Desert Skies

Tucson Amateur Astronomy Association

Volume LVIII, Number 4 April 2012

TAAA Service Awards Presentation at March 2012 General Meeting

Mary and Michael Turner with Member at Large John Kalas (on right)

Jim O'Connor (on right) with Vice President Bill Lofquist (see articles on page 9

General Meeting April 6th

Steward Observatory Lecture Hall, Room N210

6:30pm

Seasonal Objects—presented by Mary Turner

7:30pm

Atacama Astronomy—presented by Tom Polakis

Affiliates

TAAA Meeting Friday, April 6

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

6:30pm Astronomy Essentials Lecture

Title: Seasonal Objects
Speaker: Dr Mary Turner

Dr Mary Turner, who serves as our Chief Observer, will talk about several objects visible in the night sky this season. She'll include interesting stories from mythology about the characters the constellations represent.

7:30pm Invited Lecture

Title: Atacama Astronomy
Speaker: Tom Polakis

Professional and amateur astronomers have forever been searching for the best observing site. They have found it in Chile's Atacama Desert. Tom Polakis will describe why this is the case, drawing on personal experience with observing trips in the Atacama. You will learn about the established observatories in Chile and planned optical and radio telescopes that will be the best in the world. He will also discuss the ultimate guest observatory experience for amateurs."

Tom Polakis has been an amateur astronomer for more than one revolution of Saturn. His main interests are deep-sky observing, camera-and-tripod sky photography, and astronomical travel. He writes for Astronomy magazine, where he is a Contributing Editor.

Editor's Message

April is here, which means we have a lot of schools wanting star parties. We have nine scheduled star parties at either schools or community locations. Three events are being held at community locations which means hundreds may potentially attend. In particular, support for the Catalina State Park star party on April 14th is needed. Sign up with Bill Lofquist if you can help with this or any of the scheduled events.

Be sure to read about the dedication shown by our recent Service Award recipients: Michael Turner and Jim O'Connor as noted on the front cover of this issue.

May 4th will be Member's Night—a time when members can make presentations about astronomical topics. These presentations can be as short as a few minutes. We reserve the right to keep presentations under 20 minutes should we have a large number of presenters.

Terri Lappin

Catalina State Park Public Star Party

Saturday, April 14th 7:00pm to 9:30pm

(Set up telescopes at 6:30pm)

See page 8 for details.

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

Sale of Telescope Will Raise Funds for Chiricahua Astronomy Complex

As announced in the March issue of Desert Skies, the TAAA is selling a Celestron NexStar 11 GPS telescope that was donated by Wally Rogers. The proceeds from this will help support the development of our facility at the Chiricahua Astronomy Complex.

The price of the scope is $1,800. Contact Bill Lofquist (see page 15) if you would like to view it. The telescope is temporary stored at his home in Northwest Tucson.

Paul Anderson has an identical scope with which he does astrophotography. He will be available for anyone interested to talk about the scope.

For more information about the scope, please refer to the article in the March Desert Skies.

Desert Skies is published monthly by the Tucson Amateur Astronomy Association, PO Box 41254, Tucson, AZ 85717.

This Month in Brief

Event *Contact Person*	*Date* *Time* *Location*	*See Page*
Astro-Imaging SIG Meeting Larry Phillips	Apr 2 (Mon) 6:00 PM Coco's Restaurant (for dinner) 6095 E Broadway	4
School Star Party West Tucson Bill Lofquist	Apr 04 (Wed) 7:00 PM Rattlesnake Ridge Elementary 8500 N Continental Reserve Lp	8
School Star Party Central Tucson Bill Lofquist	Apr 05 (Thu) 7:00 PM Southwest Univ of Visual Arts 2525 N Country Club Road	8
General Meeting Keith Schlottman	Apr 6 (Fri) 6:30 PM Steward Observatory Rm N210 933 N Cherry Ave	2
Board Meeting Keith Schlottman	Apr 11 (Wed) 6:30 PM Steward Observatory Room N305 933 N Cherry Ave	17
Astronomy Fundamentals Meeting Ben Bailey	Apr 12 (Thu) 6:30 PM USGS Building – Room 253 520 N Park Avenue	5
Community Event Southeast Tucson John Kalas	Apr 13 (Fri) 7:30 PM Pima Air & Space Museum 6000 E Valencia Rd	8
Friday Nite @ TIMPA Star Party Ben Bailey	Apr 13 (Fri) 6:15 PM TIMPA Site 3250 N Reservation Rd	5
Community Star Party Northwest Tucson) Bill Lofquist	Apr 14 (Sat) 7:00 PM Catalina State Park 11570 N Oracle	8
School Star Party Far Northeast Tucson Bill Lofquist	Apr 16 (Mon) 7:45 PM Emily Gray Junior High School 4201 N Melpomene	8
School Star Party Far Southeast Tucson Bill Lofquist	Apr 18 (Wed) 7:00 PM Sycamore Elementary School 16701 S Houghton Road	8
School Star Party West Tucson Bill Lofquist	Apr 20 (Fri) 7:00 PM Luz-Guerrero Academy 2797 North Introspect Dr	8
Chiricahua Astro. Complex Star Party John Kalas	Apr 21 (Sat) Chiricahua Astronomy Complex	7
TIMPA/AFSIG Star Party Ben Bailey	Apr 21 (Sat) 6:15 PM TIMPA Site 3250 N Reservation Rd	7
Community Event Marana Bill Lofquist	Apr 21 (Sat) 7:00 PM Ora Mae Harn Park 13250 N Lon Adams Rd	8
Starry Messenger SIG Meeting Terri Lappin	Apr 23 (Mon) 6:30 PM Beyond Bread 3026 N Campbell	4
School Star Party Far East Tucson Bill Lofquist	Apr 24 (Tue) 7:15 PM Agua Caliente Elementary School 11420 East Limberlost Road	8
School Star Party Far North Tucson Bill Lofquist	Apr 27 (Fri) 7:00 PM Coronado K-8 School 3401 E Wilds Rd	8

Future Dates

May 4	TAAA General Meeting (Member's Night/Elections)
May 7	Astro-Imaging SIG Mtg
May 9	Board of Directors Meeting
May 10	Astronomy Fundamentals SIG Meeting
May 12	Kitt Peak Star B-Que
May 12	TIMPA/AFSIG Star Party
May 18	Friday Nite @ TIMPA Star Party
May 19	Chiricahua Astronomy Complex Star Party

Newsletter Deadline

The deadline for the May issue is Wed, April 18. Desert Skies is published at least one week before the General Meeting. See the publishing guidelines for details.

Upcoming Lectures

May 4	*Meeting begins at 6:30pm*	Members Night Election of Officers
Jun 1	*Astronomy Essentials*	Al Anzaldua Near Earth Asteroids
	Invited	Carl Hergenrother OSIRIS-REx
Jul 6	*Astronomy Essentials*	Mary Turner Seasonal Objects
	Invited	OPEN

Lectures are arranged by Terri Lappin. She's always open to suggestions. Note that next month is Member's Night. If you want to give a presentation about any astronomy related, let our President, Keith Schlottman, know. You don't need to have a polished PowerPoint presentation. Just tell us or show us what you've been up to lately.

Astro-Imaging Special Interest Group (AISIG)

Meeting: April 2 (Mon) **7:00 PM**

Coco's Restaurant (Broadway between Wilmot & Craycroft)
Contact: Larry Phillips

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

Starry Messengers SIG (SMSIG)

Meeting: April 23 (Mon)
6:30 PM
Beyond Bread 3026 N Campbell
Contact: Terri Lappin

The Starry Messenger SIG will have a planning meeting on April 23rd at the Beyond Bread located near Campbell and Ft Lowell on the east side of the street. We will how we might make the most of of the Venus Transit which takes place on the June 5th starting at 3pm. This is a rare event which will get some news coverage. Terri will find out what other organizations in Tucson are doing — perhaps we can piggyback on their efforts.

The SMSIG created a questionnaire we use to learn TAAA member's interest in outreach. Completion of the questionnaire is completely voluntary and will take only a few minutes. We are interested not only in your participation in TAAA outreach, but also your outreach activities in other organizations. Have you been through the docent training program at Flandrau, Kitt Peak or the Planetary Science Institute? Are you a Project ASTRO partner? We can strengthen TAAA's outreach services by building on the training that our members have received through other organizations. Everyone doing outreach has something to offer others doing outreach. This also gives us a chance to recognize the special training that some of our members have received. The questionnaire can be requested by emailing smsig[at]tucsonastronomy.org.

If you're interested in outreach, mark your calendar for August 4 -8, 2012 for the Astronomical Society of the Pacific National Meeting on Science Education and Communication. This will be held at the Doubletree Inn near Reid Park. Everyone working in education, public outreach, and science communication is invited to attend. This includes people doing classroom instruction, museum exhibits, television and radio programs, web based education, social media, community festivals – just about any type of formal or informal education. There will be many hands-on sessions. Poster papers, special interest group discussions, short oral reports, and special events are included in the program. See the meeting website at http://m1e.net/c?151803295-DPcJQvdYg53Tg%407314637-aqVktWcs4wRTk. Terri Lappin attended a similar ASP meeting in 2005 and thoroughly enjoyed the sessions. She is helping the local organizing committee for this meeting.

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.

Notice:

The TAAA wall calendar shows the Sharing the Sky Public Star Party on April 28th but it was changed to March 30th.

Space Exploration Special Interest Group (SESIG)

Planning Meeting: May 17 (Thu) **6:45 PM**

Woods Memorial Branch Library
Contact: Al Anzaldua

On May 17 the SESIG will be holding a planning meeting at 6:45 pm at the Woods Memorial Branch Library, 3455 N 1st Ave, just south of Prince Road on the west side of the street. All TAAA members interested in space exploration and development are welcome! (This is a change in date from what appeared in last month's newsletter.)

Sign-up sheets for SESIG talks will be provided at the General Membership Meetings, or RSVP to Al Anzaldua.

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*.

Astronomy Fundamentals SIG (AFSIG)

AFSIG Monthly Meeting

April 12 (Thu) **6:30 PM**

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

On Thursday, April 12th we will hold our regular monthly meeting. Jerry Farrar will teach us about sketching astronomical objects. AFSIG is dedicated to building astronomy knowledge and practical skills among our members. Please come out and help us succeed.

The USGS Building is on the northeast corner of Park and 6th Street. Free parking after 5pm behind the building in a paved lot. Please join us.

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 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 are interested in solar observing, please email Ben Bailey to be added to the solar observing email list.

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.

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.

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[at]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[at]cox.net.

Family Astronomy Program

The March Family Astronomy Night went very well at the Wilmot Library on the 20th.

We had 15 or 20 people come; they enjoyed Brian O'Connell's presentation of the Night Sky Network Toolkit *Mirrors and Glass* and looking through the telescopes.

We were able to view Jupiter and Venus, then Mars until it was dark enough to see stars.

We will not have another Family Astronomy Night until the Fall when it is dark early enough to view before tearing down at 7:45 pm so we can leave before the Library closes at 8:00 pm.

AFSIG holds Introduction to the Fundamentals of Astronomy Class

Last month, on three consecutive Saturdays, 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, as well as provide a vehicle to meet like minded folks to share ones journey among the heavens. All three classes were well attended and the 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 March 3rd 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 March 10th, the class went over Equipment Basics, including telescopes, mounts, eyepieces, filters, and other

(Continued on page 6)

AFSIG holds Introduction to the Fundamentals of Astronomy Class (cont.)

Classes were well attended and fun.

Master Teacher J.D. Metzger makes a point.

(Continued from page 5)

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 March 17th, 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. A pot luck and Star Party were scheduled for TIMPA, but the weather had other ideas.

Many thanks are owed to all the dedicated AFSig volunteers who make this class possible. Thanks to your dedication we are able to provide a valuable service to TAAA. Special thanks are due to Dennis McMacken, who came and opened the classroom, even though not feeling his best; and J.D. Metzger, who taught a large part of the classes, filling in like a champ when circumstances pulled the scheduled instructors away.

Demo Galanos

Demosthenes ("Demo") Gregory Galanos passed away at home on March 14, 2012. He was 68. A retired aerospace engineer from Rockwell International, Demo worked part-time at the University of Arizona's Flandrau Science Museum Observatory for many years, a facility staffed by volunteer operators that is free and open every week from Wednesday through Saturday nights on the main UA campus. Each year thousands of people come to look at and learn about the wonders of the night sky through the 16-inch Cassegrain telescope. Demo tirelessly kept Flandrau's telescopes, Macintosh computers and equipment in great shape, and trained many people over the years to be telescope operators and public astronomy docents. Quite a showman, Demo would fascinate those who stopped by to learn about the planets, galaxies, comets, clusters, or other objects on display in the clear night sky of Tucson, informally known as the "Astronomy Capitol of the World." He would always educate the public about the many successful NASA planetary and astronomy missions and projects that the UA is involved in at the Lunar and Planetary Laboratory and Steward Observatory, proudly showing current UA images and discoveries.

Demo is survived by a daughter and son-in-law, Dawn and Sam Brier, and granddaughters, Jennifer, aged 16, and Cordealia, 13 years old, of Phoenix; his first wife Jean, of Mesa; a stepdaughter, Tawnya; and two brothers and their families. He was preceded in death by his second wife, Alice.

For more than twenty years, Demo was beloved by the amateur and professional astronomy communities in Tucson as well as by those in the public (from around the world) who visited the observatory. Burt Cureton, a former Flandrau telescope operator, expressed the feelings of many when he said, "He is my hero. He is my mentor.... He is the best" Demo will be sorely missed.

Many friends joined his family members at a memorial service on Thursday, March 22, 2012, at Funeraria del Angel. In addition, Flandrau Science Center will host a special public outreach event to celebrate Demo's life in the near future.

Contributed by Loretta McKibben

Members' Star Parties

TAAA Star Party at TIMPA

April 13 (Fri) Gate opens at 6:15pm
April 21 (Sat) Gate opens at 6:15pm
Contact Person: Ben Bailey

The AFSIG is hosting two star parties this month at TIMPA. On both Friday, April 13th and Saturday, April 21st, an AFSIG representative will open the gates for an evening of viewing. The Gila Monster Observatory will be open for your viewing pleasure. The TIMPA site features a large parking area, and full restroom facilities. Be prepared for cool temperatures after sunset. Guests are welcome, accompanied by a TAAA member. We hope to see you there!

The Gila Monster Observatory houses a Meade 14" telescope donated to the TAAA by David Levy's Sharing the Sky Foundation. All members are encouraged to complete the training program to learn to operate this telescope.

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

April 21 (Sat)
Contact Person/RSVP to: John Kalas

The Chiricahua Astronomy Complex (CAC) is the club's dark observing site. Located in Cochise County approximately 100 miles from the center of Tucson, the site includes a full bathroom facility. At an elevation of 4800 feet, be prepared for cooler temperatures. Try to arrive before sunset. Unlike the TIMPA site, members are required to make reservations for both monthly club star parties and private member use. We are restricted to 60 persons and 30 vehicles maximum at any time. If you would like to attend, you must contact CAC Director John Kalas. Reservations will be on a first come – first serve basis. 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 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*" on page 15 of this issue. Details and maps can be obtained from the TAAA website calendar.

Rattlesnake Ridge Elementary School

Apr 4 (Wed) **Set-up: 6:30 PM**
West Tucson Event Time: 7 to 8 PM
Leader: Bill Lofquist Volunteers Needed: 6
Toolkit Presenter: Susan O'Connor

Rattlesnake Ridge Elementary School is having a star party for 300 students and family members. This is located at 8500 N Continental Reserve Loop. Telescopes will be set up in the courtyard.

Southwest University of Visual Arts

Apr 5 (Thu) **Set-up: 6:30 PM**
Central Tucson Event Time: 7 to 9 PM
Leader: Bill Lofquist Volunteers Needed: 2

Southwest University of Visual Arts is having a star party for a small group of adult students. This is located at 2525 N Country Club Road (near Grant). Viewing area is in the parking lot on the west side of Country Club.

Yuri's Night

Apr 13 (Fri) **Set-up: 7:00 PM**
Southeast Tucson Event Time: 7:30 to 9:30 PM
Leader: John Kalas Volunteers Needed: 4

Pima Air & Space Museum is having a public event celebrating humanity's past, present and future in space. Yuri's Night is a world-wide event. The museum is located at 6000 E Valencia Rd (near Wilmot). Contact John Kalas for final details including set up location.

Catalina State Park Public Star Party

Apr 14 (Sat) **Set-up: 6:30 PM**
Northwest Tucson Event Time: 7 to 9:30 PM
Leader: Bill Lofquist Volunteers Needed: many

TAAA, the International Dark-sky Association, and Catalina State Park are co-sponsoring a public star party. The park is located at 11570 N Oracle Road (near Oracle and Tangerine). Observing takes place at the Trailhead Parking Lot in the designated area. Members bringing telescopes do not need to pay the park entrance fee.

Emily Gray Junior High

Apr 16 (Mon) **Set-up: 7:00 PM**
Far Northeast Tucson Event Time: 7:30 PM to 9:15 PM
Leader: Bill Lofquist Volunteers Needed: 3

Emily Gray Jr High is having a star party for 50 students and family members. This is located at 4201 N Melpomene (near Catalina Hwy and Melpomene Way). Telescopes will be at the north end of the football field.

Sycamore Elementary School

Apr 18 (Wed) **Set-up: 6:30 PM**
Far Southeast Tucson Event Time: 7 to 8 PM
Leader: Bill Lofquist Volunteers Needed: 4
Toolkit Presenter: **OPEN**

Sycamore Elementary is having a star party for 50 students and family members. This is located at 16701 South Houghton Road (near Houghton and Sahuarita Roads). Telescopes will be set up in the amphitheater.

Luz-Guerrero Early College High School

Apr 20 (Fri) **Set-up: 6:30 PM**
West Tucson Event Time: 7 to 9:30 PM
Leader: Bill Lofquist Volunteers Needed: 5

Luz Academy is having a star party for their students. This is located at 2797 N Cerrada De Beto (near Silverbell and Grant). Note that Cerrada De Beto used to be called Introspect Drive. Viewing will be on the basketball court on the west side of the school.

Marana Camping Under the Stars

Apr 21 (Sat) **Set-up: 6:30 PM**
Marana Event Time: 7 to 9:30 PM
Leader: Bill Lofquist Volunteers Needed: 3

Ora Mae Harn Park is having a star party for unknown students and family members. This is located at 13250 N Lon Adams Rd (near I-10 and Marana Rd/Exit 236). Those with solar scopes may call Bill to offer solar observing earlier in the day.

Agua Caliente Star Party

Apr 24 (Tue) **Set-up: 6:45 PM**
Far east Tucson Event Time: 7:15 to 9 PM
Leader: Bill Lofquist Volunteers Needed: 6

Agua Caliente Elementary School is having a star party for 200 students and family members. This is located at 11420 East Limberlost Road (near Catalina Hwy and Melpomene Way). Go past the school and turn right on Homestead, pull onto the field on the right through the gate on the south end of the field, and drive to the north end of the field. Arrive early, set up scope, and have Grandma Tony's pizza.

TAAA Service Award - Jim O'Connor

Contributed by Bill Lofquist

Jim O'Connor was presented with a TAAA Service Award at the March, 2012 general meeting for several good and compelling reasons.

First and foremost, Jim, with his wife Susan, took over the leadership of the Grand Canyon Star Party from Dean Ketelsen, who had led this major event for its first twenty years. Jim has done an excellent job with his energetic approach for the past three years. He has coordinated with the National Park Service in the many aspects of making the event run smoothly. He has maintained contact with the fifty plus volunteer astronomers who attend the event and who relate to the thousands of visitors to the park each year. This undertaking has involved extra trips to the park each year, and Jim deals with numerous inquiries from around the country about the event. He has coordinated the nightly presentations about astronomy for visitors prior to their coming out to observe. In 2011 he planned with the park staff to move the event from Yavapai Point to the Visitor Center. This positive move has resulted in a much better venue for both the astronomers and the visiting public. Jim has maintained the tradition that was created by Dean over the years by making the event a very organized and well run experience for everyone who enjoys the excitement of it.

Closer to home, Jim has been a dedicated supporter of and participant in the TAAA's active outreach efforts through the School Star Party Program. For example, during 2011 TAAA staffed a total of 43 school and nonprofit organization star party events. Jim took part in 23 of these events. This has been his pattern since he returned to the Tucson community in 2003.

Jim is an avid student of astronomy and is always ready to share his knowledge with others. In addition to his awareness of the night sky, Jim has a deep interest in the historical and ethnic origins of the myths and cultural interpretations of the constellations. He has recently made several presentations based on his learning in this area.

Jim is also involved in the growing relationship with the Catalina State Park and Arizona State Parks. Through this partnership, TAAA is holding three star parties each year and they are serving a growing number of visitors to the state park.

The TAAA Board of Directors thought it was most appropriate to present Jim with this important award. Thanks, Jim!

TAAA Service Award - Michael Turner

Contributed by John Kalas

Michael Turner also received a TAAA Service Award during the March 2012 monthly meeting. Michael and Mary joined the club in August 1997. Michael's service to the TAAA has been extensive. For many years, he was very supportive of the school star party program. Michael served the club as Vice President from June 2004 to May 2005 and Member-at-Large from June 2010 to the present. Both Michael and Mary Turner have been strong supporters of the Grand Canyon Star Party for many years. Michael helped develop and instruct the Red Lamp Workshop. He helped install the Meade 14" telescope in the Gila Monster Observatory at TIMPA and develop the training procedures and trains members to operate both the Gila Monster Observatory telescope and the Meade 10" GPS loaner telescope. Michael coordinated the electrical repairs for the telescope pads at TIMPA.

Michael is also a strong supporter of the club's new Chiricahua Astronomy Complex. He donated two computer monitors for the video camera security system. Michael and Mary donated the Amphitheater steel storage container and shelving. He helped install the Celestron C-14 telescope in the roll-off roof observatory (twice). Michael also recently assisted with modifications to the RoR Observatory.

This last item may be Michael's most significant contribution to the club. He is a major supporter of the Astronomy Services Program which provides funds for construction projects at the CAC Site as well as funds for the ongoing operating costs related to CAC. Michael has been heavily involved with the Astronomy Services Program since 2005, supporting 92 of the 220 paid star parties since 2005, far more than any other volunteer. Michael even took over the coordination of the program during my health issue in 2007. Michael's extensive dedication and contributions to the club make him a very worthy recipient of the TAAA Service Award.

Find us on Facebook!
Search for "Tucson Amateur Astronomy Association"

Join the TAAA Forum

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

Night Sky Network Outreach Toolkits

Night Sky Network Toolkits have been developed by the Astronomical Society of the Pacific for use at astronomy outreach events as an addition to looking through telescopes. Each themed toolkit contains several projects. Nearly all the materials needed for any particular project is contained in one toolkit box.

We have seen a recent increase in the number of requests for Night Sky Network Toolkits. More members trained in using these toolkits means we can accommodate more requests. Attend a training session or ask for individual training. If you already have experience with these toolkits, consider checking one out and bringing to one or more star parties during the month. Toolkits have saved some events from failure when we have a cloudy night.

Materials from several toolkits including a poster called "The Lives of Stars", models of Saturn and Earth, Styrofoam balls for explaining moon phases, postcards explaining resolution, magnification and field of view, a lens to describe how telescopes work, and a yellow 'star' with a small 'planet' that can show the "wobble" effect used to detect extra-solar planets.

Our Outreach Toolkits are listed below. They can be borrowed for up to a month at a time. You can keep the Resource CD and Training DVD, but all other materials need to be returned. To borrow a toolkit or receive training on their use, 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: 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*

Dark Skies for April 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		
Sa/Su	31/1	2:32	–	4:49
Su/Mo	1/2	3:10	–	4:47
Mo/Tu	2/3	3:48	–	4:46
Tu/We	3/4	4:24	–	4:45
We/Th	4/5	–	–	–
Th/Fr	5/6	FULL MOON		
Fr/Sa	6/7	–	–	–
Sa/Su	7/8	20:13		
Su/Mo	8/9	0:14	–	21:28
Mo/Tu	9/10	20:15	–	22:36
Tu/We	10/11	20:15	–	23:37
We/Th	11/12	20:16	–	0:31
Th/Fr	12/13	20:17	–	1:18
Fr/Sa	13/14	20:18	–	2:00
Sa/Su	14/15	20:19	–	2:36
Su/Mo	15/16	20:20	–	3:09
Mo/Tu	16/17	20:21	–	3:41
Tu/We	17/18	20:22	–	4:11
We/Th	18/19	20:23	–	4:23
Th/Fr	19/20	20:24	–	4:22
Fr/Sa	20/21	20:25	–	4:21
Sa/Su	21/22	20:26	–	4:19
Su/Mo	22/23	20:32	–	4:18
Mo/Tu	23/24	21:24	–	4:17
Tu/We	24/25	22:15	–	4:15
We/Th	25/26	23:02	–	4:14
Th/Fr	26/27	23:47	–	4:13
Fr/Sa	27/28	0:28	–	4:11
Sa/Su	28/29	1:06	–	4:10
Su/Mo	29/30	1:43	–	4:09
Mo/Tu	30/1	2:19	–	4:08
Sa/Su	31/1	2:32	–	4:49

Chris Lancaster's Constellation of the Month

Puppis

The Poop Deck

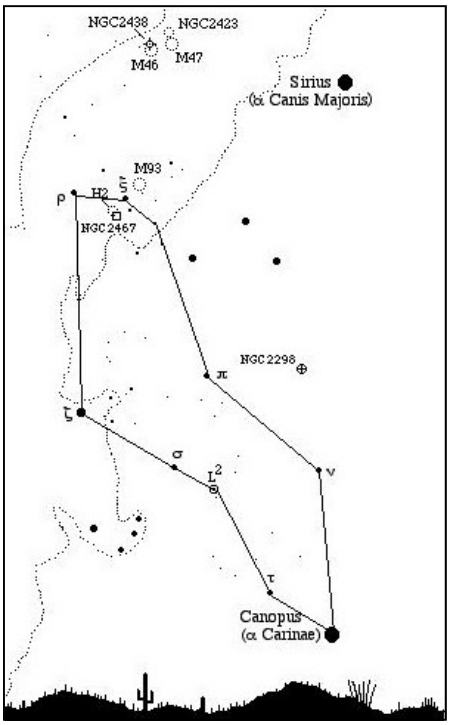
The southern sky holds the giant ship Argo, which is divided into several individual constellations. Puppis is the poop deck, or stern, of the ship which has its bow pointing below the horizon and its stern standing vertically. The stars of Puppis are 2nd magnitude and dimmer and sit east of a line formed by the two most conspicuous winter stars, Sirius and Canopus. You'll notice that the Greek lettering of this constellation, a system that was established by the German astronomer Johann Bayer, is incomplete. When Bayer distributed the letters, the stars of Puppis did not yet make a constellation of its own, but instead served to form part of the giant constellation Argo Navis.

We have seen quite often that constellations which lie along the Milky Way are rich in star clusters, and Puppis is no different with its clusters outnumbering all other deep sky objects by a wide margin. Since Puppis is so close to the horizon, those objects which are near the northern areas of the constellation are the best targets. Two of these are M46 and M47. They can be mentioned together since they are only 1.3 degrees apart from each other. Even though they share the same neighborhood, they have much different personalities. M47's stars are a mixture of almost a dozen bright stars (the brightest being mag. 5.7) and another 30 or so dim stars which give the cluster a total magnitude of 4.4. M47 is located at RA 7h 36.6m Dec -14d 30'. M46 contrasts nicely, being a magnitude 6.1 cluster made of over one hundred noticeable stars of mostly magnitudes 9, 10, and dimmer. One interesting feature of this constellation is the magnitude 10.1 planetary nebula on the northern edge of the cluster. This is NGC2438, a round halo measuring about 1' in diameter. Both M46 and M47 are close to 30' in size.

Stay in the neighborhood and you will see another cluster, NGC2423, about 0.6 degrees north of M47. This magnitude 6.7 cluster packs about 60 dim stars in an area 19' in diameter.

Moving south, we find M93. This cluster has a magnitude of 6.2, a size of 22', and a location of 7h 44.6m Dec -23d 52', or 1.5 degrees northwest of Xi Puppis. It appears elongated along the southeast-northwest axis with lanes comparatively empty of stars which make it appear divided into 4 sections.

As a change of pace, let's move southeast, past Xi Puppis, about the same distance as M93, but on the opposite side. Here is a challenging diffuse nebula designated NGC2467.



It could be described as masquerading as a planetary nebula since its overall shape is round with noticeable mottling to the edges. It even has an 8th magnitude star sitting in the middle of the nebulosity to add to the disguise. The size of this magnitude 7 nebula is respectable at 16', making for medium surface brightness. Crowding it is another star cluster, H2. This modest cluster has about 20 11th magnitude stars covering 9'.

A considerable distance away near the western boundary of the constellation is NGC2298. Fairly easy to find, but hard to resolve into stars, this is a globular cluster of magnitude 9.4 and measuring a small 6.8'. It is well down in the sky, so it's beneficial to wait until it's as close to the meridian as possible before observing it. You'll mostly see a imperfectly round smudge at RA 6h 49m Dec -36o 00'.

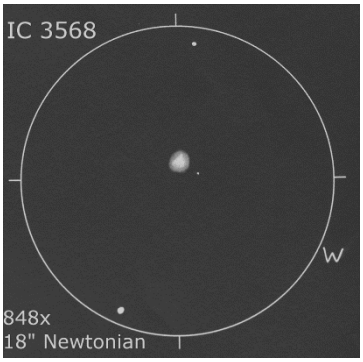
Fans of variable stars will want to seek L2. As a member of the long period variable class, this star ranges in brightness from approximately 3 down to less than 6, and during the process passes through the narrow range in spectral type from M5 to M6. It stays above the horizon only for 7 hours, but that is not a problem since its period is a leisurely 141 days, and both sides of its light curve are equal. Even if you are not measuring its variability, you might still want to do an appraisal of its unique red color.

Christian Weis' Planetary Nebulae of the Month

IC3568 and PK 318+41.1 (Abell 36)

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.

IC 3568, located in the northern constellation Camelopardalis, is also called the Baby Eskimo and was discovered in 1900 by Robert Aitken. Its surface brightness exceeds those of all Messier PNs, so it should be easy to detect it in any telescope with apertures of 2 in. and up. However, the small angular size means, that one will need a lot of magnification in order to see any detail. On highly resolved images, one can see structures that resemble NGC 2392, hence its name. Using an 18" Dobsonian and very high magnification and on top of that having superb sky conditions, I was able to recognize some structure. My notes: Bright, smnall but seen as non-stellar at 94x, central star can be blinked, responses to UHC and [OIII], supposed a triangular shape surrounded by a weaker halo at very high magnification; fst 6m7 (Vir); 848x



IC 3568
RA: 12h 33.1min
Dec: 82° 20´
Constellation: Camelopardalis
Brightness: 10.6
Central star: 12m4
Size: 18 arcsec
Distance: 6900 ly

There are two known planetary nebulae in Virgo, which to most observers is a favorable constellation to observe galaxies. IC 972, the only Abell-PN that also has an IC-number, was already presented in last years May issue. Abell 36, or PK318+41.1 is the other one. It was discovered by George Abell in 1955 and is also called the Bat symbol due to its appearance on images. The size of 6'x5' and an apparent brightness of some 12m (other data give 13m) mean, that one will need low magnification and a dark sky. I had the pleasure of observing this beauty in February 2012 from the Austrian Alps, having splendid sky conditions. Even though Abell 36 does not rise very high above the mountain range which gives the horizon (half a degree), I could definitely see it with my 18" Dobsonian. My description read: Disk with no structure, weak, central star is bright, nebula not seen without filter, UHC helps a little, [OIII] helps enormously, at 94x and 161x and using a black cloth to cover my head from the ambient light I supposedly saw a ring structure; fst 6m7 (Vir), 94x

PK 318+41.1 = Abell 36
RA: 13h 40.7min
Dec: -19° 32´
Constellation: Virgo
Brightness: 11m8
Central star: 11m5
Size: 480 x 280 arcsec

The Visible Planets this Month

Data provided by Erich Karkoschka

Weekend	Sun		Mercury		Venus		Mars		Jupiter		Saturn		Visibility (Vi)	
Sa/Su	Set	Rise	Rise	Vi	Set	Vi	Set	Vi	Set	Vi	Rise	Vi	Code	
31/1	18:41	6:09	5:19	9	22:25	-4	4:48	-1	21:09	-1	19:45	0	-3	brilliant
7/8	18:46	6:01	4:59	6	22:30	-4	4:17	-1	20:49	0	19:15	0	0	conspicuous
14/15	18:51	5:52	4:48	5	22:32	-4	3:48	0	20:29	1	18:45	0	3	moderate
22/22	18:56	5:44	4:41	5	22:30	-4	3:20	0	20:09	3	18:15	0	6	naked eye limit
28/29	19:01	5:37	4:38	6	22:23	-4	2:54	0	19:49	6	17:45	0	9	binoculars limit

Solar Observing Group

The Solar Observing group will not be meeting for group solar observing until further notice. Please ignore the April 21st 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.

March Board of Directors Meeting Minutes

The date of the March Board of Directors meeting was changed to avoid the parking issues surrounding the NCAA Basketball Tournament. The minutes will appear in the May issue of Desert Skies.

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

Get the red out.

I am almost color blind in the dark. This is a typical condition for men (whereas women have shown in studies to be capable of seeing color at lower light levels). As a result I enjoy seeing objects that are so blatantly colored that even my feeble eyes can distinguish their hues. Carbon stars, the reddest stars in our sky, fill the bill perfectly.

A carbon star is an evolved "late" giant star similar to stars like Antares and Betelgeuse (sometimes dwarfs too) but cooler with carbon and oxygen in the outer atmosphere. These combine to form carbon monoxide using up the oxygen with some carbon left over to form other carbon compounds that astronomers often call "soot". Since these are evolved stars or "late" stars they are "burning" helium so there are other metals in the atmosphere brought to the outer layers by convection. Anything heavier than helium on the periodic table is considered a "metal" in stellar astronomy so these elements include things like lithium, barium etc. These elements in the atmosphere of the stars create spectra with lots of lines and the molecules create large absorption bands. Many of these bands and lines are in the shorter wavelengths making the star color very red. These dynamics also make carbon stars variable as you will see.

One of my favorite carbon stars is the variable star Y Canum Venaticorum (Y CVn=HR 4846=HD 110914=SAO 44317=PPM 53169=HIP 62223=BD +46 01817=GC 17342) also historically known as "La Superba". This star is located under the handle of the Big Dipper as shown at:

http://observing.skyhound.com/archives/apr/Y_CVn.html

Anyone who is not totally color blind will see the deep orange hues of this star. It will make you want to stare for a prolonged time. If you are color blind take a red and blue filter and put it between your eye and the eyepiece and notice the brightness difference!

Another good carbon star for this season is "Hind's Variable Star" or R Leporis (HR 1607=HD 31996=SAO 150058=PPM 215123=BD-15 915=GC 6093) located just under the feet of Orion:

http://www.arksky.org/ref_guides/lepus.html

This article includes a list of carbon stars as well as good AAVSO finder charts.

A good description of carbon stars and these two stars in particular can be found here:

http://www.whillyard.com/science-pages/type-carbon.html

As I mentioned above, all these stars are variable stars so be sure to look up the current brightness of these stars before going out to observe!

The Astronomical League even has a Carbon Star Observing program:

http://www.astroleague.org/content/carbon-star-observing-program

with an excellent list of these stars including the spectral types:

http://www.astroleague.org/files/obsclubs/CarbonStar/CarbonStar-List.pdf

Can you see differences in colors related to the spectral types? Can you get to a skill level where you can pretty closely guess the spectral type by the color you see?

> (Editor's Note: The Astronomical League's website mentions that they now have *The Carbon Star Observing Manual* in stock.)

Another nice list of carbon stars divided up by month where they are conveniently placed in the early evening for observation, has been assembled by the North Shore Amateur Astronomy Club (NSAAC) in Mass.:

http://tinyurl.com/7jh7l56

A fun project in observing these stars is to take a DSLR camera and set it on the area where one of these stars is located and take a picture for 20 or 30sec. Then, in the comfort of your home indoors, try and locate these stars. You'll likely find several more deep red stars. With the help of a program like HNSky, or any of the other computer planetarium programs that contain the General Catalog of Variable Stars in their database, you can identify other much fainter carbon and late type stars.

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

Contribute your observations between April 11th and 20th. It's easy with a smartphone!

This is a "citizen science" program to bring attention to light pollution. Navigate to http://www.globeatnight.org/webapp/ with your smartphone. Date, time, and location are automatically entered. Get yourself dark adapted—the app has a night mode. Match what Orion looks like compared to the star charts on the site. Select the sky conditions. Submit. No smartphone? No problem. Make your observations and then enter them in the Globe at Night website. More information can be found at www.globeatnight.org, including the compilation of data from previous years.

TAAA Science Fair Awards Recognize Six Students

Contributed by Terri Lappin; Photos by Terri Lappin and MaryHelen Kaser

Last month the TAAA participated in the Southern Arizona Regional Science and Engineering Fair (SARSEF). Four TAAA members (Terri Lappin, Molly Hancock, Brian O'Connell, and MaryHelen Kaser) selected six award winning astronomy projects from over 1600 project entered into the fair. Several other TAAA members represented other organizations such as the Southern Arizona Chapter of the International Dark-sky Association. It was nice to see such support offered by TAAA members for an event that encourages students to learn on their own and publish their research.

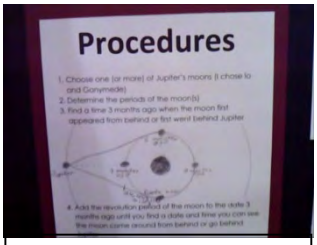
Only half of the science fair exhibits.

Terri Lappin and Brian O'Connell review Olivia Smarz' project

Judging was a lot of fun. The TAAA team started at 7:30am and was completed by 3:00pm after interviewing all three high school entrants who had astronomy projects. The following individuals and their projects were awarded Certificates of Achievement. At the K-5 level, we awarded a $40 gift certificate to Starizona. At the Middle and High School levels we awarded two tickets each (one adult and one child) to the UA Mt Lemmon SkyCenter. Each Certificate of Achievement also included a year membership in the TAAA.

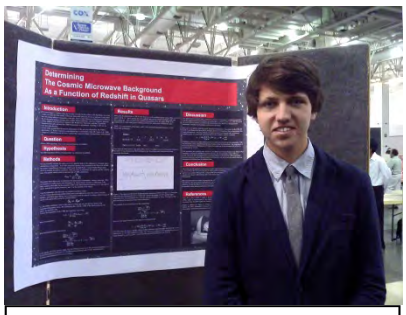
- K-5: Olivia Smarz for her project "Twinkle Twinkle Little Star, How I Wonder Where You Are"
- Middle School: Christopher Lehman for his project "The Speed of Light Takes Flight"
- High School: Zachary Watson for his project "Determining the Cosmic Microwave Background as a Function of Redshift in Quasars"

Olivia, a fourth grader, considered the effect of light pollution on sky appearance at different elevations and directions. She followed up her observations by taking apart the camera she used to take the photos and learned how the imaging device, a CCD, works. Christopher measured the speed of light using Jupiter's moons over a period of three months.



Christopher Lehman's procedure for measuring the speed of light

Zachary used data taken with the Steward Observatory's 12-meter radio telescope on Kitt Peak to measure the cosmic background radiation using quasars. Quasars are at such great distances that the measured background radiation is higher than the current measurement of 2.7K (the universe was warmer further back in time). Calculations based on his observations indicate a background at the red shift he studied to be 9K, about twice what was expected. (Zachary received the SARSEF 1st place award in the Physics/Astronomy category at the High School level.)



Zachary Watson and his display.

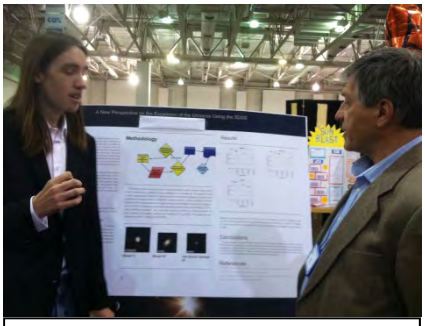
The three Honorable Mention awards included a Certificate and a year membership in the TAAA.

- K-5: Gianna Banning for her project "Is it a UFO, Planet, Star, or Spaceship?"
- High School: Sierra Yamanaka for her project "Star Light, Star Bright" (Sierra was awarded the SARSEF 2nd place in the Physics/Astronomy category.)
- High School: Coleman Hammer-Tomizuka for his project "A New Perspective on the Expansion of the Universe Using the SDSS"

Molly Hancock with Sierra Yamanaka after discussing Sierrra's project.

Gianna, a 1st grader, asked the simple question of what she saw out her window. Through a process of elimination based on the characteristics of the light she saw, she determined she was seeing Sirius. Sierra used a telescope to visually estimate the brightness of the star Delta Cephei to determine the luminosity curve. Delta Cephei has a period of just over 5 days and a couple conveniently placed stars nearby that shine nearly the same brightness as Delta Cephei's maximum and minimum brightness. Coleman's project used data taken with the Sloan Digital Sky Survey to measure the expansion of the universe. Type 1a supernovae have been used to do this, but Coleman used spectral data from the SDSS and Cepheid variable measurements from Hubble for M77, M96, and NGC99.

There were probably 5 other projects we considered astronomical in nature but they were not recognized for an award.



Coleman Hammer-Tomizuka discussing his project with TAAA member Dennis Nendza (Dennis served as a SARSEF judge).

Membership in the TAAA

Annual Fees

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

Discounts (one qualified discount allowed, subtract from above rates)

Seniors (over 60 years) $2.00
College Students, Teachers (K – 12)..... $8.00
Youth under 18 yrs. (form required, contact the treasurer) $13.00

Options (add to above membership rates)

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

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

Renewal Information

You'll get an email reminder when it's time to renew.
TAAA members may join the Astronomical League (AL) at the time they join or renew.
Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at any time. Allow 3 months for processing. New subscriptions must be sent through the TAAA treasurer. Renewals can be paid online through magazine websites. To change an individual subscription to the group rate, pay the group rate to the TAAA treasurer. Include your magazine renewal notice.
Include a note about what you're paying for. Credit cards are not accepted. Write one check or money order for dues plus any options or donations. Make it payable to TAAA and send to: Tucson Amateur Astronomy Association; PO BOX 41254; Tucson, AZ 85717

Mailing Address or Email Changes

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

TAAA Mission Statement

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

Desert Skies Publishing Guidelines

Send submissions to taaa-newsletter[at]tucsonastronomy.org 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

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Space Exploration SIG	Al Anzaldua	520-409-5797	sesig[at]tucsonastronomy.org.
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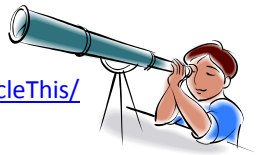
Equipment Loan Coordinator	Al Dohner	520-297-7118	elc[at]tucsonastronomy.org
Librarians	Hunter Bailey Irene Kitzman		librarian[at]tucsonastronomy.org
Grand Canyon Star Party Coordinator	Jim O'Connor	520-546-2961	gcsp[at]tucsonastronomy.org
General Information	Keith Schlottman	520-250-1560	taaa-info[at]tucsonastronomy.org

Hey Kids!

NASA's Space Place is a fun website with games and resources for kids to learn about astronomy and space sciences. Play the game "Recycle This" and learn about recycling trash to keep our planet clean.

http://spaceplace.nasa.gov

http://climate.nasa.gov/kids/games/recycleThis/



Space Place Partners' Column *March 2012*

The Planet in the Machine

By Diane K. Fisher and Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The "butterfly effect" is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

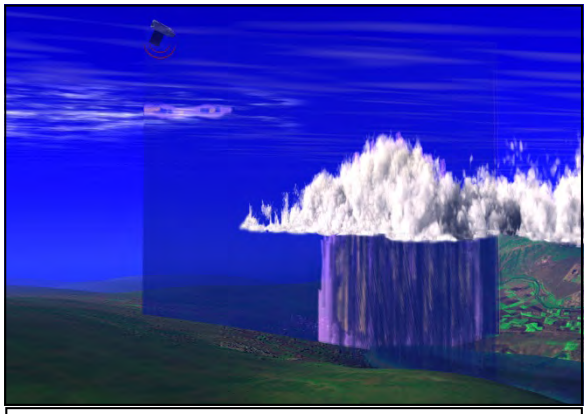
All kidding aside, insects are not in control. The real "butterfly effect" is driven by, for example, global winds and ocean currents, polar ice (melting and freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

And then there's the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth's carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA's Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth's land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.



CloudSat is one of the Earth-observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat's unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun's energy in the atmosphere. See animation of this data simulation at www.nasa.gov/mission_pages/calipso/multimedia/cloud_calip_mm.html.

For a listing and more information on each of NASA's (and their partners') Earth data-gathering missions, visit http://science.nasa.gov/earth-science/missions/. Kids can get an easy introduction to Earth system science and play Earthy word games at http://spaceplace.nasa.gov/ecosphere .

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

TAAA Loaner Telescope Program

Don't own a telescope?

Our Telescope Loaner Program is your answer!

Meade 10" LX200 GPS (training required)
Meade 10" f/4.5 on equatorial mount
Coulter Odyssey8 8" f/4.5 Dobson
Meade 90mm ETX
Unitron 62mm f/14.5 on equatorial mount
Sears 60mm f/15 on equatorial mount

Members only.

Details available from the Equipment Loan Coordinator or any club officer.

Next Board of Director's Meeting

Apr 11 (Wed) **6:30 PM**
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 is attending the meeting and they can let you in.

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.

Nominations Open for TAAA Officers

We vote for our club officers at our May meeting. All offices are open for nominations. A Nominating Committee report was not received for inclusion in this newsletter. Our Nominating Committee is Mary Turner, Ken Shaver, and Carter Smith. To be considered for a position, contact Mary (see Chief Observer on page 15) .

TAAA Classifieds

For Sale Price Reduced!	Observatory with Home for sale - 3 BR 3 Ba Ranch home on 3.2 acres with horse facilities, huge garage/workshop, in-law or guest room with separate entrance/bath and Home Observatory! Observe steps from your back door, yet easy commute to downtown Tucson. See 5150sBryce.com for details. $200K. Thanks for looking! Claude & Teresa Plymate. 520-444-5979 Expires May 2012
For Sale	Celestron Nexstar 6SE Schmidt-Cassegrain with "go to" electronics and rechargeable battery-pack. Call Al at 520-409-5797 if interested. $500 Expires May 2012
For Trade	12.5" full thickness mirror blanks (two of them) to trade for a PST Solar telescope, or an older Ha filter capable of adapting to a high F/ratio Newtonian. Also lots of books and other stuff to horse trade with. This is needed for the annular eclipse and the Venus transit. Already have white light filters but I need a bit more "wow factor" for either my 8 or 10 inch F/8 Newts. James Lehr Miller starman1000[at]msn.com 520 751-4961 Expires July 2012
For Sale	10' x 12' motorized roll-off roof observatory in a great rural neighborhood. Situated on a 1-acre lot with southwestern style home. About 35 miles southwest of Tucson, close to Kitt Peak. Excellent night skies with desert climate giving many clear evenings. Home is 1900-square foot sturdy slot-block with tiled and newly carpeted floors, carport, new paint, and desert landscaping. 15940 Ridgemoor, Tucson, listed with Long Realty (http://www.longrealty.com), MLS#21123526. Current price is $74995! Expires July 2012
For Sale Prices Reduced!	①Classic C11 OTA. In storage for nearly 10 years but worked great back in the day. Should still be fine. Been tested on the sky and achieved resolution limit for an 11" aperture on double stars. Some minor scuffs and scratches. Asking $700 OBO ②C11 fork and base was purchased separately from the OTA and while the drive works it has never carried the OTA. No photos available. Asking $400 OBO ③Classic Star Liner German Equatorial Mount that carried the C11 OTA for many years. It has homemade tangent arm Dec. drive and tracks very well. This thing is massive. Asking $500 OBO. All items are Tucson pick up only. Photos at: http://www.lpl.arizona.edu/~rhill/instr.html Email Rik Hill at rhill[at] lpl.arizona.edu Expires August 2012
For Sale	StarBound Observing Chair. White, in very good condition. $100. Email jmetzger46@gmail.com. Expires August 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.

One Man's Hunt for Eta Carina—Feb27, 2012

Contributed by John Barr (Snowbird and TAAA member for the last five years).

Amateur astronomers spend thousands of dollars and years of our lives in the hunt for those magical moments at the eyepiece when we can glimpse some elusive, exotic corner of the cosmos. Perhaps it's that moment when the seeing suddenly "freezes" and details on the surface of Mars peak out at us like they did, once, to Percival Lowell. For others it may be the sight of some extraordinarily faint galaxy that came into being only a few hundred million years after the Big Bang. My obsession has been the hunt for the Eta Carina nebula, that southern hemisphere gem where the megastar Eta Carina is (or so we are told by the professionals) getting ready to blow itself to kingdom come as a supernova -- sometime in the next thousand years or so.

Astrophotographers using instruments up to and including the Hubble Space Telescope have captured this spectacular nebula in all its glory but most of them live in the southern hemisphere. And so I began my quest by lugging an 80 mm refractor and tripod to a resort in Patagonia National Park in southern Chile in 2005 to hunt for it, only to discover that the weather in Patagonia -- a truly lovely place -- has an extraordinary amount of cloudy weather, including six of the seven nights we were there. On the seventh, I hauled the telescope out of the hotel at 2:00 o'clock in the morning and carried it half a mile away to get a sky uncontaminated by any light from the hotel. There, in the middle of nowhere, next to thick bushes in which, that day, a Puma had been spotted by the guides, I set up my scope and feasted on the southern Milky Way, Coal Sack and all, and found Eta Carina.

It was a glorious sight even in a small refractor, but my concentration was interrupted by two facts: (1) it was almost at the Zenith and hurt my neck craning at it and (2) there was a rustling in the bushes right behind me. I tried unsuccessfully to turn off my imagination. Did Pumas hunt at night? I couldn't remember, and so my observing session was cut short. While it was a nice sight I couldn't help thinking what it would look like through a light bucket like the one I left behind in Arizona.

Ah well. We were planning a vacation in southern Africa in a few years. I would buy a portable reflector and take it there. THEN I would be able to see it in all its splendor.

Flash forward to last October, at a resort in the Kalahari Desert, where I set up and waited...for haze from the grass fires to dissipate (they never did) and Eta Carina to rise above the horizon, which it didn't do. (Dang! Should have checked my planetarium program to see what the sky looked like there, in that season).

In February I decided to spend a few nights at the Winter Star Party in the Florida Keys -- the only place Crux and Eta Carina are visible from the continental U.S. I registered for the WSP (which is run by very nice people) and went there, planning to view it through one of the light buckets I knew local people would be taking to the Star Party. Only to discover that while Eta Carina and Crux are theoretically visible from that location, southerly objects are often obscured, as much as twenty degrees above the horizon, by a murk produced by steam rising off the Gulf Stream.

One night Crux was visible -- just barely -- and the nebula was a ghostly fragment of what I had seen from Patagonia. Hardly worth looking for, really. (Did see a really nice view of M104, the Sombrero, through an 18" Dob kindly made available by one of the WSP members, though).

Next year I plan to spend a couple of months in Australia. I'm going to contact local astronomers who take their scopes into the Outback, where, apparently, the southern Milky Way is visible in all its glory. I'm sure my quest will be fully rewarded then.

If you've ever caught "the bug", I'm sure you can relate to my quest. Otherwise, laugh at me if you will. (I often do). Until then I'll settle for the skies in southern Arizona. They're great.

Astronomical League Observing Clubs

Beginner Level

- Analemma Program
- Binocular Double Star Program
- Binocular Messier Program
- Carbon Star Program
- Constellation Hunter Program
- Comet Observers Program
- Dark Nebula Program
- Dark Sky Advocate Award
- Deep Sky Binocular Program
- Double Star Program
- Galileo Program
- Lunar Program
- Messier Program
- Meteor Program
- Sky Puppy Program
- Southern Skies Binocular Program
- Universe Sampler Program
- Variable Star Program

Intermediate

- Asteroid Observing Program
- Caldwell Program
- Earth Orbiting Satellite Observing Program
- Globular Cluster Program
- Herschel 400 Program
- Lunar II Program
- Outreach Award
- Planetary Observers Program
- Southern Sky Telescopic Program
- Sunspotters Program
- Urban Observing Program

Advanced

- Arp Peculiar Galaxy Program
- Flat Galaxies Program
- Galaxy Groups & Clusters Program
- Herschel II Program
- Local Galaxy Groups & Neighborhood Program
- Master Observer Award
- Open Cluster Program
- Planetary Nebula Program

Night Sky Network Planning Tools

A Night Sky Network login account isn't required to access these tools. Go to http://nightsky.jpl.nasa.gov/ and click on Night Sky Planner.

International Dark Sky Association

Southern Arizona section

Want better observing?

Join the group that's keeping the sky dark

Monthly meetings

2nd Wednesday, 5:30 – 7 pm.

3225 N. First Ave

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

Contact: Joe Frannea: 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.

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