

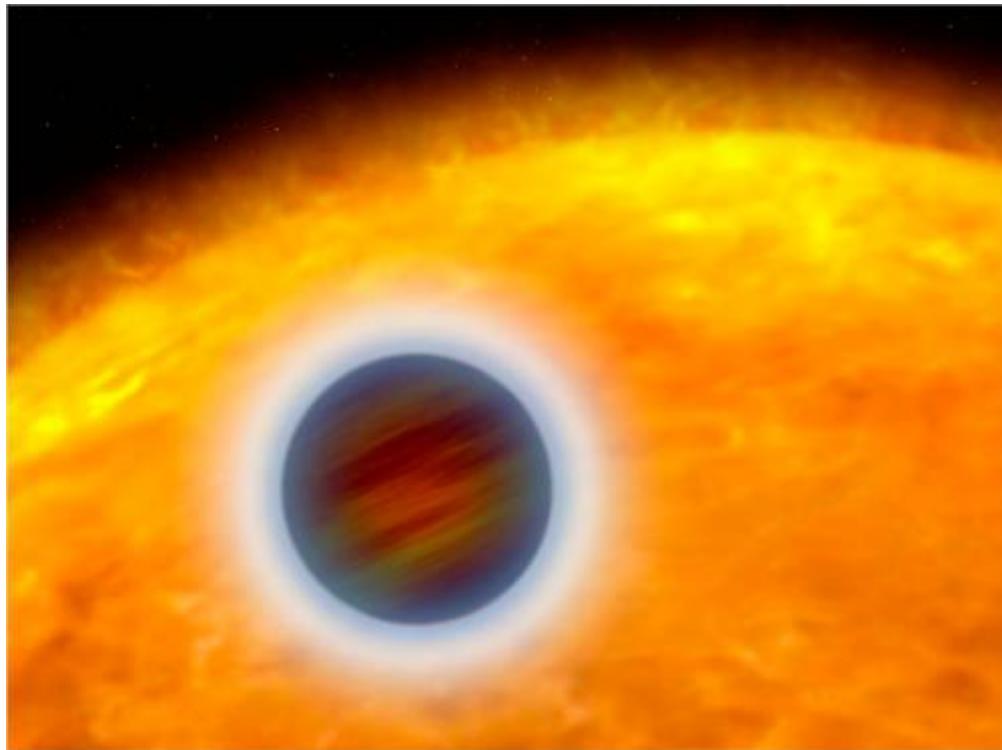


# Desert Skies

Tucson Amateur Astronomy Association

Volume LIV, Number 4

April, 2008



## Hot-Jupiter Extrasolar Planets

### Inside this issue

- ◆ Learn about the
- ◆ School star parties
- ◆
- ◆ Constellation of the month

**Cover Photo:** Artist's illustration of the extrasolar planet designated HD 209458b. Image from <http://hubblesite.org/newscenter/archive/releases/2007/07>

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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..... | \$ 5.00 |
| 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 ..... \$ 4.60

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

##### Renewal Information

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

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

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

Tucson Amateur Astronomy Association  
PO BOX 41254 Tucson, AZ 85717

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

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

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

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

#### Join our Email Lists on YahooGroups

Announcements: <http://tinyurl.com/e7o3y> (TAAA news, no posting allowed, 15/month)

TAAA Forum: <http://tinyurl.com/hwoau> (general astronomy discussion, posting allowed, 75/month)

TAAA Dark Site: <http://tinyurl.com/3d8ts9> (discussion of dark site issues, posting allowed)

## President's Message

Spring is upon us, and long observing nights will not be so cold. There are a number of opportunities available to us to take advantage of.

The first one coming up very soon is the Messier Marathon. This exciting event will be on Saturday, April 5. Look elsewhere in this issue for directions to get there and when to be ready and set up. I would encourage those who have never done the Marathon to join the fun, especially those who are in the early stages of developing your observing skills. It is an excellent way to get a full orientation to the celestial sphere and a source of great satisfaction.

Then there is the Grand Canyon Star Party from June 21 to 29. This is a great way to spend several days or a full week of vacation with other astronomy enthusiasts. The daytime activities are plentiful and a number of special events, mostly about food, give plenty of time to visit with new and old friends.

As you can see from other articles in this issue, the Beginners' Special Interest Group is being given a new name and reenergized with new ideas. To be known as the Astronomy Fundamentals Special Interest Group (AFSIG), the purpose is being broadened to include more people and activities. Thanks to J.D. Metzger, Mary Turner, Dennis McMacken and Steve Marten for leading the way. We will be putting more emphasis at each general meeting on the AFSIG and in the newsletter. Look for announcements about new events and activities.

TAAA was an active participant again this year in the SARSEF science competition. Steve Marten coordinated our involvement in this important event. The science projects completed by the students were impressive, and we helped in the judging and presented prizes to the winners.

The wheels continue to turn on our development of the Astronomy Complex in Sulfur Springs Valley. A special meeting was held on March 15 during which we got down to the business of planning the building of the roads and the water/electric/septic systems. We also discussed more specifically how we want the arrangement of the facilities to be. We hope to complete our meeting of the conditions outlined by the Planning and Zoning Commission by the end of April so the property can be deeded to TAAA by the Perseus Group and we can really get under way with the construction.

Another special meeting on the Astronomy Complex will be held in late April. The date for this meeting will be announced during the month. We will need volunteers to work with the Ad Hoc Working Groups on several topics. These temporary groups will come up with the specifics of how things will be done. For example, one group will work on designs for small observatories and another will focus on landscaping.

Be on the lookout for the date for the dedication of the new observatory at TIMPA. We will have first light for the 14" telescope after a potluck meal. Thanks again to George Barber for coordinating the construction. It has taken a while to realize this goal, but it has happened and will add to our observing opportunities.

Members' Night will be coming up at the May general meeting, so be thinking about things you would like to share at that time. The election of Board of Directors members will also be that night.

Clear skies,  
Bill Lofquist

## Meeting Information and Calendar of Events

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

**ASTRONOMY ESSENTIALS:** 6:30 pm

Title: Objects of the Season  
Speaker: Dr. Mary Turner

Dr. Turner will give her quarterly update on the best objects for observing during the spring and early summer season.

**GENERAL MEETING:** 7:30 pm

Title: Space Telescope Observations of the Atmospheres of Hot-Jupiter Extrasolar Planets  
Speaker: Gilda E. Ballester, UA Lunar and Planetary Laboratory

The past few years have seen dramatic progress in the characterization of extrasolar planets. Discovery observa-

tions are being made, predominantly with the Hubble and Spitzer Space Telescopes, where minute drops in the stellar signal are detected during planetary transits.

At our April 4th meeting, Dr Gilda Ballester will summarize recent results for two transiting planets, HD 209458b and HD 189733b. The stars these planets orbit are bright enough for high quality transit observations spanning from the ultraviolet to the infrared. These are new kinds of worlds, Jupiter-mass planets in tidally-locked orbits inside 0.05 AU, exposed to extreme environments of irradiation from their sun-like stars. The hot upper atmospheres are highly inflated and undergo strong atmospheric escape and comet-like interactions as evidenced by detections of H, O and C+. The lower atmospheres reach temperatures of 1000 K, and the resulting composition is exotic, more akin to that of small mass stars. Species like water, methane, and hazes of iron or silicates have been detected.

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

Dr Ballester is an Associate Research Scientist at the UA Lunar and Planetary Laboratory. She received her doctorate from Johns Hopkins University in 1989.

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

### STAR PARTIES AND EVENTS:

05 April - All Arizona Messier Marathon  
 05 April - TAAA Star Party at Las Cienegas  
 06 April - U of A Astronomy Students Star Party  
 07 April - Astro-imaging SIG at China Rose  
 08 April - Ft. Lowell ES/ Camp Cooper Star Party

10 April - Agua Caliente ES Star Party  
 10 April - Astronomy Fundamentals SIG  
 11 April - Borton Primary Magnet School Star Party  
 12 April - Tucson Pima Public Library  
 12 April - TAAA and AFSIG Star Party at TIMPA  
 14 April - Sahuarita HS Star Party  
 15 April - Hohokam MS/ Las Cienegas Star Party  
 23 April - Pima College, Earth Day  
 30 April - Ft. Lowell ES/ Camp Cooper Star Party  
 01 May - Marana High School Star Party

**NEWSLETTER SCHEDULE:** Deadline for articles: Sat, April 19. Printing: Tue, April 22. Folding Party: Wed, April 23. Mailing: Thu, April 24. The newsletter is mailed 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: Guillermo Molano and James Molnar. 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 online at either Yahoo Groups email list website under Files, or at most meetings.)

Fundamentals Special Interest Group (AFSIG). We will be announcing the new programs as they are rolled out over the next few weeks and months.

The first meeting of the AFSIG will be on Thursday, April 10. Details and directions to the new meeting location are in a separate article.



### Astro-Imaging SIG Meeting

Monday, April 7, 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.

Below is a listing of the NSN toolkits that can be used for any outreach or educational type of activity (school star party, private parties, and public events). They contain essentially all the materials needed for the projects. Any TAAA member can borrow the kits. All projects are easy to do and you don't have to use all the projects in each kit. You get to pick and choose the project(s) you demonstrate. Contact Terri Lappin at [treasurer@tucsonastronomy.org](mailto:treasurer@tucsonastronomy.org) if you want to borrow a kit.

### TAAA Apparel

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

**PlanetQuest:** materials to explain how planets are detected, why we put telescopes in space, treasure hunt for objects related to stellar evolution, star chart of naked eye stars known to have planets in orbit

**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, includes a game that a group or family can play

**Telescopes - Eyes on the Universe:** explains the basic principles of optics, the human eye, and observing

**Shadows and Silhouettes:** covers lunar phases, eclipses, and transits

### Beginner's SIG Renamed to Astronomy Fundamentals SIG

By J.D. Metzger

The BSIG Revitalization Project meeting was held on Saturday, March 22. Several initiatives were discussed and plans are being made to implement some exciting new programs and activities that will redefine the scope of the old Beginner's Special Interest Group. As a result, the name of the BSIG has been changed to the Astronomy

**Club News (cont.)**

**Exploring the Solar System:** scale model (size and distances) of solar system and NASA explorations of planets

**GLOBE at Night:** light pollution principles

All NSN toolkits include a Resources CD, a training DVD, and essentially all the materials needed for the projects. Each workshop attendee will receive a CD and DVD set. You can also request a copy of the CD and DVD set at a meeting.

The Night Sky Network has also given us a SolarScope to use in our outreach efforts. It provides a white light image of the sun suitable for a small group to view together.

### **The TAAA Announcements, Forum and Dark Site Email Lists**

Do you have email? Are you a member of the TAAA Announcements List or the TAAA Forum? Want to stay informed about the Dark Site activities? We have three email distribution lists on Yahoo®!Groups which TAAA members can sign up for. Members of the Announcements List receive reminders and information about TAAA events. The TAAA Forum List allows members to send emails to everyone on the forum. There are about 15 announcements and about 75 forum messages per month. The TAAA Dark Site list is the newest email list. Activity on this list should increase with the future work planned for our dark site.

Since Yahoo®!Groups hosts these lists, you may see ads inserted into the email messages. The TAAA has no control over the content of these ads; however, your email program or internet security software may be configurable to block the ads so you won't see them.

Membership in these groups is restricted to TAAA members. Please follow the directions below to join. Please also send an email to Terri Lappin at [treasurer@tucsonastronomy.org](mailto:treasurer@tucsonastronomy.org) letting her know you have requested membership in the list(s). Be sure to include your name so she can verify your membership and approve your request.

If you are a member of Yahoo:



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Go to the following websites and click on "Join this Group".

Announcements: <http://tinyurl.com/e7o3y> (same as <http://groups.yahoo.com/group/tucsonastronomy>)

TAAA Forum: <http://tinyurl.com/hwoau> (same as <http://groups.yahoo.com/group/taaaforum>)

TAAA Dark Site: <http://tinyurl.com/3d8ts9> (same as <http://groups.yahoo.com/group/TAAADarkSite>)

If you aren't a member of Yahoo:

Join Yahoo by going to the above URLs and registering when you see the Login screen. Before joining Yahoo, it's recommended that you visit the Yahoo®!Groups website (<http://groups.yahoo.com/>) to learn about their privacy policy (link is at the bottom of the screen). Once you join, you should check the default "Marketing Preferences" for your account by clicking on "My Account" (top of the screen), and then "Edit your marketing preferences" (about center of screen).

If you don't want to join Yahoo:

Send a blank email to the following addresses using your email account where you want the messages to be sent.

Announcements:

[tucsonastronomy-subscribe@yahoogroups.com](mailto:tucsonastronomy-subscribe@yahoogroups.com)

TAAA Forum: [taaaforum-subscribe@yahoogroups.com](mailto:taaaforum-subscribe@yahoogroups.com)

TAAA Dark Site:

[TAAADarkSite-subscribe@yahoogroups.com](mailto:TAAADarkSite-subscribe@yahoogroups.com)

If you have any problems, contact Terri Lappin at [treasurer@tucsonastronomy.org](mailto:treasurer@tucsonastronomy.org).

### **Astronomy Fundamentals Special Interest Group** (formerly the Beginner's Special Interest Group) AFSIG for April

#### **New Name! New Day! New Time! New Location!**

The Astronomy Fundamentals Special Interest Group will meet on Thursday, April 10, at 6:30 pm. The meeting will be held at the Environmental and Natural Resources Building (USGS and Weather Service) in room 253. The USGS building is on the northeast corner of Sixth Street and Park Avenue on the campus of the University of Arizona.

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## Club News (cont.)

Parking will be available in the lot to the east of the building. There are no restrictions on parking after 5:00pm. To get to the lot, go one block north on Park and turn east onto Lowell. The entrance to the lot will be on your right shortly past the building. From the parking lot walk through the breezeway to the open courtyard. Take the stairway to the second floor patio area. Room 253 is immediately to the left side of the patio at the top of the stairs.

Dinner will not be provided, so you should have dinner before the meeting, or feel free to bring a snack with you.

J.D. Metzger will present "All About Eyepieces", always a popular topic. Join us for the meeting and at TIMPA the following Saturday, April 12, for (we hope) clear skies!

### Basha's Thanks a Million Program

Basha's has an excellent program to support local non-profit groups like the TAAA. It's called the Basha's Thanks a Million for Friends and Neighbors program. This is a no-brainer fundraiser. If you shop at Basha's and have a "Thank you" card, the next time you go through the checkout, give the cashier this number: ID #23178. They can look up the number using our name, too. It's that easy! Just do it once. At the end of the program next spring, Basha's will make a donation to the TAAA based on the total sales of every Thank You card linked to our number. Anyone can participate, so give our number to family and friends. If you participated last year, you need to give our ID number again, or your sales won't count. Thanks to everyone who participates.

**ID # 23178**

### Upcoming Lectures

Members Night is coming up next month! There will be a sign up sheet for presenters at the April meeting.

Please note that our July meeting would fall on the 4th of July this year. Instead it will be held on the following Friday night, July 11th. Mark your calendars!

|        |                             |  |
|--------|-----------------------------|--|
| May 2  | <i>Astronomy Essentials</i> | Members Night,<br>meeting begins at<br>6:30pm<br>Election of Offi-<br>cers |
|        | <i>Invited Lecture</i>      |  |
| Jun 6  | <i>Astronomy Essentials</i> | Steve Marten<br>Ancient Astrono-<br>mers and What<br>They Already<br>Knew  |
|        | <i>Invited Lecture</i>      | Randy Jokipii<br>Solar Heliopause<br>and Voyager                           |
| Jul 11 | <i>Astronomy Essentials</i> | Mary Turner<br>Seasonal Objects  |
|        | <i>Invited Lecture</i>      | <i>OPEN</i>  |

### Member's Events

#### TAAA and AFSIG Star Party at TIMPA Saturday, April 12

Come on out and enjoy the Spring skies! TIMPA star parties are great for both beginners and experienced observers. Our novice members can get help with observing issues or equipment problems, as there are many experienced members there who would be happy to help.

If you don't own a telescope, come anyway, because there are lots of telescopes set up and everyone is invited to look through them. This is a great way to check out different telescope designs before you make that all important decision to buy. We'll do our best to get you the answers you need. If you have friends or relatives who are curious about amateur astronomy, feel free to bring them along. The TIMPA site features a large parking area, and full restroom facilities. Directions to the TIMPA site are located on the outside flap of this newsletter.

#### Ketelsen-Johnson Celebration and Star Party

26 April 2008  
TIMPA Observing Site  
5:00 pm til ???

Many of you know that Dean Ketelsen is engaged to be married to Melinda Johnson on 7 June in St Charles, Illinois. Additionally, he will be joining the ranks of winter visitors, taking early retirement from UA, and will then work part time at the Mirror Lab in the late fall and winter.

You are all invited to join in a celebration honoring them on Saturday evening, 26 April, at TIMPA. This will be their only Tucson party! Besides all their TAAA buddies, friends of Dean and Melinda, and of Dean's late wife Vicki, are invited as well as his coworkers at the Mirror Lab. All are invited to bring scopes to share views of the sky.

Friends of the couple are invited to a Mexican dinner buffet at 5:30 pm. To be included in dinner plans, you must

**Member's Events (cont.)**

RSVP with a head count for your group to <valerie@axeconsult.com> and put "Dean & Melinda party rsvp" in the subject line. Those without e-mail may call Valerie Vance-Goff at 790-1452. Dinner RSVPs MUST be received by Saturday, 12 April (1st quarter moon). Plan ahead and let Valerie know by 1st quarter moon so she can organize the catering!

The happy couple would like everyone to share in their joy as they start their life together, however they ask for no gifts (or they will be forced to hurt you...!)

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

Saturday, 05 April

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.

**SHARING THE SKY PUBLIC STAR PARTY**

National Astronomy Day  
May 10, 2008

What better way to celebrate National Astronomy Day than to participate in the Sharing the Sky Public Star Party fundraiser hosted by David and Wendee Levy. You will have the opportunity to do so on Saturday, May 10<sup>th</sup> from 3:00 to 10:00 PM on the University of Arizona Mall across from Flandrau Science Center. The Sharing the Sky Foundation is a 501c (3) organization that is dedicated to motivating and teaching the public about the night sky.

As in years past, we will have telescopes set up for solar viewing in the afternoon and night sky viewing in the evening. Because it is National Astronomy Day, there will also be some special hands-on activities for children and adults. We will need members to help with these activities, so if you don't have a telescope and want to help, we would appreciate your assistance with the special activities and collecting donations.

Door prizes are always a fun part of this event. This year we are asking the TAAA to donate astronomy related items suitable for the general public. Books, star charts, and anything that the public would enjoy winning would

be appreciated. All items must be in very good condition. So, do your spring cleaning early this year and donate those unused items that you keep around but are just collecting dust. We will be collecting the items at the April and May meetings. Please see Liz or John Kalas before or after the meeting.

In the past, the STS committee instituted corporate sponsorship as a means of increasing donations and it was very successful. Sponsor forms will be available at the April and May meetings. If you know of a company that would be interested in supporting this great event, please pick up a sponsor form or contact Liz Kalas.

David and Wendee would like to thank all of you for helping with this worthwhile event. Support from the TAAA is essential for the success of this activity. There will be sign up sheets at both the April and May club meetings or you can call or e-mail Liz Kalas at 620-6502, liz-kalas@cox.net.

**Grand Canyon Star Party**

21-28 June, 2008  
North and South Rims  
By Dean Ketelsen

It is definitely time to finalize those plans for the Grand Canyon Star Party! There are a couple items of note to think about. First, I take names for the free campsites on 1 March. This assures everyone gets a shot at getting one. Generally, only those staying at least 6 of the 8 nights will be allocated one of these campsites. If you are only joining us for a day or two, please make your own reservations. They usually go pretty fast so mark your calendar. I would really like to get e-mails - phone messages need to get written down and might get lost, so a semi-permanent record (like e-mail) is preferred. The Park Service is upping us to 18 sites this year, and since the sites are limited to 2 cars and we are all friendly folk, I usually try to double up on occupancy. So please let me know if a: you are already planning to share with a friend and will have more than 1 vehicle, or b: if you are driving a large vehicle which may prevent parking a second vehicle in a site. We usually get 25-28 astronomers in the 16 sites we normally get.

Secondly, there will be a North Rim event this year! After some prodding by the new staff why we were cutting back their star party (last year's staff were the ones requiring a cutback last year!), Steve Dodder (and lovely wife Rosie from the Saguaro Astronomy Club) stepped up and will be running the resurrected event. There is a link to north rim information on the Grand Canyon Star Party page, so if you have ever considered attending that version, be sure to contact them.

That is about it for now - if anyone has questions, please let me know at ketelsen@as.arizona.edu. Thanks!

## Items of Interest

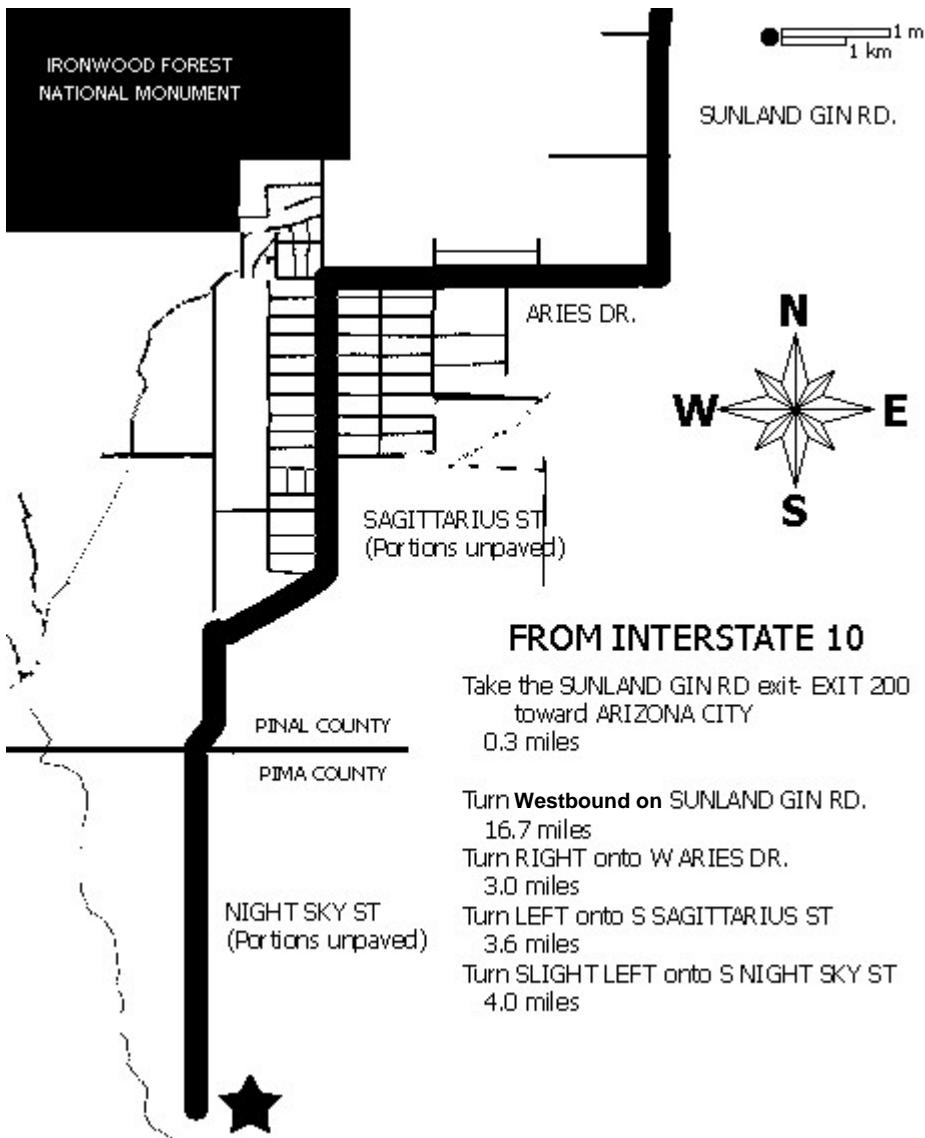
### All Arizona Messier Marathon

This yearly event is held just south of Arizona City. This year's dates are April 5 and 6. For more information, go to <http://www.saguaroastro.org/content/messier2008.htm>.

The site is 80 miles from Phoenix Sky Harbor Airport, 86 Miles from Tucson Intl Airport

The nearest town of any size is Casa Grande; this is your best bet to look for local accommodations. (See AZ City Motels). Saguaro Astronomy Club makes no recommendations on the quality or availability of accommodations. You need to make your own reservations.

Allow at least 2 hours to get to the site from either airport. The road leading to the site is dirt, although it is well maintained, you really don't want to go faster than 30 mph.



**ID # 23178**

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

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

Or feel free to contact:

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

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

WE USUALLY HAVE PIZZA !!!

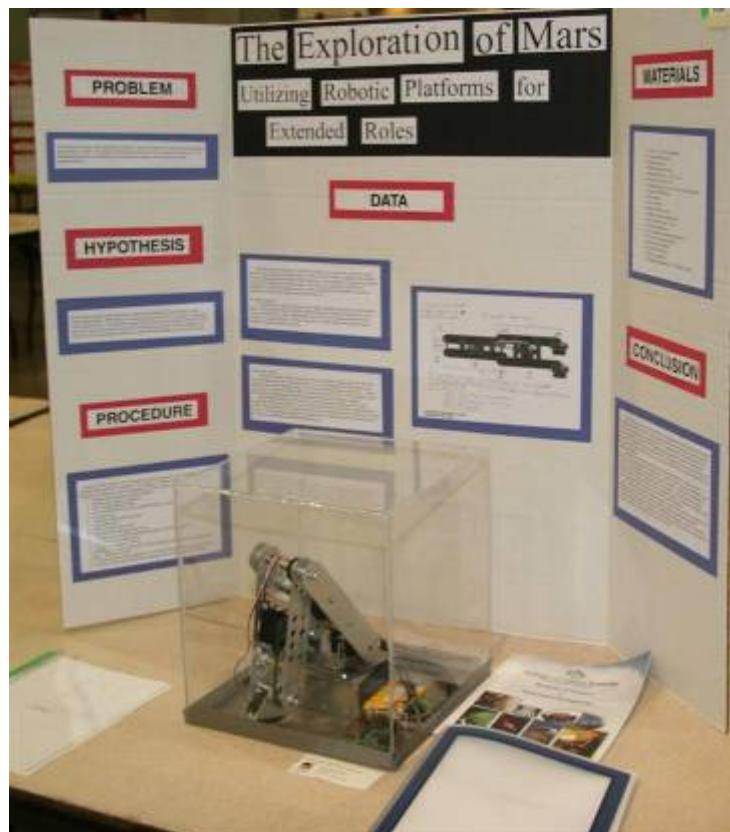
### Items of Interest (cont.)

#### TAAA Astronomy Awards at SARSEF

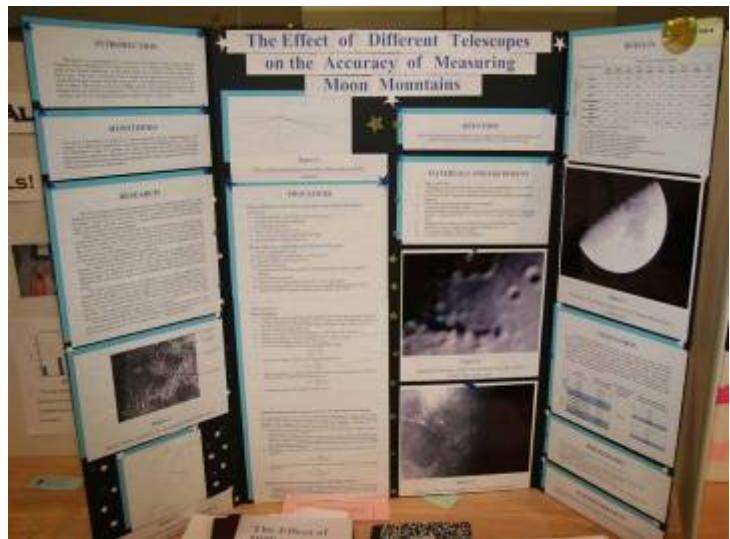
By Steve Marten

The Southern Arizona Regional Science and Engineering Fair (SARSEF) was held March 18-21 at the Tucson Convention Center. The several days of judging and exhibition were followed by award ceremonies on Thursday night (elementary grades) and Friday night (middle and high school grades). Various sponsors including **Texas Instruments** and **Raytheon Missile Systems** provided a number of valuable prizes including scholarships, notebook computers, sophisticated calculators, gift certificates and cash. Cash prizes and gift certificates ranged from \$25 to \$1000. Steve Marten personally presented TAAA SARSEF awards to astronomy-related exhibit winners on Friday, March 21.

Many science awards went to female students again this year and their work was truly impressive. Women instructors and scientists from the University of Arizona had visited most of the area schools earlier this school year encouraging girls to get involved in science and construct exhibits. Both SARSEF finalists selected to continue to the next competitive phase (International Science and Engineering Fair in Atlanta Georgia) are female students.



SARSEF Astronomy exhibits were evaluated by three TAAA judges: Dennis Nendza, Molly Hancock and Steve Marten. Exhibits included optics, Doppler shift and engineering themes and several were more about observing and fun.



Most of the written exhibit presentations were excellent including an objective or thesis, well documented scientific steps and conclusion. First place winner Daniel Kerpes managed to tag along to Kitt Peak for two nights of observation, at times using a UofA scope when his instructor was away from the scope taking notes for a different project. Dallas Hodge put his interest in robotics to use by relating it to past and present Mars probes, including the Phoenix Mars Mission. For 3<sup>rd</sup> place, Peter Angeli compared photos from a smaller scope and a new larger scope. The new scope vastly improved his measurements of mountains on the moon, calibrating arc seconds per pixel. The judges were also impressed with the entry from young 2<sup>nd</sup> grader David Quinones. To simulate how the rapid rotation of rock and ice appears as rings around Saturn, he attached various small items and glitter to an LP vinyl record and took pictures of the LP rotating rapidly.

#### TAAA/SARSEF Astronomy Awards

**1<sup>st</sup> Place:** **Daniel Kerpes** (Grade 9) - Correlation of Angular Size and Red Shift of Galaxies

**2<sup>nd</sup> Place:** **Dallas Hodge** (Grade 9) - Robotics in Planetary Exploration

**3<sup>rd</sup> Place:** **Peter Angeli** (Grade 7) - Effect of Different Telescopes on the Accuracy of Measuring Mountains of the Moon

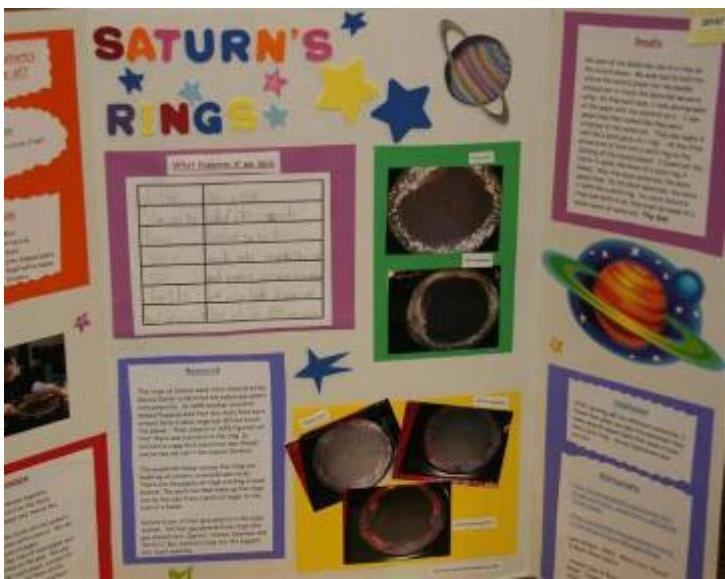
#### Honorable Mention

**Robert Biggs** (Grade 8) - Linear and Logarithmic Light intensity Changes

**David Quinones** (Grade 2) - Saturn's Rings

All awardees received a signed TAAA Certificate of Recognition and one free family membership for one year. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Place awardees also received TAAA/Starizona Gift Certificates of \$100, \$75 and \$50, respectively.

## Items of Interest (cont.)



Note: Beginning in 2008, Raytheon FunFest will hold its annual event in October vs. a joint event with SARSEF each spring.

## Public Star Parties and Community Events

All members of 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.

### **UofA Astronomy Students Star Party**

April 6 (Sunday)

6 scopes

The TAAA will be supporting a star party for two classes of astronomy students from the UofA. The event will be held at the Saguaro National Park West in the parking lot at the Visitors Center. The activity runs from 7:00 to 9:00 pm. Set-up will start at 6:00 pm and must be completed before 7:00 pm when the students arrive. Approximately 60 students are expected to attend. This is a fun event. The students are very interested and appreciative and will be asking lots of questions to complete their assignments for the evening. John Kalas is the coordinator. There will be a sign-up sheet at the April 4<sup>th</sup> meeting. If you are interested in helping out but are unable to attend the meeting, please give John a call at 620-6502 or e-mail him at <[jkalas@cox.net](mailto:jkalas@cox.net)> to volunteer.

### **Ft. Lowell ES/ Camp Cooper Star Party                            West**

Tuesday, 4/08/2008

No. of Scopes: 2

**Ft. Lowell ES/ Camp Cooper** will be holding Moon and Constella at 5745 W. Trails End Rd. Drive west on Speedway or Anklam Road. Just beyond the intersection of Speedway and Anklam turn right (north) on to Camino De Oeste. Turn left (west) on to Trails End Road. Drive one mile. Cooper ESC is on the left (south) side of the road. Viewing will be at the telescope designated location at Camp Cooper. Contact person Celeste Aho can be reached at 520-232-7159 or email [celeste.aho@tusd1.org](mailto:celeste.aho@tusd1.org). Set-Up Time: 7:15pm. Observing will be from 7:45 pm to

8:30 pm. Sunset: 6:49pm Dark Sky: 7:43pm Moon Phase: Crescent after New Moon.

### **Agua Caliente ES Star Party**

Thursday, 4/10/2008

**East**

No. of Scopes: 6

**Agua Caliente ES** will be preparing Star Party and Family Fun Picnic at 11420 E. Limberlost Rd. Go east on Tanque Verde, turn left (north) on Catalina Hwy. Turn right (east) on Prince, past Houghton, then Melpomene, go to end (Homestead), take left (north). Less than a block on left side. Viewing will be on the Playing field east of school building. Pass school, take right onto Homestead. Access gate to field/setup is on right. Drive onto field. Contact person Dan Beach can be reached at 520-749-2235 or email [dbeach14@cox.net](mailto:dbeach14@cox.net). Set-Up Time: 7:00pm. Observing will be from 7:30 pm to 9:15 pm. Sunset: 6:50pm Dark Sky: 7:45pm Moon Phase: near First Quarter.

### **Borton Primary Magnet School SP                            South-Central**

Friday, 4/11/2008

No. of Scopes: 3

**Borton Primary Magnet School** will be holding Night Sky Adventure at 700 E. 22nd. Viewing will be on the basketball court on the south side of the school. Contact person Caryl Crowell can be reached at 225-1058 or email [Caryl.Crowell@tusd1.org](mailto:Caryl.Crowell@tusd1.org). Set-Up Time: 7:15pm. Observ-

## Public Star Parties and Community Events

ing will be from 7:45 pm to 9:45 pm. Sunset: 6:51pm Dark Sky: 7:46pm Moon Phase: near First Quarter.

**Tucson Pima Public Library**      **South-Central**  
 Saturday, 4/12/2008      No. of Volunteers: 1 or 2

**Tucson Pima Public Library** will be planning a Project Astro/ Night Sky Adventure activity for a minimum of ten children at 101 N. Stone Avenue. From Speedway, take Stone Ave. South to Alameda, Right on Alameda, left into the library parking garage. Contact person Ella Gomez can be reached at 520-791-4393 or email [Ella.Gomez@pima.gov](mailto:Ella.Gomez@pima.gov). Free parking will be available for TAAA volunteers! Set-Up Time: 1:30pm. Activity will be from 2:00pm to 3:00pm.

**Sahuarita HS Star Party**      **South**  
 Monday, 4/14/2008      No. of Scopes: 4

**Sahuarita HS** will be hosting Star Adventure at 350 W. Sahuarita Rd. I-19 to exit 75 Sahuarita Rd. Turn east and go past the elementary and middle schools. Just after the Administration building there is the High School parking entrance. Viewing will be in the High School Football Field. Contact person Ralph Bonati can be reached at 520.625.3502 or email [rbonati@sahuarita.k12.az.us](mailto:rbonati@sahuarita.k12.az.us). Set-Up Time: 7:15pm. Observing will be from 7:45 pm to 9:45 pm. Sunset: 6:53pm Dark Sky: 7:48pm Moon Phase: near First Quarter.

**Hohokam MS/ Las Cienegas SP**      **Southeast**  
 Tuesday 4/15/2008      No. of Scopes: 2

**Hohokam MS** will be preparing Star Party Camp out at Las Cienegas. From Tucson, go East on I-10 to the Sonita exit 83 South. Just past (.5 ~) mile marker 39, turn east on dirt road to Las Cienegas. Follow the flags for 10 mi. on EC901, past the Empire Ranch HQ. Essentially, you will veer or go left when the situation arises on the road. We are camping in the agriculture fields. Viewing will be the same place as in the past. Contact person Stacia Reeves can be reached at 908-3700 (cell 490-7197) or email

[Stacia.Reeves@tusd1.org](mailto:Stacia.Reeves@tusd1.org). Dinner at 6:00pm will be available for TAAA volunteers! Set-Up Time: 7:15pm. Observing will be from 7:45 pm to 9:45 pm. Sunset: 6:55pm Dark Sky: 7:50pm Moon Phase: near Full Moon.

**Pima College, Earth Day**      **Northwest**  
 Wednesday, 4/23/2008      No. of Solar Scopes: 2

**Pima Community College** will be celebrating Earth Day at the Northwest Campus. Contact person Denise Meeks can be reached at 206-2247 or email [dmeeks@pima.edu](mailto:dmeeks@pima.edu). Lunch will be available for TAAA volunteers! Set-Up Time: 8:30am. Solar observing will be from 9:00am to 1:00pm.

**Ft. Lowell ES/ Camp Cooper Star Party**      **West**  
 Wednesday, 4/30/2008      No. of Scopes: 3

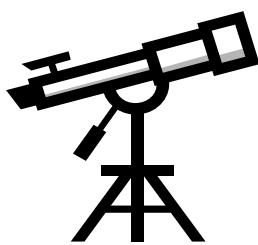
**Ft. Lowell ES** will be hosting Comets, Asteroids, and Constellations at 5745 W. Trails End Rd. Drive west on Speedway or Anklam Road. Just beyond the intersection of Speedway and Anklam turn right (north) on to Camino De Oeste. Turn left (west) on to Trails End Road. Drive one mile. Cooper ESC is on the left (south) side of the road. Viewing will be at the telescope designated location at Camp Cooper. Contact person Thalia Wright can be reached at 520-232-7153 or email [thalia.wright@tusd1.org](mailto:thalia.wright@tusd1.org). Set-Up Time: 7:30pm. Observing will be from 8:00 pm to 10:00 pm. Sunset: 7:05pm Dark Sky: 8:02pm Moon Phase: (no moon during viewing).

**Marana High School Star Party**      **Northwest**  
 Thursday, 5/1/2008      No. of Scopes: 4

**Marana High School** will be holding a Star Party at 12000 W. Emigh Rd. Contact person Gloria Gorosave can be reached at 682-1037 or email [G.N.Gorosave@maranausd.org](mailto:G.N.Gorosave@maranausd.org). Set-Up Time: 7:30pm. Observing will be from 8:00 pm to 10:00 pm. Sunset: 7:05pm Dark Sky: 8:03pm Moon Phase: (no moon during viewing).

## SHARING THE SKY PUBLIC STAR PARTY National Astronomy Day May 10, 2008

3:00 to 10:00 PM on the University of Arizona Mall  
 across from Flandrau Science Center.

**Telescopes for Borrowing**

**Free service**  
Only for Members

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

These telescopes are in the program

**Sears 60mmf/15 on equatorial mount  
Unitron 62mmf/14.5 on equatorial mount**

**Meade 90mm ETX**

**Coulter Odyssey8 8-inch f/4.5 Dobson  
Meade 8-inch f/4 Schmidt-Newtonian LXD-55  
Meade 10-inch f/4.5 on equatorial mount  
Meade 10" LX200 GPS (requires training session)**

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

**Board of Directors Elections**

The following people are currently running for office:

|                 |                  |
|-----------------|------------------|
| President:      | Ken Shaver       |
| Vice President: | Keith Schlottman |
| Secretary:      | Steve Marten     |
| Treasurer:      | Terri Lappin     |

The election will be held at the May meeting. Nominations and acceptances will be accepted from the floor at the meeting.

Member at Large (3 positions): John Kalas, Teresa Plymate, George Barber.

**Dark Skies for April 2008**

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

|       |       |              |       |       |             |       |       |               |
|-------|-------|--------------|-------|-------|-------------|-------|-------|---------------|
| Mo/Tu | 31/ 1 | 20:07 - 3:29 | Fr/Sa | 11/12 | 1:27 - 4:33 | Mo/Tu | 21/22 | 20:26 - 20:34 |
| Tu/We | 1/ 2  | 20:08 - 4:02 | Sa/Su | 12/13 | 2:11 - 4:32 | Tu/We | 22/23 | 20:27 - 21:31 |
| We/Th | 2/ 3  | 20:08 - 4:33 | Su/Mo | 13/14 | 2:48 - 4:30 | We/Th | 23/24 | 20:28 - 22:27 |
| Th/Fr | 3/ 4  | 20:09 - 4:45 | Mo/Tu | 14/15 | 3:20 - 4:29 | Th/Fr | 24/25 | 20:29 - 23:19 |
| Fr/Sa | 4/ 5  | 20:10 - 4:43 | Tu/We | 15/16 | 3:49 - 4:28 | Fr/Sa | 25/26 | 20:29 - 0:07  |
| Sa/Su | 5/ 6  | 20:11 - 4:42 | We/Th | 16/17 | 4:15 - 4:26 | Sa/Su | 26/27 | 20:30 - 0:49  |
| Su/Mo | 6/ 7  | 20:12 - 4:40 | Th/Fr | 17/18 | - - -       | Su/Mo | 27/28 | 20:31 - 1:26  |
| Mo/Tu | 7/ 8  | 21:05 - 4:39 | Fr/Sa | 18/19 | - - -       | Mo/Tu | 28/29 | 20:32 - 1:59  |
| Tu/We | 8/ 9  | 22:19 - 4:37 | Sa/Su | 19/20 | Full Moon   | Tu/We | 29/30 | 20:33 - 2:30  |
| We/Th | 9/10  | 23:30 - 4:36 | Su/Mo | 20/21 | - - -       | We/Th | 30/ 1 | 20:34 - 3:00  |
| Th/Fr | 10/11 | 0:33 - 4:35  |       |       |             | Th/Fr | 1/ 2  | 20:35 - 3:30  |

| Weekend | Sun Set | Sun Rise | Mercury Rise Vi | Venus Rise Vi | Mars Set Vi | Jupiter Rise Vi | Saturn Set Vi | Vi=Visibility      |
|---------|---------|----------|-----------------|---------------|-------------|-----------------|---------------|--------------------|
| 5/ 6    | 18:45   | 6:03     | 5:45 -          | 5:25 4        | 1:32 1      | 1:47 -2         | 4:16 0        | -3 brilliant       |
| 12/13   | 18:50   | 5:55     | Set: -          | 5:21 5        | 1:17 1      | 1:22 -2         | 3:48 0        | 0 conspicuous      |
| 19/20   | 18:55   | 5:47     | 19:14 -         | 5:17 6        | 1:02 1      | 0:56 -2         | 3:19 0        | 3 moderate         |
| 26/27   | 19:00   | 5:39     | 19:58 5         | 5:13 7        | 0:48 1      | 0:30 -2         | 2:52 1        | 6 naked eye limit  |
| 3/ 4    | 19:05   | 5:32     | 20:35 3         | 5:09 7        | 0:33 1      | 0:03 -2         | 2:24 1        | 9 binoculars limit |

**Desert Skies Classified**

|          |   |
|----------|---|
| FOR SALE | Orion Megaview 15X80 binoculars with hard case, and Sunpak Platinum Plus 7500 Pro tripod with soft case. Like new, \$365 for both. Tim 398-6590 hm, 663-9350 wk. Review at: <a href="http://exclsis.com/1.0/entry.php?sectionid=21&amp;entryid=150">http://exclsis.com/1.0/entry.php?sectionid=21&amp;entryid=150</a> [07/08] |
| FOR SALE | 1. Orion 80ED OTA - New Cost \$529.95 - Sale for \$400.00.<br>2. Orion glass solar filter for 80ED - New cost \$74.95 - Sale for \$50.00.<br>Reasonable offers will be entertained. Contact Neal Scofield @ 883-5456 or email <a href="mailto:Retired-Badge@msn.com">Retired-Badge@msn.com</a> . [07/08]                      |
| FOR SALE | Celestron C4.5 reflector telescope with Polaris equatorial mount, wooden tripod, and 26mm eyepiece. Excellent condition. \$150. Please call John McClelland at 520-990-2262. [05/08]  |

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.

**NOTES FROM THE BEGINNINGS OF TAAA****NOTES FROM THE BEGINNINGS OF TAAA**  
By Bill Lofquist

*Last summer we received a telephone call from Mr. Paul Matt, the grandson of the organizer and first President of the Tucson Amateur Astronomers. I contacted Mr. Matt, and after his sharing some of his remembrances of his grandfather, Mr. Earl Burch, he turned over to me some of the relics from the early days of our organization. These included several boxes of small mirror blanks and other paraphernalia. He also had the remains of a Newtonian telescope that Mr. Burch had made.*

*Of interest to us for this article were some notes entitled The First Three Years of the TAA. Here are some excerpts from those notes.*

In March 1954 a small group met at the home of the Earl Burches to talk about organizing an amateur astronomer's group. In the April meeting the following officers were elected: Earl C. Burch, President; John Vega, Vice-president; and Kathryn Burch, Secretary-Treasurer. A constitution was drawn up, and approved at the May meeting. The relationship with Harvard Publishing Company, Sky and Telescope magazine, was established. Mr. Burch contacted Dr. Edwin F. Carpenter, head of the Astronomy department of the University of Arizona, and as a result of Dr. Carpenter's interest, we were able to get his support and University sponsorship of our organization. This includes the use of the Steward Observatory building for our meetings, and the use of the 36 inch and other telescopes as well as demonstration equipment of the University.

From the original five charter members (Earl and Kathryn Burch, John and Hilda Vega, and Earl Soth) the club grew to 46 paid members by the end of the first year. We have a list of members and visitors whom the secretary phones each month, advising them of meetings.

In November, 1954, the group held its first star party at the home of the Burches, and in June of 1955 we held our first pot luck supper and star-gazing party. Since this time it is the custom of the group to hold these field trips as regular programs for the November and June meetings. Members bring their telescopes to these field trips; the

first star party had one telescope; the last one had nine, ranging in size from three to eight inches.

As called for in the constitution, an election of officers was held at the April 1955 meeting; the group voted to retain its officers for a second term. Dr. and Mrs. Gerd Schloss, who had been on the executive board since November, 1954, were asked to serve for the following year; Hilda Vega was also asked to serve. The executive board suggested that Dr. Carpenter be made an honorary life member of the TAA, and this was voted upon by the group and carried unanimously. As a result of this, Dr. Carpenter will receive Sky and Telescope at the expense of the club.

A club library was founded by the gift of 13 books on astronomy by an anonymous donor, in February, 1956. The club has purchased four new volumes, and Dr. Carpenter and club members have donated additional books and materials, including three years issues of Sky and Telescope.

A telescope maker's group was started by Mr. Burch in September, 1955. Approximately 15 persons attended ten meetings of this group. The purpose of this group was discussion of design, and building of amateur telescopes. Information was exchanged on availability of materials and problems of individual constructors. A second group was started in January, 1957 and was attended by approximately 12 persons; this group ran for ten meetings.

*The Tucson Amateur Astronomers set up a group for the artificial satellite program at the September, 1956 meeting. Funds for this activity were obtained from Hughes Aircraft to finance the 13 wide field telescopes and other equipment necessary for the work. Lester Hearn is in charge of the construction of the ground facilities, such as telescope mounts, observing chairs, marker cable and its support, etc. An observing group of approximately 50 persons has signed up for this work. (This project was for the purpose of observing satellites.)*

*In the materials provided by Mr. Matt are some photographs which will appear in future newsletters.*

**TAAA Board of Directors Meeting - Wednesday, March 12, 2008**

**Attending:** TAAA Board Members present (6): Bill Lofquist, presiding, Steve Marten, Terri Lappin, George Barber, and Teresa Bippert-Plymate. Members present (4): Robert Crawford, Ellen Finney, Liz Kalas and Mark Mismash.  
The President called the meeting to order at 6.35pm.

**February Minutes.** Accepted unanimously.

**Grand Canyon Star Party** - Bill Lofquist

Bill met with Grand Canyon Star Party (GCSP) Coordinator Dean Ketelsen to review processes of the annual event. Jim and Susan O'Connor have agreed to become coordinators for the 2009 GCSP.

**Nominating Committee** - Steve Marten

Steve reported that the Nominating Committee has one and possibly two candidates for one Member-at-Large.

**Dark Site Land Development** - Bill Lofquist

Bill reviewed current land development status and possible ad hoc working groups necessary to complete electrical, water, septic system, road observatory structures, sleeping arrangements fund raising and policy and procedure tasks.

The groups will report to the Strategic Planning Group (SPG) which includes Bill, Teresa and Claude Plymate and Keith Schlottman; Board will maintain oversight of the SPG.

Bill also recommended that a process begin to name the dark site with a final vote at the May meeting. Bill assigned Steve and George to an ad hoc committee to draw member suggestions or a structure a competition if suitable; Steve and George will refer three more committee members for appointment by Bill. Three recommended dark site names will be in the May newsletter.

Bill introduced a pledge card format drafted by John Croft. Several fundraising concepts were discussed including collecting ideas from successful fundraising activities.

Bill reported that associated investments gained approximately \$200 in February. Ken reviewed water issues including various divining methods, likely cost of \$30,000 to drill a well, \$10,000 for a required water tank and possibly a 500 gallon trailer for \$3,500 if well is not dug; with the total cost divided between the four adjoining property owners (Perseus Group) and TAAA. Vote of the Board (6-0) is to work with the Perseus Group to drill the well and avoid the trailer cost. Drilling of the well is not expected to occur until near the end of summer 2008.

Robert Crawford reviewed property survey planning.

**Sharing the Sky** - Liz Kalas

Liz told the Board that Sharing the Sky event this year falls on Astronomy Day, May 10, and will be held on Astronomy Day in future years. Liz is working to enhance this family-oriented event and discussed ongoing preparations including brief astronomy publications and possibly astronomy bookmarks for the public.

**Treasurer's Report** - Terri Lappin

Terri reviewed routine expenses and reported that they were within our budget. The Strategic Planning Group is expected to soon draft a capital budget for site development and an operating budget.

**Website Update** - Bill Lofquist

Bill reported that Loretta may not have time available to complete the website and recommended Michael Turner as a replacement. The Board voted in favor of Loretta stepping down (5-0 with one abstention.)

**TIMPA Observatory** - George Barber

George discussed the few remaining construction items and a plate for mounting the scope to complete the observatory. Dedication planning is underway.

**ROSS Program** - Terri Lappin

Terri explained the purpose of the Resident Opportunities and Self Sufficiency (ROSS) program associated with local groups and her church; she hopes to include a star party as one of the events for ROSS this year but volunteers would have to meet some security requirements. Terri noted that a security agreement might also be required. The Board informally accepted Terri's requirements and Bill directed Terri to continue planning for the event.

Adjourned at 9:24 pm

Respectfully Submitted,

Steve Marten

Secretary

### Constellation Report by Chris Lancaster

## Canis Minor

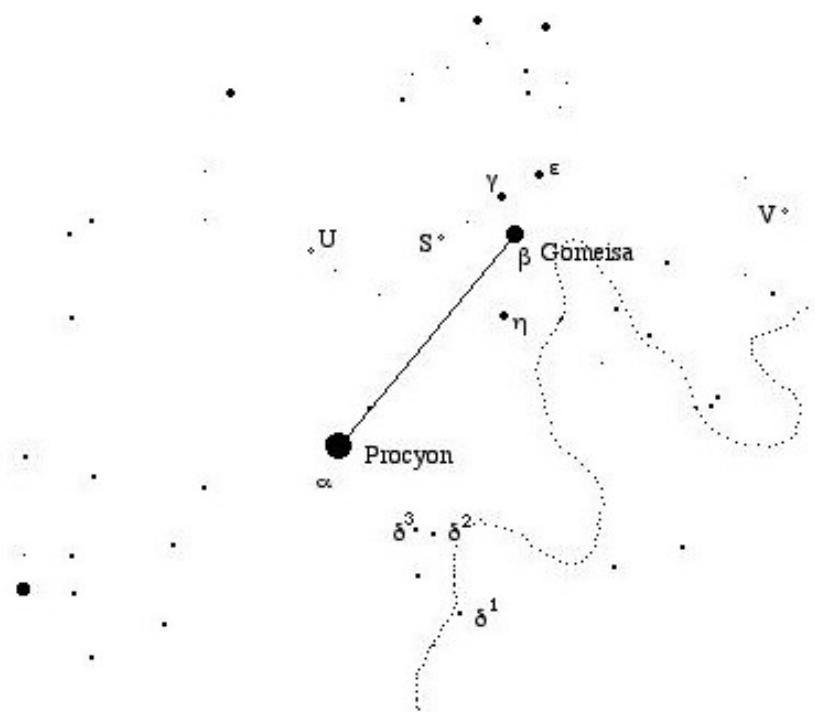
The Little Dog

The other, less conspicuous hunting dog of Orion is found south of Gemini and on the opposite side of the winter Milky Way from its companion, Canis Major. The bright star Procyon marks the heart of the constellation and forms the northeast point of an equilateral triangle with Orion's Betelgeuse and Canis Major's Sirius. Canis Minor, as its name might suggest, is a small constellation. It encompasses only two bright stars but, even though it lies on the edge of the Milky Way, no deep sky objects.

Procyon's magnitude is a bright 0.4, making it the 8th brightest star in the sky. Its distance of 11.4 light years ranks it as number 13 of the nearest stars to Earth, and 5th nearest of the naked eye stars. Other vital statistics include a spectral type a bit hotter than the sun at F5, luminosity of about 6 times the sun, and a diameter approaching 2 million miles, or over twice that of the sun. The name Procyon comes from the ancient Greeks. It translates "before the dog," since it rises mere minutes before the real dog star, Sirius. Because of its proximity, Procyon has a comparatively large proper motion, or movement relative to more stationary background stars. Its annual motion is 1.25" toward the southwest, which means that it will traverse a full degree in about 2,900 years.

Beta Canis Minoris, or Gomeisa, is a hot B7 star 170 light years away. Gomeisa is a much brighter star than Procyon, but appears dimmer from its larger distance. If equally placed relative to the Earth at the standard distance of 10 parsecs, or 32.6 light-years, Procyon would glow at magnitude 2.7, while Gomeisa would shine much more brightly at -1.1.

Similar to Sirius, Procyon has a dim white dwarf companion about 4.7" distant at a PA of 78 degrees. It was predicted to exist in 1861 due to the 40 year cycle of irregularities in the proper motion of Procyon, but because of the extreme differences in luminosity (Procyon B is 15,000 times fainter at magnitude 11), it was not visually observed until 35 years later through the 36-inch refractor at Lick Observatory. If you've been successful at observing the companion of Sirius, then you might want to try this one. However, Procyon B is a little more challenging with over a full arc second less separation.



Canis Minoris (RA 7h 32m 42.8s Dec +08d 19' 07"). Here we see a star which fluctuates between 6.6 and 13.2 magnitudes during a 332 day period. On the extreme western edge of the constellation is V, a similar variable which goes from 7.4 to 15.1 over 366 days. This star is 5.2 degrees due west of Gamma (RA 7h 06m 58.8s Dec +08d 52' 41").

Two other double stars of Canis Minor share this characteristic of large luminosity differences. Eta Canis Minoris at high power shows a magnitude 5.5 primary and a magnitude 11 secondary 4" apart. Nearby Gamma is a more comfortable 30" apart but presents a more challenging secondary. It shines at magnitude 13 compared to the primary at magnitude 4.

Canis Minor is also home to some dramatic variable stars. All of them are classified as Long Period Variables, or LPV's. The three we will look at are all in a west to east line in the northern half of the constellation. U (RA 7h 41m 20.7s Dec +08d 22' 50") goes from a moderate 8th magnitude to a practically invisible 13.8 over a period of 413 days. U is 44' northeast of a 7.1 magnitude star, which itself is 2.7 degrees due north of Procyon. Look 2.1 degrees due west of U (or hop 46' southeast from Gamma to a star of 7.1 magnitude, and then another 30' in exactly the same direction) for S

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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 Empire Ranch

#### 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  $\frac{1}{4}$  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.