



Desert Skies

Tucson Amateur Astronomy Association

Volume LVII, Number 10

October 2011



Preparing for a night of observing at the Chiricahua Astronomy Complex

General Meeting October 7th

Steward Observatory Lecture Hall, Room N210

6:30pm Mary Turner's Seasonal Objects

7:30pm Invited Lecture—The Solar Wind, Marcia Neugebauer, UA Lunar & Planetary Lab

Affiliates



TAAA Meeting Friday, October 7

Steward Observatory Lecture Hall, Room N210



6:30pm Astronomy Essentials Lecture

Title: Seasonal Objects

Speaker: Mary Turner

Our Chief Observer, Mary Turner, will be presenting her seasonal lecture highlighting objects visible in our autumn skies. These are objects suitable for most amateur sized telescopes and of special interest to beginners. She'll toss in some mythology, too.

7:30pm Invited Lecture

Title: The Solar Wind

Speaker: Marcia Neugebauer, UA Lunar & Planetary Lab

Interplanetary space is filled with ionized gas blowing away from the Sun. It's known that this solar wind is caused by the high pressure of the million-plus-degree solar corona, but the mechanism responsible for heating the corona is still an area of active research. There are basically three types of solar wind – fast, slow, and transient – but the solar wind has never been observed to stop blowing. Following solar outbursts, the solar wind can cause considerable damage on Earth. During the last few years the Voyager spacecraft have been exploring the interaction of the solar wind with the interstellar medium.



Marcia Neugebauer will speak at our October 7th meeting.

Marcia Neugebauer is a space plasma physicist. She worked at the Jet Propulsion Laboratory for 45 years designing instruments to measure the solar wind and then interpreting their data. She has also been involved in space missions to comets. She has about 230 scientific publications and has won a number of awards. She has been the Editor in Chief of Reviews of Geophysics as well as President of the American Geophysical Union. Since 2002 she has been an Adjunct Research Scientist at UA's Lunar and Planetary Laboratory and she currently also serves as the President of The Arizona Senior Academy.

Note from the Editor

Changes are taking place. Cooling temperatures and clearing skies bring opportunities for excellent observing.

Along with the seasonal changes, the TAAA will experience some changes in leadership resulting from the departure of a very active couple. We wish the Plymates all the best as they start a new chapter in their life in California. Members have already stepped up to fill in some of the voids they leave behind. Vernon Dunlap was appointed to fulfill Claude's Member-at-Large board position. Also, Irene Kitzman and Hunter Bailey are taking over as our librarians. We are still in need of a Secretary to take over Teresa's board position.

We also have changes coming to our website. If you haven't seen it in a while, you should take a look. It may not appear too different right now, but the changes that were made will allow it to be more dynamic than it's ever been. You'll want to check it often.

We have a couple special events this month that I want to draw your attention to. October 7th, our meeting night, is the deadline for submitting photos for the 2012 TAAA Calendar. These will be sold this fall at our meetings. Also, this month the Astronomy Fundamentals SIG is teaching it's popular *Fundamentals of Astronomy* class. It takes place over three Saturdays, culminating in a star party and potluck supper at the TIMPA observing site. On October 15th, the Starry Messenger SIG will hold a workshop about light pollution. Hope to see you there.

Terri Lappin

Upcoming Lectures

4-Nov	<i>Astronomy Essentials</i>	Members Night Theme: Astronomy in Culture & the Arts
	<i>Invited</i>	
2-Dec	<i>Astronomy Essentials</i>	Terri Lappin The Search for Life Toolkit
	<i>Invited</i>	Bill Gates High Latitude Galactic Cirrus
6 Jan	<i>Astronomy Essentials</i>	Mary Turner Seasonal Objects
	<i>Invited</i>	Connie Walker Globe at Night

Lectures are arranged by Terri Lappin. She's always open to suggestions.

Cover Photo

A night of observing from the Chiricahua Astronomy Complex began with some clouds, but it cleared off enough to give some fantastic views from our dark site, located southeast of Wilcox, AZ. Photo by Alan Strauss.

This Month in Brief

<i>Event Contact Person*</i>	<i>Date Location</i>	<i>Time</i>	<i>See Page</i>
Fundamentals of Astronomy Class Ben Bailey	Oct 1, 8, 22 (Sat) USGS Building – Room 253 520 North Park Avenue	9:00am	
UA Students Star Party John Kalas	Oct 2 (Sun) Saguaro Park West Red Hills Visitor Center	7:30pm	
General Meeting	Oct 7 (Fri) Steward Observatory Room N210 933 North Cherry Ave	6:30pm	
Library Presentation Terri Lappin	Oct 8 (Sat) Dusenberry–River Library 5605 E River Rd	11:00am	
Board Meeting Keith Schlottman	Oct 12 (Wed) Steward Observatory Room N305	6:30pm	
Astronomy Fundamentals Meeting Ben Bailey	Oct 13 (Thurs) USGS Building – Room 253 520 North Park Avenue	6:30pm	
Catalina Council Boy Scout Star Party Bill Lofquist	Oct 14 (Fri) Double V Ranch 3801 S Kinney Road	7:30pm	
Light Pollution Workshop Terri Lappin	Oct 15 (Sat) Steward Observatory Rm N305 933 North Cherry Ave	9:00am	

<i>Event Contact Person*</i>	<i>Date Location</i>	<i>Time</i>	<i>See Page</i>
Library Presentation Terri Lappin	Oct 15 (Sat) Nanini Library 7300 N. Shannon Road	2:00pm	
Solar Observing Dennis Dawson	Oct 15 (Sat) Ft Lowell Park 2900 N Craycroft Rd	9:00am	
Space Exploration SIG Meeting Al Anzaldua	Oct 20 (Thurs) UA CEAC 1951 E Roger Road	6:45pm	
Robbins Elem Star Party Bill Lofquist	Oct 21 (Fri) Robbins Elementary School 3939 N Magnetite Ln	6:00pm	
Immaculate Heart Academy Star Party Bill Lofquist	Oct 22 (Sat) Immaculate Heart Academy 410 East Magee Rd	7:00pm	
TIMPA/AFSIG Star Party Bob Gilroy	Oct 22 (Sat) TIMPA Site	5:15pm	
Chiricahua Astronomy Complex Star Party John Kalas	Oct 29 (Sat) Chiricahua Astronomy Complex		

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

Future Dates

Nov 4	TAAA General Meeting
Nov 7	Astro–Imaging SIG Mtg
Nov 17	Space Exploration SIG Meeting/Lecture
Nov 10	Astronomy Fundamentals SIG Mtg
Nov 17	Space Exploration SIG Mtg
Nov 18	Community SP @ 300 N. Tanque Verde Loop Road
Nov 19	TIMPA Star Party
Nov 20	Community SP @ Saguaro Park West Red Hills VC
Nov 26	Chiricahua Astronomy Complex Star Party
Nov 30	Library Presentation @ Woods Library



TAAA Holiday Party

December 10 5:30pm
Potluck at Bill & Mary Lofquist's
All are invited to this family event.

November Member's Night

Astronomy in Culture & the Arts

November's Member's Night theme is "Astronomy in Culture & the Arts." What are the lyrics of your favorite astronomy song? What about science fiction movies—good astronomy or bad, do you have a favorite? What about astronomy in art and literature? Do you collect photos of Googies – that's the name given to space age looking buildings and signs. Much more common are astronomy references found in advertising. How many cars have astronomical names – Subaru, Ford Astro vans, and of course we can't forget the Chevy Nova and Vega.

These are all suitable topics for the November Member's Night. Pick something to talk about, do a little internet research as needed, and then tell us about it. This is meant to be a fun topic – not a serious study into our collective psyche regarding all things spacey. We hope we'll have a few brief presentations to fit in between the more traditional Member's Night presentations. So, use your imagination! Contact Keith Schlottman or Terri Lappin to be added to the lineup.



We're on Facebook!
Search for "Tucson Amateur
Astronomy Association"

Astro-Imaging Special Interest Group (AISIG)

Meeting: No meeting this month

Contact: Larry Phillips

There will be no Astro Imaging SIG meeting in October as all possible discussion leaders will be unavailable. Next meeting will be November 7th at Coco's Restaurant on east Broadway.

We'll meet in November at our regular time, the second Monday of the month at 7pm.

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

Starry Messengers SIG (SMSIG)

Light Pollution Workshop

October 15 (Sat)

9:00am



Contact: Terri Lappin

We will hold our Fall Workshop on the morning of October 15th at Steward Observatory, room N305. Our topic for this workshop is Light Pollution. Connie Walker, an astronomer with the Education and Public Outreach office at the National Optical Astronomy Observatory, developed a kit of projects that explain the problem with light pollution to the public. We will use this set of projects as the basis for this workshop. In addition to learning about light pollution, workshop participants will also learn how to approach the subject in public settings such as star parties. Our special speaker is Scott Kardel from the International Dark-sky Association. Join us at 9am on Saturday, October 15th for this workshop. It will end by noon. There is no charge for this workshop. Contact Terri Lappin for details.

The Starry Messenger SIG provides an environment in which TAAA members can enhance their knowledge and understanding of astronomy and related concepts, all with an emphasis on conveying that information to people of all ages. Any TAAA member involved in astronomy outreach can consider themselves a member of the Starry Messenger Special Interest Group. If you have never attended a SMSIG workshop or meeting but are participating in TAAA outreach activities, you are supporting the goals of the Starry Messenger SIG. We value your contribution.



Starry Messengers SIG -
Opening Minds to the Universe

Space Exploration Special Interest Group (SESIG)

Meeting & Lecture

Oct 20

6:45pm



Special Meeting Location

UA Controlled Environment Agricultural Center (CEAC)
Contact: Al Anzaldua

On October 20 at the UA Controlled Environment Agricultural Center (CEAC), Lane Patterson, will give a slide presentation titled *Advanced Life Support on Earth's South Pole for the Moon and Mars*. Lane is a field engineer for Raytheon Polar Services and a graduate research student at the UA CEAC. Please note the venue for this talk is UA's CEAC, 1951 E Roger Road (NE corner of Roger Rd and Campbell Ave). The presentation will still begin at 6:45pm, however. Other groups will be invited to this presentation.

On November 17 at the Woods Memorial Branch Library (3455 N. 1st Ave., just south of Prince Rd.), SESIG coordinator Al Anzaldua will give a slide presentation on the impact of space exploration and development titled, *Space: Boon or Boondoggle?* Although the presentation begins with an explanation of NASA's impact, Al will emphasize recent advances by private space companies such as Space X, Virgin Galactic, and Bigelow Aerospace.

Sign-up sheets for SESIG talks will be provided at the general membership meetings or RSVP to Al Anzaldua.

The Visible Planets this Month

By Erich Karkoschka

Weekend Sa/Su	Sun		Mercury		Venus		Mars		Jupiter		Saturn		Visibility (Vi)	
	Set	Rise	Rise	Vi	Set	Vi	Set	Vi	Set	Vi	Rise	Vi	Code	
01/02	18:07	6:16	18:17	-	18:44	5	1:28	1	19:31	-3	18:42	-	-3	brilliant
08/09	17:58	6:21	18:19	-	18:40	4	1:20	1	19:01	-3	18:17	-	0	conspicuous
15/16	17:50	6:26	18:20	9	18:37	3	1:12	1	18:31	-3	Rise	-	3	moderate
22/23	17:42	6:31	18:22	8	18:35	2	1:03	1	18:01	-3	5:51	9	6	naked eye limit
29/30	17:35	6:37	18:25	6	18:36	2	0:54	1	17:31	-3	5:28	6	9	binoculars limit

Astronomy Fundamentals SIG (AFSIG)



AFSIG Monthly Meeting

Oct 13 (Thurs)

6:30 pm

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

On Thursday, October 13, Mike Finerty will give a presentation about celestial navigation. We will meet in Room 253 of the USGS Building. Free parking after 5pm behind the building. Remember, we are successful only if you participate. I am hoping to see you there.

AFSIG Observing Clubs

AFSIG Observing Clubs are open to all members of TAAA at no charge. They are guided programs which means that at the scheduled observing sessions, there is someone there to guide you in finding the objects or features needed for successful completion of the program. You can join the programs at any time and can either attend the guided sessions or work on your own. A certificate is awarded at the completion of all the requirements. All observing programs are patterned after those of the Astronomical League, so you can continue on to complete the additional requirements and get your AL certificate.

Solar Observing Club meets on the 3rd Saturday of every month from 9 am until noon at Fort Lowell Park (Craycroft at Glenn) near the southeast corner. The purpose of this club is to observe the activity that is occurring on the Sun and record those observations - like sunspots, solar flares and other interesting features. The beauty of this observing program is that our Sun offers great flexibility in observing and recording the different features - you don't have to be concerned about light pollution, night vision, or traveling great distances to find dark skies. If you are interested in participating in the Solar Observing Program or if you just want to be added to our email list to keep posted about our activities and solar news, email Dennis Dawson at dennisldawson@gmail.com.

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@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@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 Mike Finerty at mfinerty1@msn.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@cox.net.

AFSIG Family Astronomy Program

Contact Person: Jim Miller

AFSIG is trying to start the Astronomical League's Sky Puppies and Universe Sampler programs in the community. The Public Library would seem to be a great place to start but they have numerous restrictions. We can't start an observing program at the library, but we can present basics and let them look through a few telescopes. We are planning to test this on the evening of Tuesday, Oct 18th. We welcome anyone that would like to participate.

We are exploring other venues. Assuming there is interest and we find a suitable location, we will tell the kids about the Sky Puppies and Universe Sampler programs.

Anyone under the age of 18 needs to be accompanied by a parent or guardian. The family will need to join the AL to earn the certificate and pin. We hope they join the TAAA, too!

**You can still
sign up**

**Introduction to the
Fundamentals of
Astronomy Class**

October 1, 8, and 22

9:00 am to 4:00 pm

Designed to get beginners off to a good start or to provide a refresher for the more experienced.

Free to TAAA members!

Email fundamentals@tucsonastronomy.org for information.

Community and Educational Events

Members are asked to support our outreach events. TAAA either sponsors or co-sponsors these events. This is a great opportunity for beginners as you can remain on a single object if you like. You can even contribute without a telescope. Sign up sheets will be at the meeting. You can also contact the star party leader or the volunteer coordinator, see the section "*How to Contact Us*" section on page 15 of this issue. Maps can be obtained from the TAAA website calendar.

UofA Astronomy Students Star Party

Oct 2 (Sun) **Set up: 6:30pm**
 General Area: Far West 10 scopes
 Location: Red Hills Visitor Center–Saguaro Natl Park West
 Star Party Leader: John Kalas

Dr. Tom Fleming, UofA astronomy professor, has again requested us to support a star party for his astronomy students. Approximately 100 students are expected to attend. The event starts at 7:30pm and ends at 9:30pm.

Dusenberry–River Library Presentation

Oct 8 (Sat) **Set up: 10:30pm**
 General Area: Central 1 presenter & 1 helper
 Location: 5605 E River Rd
 Presenter/Leader: Terri Lappin

A presentation full of fun and noise as the kids make marshmallow elements and blow up balloons to simulate supernovas. One helper is needed. One block North of River, just off of Craycroft (east side of road). The one hour presentation starts at 11am.

Boy Scout Catalina Council Star Party

Oct 14 (Fri) **Set up: 6:45pm**
 General Area: Far West 4 scopes
 Location: 3801 S Kinney Rd
 Star Party Leader: OPEN

This star party will be mostly adults participating in a fundraiser for the scouting program. Includes dinner for TAAA volunteers. Take Ajo Way west to Kinney Rd. Turn north, drive to the address which is near the intersection of Kinney and Bopp Rd. Follow the signs to the "Ramada Grande." The event starts at 7:30pm and ends at 9:30pm.

Nanini Library Presentation

Oct 15 (Sat) **Set up: 1:30pm**
 General Area: Northwest 1 presenter & 1 helper
 Location: 7300 N Shannon Rd
 Presenter/Leader: Terri Lappin

Same as the Oct 8th event but different location/date. One block north of Ina in the government complex on the East side of Shannon. Presentation starts at 2pm.

Robbins Elementary School Star Party

Oct 21 (Fri) **Set up: 5:30pm**
 General Area: West 5 scopes
 Location: 3939 N Magnetite Ln
 Star Party Leader: OPEN

This is for grades 3 through 6. Take Speedway west to Silverbell. Go north (right) on Silverbell to Sweetwater Dr, where Pima Co Animal Control is located. Turn west (left) onto Sweetwater Dr. Go past El Moraga Dr to Willemite Dr. Turn south (left) onto Willemite Dr, to Magnetite Ln where the school is located. Kids and parents arrive at 6:00pm; event ends at 9:00pm

Immaculate Heart Academy Star Party

Oct 22 (Sat) **Set up: 6:30pm**
 General Area: North 5 scopes
 Location: 410 410 E Magee Rd
 Star Party Leader: OPEN

This is for grades 3 through 6. Go North on Oracle to Magee. Turn East on Magee. Proceed on Magee for 1/4 mile. The school is on the south side of the street. Kids and parents arrive at 7:00pm; event ends at 9:00pm.

Catalina State Park Star Party

Oct 22 (Sat) **Set up: 6:00pm**
 General Area: West 5 scopes
 Location: 11570 N Oracle Rd
 Star Party Leader: OPEN

This is the first of three events cosponsored by the Arizona State Parks, the International Dark Sky Association and TAAA. Take Oracle Rd north from Ina Rd. Watch for signs to the entrance to the park. It's about 6 miles. Tangerine Road is about 3/4 mile north of the park, so if you pass it, you've gone too far. After turning into the park follow the main road to the trailhead parking area. We'll set up at the south end of the parking lot. Those with telescopes will not have to pay the park entrance fee. The public will start to arrive around 6:30pm. We can stay until the last of the public leave.

Accelerated Learning Laboratory Star Party

Oct 28 (Fri) **Set up: 6:30pm**
 General Area: West 5 scopes
 Location: 5245 N Camino de Oeste
 Star Party Leader: OPEN

This Star Spectacular event is for all grade levels. Take I-10 north to the Ruthrauff/El Camino del Cerro exit. Turn west (left) onto El Camino del Cerro. Continue past Silverbell, driving about 2 miles from the interstate. Turn north (right) onto Camino de Oeste (at top of one of the hills). The road into the school will be about half a mile down Camino de Oeste, on the left side of the road. If you get to Sunset, you've gone too far. Take the long, private drive into the school grounds. The event runs from 7:00pm to 9:00pm



to all our star party volunteers!

Members' Star Parties



TAAA Star Party at TIMPA

Oct 22 (Saturday) Gate opens at 5:15pm

Contact Person: Ben Bailey

Guests are welcome, accompanied by a TAAA member.

Please come out and join the AFSIG for an enjoyable evening of observing. The AFSIG will be hosting a Potluck to celebrate the completion of the *Introduction to the Fundamentals of Astronomy* classes. The various Observing Clubs will be active. Join one of our activities, or observe on your own – and enjoy the camaraderie. The Gila Monster Observatory on Mons Heloderma will be open for your observing pleasure.

The TIMPA site features a large parking area, and full restroom facilities. Be prepared for cool temperatures after sunset. Insect repellent is a good idea.

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 29 (Saturday)

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, the CAC site requires our members to make reservations for both monthly club star parties and private member use. We are restricted by a 60 person/30 vehicle maximum limitation. If you would like to attend, you must contact CAC Director John Kalas. Reservations will be on a first come – first serve basis. 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 191 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.

Night Sky Network Toolkits



Below is a complete list of all our Outreach Toolkits. Each themed toolkit contains several projects; you pick and choose what you want to use. Toolkits are self-contained with

nearly all the materials needed for presenting these hands-on projects. If your scope is not well-suited for public events, or if you want a change of pace, consider bringing a toolkit to a community event. Toolkits are also great backups for cloudy nights. Individual training in their use is available upon request. To borrow a toolkit, contact Terri Lappin.

Outreach Toolkits and Resources Available for Borrowing

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, and transits

Black Hole Survival Kit: gravity concepts

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

Mirrors and Glass – An Inside look at Telescopes: how telescopes work

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

PlanetQuest: demonstrate planet detection techniques

Other Outreach Resources

SolarScope: provides a white light image of the sun suitable for small group viewing.

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

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

Moon Globe: 12" diameter with stand

DVDs: *A Private Universe*; *Cosmic Collisions*

Newsletter Deadline

The deadline for the November issue is Wed, Oct 19. Desert Skies is published at least one week before the General Meeting. See the publishing guidelines for details.

Monthly Solar Observing

Oct 15(Sat)

9:00am



Ft Lowell Park

Contact: Dennis Dawson, [dennisldawson\[at\]gmail.com](mailto:dennisldawson@gmail.com), 520-319-7724

Join the Solar Observers on August 20th from 9 am until 11 am at Fort Lowell Park (Craycroft @ Glenn) for solar viewing. The group will meet near the southeast corner of the park. Just look for the telescopes. Bring your kids. Bring water and something to nibble on. You don't need to have a telescope; others will have them if you don't. Everyone is invited to join us.

Starry Messengers SIG Fall Workshop Light Pollution

Saturday, October 15th

9am to noon

Amateur astronomers can be effective astronomy ambassadors, conveying the issues surrounding light pollution to the public. Learn how at this workshop.

Sign up at the October meeting or contact Terri Lappin

2012 TAAA Calendar



Last Call for Image Submissions!

Contacts: Twila Peck [octoberprairie\[at\]gmail.com](mailto:octoberprairie[at]gmail.com)

Liz Kalas [lizkalas\[at\]tucsonastronomy.org](mailto:lizkalas[at]tucsonastronomy.org)

It's time to submit your images for the 2012 TAAA Calendar! We would like to see both astronomical images, and pictures of TAAA members in action. **Images must be the work of current TAAA members.**

For the best quality please send the highest resolutions possible since the images may be enlarged. If you wish, you can bring a disc to the October meeting with your images – but send us an email ASAP so that we know to expect them. If you have images posted on a website, send us the address and we can look through them there.

Please include information about your pictures, as well as your name and contact info. If you want to recommend images taken by a TAAA member other than yourself, send us the information (we'll contact the photographer for permission, of course).

IF YOU HAVE ANY SUGGESTIONS for the calendar, please let us know ASAP. Any changes/improvements to the calendar pages? Any useful information to be added? What kind of pictures do you want to see? More astronomical images? More human beings? A 50-50 mix as in the 2011 calendar?

DEADLINE FOR IMAGES/SUGGESTIONS: October 7, 2011 (that's the October meeting)

IF YOU WANT TO HELP with the 2012 calendar, let Twila or Liz know. Right now, help is needed finding and selecting images.

TAAA Board of Directors Meeting

14 September 2011

Attending: Board members present (7): Teresa Bippert-Plymate, John Croft, Vern Dunlap, John Kalas, Bill Lofquist, Keith Schlottman and Michael Turner. Members present (7): Paul Anderson, Ben Bailey, Bob Gilroy, Liz Kalas, Terri Lappin, Roger Schuelke, and Carter Smith. Guest (1): Kevin Hardegree-Ullman.

Call to Order: The President called the meeting to order at 6:35 pm.

Consent Agenda: The Consent Agenda was approved unanimously. Consent Agenda consists of:

1. Balance Sheet for August 31, 2011
2. Income Statement for the two months ending August 31, 2011
3. Bank Account reconciliation as of August 31, 2011, including support for temporarily restricted funds
4. Receipts and Disbursements for the month of August 2011
5. New Member Report for the month of August

The Board meeting minutes, and the Consent Agenda are sent to the Board members in advance of the meeting to review. The Treasurer reported a balance of 17,617.38 in the checking account. The Consent Agenda may be viewed by any TAAA member by a request to any Board member.

Board Appointment

Vern Dunlap has been appointed to fill in the vacated Member-at-Large seat of Claude Plymate. The President asked for Board approval and the entire Board approved. Welcome Vern!

Announcements

Teresa Bippert-Plymate tendered her resignation as Secretary as she will be relocating soon. Hunter Bailey and Irene Kitzman have volunteered to take over as the new TAAA Librarians. Thank you Hunter and Irene!

Member Feedback

There was some member feedback on the JWST presentation at the last meeting. As with any controversial subject, there were varying (or even opposing) opinions on this issue. The Board decided that though such issues may be controversial, it was in the best interests of members to have the information on the subject.

Upcoming Meetings

Speakers are all lined up for the remainder of 2011. Terri Lappin is already working on the 2012 speaker slate and has the first few months scheduled. This November is Member's Night, and the theme will be "Astronomy in Art", although any subject will be welcomed.

Special Interest Group Status Reports

Astronomy Fundamentals SIG (Ben Bailey):

- AFSIG will be starting Astronomy Fundamentals classes, to be held Oct 1, 8, and 22. Thus far 17 members have signed up.

Starry Messenger SIG (Terri Lappin):

- The Starry Messenger group will hold its fall workshop on Oct 15. The speaker will be Scott Kardel from the IDA, speaking on light pollution, in Steward Observatory, Room N305.

- The SMSIG is looking for a child-friendly telescope. It was suggested that the Club has a 4" Newtonian in the loaner program that might work. Terri will evaluate this scope for its usability, and if it works the SMSIG will use it in its programs.
- The SMSIG will work with the school star party coordinator to add educational programs. They would like a line on the signup sheets for a NSN toolkit presenter, and work with the star party leader to provide educational handouts to the children.

Astro Imaging SIG (Michael Turner):

- There will be no AI meeting next month (watch the Newsletter and Forum in case of a change). Only 7 brave souls came to the last meeting due to the heavy rain that evening.

Website

Roger Schuelke reported that the web pages are ready to go live, but a little more help from our contractor would be useful. The Board voted 6 to 1 in favor to approve the spending of up to \$440 to renew our contract with the contractor, and to purchase some development time to clean up a few difficult items. At this point, Roger will be able to add and update content, and improve the navigation of our website.

Chiricahua Astronomy Complex

- John Croft will be leading a work party at the site Saturday, Sept 17th.
- The CAC Phase 2a Grand Opening will be Saturday, Sept 24th! Contact John Kalas to sign up, and come see the new roll-off roof observatory and the new observing pads (with electricity!).
- John Kalas reported on the outcome of investigating increased insurance coverage for the Phase 2a improvements to CAC. The present liability policy will cover the new observatory and pads with no increases, but we'll need to add insurance to cover loss or damage to the equipment. The quote we received was quite high; the Board decided that the equipment in the big steel containers was secure from burglary and fire. The Board passed a motion to add insurance for the C-14 and AP mount that are housed in the roll-off roof observatory.

Other

- Kevin Hardegree-Ullman and Carter Smith attended to represent the UA Astronomy Club. The TAAA and the UA club have been interested in collaborating for some time. The UA club does educational outreach, regular star parties at Sabino Canyon, and is building a small binocular telescope. Carter has volunteered to be the TAAA-UA liaison, and the two groups are considering jointly-supported star parties in the future.
- Bill Lofquist and the Fundraising Committee asked the Board for approval to offer the restored C-14 to any member of the Club for 2K. The motion was passed unanimously.
- Terri Lappin volunteered to coordinate assembling the 2012 Event Calendar. SIG coordinators are asked to give Terri their expected event dates.
- The deadline for submitting photos for the TAAA club

(Continued on page 10)

TAAA Board Meeting Minutes (Continued from page 9)

calendar is the October general meeting. It was moved, and passed by the Board, to purchase 25 Astronomy calendars to sell in addition to the TAAA club calendar.

- The Board approved the latest version of the Donation Letter to be used for local fundraising.
- Optics Planet has donated an 80mm refractor to the Club and asked for a web link. The Board approved. The refractor will be the grand prize at the Holiday party!
- Bill Lofquist and Jim O'Connor met with Scott Kardel (IDA) and the Catalina State Park rangers to coordinate 3 public star parties. The park will advertise, and TAAA will provide the telescopes. The star parties are tentatively scheduled for Oct, Feb and March.

Meeting adjourned at 9:10 pm.

Respectfully submitted,

Teresa Bippert-Plymate, Secretary

Catalina State Park Astronomy Nights

Arrangements have been made with Catalina State Park to hold three astronomy events at the Park this fall, in the winter, and in the spring. Jim O'Connor, Bill Lofquist and Scott Kardel of IDA and TAAA met recently with Steve Haas, Park Director, and Bob Casavant, Director of Research for the Arizona State Parks to discuss arrangements.

Bob Casavant is interested in doing research on light pollution, and Scott Kardel is the new Public Affairs Director for IDA. This cooperative effort promises to offer some interesting opportunities for TAAA members as well as provide the chance for us to do some public outreach.

Last May we did an experimental event to which 65 people came. The State Park will provide the publicity, though we can add to that as well.

People who come to such an event after the gate closes will be expected to pay the entrance fee. The volunteer astronomers will not be required to pay the fee, however.

We will be the third group to work with the State Parks to host star parties and encourage protection of the night skies. The Huachuca club has begun doing events at Kartchner Caverns, and another Park is hosting an event up north.

We are guessing that five scopes will be enough, but we can accommodate as many members as would like to join in the fun.

A sign-up sheet will be on the table at the October meeting.

Coming Soon

2012 TAAA Calendar

Do you have a photo for the 2012 TAAA Calendar? Send it to Twila Peck or Liz Kalas. See the article in this issue.

Deadline for image
submissions for

2012 Calendar

October 7

Next Board of Director's Meeting

Oct 12 (Wed)

6:30pm

Steward Observatory Conference Room 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 at the meeting and they can let you in.

Maybe you noticed our new website

By now you may have noticed a change in our website. But don't worry, all the old content is still there. Our old website has served us well for several years. However, as content expanded and pages were added it became more difficult to add new content to the site. The board was also interested in adding some new capabilities and that proved difficult.

Early this year a Website committee was formed to look at the problems and see how we might address them. After some research it became very clear that moving the website content to a new Content Management System (CMS) was necessary. The Website committee interviewed several consultants and investigated a number of CMS technologies before deciding to move to Wordpress.

Wordpress offers an easy to use interface that facilitates content editing and additions. It provides a modern web page navigation system based on menus. And there are numerous "plugin" components available that allow additional functionality to be easily added (not unlike adding "apps" to your smart phone).

The website has been moved to Wordpress and the page navigation has been changed to use menus. Moving forward the current content will be reorganized, removing duplicate material and making it easier to find useful information like how to build a backyard pier or how to make a "barn door" tracking mount. It will also be easier for our very active SIG groups to add new resources and information. Most importantly it will be easier to extend our website capabilities as the needs of our club grow. So, if you haven't already, go check out our improved website.

Visit the TAAA Website

www.tucsonastronomy.org

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.

TAAA 14" Celestron SCT Fundraiser

A lucky TAAA member will have an opportunity to purchase a classic 14" Celestron SCT that was donated to the club. The proceeds from the scope will go toward the development of CAC.

The asking price is \$2,000. Claude and Teresa Plymate refurbished the scope and got it in very good condition. It is on the original Celestron fork mount, with wedge, drive base and field tripod.

It will be offered first to a TAAA member who might be interested in it. After several weeks we will make it available to others outside the club.

To take a look at the scope, contact Bill Lofquist.

Editor's Note to all Event Coordinators

Be sure your event appears on the TAAA online calendar. Effective with the November issue of *Desert Skies*, events not listed on the online calendar will not appear in *Desert Skies*.
Your Editor

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 telescopes are in the program:

Sears 60mm f/15 on equatorial mount
 Unitron 62mm f/14.5 on equatorial mount
 Meade 90mm ETX
 Coulter Odyssey 8" f/4.5 Dobson
 Meade 10" f/4.5 on equatorial mount
 Meade 10" LX200 GPS (requires training)

For members only. Contact the Equipment Loan Coordinator or ask any club officer for details about these telescopes.

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

Remote Observing

This article would have been better two months ago, and if I hold it 'til next monsoon, I'll forget it.

When you are clouded out somebody, somewhere is having a clear night. How nice if they would share that clear! Some of these people do! Here are some examples.

The Bradford Robotic Telescope is not just one but a bunch of telescopes and other instruments on Mount Teide, on the island of Tenerife, one of the Canary Islands. It is free to use for all, using this web site!

http://www.telescope.org/infopage.php?Title=BRT_Information

There are four telescopes with different capabilities. You submit a "job request" including the object and desired telescope and some other parameters and they get back to you by email.

Another collection of telescopes that can be controlled via the internet is the MicroObservatory Robotic Telescope Network.

<http://mo-www.harvard.edu/OWN/>

Here you pick your object(s) and how you want to observe it and they email you when your time is available.

If you are willing to spend a little money you can go to Global Rent A Scope:

<http://www.global-rent-a-scope.com/>

They have a network of telescopes around the world that are available and an excellent website telling the details of their remote observing network. I recommend starting with their "About GRAS" link first. I think you'll be

impressed. There are a number of "membership plans" where you buy "points" and the points you use will depend on the telescope you use and how long you observe.

Another for-profit group is SLOOH:

<http://www.brighthub.com/science/space/articles/29608.aspx>

I found their website front page a bit annoying so I have given the "membership" page here so you can get right into the meat of the program.

A more professional outfit is Tenegra Observatories here in Arizona:

<http://tenagraobservatories.com/>

They have telescopes as large as 32" available for hire, though that particular telescope is often booked for an observing season fairly quickly.

SkyView at the Goddard Space Flight Center is a "virtual telescope" but still a lot of fun to use:

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

You can select objects from a number of surveys (over 2 dozen) and investigate them before you go to your telescope. I wish such a thing existed when I was starting out in astronomy in the late 1950s!

These are just a few of a community of web controlled telescopes and observing systems that are springing up on the internet. You'll undoubtedly find more. So now you need not sit out any cloudy night if you don't want to.

As always, if you know of a particularly good website you would like mentioned here, drop me a line at: rhill[at]lpl.arizona.edu

Halloween - Astronomy Style

By Terri Lappin

Halloween! There's no better time to set out your telescope for the neighborhood kids to look through. Most parents are concerned about sending their kids out for trick-or-treating, but this is a treat that is relatively safe. And, the parents usually enjoy it as much as the kids do! This year, we'll have a crescent moon to show the ghosts and goblins. Jupiter will also be rising in the east early in the evening.

Gary and I have set up a telescope each Halloween, weather permitting, since 1990 and have always enjoyed the experience. The kids in the neighborhood have grown and now bring their kids by to look through the scopes. I hope this can become a tradition in your neighborhood like it has in ours.

If you live in a neighborhood with bad lighting, use this casual observing session to make your neighbors aware of light pollution and how it affects our ability to see the night sky. Don't make it a lecture; just make them aware of the problem. You may be surprised at how many of your neighbors will agree that glaring lights are a problem.

Here are a few guidelines to help make your Halloween a success. Set up your telescope near the sidewalk with a jack-o-lantern or similar attention getting, but dim, light source nearby. Spooky music gets attention too! Make sure power cords don't become trip hazards. Leave your patio lights off to draw kids away from your front door and towards you and the telescope. Be sure to have a stepladder handy for the little ones. The tendency is for people to support themselves by leaning against the telescope so politely warn them not to touch your telescope. It's best to use an eyepiece with decent eye relief as they are more comfortable to use; however I also recommend using an eyepiece you didn't pay too much for. Many kids wear makeup, and that stuff will get all over your eyepiece! You'll want to clean your eyepiece after the night is over.

Good luck and have fun! Tell me how your Halloween evening goes.

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.



Dark Skies for October 2011

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	
Fr/Sa	30/01	20:35	- 4:56
Sa/Su	01/02	21:31	- 4:57
Su/Mo	02/03	22:30	- 4:58
Mo/Tu	03/04	23:31	- 4:58
Tu/We	04/05	0:31	- 4:59
We/Th	05/06	1:30	- 5:00
Th/Fr	06/07	2:27	- 5:00
Fr/Sa	07/08	3:22	- 5:01
Sa/Su	08/09	4:17	- 5:02
Su/Mo	09/10	-	- -
Mo/Tu	10/11	-	- -
Tu/We	11/12	FULL MOON	
We/Th	12/13	-	- -
Th/Fr	13/14	-	- -
Fr/Sa	14/15	19:14	- 19:22
Sa/Su	15/16	19:13	- 20:05
Su/Mo	16/17	19:12	- 20:54
Mo/Tu	17/18	19:11	- 21:47
Tu/We	18/19	19:10	- 22:44
We/Th	19/20	19:09	- 23:44
Th/Fr	20/21	19:08	- 0:47
Fr/Sa	21/22	19:07	- 1:51
Sa/Su	22/23	19:06	- 2:57
Su/Mo	23/24	19:05	- 4:05
Mo/Tu	24/25	19:04	- 5:13
Tu/We	25/26	19:03	- 5:13
We/Th	26/27	19:02	- 5:14
Th/Fr	27/28	19:01	- 5:15
Fr/Sa	28/29	19:16	- 5:16
Sa/Su	29/30	20:16	- 5:16
Su/Mo	30/31	21:19	- 5:17

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Chris Lancaster's Constellation of the Month

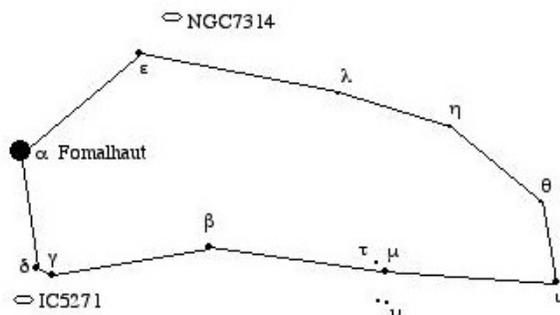
Piscis Austrinus

The Southern Fish

This constellation is one of the more ancient ones, known to the Greeks and Romans as a single fish drinking from the water poured out of the jar held by Aquarius, which stands to the north.

The easy way to find Piscis Austrinus this time of the year is to look to the south near the meridian between 9pm and 10pm. About 1/3 the distance between the horizon and zenith is an area of the sky that is quite featureless to the naked eye. The exception to the blandness of this region is Fomalhaut, the constellation's only 1st magnitude star and the only star of this brightness within the immediate area. The closest star of similar stature is Altair, lying 77 degrees to the northwest and glowing at magnitude 0.8. Fomalhaut, the name of which is taken from the Arabic Fum al Hut which means "mouth of the fish", is an A3 type star only 22 light years away. Sometimes called the "Solitary One", Fomalhaut, when seen in mid-evening, signals the approach of cool autumn temperatures.

Oddly, early astronomers have described Fomalhaut as a red star. We've seen the same error made with Sirius, the brightest star in the constellation Canis Major (which is also the star with the brightest apparent magnitude in the sky.) These two stars are both at low declinations, so are frequently seen close to the horizon. It's possibly this fact that makes the light from these stars refract through the Earth's atmosphere in such a way that makes them sparkle with prismatic colors.



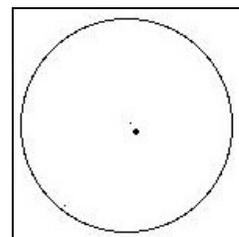
Like all bright stars, Fomalhaut has held individual importance in many ancient civilizations. The Syrians saw it as a symbol of Dagon, their god of the sea. In ancient Persia, Fomalhaut, along with only three other stars (Regulus, Antares, and Aldebaran), was considered a "royal star" of heaven.

Piscis Austrinus has its fair share of galaxies, but they are all very faint and difficult for small telescopes. However, there are a couple we could hunt down. The brightest galaxy is NGC7314 (also known as ARP14), an 11.7 magnitude spiral at RA 22h 35.8m Dec -26d 03', or 1.5 degrees northwest of Epsilon Piscis Austrini. Its faint light is spread across 4.5'x 2.0'.

IC5271, 1.3 degrees south southeast of Delta Piscis Austrini, is a sharp-edged, 2.6'x 0.8' galaxy of magnitude

12.6, RA 22h 58m Dec -33d 44.5'. If at first you don't see it, try all the tricks for dim object observing--shielding your eyes from stray light with a hood or your hands, averted vision, or tapping the scope gently to induce a wobble in the image. Sometimes a moving object will snap into view.

An easier object is Beta Piscis Austrini, a double star with a wide separation suitable for very low magnifications. Beta has a spectral type of A0, making it almost identical to Fomalhaut in color. Easy to find southwest of the bright star, Beta is widely separated with 30 arc seconds between the 4.4 magnitude primary and the 7.9 magnitude secondary. The graphic to the right shows this easy double at 91x magnification.



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)



National Geographic's BioBlitz

October 21 and 22

Saguaro National Park

TAA members have a unique opportunity to participate in the National Geographic's BioBlitz event which will take place at the Saguaro National Park East and West on Oct. 21 and 22. Connie Walker from NOAO and the staff from the National Park Service are organizing a citizen-science campaign to make light pollution readings using digital Sky Quality Meters along transects in the parks and across Tucson. NOAO and the Arizona Game and Fish are studying the Lesser Long Nose Bat in Tucson and comparing that telemetry with light pollution data from the GLOBE at Night program. Data from the BioBlitz event will be used in a similar way with other animals such as the elf owl.

Volunteers will be taking SQM (Sky Quality Meter) data on Friday, October 21st. Would you be interested? Participants will take SQM data at specific locations in both Saguaro National Parks as well as along the length of Speedway and Broadway in the city on that night.

Contact Connie Walker, [cwalker\[at\]noao.edu](mailto:cwalker@noao.edu) or 318-8535, for information.

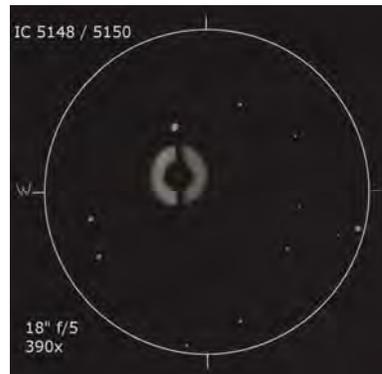
Chris Weis' Planetary Nebulae of the Month

IC 5148/50 and PK 114-4.1 (Abell 82)

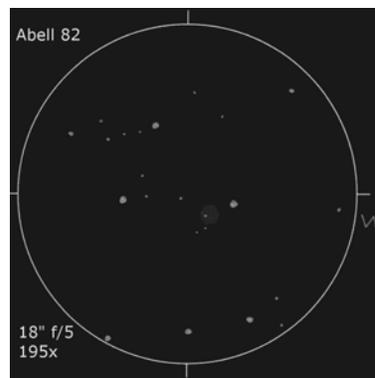
Planetary nebulae (PN) are fascinating objects that come in numerous forms of appearances. Besides the well known grand four Messiers (M27, M57, M76 and M97), there are hundreds more to explore. This article suggests two PNs, a pretty bright and easy-to-observe one and a harder one for the more ambitious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

If I had to remember one object that I cannot observe from my home in Switzerland due to its southern location, IC 5148/50 in Grus probably would come to my mind. This planetary nebula was discovered by Walter Gale in 1894. The brightness range given in the literature varies between 11m and 13m, its size is some 2 arcmin. This makes it an interesting object even for smaller telescopes. In October 2010, I observed this showpiece from Sky Village, AZ, having a perfectly dark sky. Even the central star (16m5) was visible with the 16" Dobsonian. My notes read: Nebula divided, W a little brighter than E, central star visible approx. 30% of the time (w/o filter), UHC and [OIII]-improve the view; 390x, fst 7m0 (And).

PK 114-4.1, better known as Abell 82, was discovered by George Abell in 1955. Again, there are various brightnesses between 12m7 (which is the value I would tend to) and 15m2. Since Abell 82 is located in Cassiopeia, the star field surrounding it, is quite nice. In September 2010, I observed this PN from Geology Vista and noted: Quite faint, big, well defined, only assumed without [OIII]-filter, no structures, no central star but a star shines a little E of the center, nice star field; 195x, fst 6m2 (And).



IC 5148/50
 RA: 21h 59.6min
 Dec: -39° 23'
 Constellation: Grus
 Brightness: 11m
 Central star: 16m5
 Size: 120 arcsec
 Distance: no data



PK 114-4.1 (Abell 82)
 RA: 23h 45.3min
 Dec: 57° 4'
 Constellation: Cassiopeia
 Brightness: 12m7
 Central star: 13m0 (14m9)
 Size: 94 arcsec
 Distance: no data

TAAA Classifieds

For Sale	①Meade LX 200GPS 12" with field tripod, Meade super wedge, 3D counterweight system, Losmondy mounting plate system. \$1000.00 ②Meade Starfinder 16" with equatorial mount and Magellan II controller. \$1500.00 ③Anssen technologies Alhena equatorial mount with drive Motors and shaft encoders \$1500.00 ④Technical Innovations Pro Dome 10' dome with two wall rings and motorized shutter \$3000.00 ⑤Sirius 5.0m College Model \$2000.00 ⑥LeSueur pier with wedge for LX 200 \$500.00 ⑦SBIG ST 7XME astro camera with CFW8 filter wheel, RGB filter set, and AO7 adaptive optics attachment \$1500.00 ⑧Schuler UVBRI photometric filter set \$500.00 ⑨ Spare CFW8 filter holder \$50.00 ⑩SBIG ST 237A astro camera with RGB filter wheel \$500.00 Cash Only. Some prices negotiable, most not. No shipping, you come and get, domes require disassembly. All sales final. All equipment sold as is. Call Jim Charboneau @ 520-705-7482 Expires Nov 2011
For Sale	①Original classic orange C11 OTA. Some minor scuffs and scratches \$1000 ②Star Liner Mount that held item #1 \$800 ③Celestron 11 mount (fork & base) for a short tube C11 \$300 Contact Rik Hill at rhill[at]pl.arizona.edu Expires Dec 2011
For Sale	SAC-7b TEC Cooled CCD Camera. The SAC7 cameras use a Sony 1/4" ICX098AK CCD which is a Progressive Scan® Hole Accumulation Diode (HAD). The CCD array of 5.6 micron square pixels is 640 x 480 pixels. It has a low dark current and a TEC cooling system. It does AVI format for planetary and FITS with the parallel cable connected to the computer for long exposures. Comes with Astrovideo, all cables and a nice metal case. Just too many cameras and this little jewel deserves to be used more! \$100 Will deliver to the Tucson area. Paul at phxbird[at]hotmail or 575-590-8303 Expires Jan 2012
For Sale	15" f/4.5 Obsession Classic. 3 years old, optically and mechanically mint. C/W nylon light shroud, aluminized sun/dust cover, JMI feathertouch focuser, heated secondary to prevent dew, counterweights, Telrad and Rigel viewfinders, barlowed laser collimation tool and wheelbarrow-type rails for transporting scope assembled. This scope has given me many hours of superb viewing both DSO, lunar and planetary. Original price was \$5,400. I will sell for \$3,800 or best offer. Will hand-deliver in Tucson area if you can wait until early January. Otherwise shipped at buyer's expense. Contact John Barr at boundarybayman[at]gmail.com or 604-943-6636. Expires Jan 2012

Ads run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call or e-mail the newsletter editor.

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@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!

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The World's Largest Telescope in Our Backyard

By George Hatfield and Steve Marten

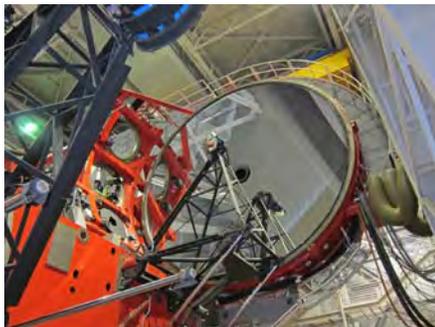
On Saturday, September 10, Steve and Ann Marten and George and Patricia Hatfield visited the Mount Graham International Observatory (<http://mgpc3.as.arizona.edu>). We were part of a group of 18 with several informative guides organized by a branch of Eastern Arizona College in Safford, AZ. If time constraints or seat unavailability has not allowed you to tour with a TAAA group, you can schedule a seat at: <http://www.eac.edu/DISCOVERYPARK/mgio.shtm>.

The trip up the mountain takes about 90 minutes and since it involves an elevation gain of about 7,000 feet, most of the road is very twisty and steep. It passes through many environmental zones from desert to alpine, and some of the views are spectacular. The Eastern Arizona College Discovery Center provides vans for transportation. Volunteer guides accompany the vans, but most of the orientation to the telescopes is done by the on-site technical personnel of the observatories. The Large Binocular Telescope (LBT) cannot be visited outside of a tour. The one-way dirt road to the observatory from the main road, which is unmarked, is gated in several places.



The LBT is currently the largest telescope in the world with two 27.5' (8.4m) honeycombed-structured mirrors and the complex sits atop Mt. Graham at 10,720 feet. The image from each can be combined to provide the resolution equivalent to that from a telescope with a 38.7' (11.8m) mirror. By having both the primary mirrors on the same mounting, the telescope is able to achieve the diffraction-limited

image sharpness of 75' (22.8m) aperture! The focal ratio is F/1.14. Images are expected to be 10 times sharper than those from the Hubble Space Telescope. Led by the University of Arizona which manages the facility, it was built by a consortium of US, German, and Italian universities. Most of the ALT/AZ mount was built in Italy, but all of the mirrors were made by the Mirror Lab at the U



Two views of one of the LBT telescope mirrors. Each image shows one of the 8.4 meter, f/1.14 mirrors.



The Large Binocular Telescope. The top structure of the building (the white part) co-rotates with the telescope. Image by Mt Graham International Observatory.

of A in Tucson (<http://mirrorlab.as.arizona.edu/>), which also provides an excellent tour.

The LBT is not the only telescope on Mt. Graham. The University of Arizona also operates the Submillimeter Telescope (http://en.wikipedia.org/wiki/Heinrich_Hertz_Submillimeter_Telescope), a radio telescope that is used to identify molecules in stars, nebula, and galaxies. Using submillimeter observations, astronomers examine molecular clouds and dark cloud cores with a goal of clarifying the process of star formation from earliest collapse to stellar birth.

The third observatory on Mt. Graham is the Vatican Advanced Technology Telescope (http://en.wikipedia.org/wiki/Vatican_Advanced_Technology_Telescope). Most of us don't know that the Vatican Observatory is the oldest astronomical research institutions in the world. Their scope is a very fast 1.8 meter, f/1 telescope which is used mainly for imaging and photometric studies. The telescope's exceptional honeycombed-structured mirrors were also produced by the University of Arizona Mirror Lab which pioneered both the spin-casting and the stressed-lap polishing techniques for these and other scopes.



The Vatican Advanced Technology Telescope

The conflict that has existed over the habitat of the relatively rare Red Squirrel which also resides on Mt. Graham is managed well by the University although some environmental groups continue to work for the removal of the LBT complex. Most of the area around the observatories is cordoned off to protect these squirrels. The entire area devoted to the Mount Graham International Observatory, including the access road, is only 8 acres.



The Vatican 1.8 meter, f/1 telescope

Editor's Note: Unless noted, images by the authors.



Annual Convention
Tucson, AZ
October 28—30

Details at <http://www.webari.com/oldscope/>
Registration information at
<http://www.webari.com/oldscope/document/atsconv2011reg.pdf>

Join the TAAA Forum on Yahoo Groups

General astronomy discussion for TAAA members
Members can post email messages
~75messages/month
Go to <http://tinyurl.com/hwoau>
Click on "Join this Group"

Want better observing?
Join the group that's keeping the sky dark
International Dark Sky Association
Southern Arizona section
We get people to use better lighting, so we'll have a dark sky
Monthly meetings
2nd Wednesday, 5:30 – 7 pm.
3225 N. First Ave
Some of the things we do:

- Talks to schools and organizations
- Demonstrations at Desert Museum
- PowerPoint presentations on CD
- Work with government agencies
- Identify non-compliant lighting in Southern Arizona

Contact: Joe Frannea: [sky\[at\]sa-ida.org](mailto:sky[at]sa-ida.org)
www.sa-ida.org
To preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting

Hey Kids!



NASA's Space Place—a fun website with games and resources for kids to learn about astronomy and space sciences.
<http://spaceplace.nasa.gov/partners>



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