

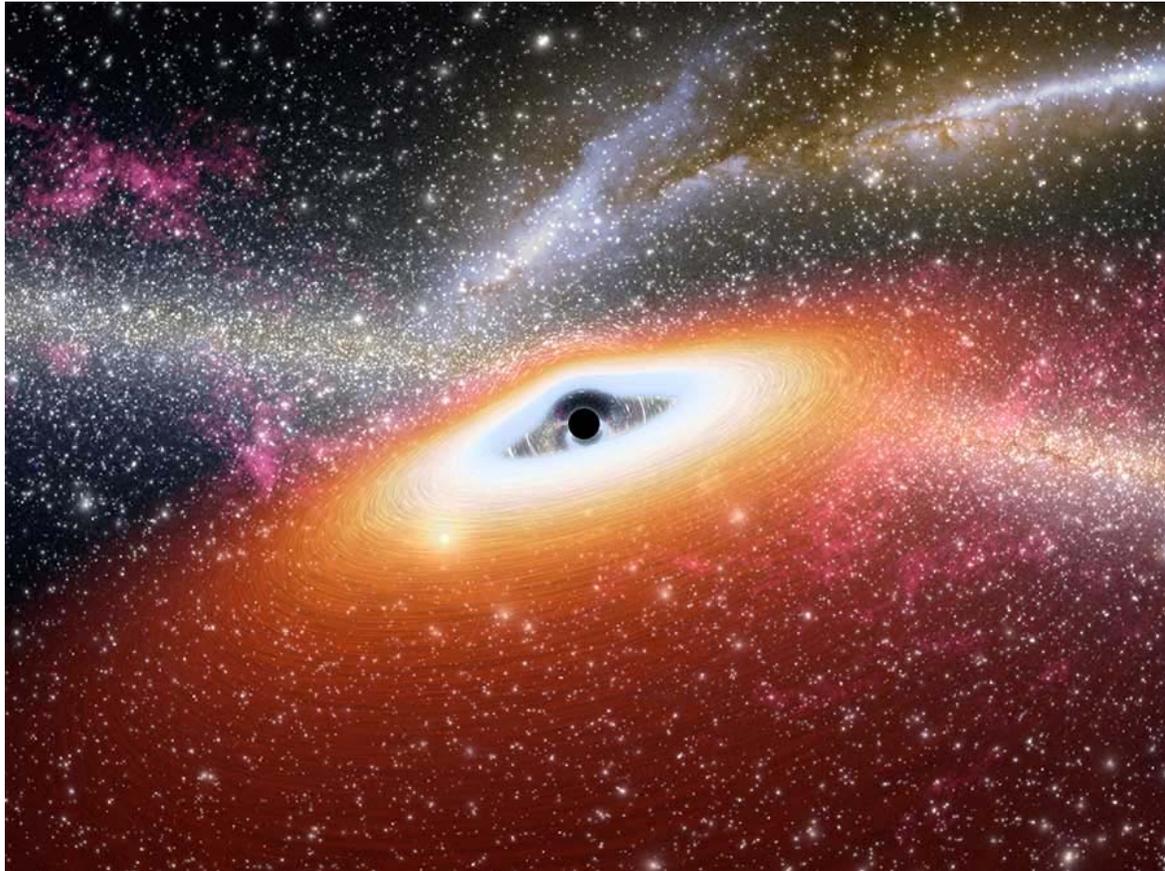


Desert Skies

Tucson Amateur Astronomy Association

Volume LVIII, Number 11

November 2012



Prehistoric Black Hole

Arizona Science & Astronomy Expo

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Holiday Party December 1st

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Order Your 2013 TAAA Calendar

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Grand Canyon Star Party 2013

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General Meeting November 2nd

Steward Observatory Lecture Hall, Room N210

6:30pm

Observing Techniques — Tim Van Devender, TAAA

7:30pm

Growing Supermassive Black Holes in the Early Universe — Dr Xiaohui Fan, Steward Observatory, UA

Affiliates



TAAA Meeting Friday, Nov 2nd

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



6:30pm Astronomy Essentials Lecture

Title: Observing Techniques

Speaker: Tim Van Devender, TAAA

Tim will tell us about the observing techniques he uses. This will be an informative lecture, especially to our beginning observers.

7:30pm Invited Lecture

Title: Growing Supermassive Black Holes in the Early Universe

Speaker: Dr Xiaohui Fan, Steward Observatory, UA

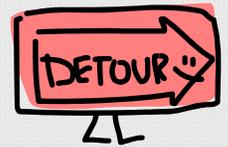
Quasars are the most luminous objects in the Universe. They can be observed at the edge and close to the beginning of the Universe, and are powerful tools for cosmic evolution. Quasars are thought to have extracted their enormous energy output through rapid accretion of matter into supermassive black holes at the center of galaxies. These black holes weigh millions to billions times the mass of our Sun. Yet, luminous quasars, and supermassive black holes, are currently observed at distance up to 13 billion light years, when the Universe was less than one billion years old, or about 6% of its current age. How did supermassive black holes grow throughout the history of the Universe? And how did they manage to grow so fast and so efficiently in the early Universe?

Dr Fan will talk about surveys of the most distant quasars and how these observations allow us to study the properties of supermassive black holes. He will discuss the physics of black hole growth, highlighting how the detections of the most distant quasars challenges the black hole growth theory.

After Meeting Get-together

Following the meeting, several members gather at the Village Inn on Speedway at Columbus for pie, shakes, whatever. Discussion is mostly astronomy, but many other subjects come up. All members are invited.

Construction Alert!



The construction of the streetcar has less and less impact on our meeting. The Cherry and 2nd Street intersection is open. Warren (one block east of Cherry) is closed. Best access to Steward Observatory is from Speedway, south on Cherry to any number of parking areas. Pedestrian access is best along Cherry Avenue. 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

Sometimes the number of opportunities to enjoy astronomy in Southern Arizona can be overwhelming. The coming months have so many different astronomy events that you probably can't participate in them all, but lope your calendar has at least a few days marked off for some space-related fun.

The month of November starts off with our regular monthly meeting. Have you stopped to consider how fortunate we are to have the Steward Observatory lecture hall available for our meetings? I suspect that most clubs don't have access to such a nice facility, but it goes much deeper than that. Some of the most prominent astronomers and physicists of the past century have worked right there at Steward Observatory - and that continues to this day. TAAA has a very good relationship with the Astronomy Department, and our club's membership roster includes some professional astronomers who are actively working to further human knowledge of the great mysteries of outer space. We should feel honored that the University recognizes the value of our club, and we should support them in return.

The University might be considered the epicenter of professional astronomy, but in November we're going to see Tucson become the epicenter of amateur astronomy as well. The same group that organizes the famous Northeast Astronomy Forum will be bringing their skills to the Tucson

Convention Center on November 10th to 11th, with the inaugural Arizona Science and Astronomy Expo. This event will be a huge showcase of many of the best-known vendors of amateur astronomy equipment, and will also have plenty of seminars and hands-on activities. TAAA will be hosting an information booth to promote our club, and we are going full-steam with star parties throughout the weekend at both the Chiricahua Astronomy Complex and TIMPA dark-sky sites. The Expo will be drawing many out-of-town visitors, as well as local families. We would really like to present our club in the best manner possible! If you are able to assist with the club's activities in any way, please contact me, or any Board member, as soon as possible.

Of course we have plenty of other astronomy stuff going on this month. Check the list of upcoming activities and star parties in the newsletter, get out your pencil and calendar, and start marking off some dates! I hope to see many of you out under the stars.

Keith Schlottman

Cover

This artist's conception illustrates one of the most primitive supermassive black holes known (central black dot) at the core of a young, star-rich galaxy. Astronomers using NASA's Spitzer Space Telescope have uncovered two of these early objects, dating back about 13 billion years ago.

<i>This Month in Brief</i>			
Event Contact Person	Date Location	Time	See Page
Monthly Meeting Keith Schlottman	Nov 02 (Fri) Steward Observatory Rm N210 933 N Cherry Ave	6:30 PM	2
Catalina State Park Northwest Tucson Bill Lofquist	Nov 03 (Sat) Catalina State Park 11570 N Oracle Rd	5:15 PM	6
Peace Garden Star Party Far South Tucson Bill Lofquist	Nov 03 (Sat) Peace Garden 5901 S Fiesta	6:00 PM	6
Astro Imaging SIG Meeting Larry Phillips	Nov 05 (Mon) Denny's Restaurant – Broadway 6484 E Broadway	7:00 PM	4
AFSIG General Meeting Ben Bailey	Nov 08 (Thu) USGS Building Room 253 520 N Park Ave	6:30 PM	4
Academy of Tucson Elementary School East Tucson Bill Lofquist	Nov 09 (Fri) Academy of Tucson Elementary School 9209 E Wrightstown	5:30 PM	6
Arizona Science & Astronomy Expo	Nov 10, 11 (Sat & Sun) Tucson Community Center		3, 7
CAC Star Party John Kalas	Nov 09, 10, 11 (Fri–Sun) Chiricahua Astronomy Complex		5
Star Party at TIMPA Ben Bailey	Nov 10, 11 (Sat & Sun) TIMPA 3250 N Reservation Rd	5:30 PM	5
Board Meeting Keith Schlottman	Nov 14 (Wed) Steward Observatory N305 933 N Cherry Ave	6:30 PM	4
Friday Nite @ TIMPA Ben Bailey	Nov 16 (Fri) TIMPA 3250 N Reservation Rd	5:30 PM	5
Starry Messenger SIG Meetng Teresa Lappin	Nov 19 (Mon) Beyond Bread 3026 N Campbell	6:30 PM	4
Coyote Trail Elementary School Northwest Tucson Bill Lofquist	Nov 19 (Mon) Coyote Trail Elementary 8000 N Silverbell Rd	5:30 PM	6
Rattlesnake Ridge Elementary School Northwest Tucson Bill Lofquist	Nov 29 (Thu) Rattlesnake Ridge Elementary School 8500 N Continental Reserve Loop	6:00 PM	6

<i>Future Dates</i>	
Dec 1	Holiday Party
Dec 3	Astro–Imaging SIG Meeting
Dec 7	TAAA General Meeting
Dec 12	TAAA Board Meeting
Dec 13	Astronomy Fundamentals SIG Meeting
Dec 14–15	CAC Star Party
Dec 15	TIMPA Star Party

<i>Upcoming Lectures</i>		
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>	
Nov 5	Steward Observatory Evening Lecture (Page 8)
Nov 14	Lunar & Planetary Lab Evening Lecture (Page 10)
Nov 16	Marc Aaronson Memorial Lecture (Page 8)



Speakers Exhibitors
 Hands-on Exhibits Solar Observing
 Prizes & Raffles
 TAAA will be a participant, providing star parties each night and hands-on demonstrations both days.
 \$10/day, kids free w/adult, Veterans free on Sunday
<http://www.scienceandastronomy.com/>

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: Nov 5 (Mon) 7:00 PM

Denny's Restaurant (6484 E Broadway)
 Contact: Larry Phillips



Due to problems with the previous meeting venue, beginning in November the TAAA Astro-Imaging SIG will meet at a new location. Join us at Denny's on east Broadway at 7 PM in the private meeting room. Or come any time after 6 PM and get a bite to eat before the meeting begins.

Denny's is located at just east of Wilmot on east Broadway, next to the La Quinta Motel.

See you on November 5th. And bring your latest efforts at imaging and processing whether it is your first attempt and you still consider yourself a beginner, or you want to seek an answer to a problem, or you have been imaging a while. No one will ever completely master this phase of our astronomy hobby - so we can all learn.

Astronomy Fundamentals SIG (AFSIG)

Meeting: Nov 8 (Thu) 6:30 PM

U.S.G.S. Building, Room 253 (520 North Park Ave)
 Contact: Ben Bailey



On Thursday, Nov 8, we will hold our regular monthly meeting. Bob Eby will be presenting the AFSIG Lunar Observing Club. 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)



Starry Messengers SIG -
 Opening Minds to the Universe

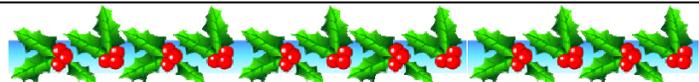
Next Meeting: Nov 19 (Mon) 6:30 PM

Beyond Bread (3026 N Campbell)
 Contact: Terri Lappin



The Starry Messengers SIG will meet on Wed, Nov 19th at the Beyond Bread located on Campbell just north of Glenn. The University of Arizona College of Science has invited the TAAA to partner with them during the 2013 Tucson Festival of Books. This means we'll be placed close to lots of other science exhibits. The College of Science already has many of their plans in place and things are moving quickly. We need to determine what we want to do.

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.



TAAA Holiday Party

Dec 1 (Sat) 5:00 PM

Home of Bill and Mary Lofquist



The TAAA Holiday Party will be held this year at the home of Mary and Bill Lofquist. It will be on Saturday, December 1, 2012. We can begin to gather at 5:00 PM.

The meal is a potluck, so bring something with you to share. It could be appetizers, a vegetable, an entre, dessert, something to drink. We will have a grill available if you would like to cook something for yourself, and you can bring a crockpot.

Coffee and hot water for tea, hot chocolate and hot cider will be available.

We will have a raffle again, so bring any astronomy-related items you might have on your shelf that you think someone else might like to have.

Directions: From the intersection of Ina Road and La Cholla Boulevard (near Foothills Mall), go south on La Cholla Blvd to the traffic light at Omar Drive (Donaldson School is there). Turn left (east) on Omar Drive and then right on Amahl Drive. Go one half mile to where Amahl changes its name to Sesame Drive. At this point, turn left onto Harran Drive, and then left again onto Harran Circle.

The address is 1935 Harran Circle.

This is a great time for visiting and getting to know other TAAA members. We hope to see you at the Holiday Party.



Solar Observing Group

The Solar Observing group will not be meeting for group solar observing until further notice. Please ignore the Nov 17th 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.

Next Board of Director's Meeting

Nov 14 (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.

Newsletter Deadline

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



Members' Star Parties

TAAA Star Party at TIMPA

Nov 10, 11 (Sat, Sun) Gate opens at 4:30PM

Nov 16 (Fri) Gate opens at 5:00PM

Contact Person: Ben Bailey



The weekend of Nov 10 and 11 will see Tucson hosting the Arizona Science and Astronomy Expo (ASAE). AFSIG will be hosting Expo attendees on our regularly scheduled Star Party on the 10th and opening TIMPA the next night on Sunday, the 11th. We'll also have our regular Friday night observing session on Nov 16th. Note the different times when the gate will be opened.

The Gila Monster Observatory 14" will be open for your viewing pleasure at each event. 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!

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

Nov 9, 10, 11 (Fri, Sat, Sun)

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.

Catalina State Park Public Star Party

Nov 03 (Sat) **Set-up: 4:30PM**
 Northwest Tucson Volunteers Needed: 8
 Leader: Bill Lofquist

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) **Set-up: 5:30PM**
 Far South Tucson Volunteers Needed: 3
 Leader: Bill Lofquist

The Sunnyside Neighborhood Association is having a star party for their community. It will be held in the Peace Garden 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.

Academy of Tucson Elementary School

Nov 09 (Fri) **Set-up: 5:00 PM**
 East Tucson Volunteers Needed: unknown
 Leader: Bill Lofquist

The Academy of Tucson is having a star party for its students and family members. This is located at 9209 E Wrightstown. Observing is from 5:30PM to 8:00PM.

CAC Star Party

Nov 09, 10, 11 (Fri, Sat, Sun)
 CAC Site Volunteers Needed: unknown
 Leader: John Kalas

The public will be invited to our Chiricahua Astronomy Complex on these three nights as part of the Arizona Science and Astronomy Expo. John Kalas, CAC Director, will be handling RSVPs for this event, so let him know you can support this opportunity to show the public what a really dark sky looks like.

Desert Skies to Offer More in 2013

The New Year is just around the corner! A new monthly TAAA publication is coming in 2013 that will keep you up to date on all TAAA activities. With that addition, our traditional monthly newsletter, *Desert Skies*, will become a quarterly publication. This quarterly version of *Desert Skies* will contain more articles, written by TAAA members and others in the astronomical community.

If you're a writer, this is your chance to contribute. The quarterly publication will grow as we recruit contributors. Articles will be reviewed for content and relevance to amateur astronomy. If you're interested in being a regular contributor, let our editor, Terri Lappin, know.



Star Party at TIMPA

Nov 10, 11 (Sat & Sun) **Set-up: 4:30 PM**
 Far West Tucson Volunteers Needed: 0
 Leader: Ben Bailey

The public will be invited to our TIMPA observing site two nights on these two nights. This is located at 3250 N Reservation Rd. The gate will be unlocked at 4:30pm. Saturday night is our normal TIMPA observing night.

Coyote Trail Elementary School

Nov 19 (Mon) **Set-up: 5:00 PM**
 Northwest Tucson Volunteers Needed: 4
 Leader: Bill Lofquist

Coyote Trail Elementary is having a star party for its students and family members. This is located at 8000 N Silverbell Rd. Three scopes needed and an outreach toolkit has been requested. Observing is from 5:30PM to 7:00PM.

Rattlesnake Ridge Elementary School

Nov 29 (Thu) **Set-up: 5:30 PM**
 Northwest Tucson Volunteers Needed: unknown
 Leader: Bill Lofquist

Rattlesnake Ridge Elementary is having a star party for some first graders and their families. This is located at 8500 N Continental Reserve Loop. Observing is from 6:00 PM to 8:00 PM. In addition, an outreach toolkit has been requested.

We also want to more prominently feature our member's astro-photography abilities. Image contributors can include descriptions, processing techniques, and anything else that might be of interest about the image.

Eventually, we'll have a kid's section. The TAAA has been encouraging astronomy as a family activity, but traditionally we haven't offered much to our youngest members. We hope to change this. It takes a special talent to create material for kids in a newsletter format, so if you're interested, we want to know.

So, look for these changes. They're only a couple months away!



www.scienceandastronomy.com

Main Door Prizes

Show your ticket stub and receive 2 free raffle tickets for entry into our main door prize giveaway. **NOTE:** You must be present to win a Door Prize. See the ASAE website for additional rules.

Six—70mm AstroMaster Telescope \$140 ea
(Celestron: <http://www.celestron.com/>)

Eight—70mm Space Eye Telescope \$140 ea
(Vixen Optics: <http://www.vixenoptics.com/>)

Thirty—\$25 Gift Certificates
(Woodland Hills: <http://www.telescopes.net/>)

Fifteen—\$50 Gift Certificates
(Woodland Hills: <http://www.telescopes.net/>)

Three—\$50 Gift Certificates
(DobSTUFF: <http://dobstuff.com>)

Two—8 x 40 Binoculars \$50 ea
(Stellavue: <http://www.stellarvue.com>)

Spin the Wheel Instant Prizes

1000 - NASA Fanny Packs (NASA)
1200 - NASA Collectable Pins (NASA)

Raffles

Raffles will be held by various Charitable Organizations. Check with each charity for ticket prices and rules..

60mm Dedicated Solar Telescope \$1,600.00
(Lunt Solar: <http://www.luntsolarsystems.com/>)

Tucson will be hosting the inaugural Arizona Science & Astronomy Expo. This convention has been organized by the same people who have run the Northeast Astronomy Forum, a premier gathering of all things astronomy that takes place each year in New York. Be sure to take advantage of this opportunity and help the TAAA in our support of this event. See the article below for how you can help the TAAA with this event.

Events

University of Arizona, mirror lab tours
Mt Lemmon Sky Center, remote viewing
Imaging workshop by Adam Block
NASA JWST exhibits
The Challenger Space Center Arizona, solar system planet program
Kitt Peak National Observatory
Digital Planetarium Shows throughout the day
Daily Solar Observing
Night Time Viewing

Speakers

Astronaut Donald Pettit, Just landed after a 198 day stay on the International Space Station

Astronaut Story Musgrave, Retired NASA astronaut

Dr. Steele Hill, NASA Goddard SOHO

Dr. Phil Plait, The Bad Astronomer talks about Myan Prophecies

Geoff Notkin, of the Science Channel "The Meteorite Men", Meteorite Panel

Dr. Carin Bondar, Biologist with a Twist

Adam Block, Mt. Lemmon Sky Center

Dr. Melissa Morris, Meteorite Panel

Stephen Ramsden, Solar Outreach and Observing

Dr. Pamela L Gay, Solar System Exploration from your Desktop

The TAAA is taking part in this event in several ways. The Starry Messenger SIG will support an area for hands-on activities and demonstrations. The club will also have a booth in the show. As an extra added attraction for convention attendees, the club will host star parties at both the TIMPA Site and the CAC Site. As you can see, there are lots of opportunities for TAAA Members to support the club's efforts regarding this convention. Please consider volunteering. This is a huge opportunity for the TAAA to show the nation what a great astronomy organization we have.

Volunteers are needed for the following roles:

Man our booth in the exhibit hall, answering questions about the TAAA. Contact any board member.

Help kids and adults learn through hands-on activities, sign up for a 3-hour shift, includes free admission for that day. Evening training session on Wed, Nov 7th. Contact Terri Lappin.

Support star parties at CAC on Nov 9, 10, and 11 and at TIMPA on Nov 10 and 11. Contact John Kalas for CAC events and Ben Bailey for TIMPA events.

Grand Canyon Star Party Time For Reservations!

June 08–15, 2013

Contact Person: Jim O'Connor
Grand Canyon Star Party Coordinator



It's about time to start planning to attend the 2013 edition of the Grand Canyon Star Party. GCSP '13 is the 23rd annual collaboration between the National Park Service and astronomers from around North America to bring astronomy outreach to Park visitors. The event is held concurrently on both the North Rim, coordinated by the Saguaro Astronomy Club, and the South Rim, coordinated by TAAA.

At the GCSP, we astronomers act as interpretive rangers, unveiling the day and night cosmos around the Grand Canyon to the visitors just as the Park Rangers and guides explain the geology of the park. The level of public interest and involvement, and the opportunity for TAAA to make major contributions to public education and awareness, is profound. During the week we will have over 100 astronomers (nearly two dozen from TAAA) registered on site with the National Park Service for part or all of the week, with over 50,000 individual visitor contacts over that time. About 20 percent of the astronomers set up at random places during the day, showing solar, lunar, and planetary views in daylight for the visitors. The visitor flow tends to end around 10:30pm, so the rest of the night is free for your own pursuits. Think 7000 feet with dark skies.

General information regarding the GCSP can be found on the Grand Canyon Star Party website at <http://tucsonastronomy.org/gcsp/> or find it on the TAAA website under Upcoming Events.

Astronomers are generally responsible for their own lodging arrangements, and indoor lodging at the Grand Canyon fills fast, so make your plans and reservations as soon as possible. For those astronomers intending to stay 6 or more nights, there are plans for a number of no-cost campsites to be available. Register your intention to attend as soon as possible. Requests for a free campsite will be accepted beginning March 1. Campsites will be assigned in order of request received beginning March 1 until none remain. If you intend to participate for six or more nights and wish consideration for a free site, please send an email March 1 to the above address to get on the list. It's not a problem to let Jim O'Connor know early of your intent to participate, but you still need to let him know your campsite intentions on March 1 if you plan to use that availability.

The North Rim portion of the star party is limited by the space available for telescopes. By mid-January the maximum number of telescopes that can be set up on the veranda will be reached. If the North Rim is your destination, make your plans now. For further information and current status on the North Rim, please check the Saguaro Astronomy Club at <http://www.saguaroastro.org> for the latest link.

Please let Jim know as soon as you can if you're interested in supporting TAAA in this exciting and extremely rewarding event for one night, eight nights, or anything in between!

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".



*Steward Observatory Public
Evening Lecture Series
Fall 2012*



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

Nov 5 (Mon) Dr Fulvio Melia, UA Physics
The Cosmic Spacetime

Nov 16 (Fri) Dr. Pieter van Dokkum, Yale Univ.
The Rise of Galaxies (Marc Aaronson Memorial Lecture)

For information:
http://enterprise.as.arizona.edu/~taf/pubve/pub_lect.html

TAAA 2013 Wall Calendar

Pre-order yours at the November meeting.
See Susan O'Connor at the apparel table or email
her at [.cyzeh\[at\]aol.com](mailto:.cyzeh[at]aol.com)
Cash and checks only (payable to TAAA).

\$10 each

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.



Leftover Photos For-Sale

Contributed by John Kalas

Some of you old-timers may remember the TAAA Photo Fundraiser that I coordinated for four years from 1996 through 1999. The concept was to select five impressive photos taken by TAAA Members and sell them as a fundraising project. The photos were selected by the TAAA Membership and printed in bulk. When the project ended, we had sold about 375 photos and the club made approximately \$716 after covering costs.

While cleaning out my closet recently, I came across the remaining unsold photos. These photos are beautiful 8"x10" professionally printed film shots taken by noted TAAA Members, Paul Lorenz and Dean Ketelsen and they are listed below:

1. "The Omega Nebula - M17" taken by Paul Lorenz in 1988
2. "Sunset Over Kitt Peak" taken by Dean Ketelsen in 1987
3. "The Great Orion Nebula - M42" taken by Paul Lorenz in 1988
4. "Comet de Vico" taken by Dean Ketelsen on October 5, 1995
5. "Total Solar Eclipse" taken by Paul Lorenz on July 11, 1991



Four of the five photos are shown in this article. The scans do not do justice to the photos.

Originally, the photos were sold for \$5.00 each or any five photos for \$20.00. Since the club has already paid for these excess photos (and I would really like to get them out of my closet), we will be selling eleven complete sets of five photos for \$10.00 per set and the remaining photos for \$2.00 each. These photos frame beautifully and would make great gifts. Each photo has an information sheet explaining all of the details of the shot.

I will have the photos for-sale at the November and December monthly meetings. Don't miss this great opportunity.

<i>TAAA Classifieds</i>	
For Sale	PRICE REDUCED Like new telescope system, 37+ items. AP900, C8 Fastar, ST237A and lots more. Asking \$5000. 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	28" scope for sale. Also willing to sell just the 28" primary mirror to build your own scope. Folded-Newtonian optics: 28" Nova F/4.5, standard coating, 2" thick Pyrex. 8" secondary flat mirror with enhanced coating, 3" elliptical. Scope transports in a mid-size car or small SUV. Eyepiece height: at 45 degrees is 5.5 ft; straight up is 7 feet. \$5800 for scope w/ all optics, eyepieces & finderscope. \$4800 for 28" mirror by itself. 5" elliptical available to make mirror set for a dobsonian. Trade or partial trade OK. Contact: Gary Vecere (520) 207-2898 or writetoogary[at]gmail.com. Located midtown near UA. First Offered November 2012
For Sale	Huge ATM's projects Garage sale! ① 10" f/8 Newtonian system, sono tube, 4" pipe-part GEM. Very beefy! ② 10" f/5.9 ultra beefy thick fiberglass tube, 3 inch focuser, tube is a three-part system, top spins! 2" pipe-part GEM, collapses. ③ 8" f/8 newt system with old tracking mount. ④ 8" f/ 6 Newt optics, tube, assort. stuff to make telescope. ⑤ 6" f/8 and f/ 5 optics and stuff to make scope. Some 4.25" optics, old mounts and stuff. ⑥ 2.50" ID pillow block bearings, brand new, beefy, two sets for both axes. ⑦ 12" worm drive. ⑧ 12.50" mirror grinding kit, two full thickness blanks, lots of abrasives, pitch, even the 55 gal. drum grinding stand. ⑨ Lots of books, old S&T and Astronomy magazines, charts, atlases. Plus many additional items. All prices negotiable, make offers. Call for appointment to look it over. I will be set up for my neighborhood on Halloween night, weather permitting, northwest corner of Cloud and Sabino Canyon roads, so drop by then to see telescopes in actual operation. Free candy and other treats! Contact James Lehr Miller, 520-751-4961 (after 10 am, please), starman1000[at]msn.com First Offered November 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

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	
We/Th	31/1	-	-
Th/Fr	1/2	18:56	19:40
Fr/Sa	2/3	18:55	20:30
Sa/Su	3/4	18:55	21:21
Su/Mo	4/5	18:54	22:15
Mo/Tu	5/6	18:53	23:11
Tu/We	6/7	18:53	0:08
We/Th	7/8	18:52	1:06
Th/Fr	8/9	18:52	2:07
Fr/Sa	9/10	18:51	3:10
Sa/Su	10/11	18:50	4:15
Su/Mo	11/12	18:50	5:24
Mo/Tu	12/13	18:49	5:27
Tu/We	13/14	18:49	5:28
We/Th	14/15	18:49	5:29
Th/Fr	15/16	19:24	5:29
Fr/Sa	16/17	20:30	5:30
Sa/Su	17/18	21:36	5:31
Su/Mo	18/19	22:41	5:32
Mo/Tu	19/20	23:43	5:33
Tu/We	20/21	0:42	5:33
We/Th	21/22	1:40	5:34
Th/Fr	22/23	2:36	5:35
Fr/Sa	23/24	3:31	5:36
Sa/Su	24/25	4:26	5:36
Su/Mo	25/26	5:20	5:37
Mo/Tu	26/27	-	-
Tu/We	27/28	LUNAR ECLIPSE	
We/Th	28/29	-	-
Th/Fr	29/30	-	-
Fr/Sa	30/1	18:45	19:16
Sa/Su	1/2	18:46	20:10

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TAAA Board of Director's Meeting Minutes

Editor's Note: Minutes of the October 10th TAAA Board of Director's meeting were not received.

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 space. 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

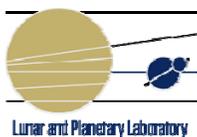
Meets 2nd Wednesday

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)
 Wednesday, November 14, 2012 7:00 pm — 8:00 pm

Weather and Climate on Planets Orbiting Other Stars: A New Frontier in Planetary Science

Dr. Adam Showman, Professor

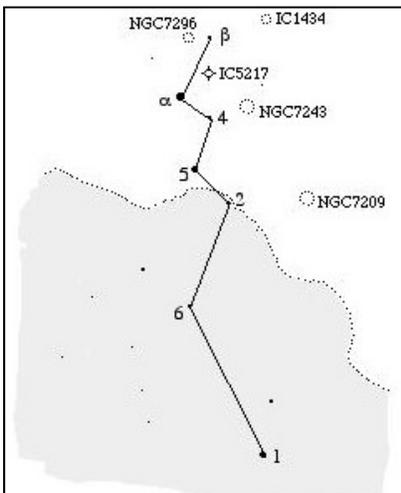
An exploding new scientific field -- the discovery and characterization of planets around other stars -- is expanding the boundaries of planetary science far beyond the confines of our Solar System. To date, nearly 3000 of these so-called "exoplanets" have been discovered. It is an amazing moment: for the first time in human history, the number of planets known outside the Solar System greatly exceeds the number known inside it. Several dozen of these newly discovered exoplanets are bright and close enough that, amazingly, we are able to characterize the composition, temperature, climate, and weather in their atmospheres. In this talk I will survey this exciting new field and show how it holds promise of revealing the broad range of possible climates and Earth's place in it.



Chris Lancaster's Constellation of the Month

Lacerta—The Lizard

This group of stars was largely neglected by the ancients since only dim stars comprise its indiscriminate shape. It wasn't until late in the 17th century that astronomers began concocting names for this scattering of stars. One of the original ones comes from the French astronomer Augustin Royer, who proposed the ponderous name of "Scepter and the Hand of Justice" in honor of Louis



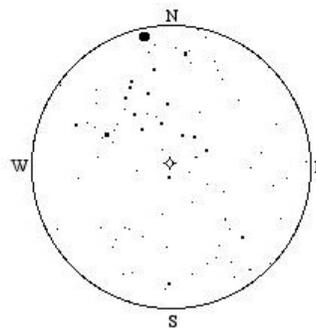
XIV. Johann Bode of Germany suggested the name "Frederici Honores" after the reign of Frederick the Great of Prussia. However, it was Johannes Hevelius, also German, who is given credit for the name Lacerta, which has endured to the present day and left the other names to be forgotten over time.

Lacerta has a northerly spot in the sky, sitting between Cygnus and Andromeda beneath the feet of Pegasus. Look east of Deneb, the brightest star of Cygnus, and you will see the zig-zag of stars between magnitudes 3.5 to 4.5 which form the body of Lacerta straddling the meridian just after 9 pm in the middle of October.

This constellation would be especially uninteresting if it didn't hold the position it does in the sky—just on the edge of the northern summer Milky Way. What this means is that Lacerta is full of distant galactic, also called open, star clusters.

The two largest ones are near the border of Cygnus. NGC7209 is a bright magnitude 6.7 cluster spread across 25' of the sky. You'll find it 16' in RA west of 4.5 magnitude 2 Lacertae. It holds about 50 stars ranging in magnitude 9 to 12. A bit farther north is NGC7243. Being about the same size (21') and brightness (mag. 6.4) makes it a near twin to NGC7209. However, not quite as many stars populate this cluster. Look closely and you'll see a double star within this group. They are a pair of hot A0 type stars separated by 9" and each shining at magnitude 8.5.

Floating near the lizard's head like insects in danger of being devoured are three modest clusters which are all small and dim but, nevertheless, worth your time if you haven't observed them before. NGC7296 near Lacerta's snout is a mist of stars 4m 40s in RA east of the 4.4 magnitude star Beta Lacertae. This cluster measures a meager 4.0' in diameter, but is fairly rich. IC1434 is another rich cluster, 8.0' in size, and of magnitude 9.0. It shows a branched structure by its stars of 12–15 magnitude. The stars of the Milky Way collect into the tight knot of NGC7245, which rounds out the trio of our featured star clusters. This one sits near the



Object	Mag	Size	RA	Dec
NGC7209	6.7	25.0'	22h 5.2'	+46d 30'
NGC7243	6.4	21.0'	22h 15.3'	+49d 53'
NGC7296	10	4.0'	22h 28.2'	+52d 17'
IC1434	9	8.0'	22h 10.5'	+52d 50'
NGC7245	9.2	5.0'	22h 15.3'	+54d 20'
IC5217	13	6.0"	22h 23.9'	+50d 58'

northwest edge of the constellation 4.5 degrees due north of NGC7243.

Lacerta's real challenge comes in the form of planetary nebula IC5217, which is situated on a line almost midway between Beta (b) and 4 Lacertae (or RA 22h 23.9' Dec +50o 58.2'). Almost stellar in appearance, IC5217 only reveals its 6" disk at high magnification. It glows faintly at magnitude 13. The image below shows the star field surrounding the nebula. The brightest star at the top is the 7.4 magnitude star SAO34397. Field of view is 30'.

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

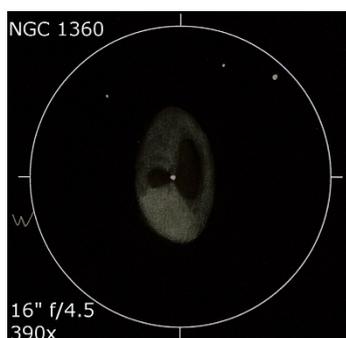
Weekend	Sun		Mercury		Venus		Mars		Jupiter		Saturn		Visibility (Vi)	
	Sa/Su	Set	Rise	Set	Vi	Rise	Vi	Set	Vi	Rise	Vi	Rise	Vi	Code
3/4	17:29	6:42	18:31	6	4:01	-3	19:42	3	19:21	-3	5:58	9	-3	brilliant
10/11	17:24	6:48	18:05	-	4:13	-3	19:36	3	18:50	-3	5:35	5	0	conspicuous
17/18	17:20	6:54	Rise	-	4:26	-3	19:31	3	18:19	-3	5:11	3	3	moderate
24/25	17:18	7:00	5:45	6	4:39	-3	19:27	3	17:48	-3	4:47	2	6	naked eye limit
1/2	17:07	7:06	5:27	3	4:53	-2	19:24	3	17:17	-3	4:23	1	9	binoculars limit

Christian Weis' Planetary Nebulae of the Month

NGC 1360 and Sharpless 2-216

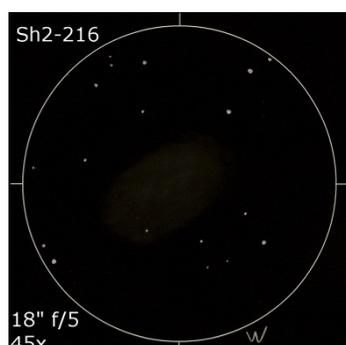
Planetary nebulae (PN) are fascinating objects that come in numerous forms of appearances. Besides the well known grand four Messiers (M27, M57, M76 and M97), there are hundreds more to explore. This article suggests two PNs, a pretty bright and easy-to-observe one and a harder one for the more ambitious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

NGC 1360
 RA: 3h 33.3min
 Dec: -25° 51'
 Constellation: Fornax
 Brightness: 9m4
 Central star: 11m3
 Size: 8 x 6.5 arcmin
 Distance: 1000 ly



NGC 1360 definitely is one of the showpieces at the autumn sky. With an extension 8 x 6.5 arcminutes, it is comparable to M 32, the companion galaxy of M31. This object was discovered in 1857 by Lewis Swift and can theoretically be observed with a telescope as small as 1 inch in diameter. Of course, the bigger the aperture the better. I had the chance to observe NGC 1360 in October 2012 with my 16" Newtonian telescope from Sky Village having very good sky conditions and noted: big nebula, nice at any magnification, considerably elliptical, CS bright, S a little brighter, two dark areas in W and E of CS, these are brighter than the sky background, nebula surprisingly bright, [OIII] helps a lot, diffuse; 390x, fst 7m0 (And)

I have wondered if I should introduce Sh2-216 as one of the "hard" ones. This object is definitely nothing for the faint-hearted. It took me 4 attempts to be confident in saying that I have seen the nebula. Sh2-216 was discovered by Stewart Sharpless, hence its catalogue name. It's one of the closest planetary nebulae (some say it is the closest one) and extends to a size bigger than the moon. I couldn't find any data on the visual magnitude but it probably is the brightest PN when using the integrated magnitude. However, its surface brightness is low - extremely low! Jay McNeil calls this PN a "first class retinal torture" and this is what you can expect when trying to observe it.



Sh2-216
 RA: 4h 45.6min
 Dec: 46° 49'
 Constellation: Perseus
 Brightness: no data
 Central star: no data
 Size: 100 arcminutes
 Distance: 400 ly

I have heard of positive observations from club members, so if you have a really, really dark sky, high contrast optics (aperture virtually does not matter) and if you use an eyepiece that matches your eye's entrance pupil you will have a chance.

My observing notes read: Fourth try (September 16th, 2012): There remains no doubt that the object is visible in my 18" Dobsonian telescope, after a short while seen with 64x, even though the exit pupil is bigger than the entrance pupil of my eye, 45x (50mm eyepiece) results in a better view of the object, filters do not really improve the visibility, drawn is the brightest part of the nebula, a fainter part extending to the W and SW is suspected (goes beyond FOV), central star is not determinable, PN is weak but definitely there; higher magnifications make the nebula disappear; this particular night was excellent, the zodiacal light was seen which is extremely seldom for my location in southern Germany; 45x, fst 7m0 (And)

AFSIG holds Introduction to the Fundamentals of Astronomy Class

Contributed by Ben Bailey

This Fall, AFSIG held its popular Introduction to the Fundamentals of Astronomy classes. These classes are designed to give the beginning star gazer a good start in visual observing and provide a vehicle to meet like minded folks to share our journey among the heavens. Our students enjoyed themselves and picked up some very useful knowledge. After completing all three sessions and three school star parties, our students will be honored at the general TAAA meeting

The September 22nd class concentrated on basic astronomy, including celestial motion, the celestial coordinate system, and types of celestial objects. This is the day to set the stage for what to look for and gather the basic understanding required for full enjoyment of the hobby.

On October 6th, the class went over Equipment Basics, including telescopes, mounts, eyepieces, filters, and other observing accessories. This is where the tools of the trade

are rolled out and examined. Plenty of examples were available for hands on study.

On October 13th, we discussed Observing Basics, including locating objects, seeing conditions, along with hints and tips on observing various types of objects. Here is where everything is stitched together and the students learn how to apply the knowledge gained in the previous two sessions. Afterwards, most of the students gathered at TIMPA for a Pot Luck and Star Party that also included a night rocket launch by the Southern Arizona Rocketry Association.



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, or email them to the treasurer. Change that are made to your Night Sky Network login account at <http://nightsky.jpl.nasa.gov/login.cfm> have no affect on TAAA records..

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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Starry Messenger SIG	Terri Lappin	520-977-1290	smsig[at]tucsonastronomy.org
Space Exploration SIG	Al Anzaldia	520-409-5797	sesig[at]tucsonastronomy.org
Club Apparel Sales	Mae Smith	520-850-7137	taaa-sales[at]tucsonastronomy.org
Equipment Loan Coordinator	Al Dohner	520-297-7118	elc[at]tucsonastronomy.org
Librarians	Hunter Bailey		librarian[at]tucsonastronomy.org
Grand Canyon Star Party Coordinator	Jim O'Connor	520-546-2961	gensp[at]tucsonastronomy.org
General Information	Keith Schlottman	520-250-1560	taaa-info[at]tucsonastronomy.org



Night Sky Network

Benefits of Night Sky Network Membership

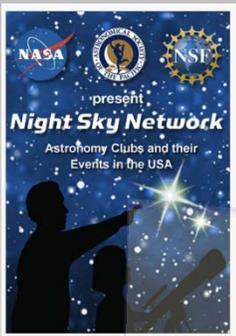
All TAAA members are eligible for a Night Sky Network account. There is no additional cost to you and it gives you access to these and more services. If you haven't activated your Night Sky Network account, contact the treasurer or Terri Lappin. To log into your Night Sky Network account, visit <http://nightsky.jpl.nasa.gov/login.cfm>

Easy online renewal of discounted subscriptions





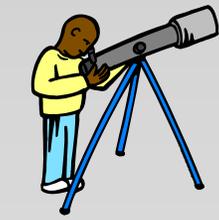
Observing Planning Tools



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Requires iPad or iPhone

Notification of Public Events

Track Your Volunteer Hours & Mileage













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