



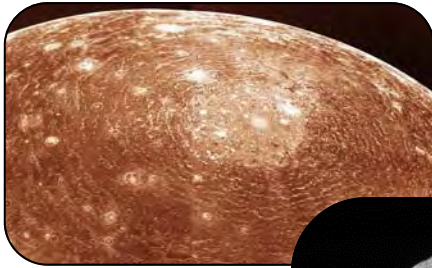
Desert Skies

Tucson Amateur Astronomy Association

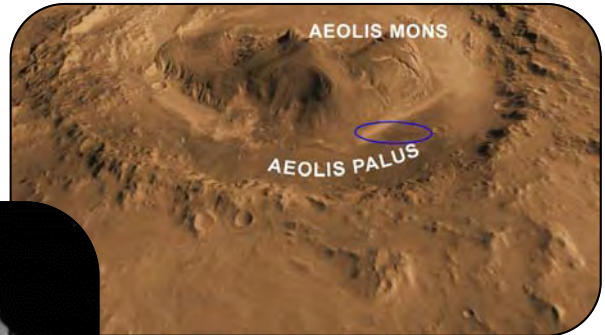
Volume LVIII, Number 10

October 2012

Impact Craters in the Solar System



Valhalla crater on Callisto



Gale crater on Mars



Herschel crater on Mimas



Barringer Crater, Winslow, AZ



Endeavor Over Tucson!

Kitt Peak Star-B-Que & Star Party
Pages 4

Chiricahua Astronomy Complex Report
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2013 TAAA Calendars Coming Soon
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Community Star Parties Scheduled
Page 6

General Meeting October 5th

Steward Observatory Lecture Hall, Room N210

6:30pm

Space Weather — Terri Lappin, TAAA

7:30pm

The dramatic formation of Gale crater: What happens when a meteor hits a planet? — Dr Veronica Bray, UA LPL

Affiliates



TAAA Meeting Friday, Oct 5

Steward Observatory Lecture Hall, Room N210, U of A campus



6:30pm Astronomy Essentials Lecture

Title: Space Weather
Speaker: Terri Lappin, TAAA

Most of us want to hear a daily weather report. It may determine what we wear and to some level, what we do during the day. In some ways, space weather is similar to atmospheric weather—predictions can be made, and those predictions change our behavior. However, space weather is a totally different animal! This animal will likely never be tamed. Come learn about space weather, how it's monitored, and how it affects you.

7:30pm Invited Lecture

Title: The dramatic formation of Gale crater. What happens when a meteor hits a planet?
Speaker: Dr Veronica Bray, U of A Lunar & Planetary Lab

The Mars Science Laboratory recently touched down at its intended landing site – Gale Crater. Gale is a 96 mile wide impact crater formed when a meteor hit the surface of Mars, releasing more energy than thousands of atomic bombs combined. We take a look at what effects large impacts like this have had on Earth in the past, and how the size and speed of the meteor influenced the final shape of Gale crater.

Dr Veronica Bray obtained her PhD in planetary sciences from Imperial College in her home town of London, England. She then journeyed across "the pond" and currently works as an associate scientist at the UA Lunar and Planetary Lab where she researches impact crater formation on the Moon, Mars and icy satellites. Her research involves direct observations from space craft (such as HiRISE and LROC) and computer simulation of comet/asteroid impact in order to study how the shape of an impact crater is influenced by the presence (or not) of ice layers in the sub-surface. Dr Bray is also an associate science team member for the LROC and HiRISE missions, and holds an adjunct teaching position at the UofA.

Construction Alert!



The construction mess on campus has improved since the summer. The Cherry and 2nd Street intersection is open, but much of 2nd Street remains closed. First Street is two-way traffic. The 2nd Street garage is accessible but it's best to check the UA website to find out how (recently it's been from the east). There is plenty of parking on meeting nights. Just plan to arrive a bit early to navigate any detours that may be in place at the time. As always, obey any parking space signs indicating 24 hour enforcement. Streetcar construction updates including a map can be found on the UA Parking and Transportation website: <http://parking.arizona.edu>

President's Message

I recently heard someone complain about a cloudy night. Although monsoons have ended, it's not unusual to have partly cloudy skies in the early evening, and that can be disappointing to an eager amateur astronomer. I remember moving to Arizona from New York in the early 1980's to attend the University of Arizona, and one of the main attractions to me was something I read which claimed that Arizona had 360 days per year of sunshine. I dreamed of observing each and every night, except for those annoying 5 or 6 nights per year when the clouds arrived.

What I didn't realize at the time was that the 360 days per year referred to days when there was at least some sunshine; in other words, only 5 or 6 days were completely clouded out. I now understand that the weather, just like life, includes plenty of days when things don't go perfectly. Our challenge is to take advantage of the opportunities, and to try to avoid the clouds. Amateur astronomers use the term "sucker holes" to describe the clearings in the sky between clouds. If you spend the time to learn the night sky, you will find that observing through the sucker holes can provide a quite fulfilling evening of observing. On the other hand, if you wait for the perfect observing night before uncovering the telescope, you will find your observing sessions few and far between.

Since one of our objectives as a club is to encourage members to enjoy astronomy to the fullest extent possible, we usually don't cancel scheduled star parties when there is

a partly cloudy forecast. The most dedicated attendees are often rewarded with a full clearing at some point during a partly cloudy evening, and when the weather does not turn out favorable, they enjoy some extra socializing.

Sometimes we experience a similar phenomenon in the administration of the club. TAAA is a large organization, and we do occasionally have challenges. For example, we may plan something exciting, only to discover that the desired number of volunteers are not available. But when we move forward, those who do engage find a very enjoyable and fulfilling experience despite the extra work. The club has some very exciting opportunities for improvement ahead, and some very ambitious plans to make them a reality. Ambitious plans are sometimes like partly cloudy nights – it's difficult to see how they can be accomplished favorably. I'd like to encourage us all to take an optimistic view (pun intended) on the next partly cloudy night, as well as on the TAAA's potential to continue to be a stellar example of what an astronomy club can accomplish.
Keith Schlottman

Cover

Examples of impact craters found throughout the solar system. Credit NASA for all images. The Endeavor Shuttle flew over Tucson on September 20th to honor former AZ Senator Gabrielle Giffords. Photo taken from HD video by Terri Lappin.

<i>This Month in Brief</i>			
<i>Event</i>	<i>Date</i>	<i>Time</i>	<i>See</i>
<i>Contact Person</i>	<i>Location</i>		<i>Page</i>
Astro Imaging SIG Meeting Larry Phillips	Oct 01 (Mon) Coco's Restaurant – Broadway 6095 E Broadway	7:00 PM	4
Monthly Meeting Keith Schlottman	Oct 05 (Fri) Steward Observatory Rm N210 933 N Cherry Ave	6:30 PM	2
Star Party at TIMPA Robert Gilroy	Oct 06 (Sat) TIMPA 3250 N Reservation Rd	5:30 PM	5
Kitt Peak Star-BQ Dean Ketelsen	Oct 06 (Sat) Kitt Peak Picnic Area AZ Route 386	4:00 PM	4
3 Pts Festival Far Southwest Bill Lofquist	Oct 06 (Sat) Robles Elementary School Route 286 (Three Points, AZ)	4:00 PM	6
Board Meeting Keith Schlottman	Oct 10 (Wed) Steward Observatory N305 933 N Cherry Ave	6:30 PM	15
AFSIG General Meeting Ben Bailey	Oct 11 (Thu) USGS Building Room 253 520 N Park Ave	6:30 PM	4
CAC Star Party John Kalas	Oct 12/13 (Fri/Sat) Chiricahua Astronomy Complex		5
Star Party at TIMPA Robert Gilroy	Oct 13 (Sat) TIMPA 3250 N Reservation Rd	5:30 PM	5
UA Astro Students Far West Bill Lofquist	Oct 14 (Sun) Redhills Visitor Center 2700 N Kinney Rd	5:30 PM	6
Miller Elementary Far Southwest Bill Lofquist	Oct 16 (Tue) Miller Elementary School 6951 South Camino de la Tierra	5:45 PM	6
Brichta Elementary West Tucson Bill Lofquist	Oct 23 (Tue) Brichta Elementary School 2110 W Brichta Drive	6:00 PM	6
Catalina State Park Northwest Tucson Bill Lofquist	Nov 03 (Sat) Catalina State Park 11570 N Oracle Rd	5:15 PM	8
Peace Garden Star Party Far South Tucson Bill Lofquist	Nov 03 (Sat) Peace Garden 5901 S Fiesta	6:00 PM	6

<i>Future Dates</i>	
Nov 2	TAAA General Meeting
Nov 5	Astro-Imaging SIG Meeting
Nov 8	Astronomy Fundamentals SIG Meeting
Nov 9-10	CAC Star Party
Nov 10	TIMPA Star Party
Nov 14	Board of Directors Meeting
Nov 16	TIMPA Star Party
Nov 19	Starry Messenger SIG Meeting

<i>Upcoming Lectures</i>		
Nov 2	<i>Astronomy Essentials</i>	Tim Van Devender Observing Techniques
	<i>Invited</i>	Xiaohui Fan 3D Universe of Galaxies
Dec 7	<i>Astronomy Essentials</i>	Jim O'Connor What's to See
	<i>Invited</i>	David Levy All Things in Heaven Movie

Lectures are arranged by Terri Lappin. If you have speakers to suggest, send them to Terri (see page 15).

<i>Items of Interest</i>	
Oct 3	Lunar & Planetary Lab Evening Lecture (Page 10)
Oct 8	Steward Observatory Evening Lecture (Page 8)

**Reserve Your
TAAA 2013
Wall Calendar Now!**
Pre-order yours at the October meeting. See Susan O'Connor at the Apparel table. Cash and Checks only. \$11 each

Volunteer Needed to Assist with Apparel

Mae Smith has been doing an excellent job with the TAAA Apparel Program, but she would like some help. The responsibilities include helping with sales of T-shirts and other items at the monthly meetings, managing the inventory, and placing orders for new items.

Contact any Board member if you are interested in filling this need. Contact information is found on page 15.

Unless otherwise noted, contact information for individuals mentioned throughout this newsletter can be found on page 15—"How to Contact Us".

*Astro-Imaging Special Interest Group (AISIG)***Meeting: Oct 1 (Mon)****7:00 PM**

Coco's Restaurant (Broadway between Wilmot & Craycroft)

Contact: Larry Phillips



The Astro-Imaging SIG will meet at 7pm on Monday, October 1st. Come early, anytime after 6 PM, and enjoy dinner before the meeting. We will meet in the banquet room which is to the far left after you enter the restaurant proper. Our program consists of members sharing their images, setups, problems, or suggestions. Meetings end no later than 9 PM. Next month, the meeting will return to the first Monday of the month.

*Astronomy Fundamentals SIG (AFSIG)***Meeting: Oct 11 (Thu)****6:30 PM**

U.S.G.S. Building, Room 253 (520 North Park Ave)

Contact: Ben Bailey



On Thursday, Oct 11 we will hold our regular monthly meeting. AFSIG is dedicated to helping expand astronomical knowledge. Please come out and help us succeed.

The USGS Building is on the northeast corner of Park and 6th Street. Free parking is available nearby after 5pm. Please join us.

Starry Messengers Special Interest Group (SMSIG)

Opening Minds to the Universe

Next Meeting: Nov 19 (Mon)**6:30 PM**

Beyond Bread (3026 N Campbell)

Contact: Terri Lappin

Jim Knoll has assembled a list of 80 or so celestial objects that are suitable for outreach star parties. Many thanks to TAAA members who submitted their favorite objects to show the public. At the Starry Messengers meeting last month, TAAA webmaster, Tim Van Devender, listened to our ideas for making our database available to TAAA members and the public.

We want the ability to enter parameters (scope diameter, date, etc) and get a list of objects suitable for observing. There are many programs and websites that provide similar information. What makes our database special is that it only contains objects that have been "field tested" by TAAA members under public star party conditions. Additionally, descriptions will be written with the public in mind. We expect this to be most helpful to beginners.

Possibly even more interesting will be what we offer to the public. We will make it easy for the public to access additional information about an object they just saw in a telescope. We hope some will spend additional time on the TAAA website to learn about the TAAA and maybe even join the TAAA.

The next meeting of the Starry Messengers will be on Nov 19th. Information will be given in the November newsletter.

Unless otherwise noted, all contact information can be found in the section called "How to Contact Us", found on page 15 of this issue of *Desert Skies*.

Solar Observing Group

The Solar Observing group will not be meeting for group solar observing until further notice. Please ignore the Oct 20th Solar Observing date that appears on the 2012 TAAA wall calendar. Solar observers are encouraged to use the TAAA Forum to post their solar observations.

*Kitt Peak Fall Star-B-Que***Oct 6 (Sat)****4:00PM-11:00PM****Kitt Peak Picnic Area**

Contact: Dean Ketelsen (ketelsen[at]email.arizona.edu)

As outlined in last month's newsletter (September, page 9), the first Saturday in October is the Fall Star-B-Que that TAAA will be holding on Kitt Peak at the picnic area. Feel free to go up early afternoon to take part in a telescope tour, and as the Observatory grounds close at 4pm to the public, head down the 1.5 miles to the picnic area. If you arrive after 4, please do NOT drive above the picnic grounds. There is a broad area to set up telescopes, and a pavilion where a gas grill will be set up for cooking the entree of your choice. Please bring a dish to share as well. Plan on bringing your own dinnerware and condiments too. The grill goes off before sunset (about 6:15), so plan accordingly! The last quarter moon also rises about 10:45, so it will be a short evening of dark-sky observing, but it is always a treat to observe from elevation at a truly dark site. There will be a signup sheet at the October meeting, but because the Star-B-Que happens the following day, please call Dean to reserve a spot anytime after you read this. Email is preferred so there is a permanent record of your contact, so send your name, number in your party and the best way to contact you on short notice. Note that even in the event of poor weather, the cookout will go on. You may call Dean if you have questions (520-419-6209) or do not have e-mail for reserving a spot. It should be a great time!

Desert Dwellers

Be alert for rattlesnakes, especially at night! 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.friendsofsaguaro.org/rattlesnakes.html>.



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. Be careful when walking, especially at night.

Members' Star Parties

TAAA Star Party at TIMPA

Oct 6 (Sat)

Gate opens at 5:30PM

Oct 13 (Sat)

Gate opens at 5:30PM

Contact Person: Ben Bailey



The AFSIG is hosting two star parties this month at TIMPA. On both nights an AFSIG representative will open the gates for an evening of viewing. The Gila Monster Observatory 14" will be open for your viewing pleasure. The TIMPA site features a large parking area, and full restroom facilities. Be prepared for cool temperatures after sunset. Guests are welcome, accompanied by a TAAA member. We hope to see you there!

Please note that the Oct 13th date is a change from the published Calendar date of Friday, October 12. This is due to the Potluck and Star Party that AFSIG hosts to celebrate the end in "Introduction to the Fundamentals of Astronomy" classes.

TIMPA Site Notice

A gate card is required for TIMPA access. Please *DO NOT* ask the caretakers for entry to the TIMPA SITE. On scheduled TIMPA star party nights, a designated TAAA representative will provide access to the site. At other times, a gate card is available from the TIMPA Gate Card Controller.

Directions to TIMPA Site

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

The TIMPA site is about 25 minutes from Speedway & I-10, about 7 miles west of the Arizona-Sonora Desert Museum.

From the North:

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

From the East:

1. Take Speedway Blvd west. It turns into Gates Pass Rd.
2. Go over Gates Pass and continue west to Kinney Rd.
3. Turn north (right) onto Kinney Rd and continue past the Arizona-Sonora Desert Museum.
4. At the entrance to Saguaro National Park West, go towards the left onto Mile Wide Rd. (This is easy to miss so watch for the park entrance sign.)
5. Take Mile Wide Rd west about five miles to Reservation Rd. Mile Wide Rd ends at Reservation Rd and you must turn north (right) onto Reservation Rd.
6. Take Reservation Rd (a dirt road) north about one mile. The entrance to TIMPA will be on the right.

Star Party at Chiricahua Astronomy Complex

Oct 12 & 13 (Fri & Sat)

Contact Person/RSVP to: John Kalas



The Chiricahua Astronomy Complex (CAC) is the club's dark 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 cooler temperatures. Try to arrive before sunset. Unlike the TIMPA site, members are required to make reservations for both monthly club star parties and private member use. We are restricted to 60 persons and 30 vehicles maximum at any time. If you would like to attend, you must contact CAC Director John Kalas. Reservations will be on a first come - first serve basis. You need to reserve for both nights if observing both nights. Depending on the number of members interested in attending, guests may not be allowed.

CAC Site Notice

Reservations are required at all times including scheduled star parties. On scheduled CAC star party nights, a TAAA designated representative will unlock the gate. At other times, access can be granted by the CAC Director.

Directions to Chiricahua Astronomy Complex Site

GPS coordinates: 31 deg 52.07' N, 109 deg 30.9' W

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

1. Take I-10 east from Tucson past Benson.
2. Exit I-10 at Dragoon Road (Exit #318) . Turn right onto Dragoon Road at bottom of exit ramp.
3. Travel 13.5 miles southeast to the intersection with Route 191. Turn south (right) onto Route 191.
4. Travel 17.9 miles south (past Sunsites and Margie's Corner Café at High St on the right, and the Border Patrol checkpoint) to the intersection with Route 181 at Sunizona.
5. Turn east (left) onto Route 181 and travel 10.9 miles east to the intersection with South Price Ranch Road. Turn south (right) onto South Price Ranch Rd. This is a dirt road just before you reach mile post 49 (cluster of mailboxes on right side of Route 181).
6. Travel ½ mile south on South Price Ranch Rd to the intersection with East Perseus Way. This is a wide dirt road marked with a street sign on left. Turn east (left) onto East Perseus Way.
7. Travel east on East Perseus Way slightly more than ¼ mile to the entrance of the Chiricahua Astronomy Complex on the right. The address is 9315 E Perseus Way. It is marked with a TAAA sign and twin brown gates flanked by white rail fences set back 50 feet from road.

Community and Educational Events

Members are asked to support these outreach events. You can contact the star party leader or the volunteer coordinator to volunteer for this event; see the section "*How to Contact Us*" on page 15 of this issue. Details and a map can be obtained from the TAAA website calendar.

Three Points Community Festival

Oct 06 (Sat)

Far Southwest Tucson

Leader: Bill Lofquist

Set-up: 4:00PM

Volunteers Needed: 3

We are providing telescopes for a community event in the Three Points area. Expected attendance is 1500. The event is being held at Robles Elementary School which is about 1 mile south of Ajo Way on State Route 286. From I-19, take Ajo Highway west to State Route 286 (Robles Junction/ Three Points). Turn south on Route 286. Robles Elementary is one mile south on the west (right) side of the road. Observing is from 4:00PM to 8:00PM.

UA Astronomy Students Star Party

Oct 14 (Sun)

Far West Tucson

Leader: Bill Lofquist

Set-up: 5:00PM

Volunteers Needed: 6

We are hosting a star party for the UA general science astronomy students at the Saguaro National Park, West Division Red Hills Visitor's Center. This is located at 2700 N Kinney Rd. Those who regularly volunteer for the UA student events know the students to be very interested in the observing we offer. Telescopes will be set up in the parking lot. Observing is from 5:30PM to 9:00PM.

Miller Elementary School Star Party

Oct 16 (Tue)

Far Southwest Tucson

Leader: Bill Lofquist

Set-up: 5:15PM

Volunteers Needed: 5

Miller Elementary is having a star party for its students and family members. This is located at 6951 South Camino de la Tierra. From Valencia and Camino de la Tierra, drive south on Camino de la Tierra. The school will be on the east (left) side of the road. Viewing will be on the basketball court. Observing is from 5:45PM to 8:30PM.

Brichta Elementary School Star Party

Oct 23 (Tue)

West Tucson

Leader: Bill Lofquist

Set-up: 5:30PM

Volunteers Needed: 4

Brichta Elementary is having a star party for their students and family members. This is located at 2110 W Brichta Drive. Once at the school, go through the gate to the sports courts. Viewing will be on the sports courts west of the school buildings. Observing is from 6:00PM to 8:00PM.

Catalina State Park Public Star Party

Nov 03 (Sat)

Northwest Tucson

Leader: Bill Lofquist

Set-up: 4:30PM

Volunteers Needed: 8

We are co-hosting a public star party at Catalina State Park. This is located at 11570 N Oracle Rd. Viewing will be in the parking area at the trailhead located at the end of the main road. There is an entrance fee to the Park, but our volunteer astronomers do not need to pay this fee. Observing is from 5:15PM to 9:30PM.

Sunnyside Neighborhood Association Star Party

Nov 03 (Sat)

Far South Tucson

Leader: Bill Lofquist

Set-up: 5:30PM

Volunteers Needed: 3

The Sunnyside Neighborhood Association is having a star party for their community. It will be held in the Peace Garden which is located at 5901 S Fiesta. Once at this address, turn down the alley way which leads to the Peace Garden. It is located behind a house but is on the Fiesta Park grounds. It is best to arrive while it's still bright so that you can find the alley way. Observing is from 6:00PM to 9:00PM.

Night Sky Network Outreach Toolkits

Night Sky Network Toolkits can be used for any event where you find yourself explaining astronomical concepts to non-astronomers. This can be at a community outreach event like a star party at a school, or a scout troop you're leading. They can be used as a backup to bad weather or to complement telescope observing. These toolkits, developed by the Astronomical Society of the Pacific, are anchored to a particular NASA mission and can be used to explain such basic concepts as gravity, phases of the moon, or the scale of the universe. Several projects are contained in each toolkit, all in a handy, easy to carry box. Project Cards help in the selection of which project to use according to venue and audience/age group. Some projects are better suited for K-4, others for older audiences including adults. Our education system doesn't give wide coverage to astronomy concepts, so even adults will gain something from the K-4 projects. Creating moon phases using Styrofoam balls just before sunset will help instill the reason for the phases in anyone's mind, regardless of age.

We need more members trained in using our toolkits so we can meet demands of teachers in the Tucson area. A toolkit will be brought to our TAAA Meetings to allow members to see the materials and perform the demonstrations. One-on-one training is also available. We allow toolkits to be checked out for a month at a time, giving you plenty of practice time before using a toolkit at an event. Find a complete list of our toolkits on the next page. Contact Terri Lappin who coordinates the Night Sky Network toolkit program to check out a toolkit.



Components from several toolkits



Chiricahua Astronomy Complex Facility Update

By John Kalas – Director of the CAC Site

It has been a while since my last update, but I have some great news. The RV Area (Phase 2b) has been completed. The area will service four RV's at a time with three 30-amp hookups and one 50-amp hookup. TAAA Members Steve Gilbert, Don Cain and Jim and Susan Knoll helped clear some of the large rocks after final grading. Our excavating contractor, Peter Ammon, applied the gravel during the first week of September. The final inspection by the Cochise County Permit Dept. was performed on 9/12 and the inspector advised me before he left that the area passed inspection. We are awaiting the Certificate of Occupancy in order to start using the RV Area. See the panoramic photo. Since it was decided to gravel the entire oval, the RV lanes will have to be painted on the gravel. I will perform this task in the near future.

UPDATE: On 9/21, the club received a permanent Certificate of Occupancy thus completing the entire Phase 2 building permit. The RV Area is now ready-for-use!

Other improvements at the CAC Site include the purchase of a good set of jumper cables and a small air compressor. Steel ramps were purchased for the club storage container to allow member telescopes to be loaded into and stored in the container. Several members have already used the container to securely store their telescopes at the site.

Continuing improvements to the roll-off roof observatory include the addition of a large dial thermometer, a large digital clock and an adjustable observing chair. Red LED light strips have been installed inside and outside along the top of the observatory door to warn people of the low clearance, so they don't hit their heads entering and exiting the observatory. A plastic eyepiece tray, capable of holding ten 2" eyepieces, was fabricated and installed around the telescope pier. A nylon telescope bag to replace the current plastic bag is being fabricated to protect the tube assembly from dust. Adjustments were made to the levelness of the roll-off roof to address the possibility of binding of the guide wheels. The changes slightly decreased the force required to open or close the roof, but did not make it a one-person task. Therefore, a chain-drive, hand-crank open/close mechanism has been designed and the components purchased, so the observatory can be operated by one person. Wally Rogers has graciously donated the funds to pay for the system which will be installed soon.

We had a great September star party at CAC on 9/15 with 18 people attending. All ten telescope pads were occupied. The weather finally cooperated after monsoon-canceled events in July and August. I look forward to seeing more TAAA Members visit the CAC Site this fall and winter.

Outreach Resources Available for Borrowing

Our Magnetic Sun: sun model, solar magnetic storms and their impact on Earth, sun protection

Life in the Universe—Are We Alone?: origin of and search for life

Space Rocks – Asteroids, Comets, and Meteorites: meteorite samples, asteroid detection

Exploring the Solar System: scale model of solar system

Our Galaxy, Our Universe: scale model of the Milky Way galaxy and the Universe

Shadows and Silhouettes: lunar phases, eclipses, transits

Black Hole Survival Kit: gravity concepts

Supernova!: life cycle of massive stars, earth's protective atmosphere

Mirrors and Glass: how telescopes work

Telescopes – Eyes on the Universe: basic principles of optics, the human eye, and observing

PlanetQuest: demonstrate planet detection techniques

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

Moon Globe: 12" diameter with stand

DVDs: A Private Universe; Cosmic Collisions

(Items in Italics are Night Sky Network Outreach Toolkits)

Rik Hill's Website Trips on the Internet Super-Skyway

Astro Magazines

We all know well about Sky & Telescope or Astronomy magazines. But of how many other amateur astronomy publications are you aware?

A good magazine for U.S. amateurs is Amateur Astronomy Magazine at:

<http://www.amateurastronomy.com/>

This has articles about people and events not carried in the major two magazines and a few observing articles too. I particularly like the biographical articles on other amateur astronomers around the country that I don't get to meet.

If you want to know about the latest telescopes, gadgets and do-dads for your equipment then you should be getting Astronomy Technology Today:

<http://www.astronomytechnologytoday.com/>

This is available in hardcopy and digital forms. I get both since I don't have room to keep every publication on a shelf! This magazine will give you the latest as well as give you stories about vendors all over the world. This month's issue talks about the up coming Arizona Science and Astronomy Expo coming in November and spotlights Starizona.

A Canadian publication I have enjoyed is SkyNews (Can.). This one is usually obtainable at Bookman's or you can go to:

<http://www.skynews.ca/>

It highlights a lot of activities and people in the north country and brings you news you don't often get otherwise. It's not a heavy read, kind of like a Canadian Astronomy magazine.

The Brits have several magazine of different depths. Astronomy Now is their more popular magazine for the amateur astronomer:

<http://www.astronomynow.com/magazine.shtml>

One of the big influences on me as a pre-teen amateur astronomer in the early 1960s was Patrick Moore with his many books and articles. He has a regular column in this magazine and it is always interesting if not controversial!

Next there's the BAA Journal for the hardcore amateur astronomer. I don't know if you can just get the journal with-

out a membership but being a member for 25 years now I can tell you it's worth it. For the lunar and planetary observer it's a must but there are plenty of variable star, and deep sky articles too:

http://britastro.org/baa/index.php?option=com_content&view=article&id=74&Itemid=100015

I cannot recommend this journal highly enough. The astronomical historical articles are among my favorites. The latest one did a short bio on Walter F. Gale for whom the Martian crater where Curiosity now sits, was named.

Finally there's another Patrick Moore tour-de-force, The Sky At Night:

<http://www.skyatnightmagazine.com/>

This is a magazine with a large following, primarily in Britain, but they claim to be the "Biggest name in Astronomy", most likely due to their connection with Patrick's long running television program (since 1957) of the same name.

So this gives you a nice list to explore in case the monthly dose of Sky & Telescope and Astronomy are just not enough for you. Enjoy!

As always, if you have some feedback (other than rude comments about my droll humor), a topic you'd like explored or have some interesting URLs you've turned up, please feel free to drop me a line at:

rhill@lpl.arizona.edu
http://en.wikipedia.org/wiki/File:The_Sky_at_Night.jpg

Visit the TAAA Website
www.tucsonastronomy.org
View all events on our online calendar
RSVP to those you will attend
Get directions from any starting point



Steward Observatory Public Evening Lecture Series Fall 2012



Steward Observatory Lecture Hall (Room N210)
 933 N Cherry Ave 7:30pm

Oct 8 (Mon) Dr Neville Woolf

Life: A Phenomenon Rooted in Astronomy

Oct 22 (Mon) Dr. Carl Hergenrother

21st Century Prospecting: The Near Earth Asteroid 1999 RQ36 and the OSIRIS-REx Sample Return Mission

For information:

http://enterprise.as.arizona.edu/~taf/pubeve/pub_lect.html

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. Available at most monthly meetings. Coordinated by Mae Smith.



Newsletter Deadline

The deadline for the November issue is Wed, Oct 17. Desert Skies is published one week before the General Meeting. Publishing Guidelines found on page 15.

AFSIG Observing Clubs

- * Open to all TAAA members
- * Guided or work on your own
- * Stepping stone into the Astronomical League Observing Clubs
- * Join at any time
- * Certificate at completion

Solar Observing Club helps those interested in observing solar activity — like sunspots, solar flares and other interesting features — and recording those observations. 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. The Solar Observing Club is taking a temporary hiatus from their regular observing schedule. Watch the newsletter for future observing dates. If you want to be added to the solar observing email list, please email Ben Bailey at [fundamentals\[at\]tucsonastronomy.org](mailto:fundamentals[at]tucsonastronomy.org).

Lunar Observing Club meets sporadically depending on schedule compatibility and the moon cycle. The purpose of this club is to identify and log 30 specified lunar features – some of which are easy while others are more difficult. This is a great club in which to participate as it is ideal for observing from your back yard or patio. Dark skies are not really necessary and some features are even visible through light clouds. If you are interested in participating in the Lunar Observing Club or if you just want to be added to our email list to keep posted about our activities, email Robert Gilroy at [bobgilroy\[at\]tucsonastronomy.org](mailto:bobgilroy[at]tucsonastronomy.org).

Constellation Observing Club meets monthly on our regularly scheduled TIMPA night. The purpose of this club is to identify and log 20 constellations, their brightest stars and deep sky objects. This is a great way to learn your way around the night sky. If you are interested in participating in the Constellation Observing Club or if you just want to be added to our email list to keep posted about our activities, email Paul and Cathy Anderson at [paulanderson\[at\]tucsonastronomy.org](mailto:paulanderson[at]tucsonastronomy.org).

Solar System Observing Club meets monthly on our regularly scheduled TIMPA night. The purpose of this club is to observe and log the different features and actions of the planets and their moons and other interesting solar system objects. If you are interested in participating in the Solar System Observing Club or if you just want to be added to our email list to keep posted about our activities, email Brian O'Connell at [boc7\[at\]inbox.com](mailto:boc7[at]inbox.com).

Double Star Observing Club meets monthly on our regularly scheduled TIMPA night. The dark night sky is filled with millions and millions of stars. Some are close by (relatively speaking) but most are far away. Some are single stars (like our sun) but others are multiple star systems. Of these multiple star systems, we can detect and split many double stars with our equipment. The purpose of this club is to observe and log the different types and colors of double stars. If you are interested in participating in the Double Star Observing Club or if you just want to be added to our email list to keep posted about our activities, email Tom Watson at [watson1987\[at\]cox.net](mailto:watson1987[at]cox.net).

Dark Skies for October 2012

Data provided by Erich Karkoschka

No twilight, No moonlight
for Tucson in 24-hour MST
18hrs=6pm, 20hrs=8pm
22hrs=10pm, 0hrs=midnight

Day	Date	Dark Time		
Su/Mo	30/1	-	-	-
Mo/Tu	1/2	-	-	-
Tu/We	2/3	19:28	-	19:34
We/Th	3/4	19:26	-	20:14
Th/Fr	4/5	19:25	-	20:58
Fr/Sa	5/6	19:24	-	21:45
Sa/Su	6/7	19:23	-	22:35
Su/Mo	7/8	19:21	-	23:29
Mo/Tu	8/9	19:20	-	0:24
Tu/We	9/10	19:19	-	1:22
Th/Fr	11/12	19:17	-	3:23
Fr/Sa	12/13	19:15	-	4:26
Sa/Su	13/14	19:14	-	5:06
Su/Mo	14/15	19:13	-	5:06
Mo/Tu	15/16	19:12	-	5:07
Tu/We	16/17	19:11	-	5:08
We/Th	17/18	19:40	-	5:08
Th/Fr	18/19	20:38	-	5:09
Fr/Sa	19/20	21:40	-	5:10
Sa/Su	20/21	22:44	-	5:10
Su/Mo	21/22	23:48	-	5:11
Mo/Tu	22/23	0:50	-	5:12
Tu/We	23/24	1:50	-	5:13
We/Th	24/25	2:48	-	5:13
Th/Fr	25/26	3:45	-	5:14
Fr/Sa	26/27	4:41	-	5:15
Sa/Su	27/28	-	-	-
Su/Mo	28/29	-	-	-
Mo/Tu	29/30	FULL MOON		
Tu/We	30/31	-	-	-

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**Search for "Tucson Amateur
Astronomy Association"**

Join the TAAA Forum

General astronomy discussions
 ~75 messages/month posted by TAAA members
 Hosted by Yahoo Groups
 Go to <http://tinyurl.com/hwoau>
 Click on "Join this Group"

Interested in a TAAA Book Club?

Irene Kitzman is looking for a minimum of 5 members who would like to discuss recently read astronomy books. The TAAA-sponsored Astronomy Book Club would look at books aimed at non-professional but whose objective is to inform the general public about astronomy and astronomy-related topics.



Contact Irene at [ikitzman\[at\]yahoo.com](mailto:ikitzman@yahoo.com) if you're interested in participating in a TAAA Book Club.

TAAA Loaner Telescope Program

Don't own a telescope?

Our Telescope Loaner Program is your answer!

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. These are some of the telescopes in the program:

- Meade 90mm ETX
- Coulter Odyssey 8" f/4.5 Dobson
- Meade 10" LX200 GPS (requires training)

For members only. Contact the Equipment Loan Coordinator for details about these telescopes.

For our young members...

NASA's Space Place



A fun website with games and resources for kids to learn about astronomy and space sciences.

<http://spaceplace.nasa.gov>

Star Child

Information about all things spacey. A service of NASA/Goddard Space Flight Center. Has links to other websites.



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



Imagine the Universe

For older kids, age 14 and up.
<http://imagine.gsfc.nasa.gov/>



International Dark-Sky Association

Southern Arizona Section

Meets 2nd Wednesday

5:30 – 7PM

3225 N First Ave

www.sa-ida.org

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

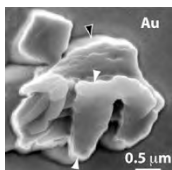


Lunar and Planetary Laboratory 2012 Fall Lecture Series

Kuiper Space Sciences, Room 308 (1629 E University Blvd)
 7:00 pm — 8:00 pm

Laboratory-based Astronomy at the Nanometer Scale

Dr. Tom Zega, Assistant Professor
 Wednesday, October 3, 2012

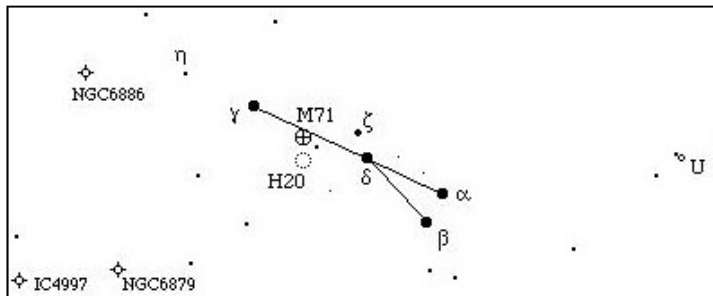


Throughout the course of their life cycles, stars shed matter through dust-driven winds or by supernovas. This matter travels through the interstellar medium where it can become the starting material for new stars or planetary-forming nebulae. Dr Zega will show how, using the tools of nanoscience in the lab, we can probe primitive meteorites, extracting ancient stardust from them, and gaining fundamentally new insights into the histories of the grains and the stars from which they formed.



Chris Lancaster's Constellation of the Month

Sagitta—The Arrow



There have been several instances of arrows playing a part in mythical stories. Zeus's eagle was killed by an arrow, Apollo slew the Cyclops with an arrow, and Cupid, of course, uses arrows in his trade. All of these have been associated with Sagitta, a small summer constellation. Sagitta is approaching the meridian after midnight on late June nights near Altair, the most southern star of the Summer Triangle. Since it is immersed in the thick Milky Way, we don't see any galaxies, but there are some interesting galactic objects.

Even though Sagitta is the third smallest constellation in the sky, it does have a Messier object, M71. This is an impressive globular cluster of magnitude 8.3 and a size of 7.2'. It's easy to find 21.5 arc minutes east of 6.2 magnitude 9 Sagittae, or half way between Gamma and Delta Sagittae, or RA 19h 53m 48s Dec +18d 47' 00". You'll find a rich cluster of stars which range from magnitude 11 to 16. When M71 was first being studied, its true classification was in question. Some astronomers considered it a globular cluster, but others thought it to be a rich galactic cluster. When you observe M71 on your own, you'll notice that it does not have the dense central population of stars common among many globulars, but its distance of 18,000 light years and true diameter of 30 light years indicates that it probably is a loose globular.

About half a degree south-southwest of M71 is a loose scattered collection of stars classified as star cluster H20. It simply appears as a more concentrated portion of the Milky Way with about 20 stars of magnitude 11 in a space about 10 arc minutes wide. H20 is near RA 19h 53m 10s Dec +18d 19'.

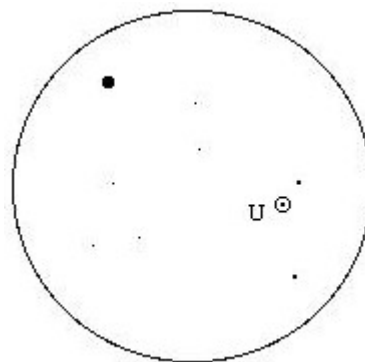
Out by itself floating in the rich Milky Way is planetary nebula IC4997. It is close to 6 degrees southeast of Gamma Sagittae or RA 20h 20m 12s Dec +16d 45'. This is one of three dim planetary nebulae in Sagitta which are small and

remote. This one glows at magnitude 12 and appears stellar except at very high magnification. The two other nebulae are NGC6886 (RA 20h 12m 42s Dec +19d 59'), and NGC6879 (RA 20h 10m 30s Dec +16d 55'.) All three of these are difficult to recognize due to their small size, but with enough magnification they stand out from their high surface brightness.

An excellent Algol type eclipsing variable star can be found in U Sagittae.

You can find U Sagittae at RA 19h 18m 48s Dec +19d 36' 39", or 1.5 degrees west of 4 Vulpeculae, which is the brightest star in the hook of the asterism called "the coat hanger" in the neighboring constellation of Vulpecula.

In the case of U Sagittae, we have a situation where a small, bright star is fully eclipsed by a larger but dimmer companion. Unlike many other variable stars, the behavior of U Sagittae is such that it can be observed in the course of a single evening if you catch it in or near its eclipse phase. Its full period is 80 hours, shining most of the time at magnitude 6.4. But it dims during a span of five hours to magnitude 9.1. Then it stays in eclipse for about two hours before quickly brightening again. The finder chart for U Sagittae spans about 15 arc minutes. North is at the top. A good comparison star of magnitude 8.2 is 11 arc minutes to the northeast.



Sagitta is small and dim, but should not be overlooked among the brighter areas of the summer Milky Way.

All the Constellation of the Month articles in one book!

Under Dark Skies

A Guide to the Constellations

By Chris Lancaster

Online for \$14.99 or get it directly from Chris for \$10

ctlancaster[at]msn.com

(while supplies last)

The Visible Planets this Month

Data provided by Erich Karkoschka

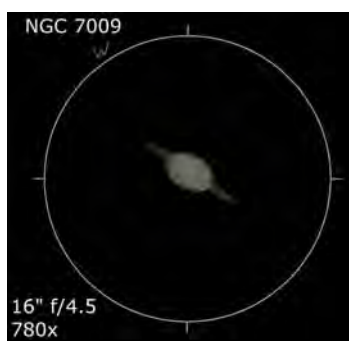
Weekend Sa/Su	Sun		Mercury		Venus		Mars		Jupiter		Saturn		Visibility (Vi)	
	Set	Rise	Set	Vi	Rise	Vi	Set	Vi	Rise	Vi	Set	Vi	Code	
29/30	18:09	6:15	18:46	8	3:04	-4	20:25	2	21:44	-3	19:17	5	-3	brilliant
6/7	18:00	6:20	18:45	7	3:15	-4	20:15	2	21:17	-3	18:52	7	0	conspicuous
13/14	17:51	6:25	18:44	6	3:26	-4	20:05	2	20:49	-3	18:27	-	3	moderate
20/21	17:43	6:30	18:43	5	3:37	-3	19:56	3	20:20	-3	18:01	-	6	naked eye limit
27/28	17:36	6:36	18:40	5	3:49	-3	19:49	3	19:51	-3	17:36	-	9	binoculars limit

Christian Weis' Planetary Nebulae of the Month

NGC 7009 and PK 65-27.1 (Pease 1)

Planetary nebulae (PN) are fascinating objects that come in numerous forms of appearances. Besides the well known grand four Messiers (M27, M57, M76 and M97), there are hundreds more to explore. This article suggests two PNs, a pretty bright and easy-to-observe one and a harder one for the more ambitious observer who is equipped with a bigger scope.

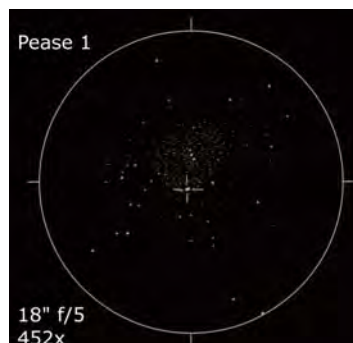
NGC 7009
 RA: 21h 41.0min
 Dec: -11° 22'
 Constellation: Aquarius
 Brightness: 8m0
 Central star: 11m9
 Size: 30 x 26 arcsec
 Distance: 2900 ly



The objects called planetary nebulae were named that way because of their appearance in telescopes. There are plenty of examples of PNs that have sizes and shapes similar to that of planets – some were even named specifically to honour their resemblance of planets. One of them is Jupiter's Ghost which was presented here in the March issue 2012. The other one, NGC 7009 will be the easy-to-observe PN for this month. It was discovered by William Herschel in 1782. This planetary nebula is also called the Saturn nebula, and never has it been easier to see why that naming came up. Shining at 8m0, even small binoculars are able to show NGC 7009, however, to really see the "planet" and the "rings", one will need some more aperture and also power. I observed the Saturn nebula at TIMPA in

August 2010 having only mediocre seeing conditions and a somewhat brightened sky with a 16" Newtonian. My notes read: "Rings" are weak, the "planet" is very bright and homogeneous, no stars in field, no central star, no color or possibly slightly greenish at 195x; fst 5m8 (Sag), 780x

PK 65-27.1 gives the galactic coordinates for an objects that is better known as Pease 1. This object is quite challenging as it is located in the globular cluster M15 in Pegasus. Pease 1 was discovered by Francis Gladheim Pease in 1928. It would be a manageable object if it stood alone since its brightness after all is 14m9, however, its location makes it a very tough object. In order to successfully observe this famous PN, you will have to bring out the best of both, you and the telescope. With a good finder chart (for example <http://www.blackskies.org/peasefc.htm>), a high power eyepiece, an [OIII]-filter and a black cloth covering your head you will have a chance. I found Pease 1 in October 2011 while observing in southern Germany and noted: Found after a long search, identified at 452x using an [OIII]-filter, not very bright but can be seen constantly using direct vision and the filter, without filter, averted vision shows a little something but could not determine, if it is the nebula or a star (of which there are plenty), pretty challenging; fst 6m4 (And), 452x



PK 65-27.1 (=Pease 1)
 RA: 21h 30.0min
 Dec: 12° 10'
 Constellation: Pegasus
 Brightness: 14m9
 Central star: no data
 Size: 1 arcsec
 Distance: no data

TAAA Classifieds

For Sale	MR. OLCOTT'S SKIES: AN OLD BOOK AND A YOUTHFUL OBSESSION by Thomas Watson. A brief memoir about find, losing, and finding again the joys of amateur astronomy. Available in paperback from Barnes & Noble and Amazon, \$6.99. Also available in ebook form for Amazon Kindle, Barnes & Noble Nook, iPad, and other ereaders for \$1.99. More information: watson1987[at]cox.net. First Offered July 2012
For Sale	Meade AR 6 refractor. OTA only. Includes hard sided travel case. \$400 Contact Phil Yehle at phil3155[at]gmail.com First Offered July 2012
For Sale	Like new telescope system, 37+ items. AP900, C8 Fastar, ST237A and lots more. Asking \$7000. Contact James at jebiggers[at]centurylink.net or 520-749-3957. A full item list is available. First Offered July 2012
For Sale	Nagler 7mm eyepiece \$140. 2-inch ring to make a 2-inch eyepiece parafoal (same focus) with other eyepieces \$4. SAO Star Atlas (151 charts to mag 9 with all NGC objects but no labels) \$40. The Observer's Sky Atlas \$20. Deep-Sky Observer's Handbook Vol. 1-7 \$8 each. Hipparcos and Tycho Catalogues Vol. 2-13 \$1 each. Call Erich at 520-621-3994. First Offered September 2012
For Sale	Bound Astronomical Journals from the 1960s and 1970s FREE. You pick up. Contact Rik Hill at rhill24[at]cox.net or leave a message at 520-721-0123. First Offered September 2012

For Sale ads run for 4 consecutive months. Upon request, the ad will run an additional 2 months but only if the asking price is reduced. All other ads will run for 4 months. Beyond these limits, an ad can be resubmitted provided 30 days have passed since the previous ad ran. For additions or changes to this list, call or e-mail the newsletter editor.

New Policy

TAAA Board of Directors Meeting—12 September 2012

(Editor's Note: Minutes edited for space)

Attending Board members present (6): Bob Gilroy (presiding), Al Anzaldua, Vern Dunlap, Chuck Hendricks, William Lofquist, Tim Van Devender.

Members present (3): Ben Bailey, Terri Lappin, Susan O'Connor.

The Vice-President called the meeting to order at 6:39 pm.

Calendars: Susan will work with same company as last year; will look for local company next spring. She inquired about purchasing calendars. Asked for schedules of meetings and events, was provided schedules for TIMPA and Saguaro Park East. Susan expects to have calendars ready for sale by November. Initial order of about 105.

Board Minutes: Motion to accept minutes of 8/8/12 made by A. Anzaldua, Seconded by T. Van Devender, discussion by T. Lappin concerning her input. Motion carried.

Member Feedback: V. Dunlap posted sign requesting members to be quiet during lectures.

Steve Marten presented request from Cascades of Tucson Retirement for TAAA to conduct an astronomy workshop/discussion. More detail is required before a decision can be made. Terri Lappin will follow up with Steve Marten.

Announcements:

- Business cards ordered by R. Gilroy, two week delivery. First order placed for Board of Directors. Future orders will include members involved in outreach activities.
- Moving forward with fingerprinting and background checks
- R. Gilroy to make presentation at Project ASTRO workshop. Presentation will include TAAA's purpose and mission. Terri suggested offering free membership to teachers involved in Project ASTRO. Motion made by A. Anzaldua to offer one-year complimentary membership to teachers participating in Project Astro. Seconded by V. Dunlap. Discussion: This action to be voted by each board for continuation. Motion carried.
- Discussion on membership renewals. This area requires attention, beginning to show improvement. Discussion concerning one member who lives in Germany.
- National Public Radio: The broadcast resulting from NPR's visit to Tucson and TIMPA will not occur on 15 Sep as planned. W. Lofquist will notify membership of the revised broadcast date.

Upcoming lectures; Terri Lappin will confirm that Mary Turner will be available for October. Veronica Bray has been invited and confirmed for the main lecture in October. Future meeting speakers are scheduled. 2013 schedule to be set. January "meet yourself" meeting needs planning. Member's Night and elections in May 2013.

Treasurer's Report: Net Ordinary Income: \$885.48; Refunds and Rebates: \$37.50; Donations Income: \$2,032.00; Other Income: \$2,069.00; Net Income: \$2,954.98. Motion made to send more comprehensive profit and loss sheet showing both income and expenses to board members for their approval before next board meeting. Seconded by V. Dunlap. Motion carried. W. Lofquist motioned to accept treasurer's report (Balance Sheet) as presented with the proviso that we work on those

accounts that need to be corrected. Seconded by V. Dunlap. Motion carried.

SIG Status Reports:

AFSIG Report: Class scheduled for Sep 22, Oct 6 and 13. AFSIG meeting scheduled for 13 Sep 2012. Will discuss Messier objects within the constellation of Sagittarius. Those objects will be viewed at TIMPA on 14 Sep.

Other Business:

- Star parties for September are covered. W. Lofquist received a request from Carter Smith and a UA Professor expressing interest in working with younger kids to communicate complicated areas of astronomy. Bill will get more information on the request and forward to board members.
- Star parties will continue at Catalina State Park.
- Terri suggested creating a one page flyer with information on upcoming lectures, membership, and inviting the public to TIMPA. These flyers will be available at Starizona and Stellar Vision. The board considers this to be a good idea.
- W. Lofquist mentioned inquiries received about TAAA events non-members can participate in.
- Membership report: V. Dunlap will submit monthly membership status report.
- Web Director/E-Services Report: Five levels of access to Web site. Updating is nearly complete. Announcement capability to be turned on tomorrow. Will be duplicated on the Google page.
- RV spaces at CAC are now available for use.
- R. Gilroy suggested we set up a constitution review committee to determine if changes are required to bring the constitution up to date. Board members to write recommendations for proceeding with establishing the review committee. It was recommended to have special meeting to discuss establishing a constitution review committee. This meeting should be held within the next two weeks. R. Gilroy has action to coordinate with K. Schlottman to set up a retreat.
- 60th anniversary coming up (April 2014). Need to determine if we want to celebrate the anniversary, if so appoint a committee. Vote is 5 to 1 in favor.
- Membership renewal inquiries should be directed to V. Dunlap and R. Gilroy.
- Name tags for BoD to be discussed at next meeting.

Meeting adjourned at 9:15pm.

Respectfully submitted,
Chuck Hendricks, TAAA Secretary

*Next Board of Director's Meeting***Oct 10 (Wed)****6:30 PM**

Steward Observatory Conference Rm N305

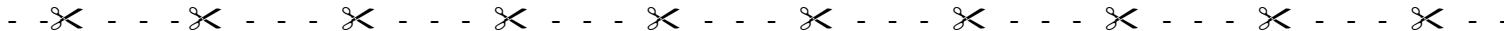
Contact the president to have your topic added to the agenda. There may not be time for topics that are not on the agenda. The front doors at Steward Observatory will be locked. Be there by 6:30pm or call the cell phone number of someone you know is attending the meeting and they can let you in.





CAC RECOGNITION PATIO AND WALKWAY PROGRAM

We are raising money to help pay for the Ramada/Outdoor Education Center at the Chiricahua Astronomy Complex (CAC). The patio will be adjacent to the handicapped parking spaces. The 4x8 brick requires a donation of \$120 and the 8x8 brick a donation of \$150.



Yes, we'd like to reserve a permanent brick. Please engrave our brick as follows:

TYPE WILL BE IN CAPS. ANY SYMBOL IS CONSIDERED ONE SPACE (PERIOD, COMMA, DASH)
ALL TEXT IS CENTERED UNLESS OTHERWISE NOTED

4 x 8 Brick

8 x 8 Brick

4 X 8 EXAMPLE

T	H	A	N	K	S		T	O		B	O	B		S	M	I	T	H	,	
M	Y		A	S	T	R	O	N	O	M	Y		M	E	N	T	O	R	.	
Y	O	U		G	O	T		M	E		S	T	A	R	T	E	D	!		
F	R	O	M		D	I	C	K		A	D	A	M	S						

PLEASE RETURN THIS FORM AND YOUR CHECK PAYABLE TO:

Tucson Amateur Astronomy Association
ATTN: Engraved Brick Program
P. O. Box 41254
Tucson, AZ 85717

Name: _____ Phone: (____) _____

Address: _____

City: _____ State: _____ Zip: _____

Email Address: _____ Payment Included: _____

If you have any questions, please call Bill Lofquist at (520) 297-6653 or billlofquist@tucsonastronomy.org.

Membership in the TAAA

Annual Fees

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

Discounts (one qualified 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)

Astronomical League (AL) fee..... \$7.50
 Sky & Telescope Magazine 1 year (12 issues, group rate)..... \$32.95
 Astronomy Magazine 1 year (12 issues, group rate)..... \$34.00
 2 years (24 issues, group rate) \$60.00
 Postage for New Member Pack \$4.95

Donations are accepted for the following funds: SA-IDA/Light Pollution, TIMPA, Education, Chiricahua Astronomy Complex, and General/Undesignated.

Renewal Information

You'll get an email reminder when it's time to renew.
 TAAA members may join the Astronomical League (AL) 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 any time. Allow 3

months for processing. New subscriptions must be sent through the TAAA treasurer. Renewals can be paid online through magazine websites. To change an individual subscription to the group rate, pay the group rate to the TAAA treasurer. Include your magazine renewal notice. Include a note about what you're paying for. Credit cards are not accepted. Write one check or money order for dues 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

Mail changes to address above, email them to the treasurer, or make them yourself online through Night Sky Network login account at <http://nightsky.jpl.nasa.gov/login.cfm>.

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

Send submissions to [taaa-newsletter\[at\]tucsonastronomy.org](mailto:taaa-newsletter[at]tucsonastronomy.org) 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 Word compatible files sent by e-mail or on recordable media. All copyrights retained by Tucson Amateur Astronomy Association or specific author. No reproduction without permission, all rights reserved. We will not publish slanderous or libelous material!

How to Contact Us

TAAA Website: www.tucsonastronomy.org Mailing Address: PO Box 41254 Tucson 85717 TAAA Phone Number: 520-792-6414

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President (elected board member)	Keith Schlottman	520-250-1560	president[at]tucsonastronomy.org
Vice President(elected board member)	Bob Gilroy	520-743-0021	vice-president[at]tucsonastronomy.org
Secretary (elected board member)	Chuck Hendricks	520-247-3815	secretary[at]tucsonastronomy.org
Treasurer (elected board member)	Al Anzaldia	520-409-5797	treasurer[at]tucsonastronomy.org
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Member-at-Large (elected board member)	Bill Lofquist	520-297-6653	mal2[at]tucsonastronomy.org
Member-at-Large (elected board member)	Tim Van Devender	520-495-0694	mal3[at]tucsonastronomy.org
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Your mailing label indicates the month that your membership dues will expire. To avoid missing an issue of Desert Skies, please pay your dues in a timely manner. Membership rates can be found in the newsletter.

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