinator of the AFSIG Solar Observing Program had two solar telescopes set up. He enlisted the aid of Ben and Hunter Bailey. The participants had the opportunity to look through both white light and hydrogen alpha filters.

## Club News (cont.)



Starry Messengers SIG -  
Opening Minds to the Universe

### Night Sky Network Toolkits

Below is a list of our Night Sky Network Outreach Toolkits and other resources for teaching astronomical concepts. The Night Sky Network program recognizes the essential role that amateur astronomers play in public astronomical education by providing us with these toolkits well suited for use at star parties. They were developed by the Astronomical Society of the Pacific under contract with NASA. If your scope is not well suited for public viewing, or if you want a change of pace, consider bringing a toolkit to one of our community star parties. They are also great options for those questionable, cloudy nights. Each toolkit contains several projects; you pick and choose what you want to use. A Resources CD and a Training DVD is also included. Individual training in their use is available upon request.

With each use of a NSN toolkit we are closer to qualifying for the next toolkit.

#### Night Sky Network Toolkits:

**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.

**Dark Skies Education Kit:** light pollution principles, includes a Sky Quality Meter

**Comet Chef:** an apron (with a comet on it) and chef's hat to wear when mixing up comets

Please make arrangements with Terri Lappin (see page 2, Starry Messenger SIG) to borrow any toolkit.

### Space Missions Workshop

Saturday, September 25 9 am to noon

The Starry Messenger SIG Space Missions Workshop will be held on Saturday, September 25th. Loretta McKibben, SMSIG leader and JPL Solar System Ambassador, will bring us up to date on NASA and ESA space missions. She'll also discuss how we can best reach people of all ages and backgrounds when talking about these missions. We'll meet in the Steward Observatory 3rd Floor Conference Room (Room N305). The workshop will start at 9 am and end at noon. There is no charge for this workshop. There will be a sign up sheet at the September 3rd General Meeting to give us an idea of how many to expect, or email [smsig\[at\]tucsonastronomy.org](mailto:smsig[at]tucsonastronomy.org).

The Starry Messenger SIG is devoted to outreach activities. Participation in this and any SMSIG workshop will not commit you to performing any outreach activity. However we hope that what you learn at the workshop will better prepare you whenever you're asked about something astronomical in nature, be it at home, work, or a TAAA public event.

The Starry Messenger Special Interest Group provides an environment in which TAAA members can enhance their knowledge and understanding of astronomy and related concepts. We offer tools and techniques for explaining astronomy to people of all ages. Any TAAA member involved in astronomy outreach is supporting the goals of the Starry Messenger SIG. Even if you have never attended a SM-SIG workshop or meeting, we consider you a member of the SMSIG and value your contribution.

### Starry Messenger in our Midst

#### Dennis Dawson

Dennis Dawson recently stepped forward to organize the Astronomy Fundamentals SIG Solar Observing Program. Last month he shared his enthusiasm for observing our nearest star with a group of kids and parents at the Joel Valdez library downtown. Of late, Dennis has done several of these daytime observing programs for the public, including the Discovery Days programs held on Mt Lemmon and operated out of the University of Arizona SkyCenter.

As a kid, Dennis was fascinated by astronomy but he didn't have the best observing conditions. He grew up in San Francisco which isn't too conducive to observational astronomy. Some of the first things Dennis did after moving to Tucson was to join the TAAA and the Desert (Continued on next page)

## Club News (cont.)

*Starry Messenger in our Midst*

(Continued from previous page)

Museum. He is also a member of the Association of Lunar and Planetary Observers and a member of the Astronomical League. Since moving to Tucson four years ago, Dennis has become an active observer, especially when it comes to observing the Sun.

The enjoyment of sharing views and information about the sun with others is what Dennis finds rewarding. He loves to contemplate the universe, but his focus is on solar astronomy. He says, "I especially enjoy showing the sun to older people whose many years have allowed them to see many wondrous things but they have never seen the sun." With kids, he'll share a factoid about the sun to "stir up young people's curiosity about the sun." Young minds may not be impressed that it takes 8 minutes for the light from the sun to reach the Earth, but when they learn that those same photons took over 200,000 years to pass through the radiative zone of the sun to reach the photosphere – well, that really is something that might stir their minds!

Dennis's philosophy regarding outreach is right in line with that of the Starry Messenger SIG. In Dennis' words, "Outreach is more about your enthusiasm than information." He goes on to say that it's "ok if you don't think you know enough. Your enthusiasm will get others interested in looking skyward. Sharing your own questions and excitement with others is more motivating to many people than a lecture full of facts. If you can get people interested and excited, they will discover the facts on their own."



Dennis lived in the San Francisco Bay Area for 58 years until he and his wife moved to Tucson. While in the Bay area, he was in education (15 years as a teacher and 12 years as a principal). He then trained to be a hospital chaplain and worked at Saint Francis and Saint Mary's hospitals until the move to Tucson. A year after moving to Tucson, he trained as an 18-wheel truck driver and did long-haul trips. With the economy down-turn, Dennis found he was spending more on trips than he was

making. He decided to move on to greener pastures like his garden, which he says is more brown than green but gardening is something he enjoys. He also likes feeding and watching the birds, and sitting outside reading the paper while drinking his coffee. What an interesting life Dennis has experienced!



If you see Dennis with his Coronado Double-Stacked 90 H-alpha telescope set up looking at the sun, see if his enthusiasm for our nearest star rubs off on you. His telescope provides amazing views of the sun with much more detailed view than you may get with other H-alpha telescopes available. If you develop or have an interest in solar observing, be sure to pay attention to the Solar Observing Program. Dennis sets the observation schedule and organizes observing sessions. Dennis does all this in an effort to generate excitement about learning about and observing the sun. Be sure to ask him about the program, and to thank him for his outreach efforts.



*If you know a TAAA member who's enthusiastic about telling others about the night sky, please nominate them as a Starry Messenger so we can recognize their efforts. Nominees don't necessarily need to be involved in TAAA outreach activities. It could be their involvement with other astronomical organizations; however, please nominate only TAAA members. To nominate a member, send their name to [smsg\[at\]tucsonastronomy.org](mailto:smsg[at]tucsonastronomy.org), along with a brief sentence or two about this person and how to contact them.*

## Member's Events

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

September 4 (Saturday)

See article in the Club News section.

### TAAA Star Party at TIMPA

Saturday, Sept. 11

Come on out and enjoy the summer 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. It's also a good idea to bring insect repellent. Directions to the TIMPA site are located on the last page of this newsletter. The new observatory at TIMPA, featuring a 14-inch telescope, should also be open for use.

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

Saturday, Sept. 11

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 cool temperatures after sunset. It's also a good idea to bring insect repellent. See the directions to Las Cienegas on the last page of this newsletter.

### TAAA Star Party at CAC

Saturday, Sept. 11

The Chiricahua Astronomy Complex (CAC) is the club's newest observing site. Located in Cochise County approximately 100 miles from the center of Tucson, the site includes a full bathroom facility. At an elevation of 4800 feet, be prepared for cold temperatures. Try to arrive before sunset. Unlike the other two club observing sites, TIMPA and Las Cienegas, the CAC site requires that members make reservations for both monthly club star parties and private member use. We are restricted by a 60 person/30 vehicle maximum limitation. If you would like to attend, contact CAC Director John Kalas via e-mail at

[jckalas@cox.net](mailto:jckalas@cox.net) or by phone at 620-6502. Reservations will be on a first come - first serve basis. Depending on the number of members interested in attending, guests may not be allowed.

#### Directions to CAC:

The Chiricahua Astronomy Complex is about 90 miles and a 1½ hour drive from the TTT Truck stop at Craycroft Road and Interstate 10.

Take I-10 East from Tucson past Benson.

Exit I-10 at Dragoon Road (Exit #318) - Turn right onto Dragoon Road at bottom of exit ramp.

Travel 13.5 miles southeast to intersection with Route 191 and turn right (south).

Travel 17.9 miles south (past Sunsites and Margie's Corner Café at High St. on the right and Border Patrol checkpoint) to intersection with Route 181 at Sunizona and turn left (east).

Travel 10.9 miles east to intersection with S. Price Ranch Road and turn right (south). S. Price Ranch Rd. is a dirt road just before you reach mile post 49 (cluster of mailboxes on right on Rte. 181).

Travel ½ mile south on S. Price Ranch Rd. to intersection with E. Perseus Way (wide dirt road with E. Perseus Way street sign on left) and turn left (east).

Travel east on E. Perseus Way slightly more than ¼ mile to entrance of Chiricahua Astronomy Complex, address 9315 on right (twin brown gates flanked by white rail fences set back 50 feet from road). Look for TAAA sign on left side of entry road.

### 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://www.desertmuseum.org/books/nhsd\\_rattlesnakes3.php](http://www.desertmuseum.org/books/nhsd_rattlesnakes3.php).

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.

### 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.

**Cub Scouts Pack 772 Star Party** East  
Friday, September 10 No. of Scopes: 3

**Cub Scouts Pack 772** will be doing a Exploring the Night Sky for an estimated 50 students and parents at 10050 E Rita Rd. I-10 E for 14.5 miles; Go to Exit 273 Rita Rd .03 miles; Turn Left onto S. Rita Rd go 4.2 Miles arrive at park on right. Viewing will take place at Purple Heart Park. Contact person Leslie A. Nightingale can be reached at labnight@aol.com. Observing will be from 19:00 to 21:00, with setup 30 minutes prior to start.

**Brichta Elementary Star Party** West  
Tuesday, September 21 No. of Scopes: 5

**Brichta Elementary** will be doing a Autumnal Equinox/Brichta's 50th Anniversary Star Party for an estimated 100 students and parents at 2110 W Brichta Drive. West on Speedway to Silverbell, north on Silverbell to Calle Campana de Plata (first left turn, across from Joaquin Murrieta/Northwest Park) or Brichta Drive (second left), both dead end into school, south parking lot to field access. Viewing will take place athletic field/basketball courts on west side of school, near Multi Purpose Room. Contact person Liz Dalgleish can be reached at 740-3012 or ldalgleish@sc.pima.gov. Observing will be from 18:30 to 20:00, with setup 30 minutes prior to start.

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

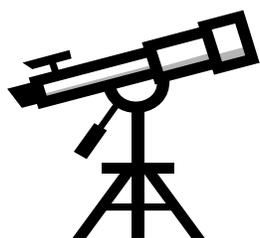
- Work with government agencies
- Identify non-compliant lighting in So AZ

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

Contact: Joe Frannea  
sky@sa-ida.org  
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**  
**Meade 10-inch f/4.5 on equatorial mount**  
**Meade 10" LX200 GPS (requires training session)**

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

**Dark Skies for September 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**

Tu/We	31/01	20:14	-	22:40	Sa/Su	11/12	20:37	-	4:43	Tu/We	21/22	-	-	-
We/Th	01/02	20:12	-	23:32						We/Th	22/23	FULL MOON		
Th/Fr	02/03	20:11	-	0:31	Su/Mo	12/13	21:22	-	4:44	Th/Fr	23/24	-	-	-
Fr/Sa	03/04	20:09	-	1:36	Mo/Tu	13/14	22:13	-	4:45	Fr/Sa	24/25	-	-	-
Sa/Su	04/05	20:08	-	2:46	Tu/We	14/15	23:06	-	4:45	Sa/Su	25/26	-	-	-
					We/Th	15/16	0:03	-	4:46					
Su/Mo	05/06	20:07	-	3:57	Th/Fr	16/17	1:00	-	4:47	Su/Mo	26/27	19:36	-	19:56
Mo/Tu	06/07	20:05	-	4:39	Fr/Sa	17/18	1:57	-	4:47	Mo/Tu	27/28	19:35	-	20:38
Tu/We	07/08	20:04	-	4:40	Sa/Su	18/19	2:53	-	4:48	Tu/We	28/29	19:34	-	21:27
We/Th	08/09	20:02	-	4:41						We/Th	29/30	19:32	-	22:23
Th/Fr	09/10	20:01	-	4:41	Su/Mo	19/20	3:48	-	4:49	Th/Fr	30/01	19:31	-	23:24
Fr/Sa	10/11	19:59	-	4:42	Mo/Tu	20/21	4:41	-	4:50	Fr/Sa	01/02	19:30	-	0:29

<b>Weekend</b>	<b>Sun</b>	<b>Sun</b>	<b>Mercury</b>		<b>Venus</b>		<b>Mars</b>		<b>Jupiter</b>		<b>Saturn</b>			
Sa/Su	Set	Rise	Rise	Vi	Set	Vi	Set	Vi	Set	Vi	Rise	Vi	Vi=Visibility	
04/05	18:42	5:59	5:46	-	20:28	-2	20:32	3	19:31	-3	19:49	6	-3 brilliant	
11/12	18:33	6:04	4:59	7	20:13	-2	20:17	4	19:01	-3	19:24	8	0 conspicuous	
18/19	18:24	6:08	4:45	3	19:55	-2	20:03	4	18:31	-3	18:58	-	3 moderate	
25/26	18:14	6:13	5:00	4	19:34	-1	19:49	4	Set	-3	18:33	-	6 naked eye limit	
02/03	18:05	6:17	5:28	6	19:11	0	19:36	4	5:20	-3	18:07	-	9 binoculars limit	

By Erich Karkoschka

**Items of Interest**

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

By Rik Hill

Deep sky monsoon

The monsoon plods on and good observing nights are few. But there are still some things you can explore to aid your observing when the weather finally cooperates.

Students for the Exploration and Development of Space (SEDS) have a wonderful collection of historical deep sky catalogs at:

<http://www.seds.org/messier/xtra/similar/catalogs.html>

If you go to each link and explore them, this alone will easily occupy a whole evening. You will wind up book-marking something here.

SEDS also has a fairly comprehensive list of "Common Deep Sky Catalogs" at:

<http://messier.obspm.fr/xtra/supp/cats.html>

While useful and interesting, I did find a couple surprising omissions like the Washington Double Star catalog which is on-line now.

SkyFactory has an impressive site that has the whole IC, NGC and UGC catalogs not only listed but an image of

each object is there as well! What a job that must have been collecting those together. See it at:

<http://www.skyfactory.org/deepskycatalogue/>

There is a search engine at the top of the page where you can search on Messier, NGC, IC and UGC numbers too, a very handy reference.

Soon though, we will be drying out and heading into autumn so I would again remind you of the Atlas of the Andromeda Galaxy that I mentioned a couple years ago. This atlas can lead you to many evenings of delightful deep sky hunting on our nearest big neighbor:

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

Most of the images were taken right here in Tucson with the 4-meter Mayall telescope at Kitt Peak, though the wide field ones were done with the Palomar Oschin Schmidt.

I have enjoyed evenings identifying globular clusters in M31 with my telescopes. A good listing of many of the brighter ones (along with descriptive text) can be found here:

<http://www.astronomy-mall.com/Adventures.In.Deep.Space/gcm31.htm>

### Items of Interest (cont.)

How many can you find?

[http://acta.astrouw.edu.pl/Vol58/n1/pap\\_58\\_1\\_3.pdf](http://acta.astrouw.edu.pl/Vol58/n1/pap_58_1_3.pdf)

Paul Hodge, the author of the Atlas of the Andromeda Galaxy has done M33 as well but so far it is not posted on-line and the atlas cost is \$279, a tad over my book budget. The best you can find for M33 is:

This paper has a table of globular clusters in M33 and small thumbnail images so you can identify them.

<http://www.astronomy-mall.com/Adventures.In.Deep.Space/gcextra.htm>

Well, there are some things that can help you pass the wet cloudy hours until we have our skies back. Enjoy and let me know if there are any other topics you'd like to see explored here. Just drop me a line at [rhill@lpl.arizona.edu](mailto:rhill@lpl.arizona.edu)

and for the hard core deep sky observers there's a paper at:

### Desert Skies Classified

FOR SALE	Celestron Celestar 8. Lightly used, tripod mount, purchased in 1998. Recently dropped the price to \$600. <a href="mailto:west_lisajohnson@yahoo.com">west_lisajohnson@yahoo.com</a> , 623-210-5318 [12/10]
FOR SALE	35 years of both Sky & Telescope and Astronomy magazines from April 1973 to present. \$300 for each set, cash only. <a href="mailto:doriecrouthers@cox.net">doriecrouthers@cox.net</a> [12/10]
FOR SALE	Meade 12" f/5 LightBridge Newtonian Telescope outfitted with a JMI Train-n-Track (TNT) alt-azimuth motor drive system with trainable tracking. Two eyepieces, red-dot finder. \$900. Joe. 520-722-6963 or e-mail <a href="mailto:jgj62fat@cox.net">jgj62fat@cox.net</a> [09/10]

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 - 12 August 2010

**Attending:** Board members present (6): Keith Schlottman (presiding), Bill Lofquist, Luke Scott, Teresa Bippert-Plymate, George Barber, and John Kalas. Members present (6): Terri Lappin, Claude Plymate, Mark Meanings, Bob Gilroy, Paul Anderson, and Richard Crump

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

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

#### **Member Feedback**

none

#### **Announcements for Record**

- Terri Lappin is following up with the public library on creating Astronomy programs.
- Luke Scott will follow-up with REI regarding their inquiry about TAAA presenting Astronomy programs at the REI store.

#### **Upcoming Meetings**

- September is the annual TAAA status meeting.
- The December Astronomy Essentials lecture is open.
- The Board concurred that the current months devoted to members nights and TAAA status will carry over into the 2011 meeting schedule.

#### **Treasurer's Report (Teresa Bippert-Plymate)**

- The TAAA checking account balance is \$59,286.85.
- Teresa reported on meeting with Chase Bank to discuss the process for getting a club credit card.
- A motion was made by the Treasurer and seconded by the Vice President authorizing Teresa Bippert-Plymate to open a Chase Bank savings account for Eridanus funds as a sub-account to the TAAA checking account. The motion was approved unanimously.

**TAAA Board of Directors Meeting - 12 August 2010 (cont.)****Special Interest Group Status Reports**

- Starry Messengers (Terri Lappin): The SIG will hold a 25 September workshop on NASA/JPL/ESA missions focusing on tie-ins to public outreach. The workshop will be presented by Loretta McKibben.
- Astronomy Fundamentals (Bob Gilroy): At the 13 August meeting, Frank Hill will speak about space weather. Bob also reported that the SIG currently has 3 observing programs running and that the Coulter 8-inch loaner telescope needs a rack and pinion focuser.
- Cosmology and Space Exploration: A motion was entered by the President and seconded by the Vice President to formally recognize the Cosmology and Space Exploration SIG. The motion was approved unanimously.

**Web Team Report (Terri Lappin)**

- The team is preparing to test a template for updating web site pages that change frequently. The new template will simplify web site updates.

**30-inch Telescope Project**

- Terri Lappin provided a status report on the TAAA's 30-inch mirror and possible options for mounting the mirror. Mark Meanings volunteered to draft a development plan for the project and present it at the September board meeting.

**CAC**

- John Kalas reported that the entry sign and address sign had been vandalized. John recommended and the Board agreed that the signs should not be replaced until a security system is installed. A security system for the site is being investigated. John also reported that the water fountain has been repaired.
- A motion was entered and seconded authorizing John Kalas to investigate property insurance for the CAC site. The motion was approved unanimously.
- Bill Lofquist presented a draft letter to Joe Lupica of Celestron requesting support to build the CAC outdoor education facility. He requested that the Board review the letter and provide comments.
- A motion was entered by the Vice President and seconded to allocate the refund received from SSVEC (for overpayment of Phase 1 electric power installation costs), less the amount to go to Eridanus, to Phase 2 construction costs for extending electric service to the RV Spaces. The motion was approved unanimously.

**Other**

- Loretta McKibben has volunteered to coordinate refreshments at the general meetings.
- Prior to the 12 August meeting, the Board of Directors voted by e-mail to send a check in the amount of \$70.23 to Eridanus. The amount is Eridanus' share of a credit received from SSVEC for overpayment of Phase 1 electric power installation costs. The vote was 6 – 0 to approve.
- Proceeds received from ALCON 2010 were placed into the TAAA General Fund.

Meeting adjourned at 8:50 pm.

Respectfully submitted,  
Luke Scott  
Secretary

## CHIRICAHUA ASTRONOMY COMPLEX

### Facility Update

John Kalas – Construction Coordinator/CAC Site Director

The active monsoon season in Cochise County has not only resulted in the cancellation of the July and August monthly CAC Star Parties but it has also interfered with continued weed control spraying. It seems that, as soon as you knock down the weeds, new ones start growing and take their place. Please see the article in the Club News section soliciting the formation of a maintenance committee. With the start of construction on my property adjacent to the astronomy complex, I do not have the time to spend on maintaining the astronomy complex myself. We need some help, so please consider volunteering for the maintenance committee.

The minor vandalism to the water fountain at the bathroom facility that was reported last month has been corrected. The water fountain has been securely re-attached to the front of the bathroom facility. Unfortunately, another instance of vandalism occurred in early August. The club sign on the side of the entry road was damaged and it has been taken down. A new replacement sign has been ordered. The new sign will not be re-installed until a video surveillance security system is installed. I visited a security company recommended by our contractor, Randy Maddox,

on 8/19 in Huachuca City. I reviewed our requirements with them and they will design a system for the astronomy complex and submit a quote before the end of August. This is very unfortunate because it will be a significant expense that we had not planned on.

We are now very close to submitting the building permit application for Phase 2 development. Phase 2 includes either eight or ten 12'x12' concrete telescope pads with electricity, a 12'x14' roll-off roof observatory for the 14" Celestron telescope/Astro-Physics 1200 Mount donated by Wally Rogers, the amphitheater with an 8'x20' steel storage container for the 18" Obsession dobsonian telescope donated by late member John Zajac and perhaps one additional 8'x20' steel storage container for secure storage at the site. Bill Lofquist is working to raise the necessary funds for the four RV Spaces. We will include the RV Spaces in our Phase 2 building permit with the anticipation of raising the funds within the two-year building permit period.

The next monthly CAC Star Party is scheduled for Saturday, September 11. Hopefully, the monsoons will be over by then and we can get back to enjoying an outstanding observing activity.

## Constellation Report by Chris Lancaster

### Scorpius

The Scorpion

It should be no surprise that this constellation is named after a scorpion. I can think of no other constellation that looks more like its namesake than this one. The bright red star Antares marks the scorpion's heart, and its tail curves down to the southeast, ending in the pair of stars Shaula and Lesath which form the stinger. In mid-July, Scorpius is crossing the meridian as soon as the sky becomes fully dark. In mythology, Scorpius is the scorpion which the goddess Hera sent to attack Orion to prove to the mighty hunter that he, indeed, was not invincible. The scorpion's sting proved fatal, and we see this event played out every spring night--when Scorpius is rising, Orion sets.

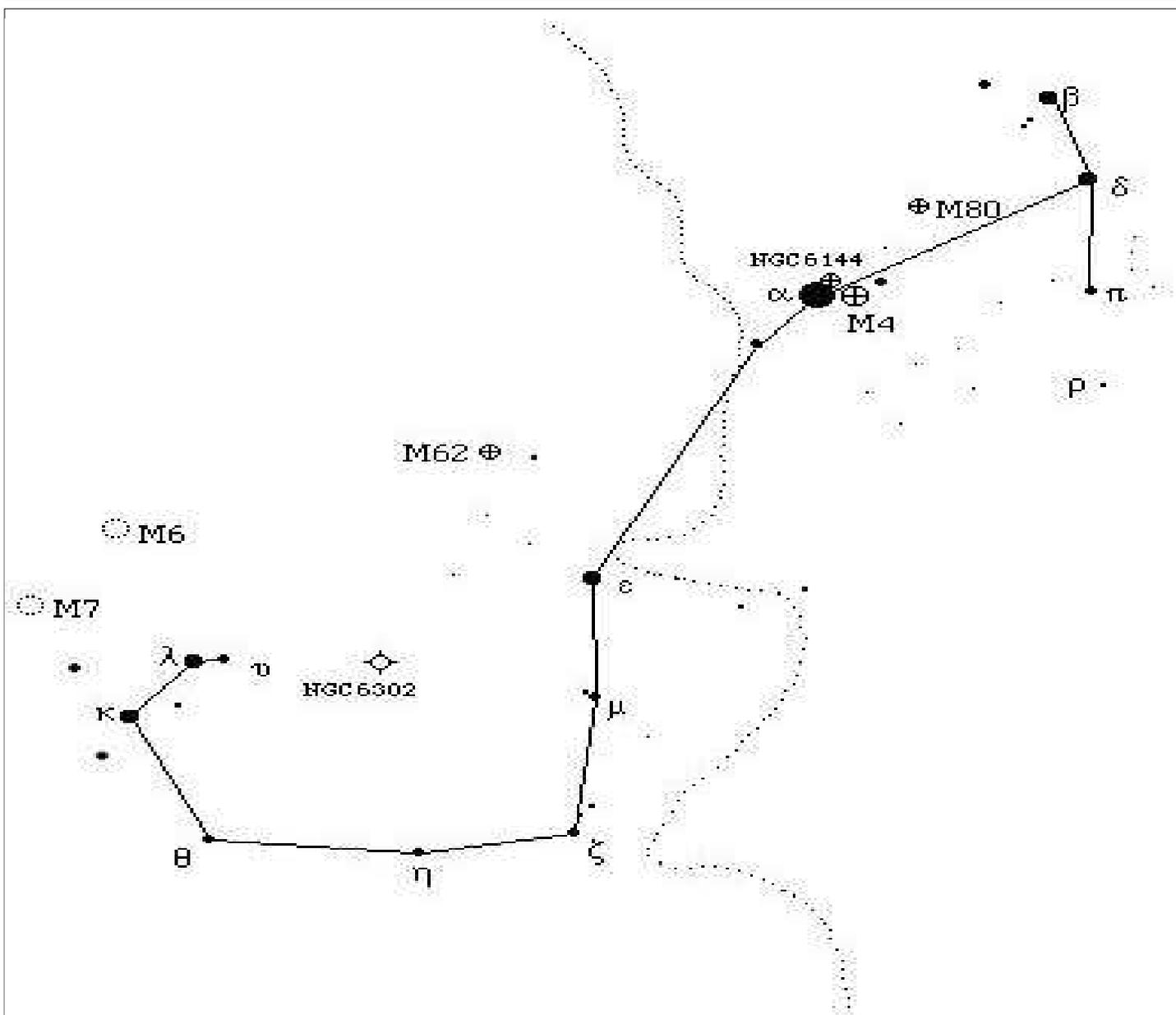
Due to its red color, Antares (Alpha Scorpii) gets its name from the Greek components "anti" and "Ares", which when put together mean "rival of Mars." When the two meet again in the early morning sky during January and February of next year, their color can be easily compared. In the family of stars, however, Antares has a different rival. It and Betelgeuse are the only two M-type supergiants of first magnitude brightness. If viewed at very high power, a sixth-magnitude companion can be glimpsed through the glare of Antares 3 arc seconds distant.

Because much of Scorpius is immersed in the summer Milky Way, the number of galactic deep sky objects it contains compares only with two adjacent constellations, Sagittarius and Ophiuchus. Near Antares (1.3 degrees to the west) is the fantastic globular cluster M4. Shining brightly at magnitude 5.9, this object, spanning 26.3', can be seen easily through a finder scope or binoculars, and is highly resolvable through a telescope. It's one of the best globulars of the summer sky. If you move one degree to the northeast you'll come across NGC6144, which is another globular cluster. Although it suffers a bit from its proximity to the far more spectacular cluster just mentioned, it is a decent globular if judged on its own merits. It is a resolvable cluster measuring 9.3' and shining at magnitude 9.1 only half a degree from Antares.

Another in the list of remarkable globular clusters is situated not quite half way between Antares and Beta Scorpii. Here we see M80, a very rich collection of stars packed in a space of 8.9' and glowing with a magnitude of 7.2. (RA 16h 17m Dec -22d 59.6').

Moving toward the tail of Scorpius is yet another globular cluster, M62. This one practically straddles the boundary separating Ophiuchus from Scorpius, and some debate could be raised about to which constellation it belongs. Since it is in the area, let's go ahead and consider it one of Scorpius's. Although smaller than M4, you might say that this one is the best of the group. At magnitude 6.6, it presents quite a sight in a telescope. Its bright, dense core softens to a

## Constellation Report by Chris Lancaster (cont.)



speckled glow to round out its 14.1' size. Find M62 4.7 degrees northeast of Epsilon Scorpii, or RA 17h 01.2m Dec -30d 7'.

Between the middle part of the scorpion's tail and the stinger is an interesting planetary nebula called the Bug Nebula, NGC6302. While it glows only at magnitude 13, it is fairly easy to see in medium sized telescopes because it measures only 0.8', so its surface brightness is moderately high. Look 4 degrees west from Lambda Scorpii, or center your scope on RA 17h 13.7m Dec -37d 06'. This does not fit the typical planetary nebula appearance, which is normally oval or round in shape with perhaps a pair of lobed structures extending out into space. What we are seeing with NGC6302 apparently is a former star which has its rotational axis perpendicular with our line of sight. It has a pronounced pinch in the middle with material fanning out to each side.

To the naked eye, the pair of open clusters M6 and M7 show as fuzzy blobs 4 degrees northeast of Lambda Scorpii. M6, nicknamed the Butterfly Cluster, is a collection of 80 stars of magnitude 7 and dimmer which trace the shape of a butterfly's wings. Take special notice of the two lines of dim stars which form the insect's antennae. M7 is about 4 times larger than M6 and contain stars of similar brightness. Binoculars are all you need to savor this cluster, but a telescope will show you the subtleties of the colors of these stars.

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.

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

##### **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.

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.