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Desert Skies

Tucson Amateur Astronomy Association

Volume LVII, Number 5 May , 2011

Inside this issue

Trip to the LBT

- **Club Election of Officers**
- **Sharing the Sky Star Party**
- **Spring Kitt Peak Star-B-Cue**
- **Trip to the LBT**
- **Constellation of the Month – Coma Berenices**

NOTICE: The May 6th meeting will be held at the Lunar & Planetary Lab, aka Kuiper Building, aka Planetary Sciences. This is the building just east of Flandrau Planetarium on University Blvd.

Cover Photo: LBT Enclosure Photo by Charles Thompson.

TAAA Web Page: http://www.tucsonastronomy.org **TAAA Phone Number: (520) 792-6414**

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Grand Canyon Star Party Coordinator	Jim O'Connor	546-2961	gcsp[at]tucsonastronomy.org
General Information	Luke Scott	749-4867	taaa-info[at]tucsonastronomy.org

Membership in the TAAA

Annual Fees

Individual membership $25.00
Family (includes two adults plus minor children) $30.00

Youth under 18 years must join as a family upon parental or guardian acknowledgement of participation in TAAA events. Ask the Treasurer for the required form.

Discounts (one discount allowed, subtract from above rates)

Seniors (over 60 years) $2.00
College Students, Teachers (K – 12) $8.00

Youth under 18 yrs. (form required, contact the treasurer) $13.00

Options (add to above membership rates)

Tucson society of the Astronomical League (TAL) fees ..... $ 7.50
Sky & Telescope Magazine 1 year (12 issues) $32.95
Astronomy Magazine 1 year (12 issues) $34.00
2 years (24 issues) $60.00
Postage for New Member Pack ..... $ 4.80

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

Renewal Information

- You'll get an email reminder when it's time to renew.
- TAAA members may join the Tucson society of the Astronomical League (TAL) at the time they join or renew.
- Discounted Sky & Telescope or Astronomy magazine subscriptions are available to members and can be started or renewed at anytime. Rates are given above. Allow 3 months for processing. Subscriptions must be sent through the TAAA. *Do not send money directly to the magazines.* To change an individual subscription to the group rate, pay the subscription amount to the TAAA treasurer. Include your magazine renewal notice.
- Please include a note explaining what you are paying for. Credit cards are not accepted. Write one check or money order for fees plus any options or donations. Make it payable to TAAA and send to:

Tucson Amateur Astronomy Association
PO BOX 41254 Tucson, AZ 85717

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

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

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

Cathy Anderson
TAAA/Desert Skies Editor

Join our Email Lists on Yahoo Groups
TAAA Forum: http://tinyurl.com/hwoau (general astronomy discussion, posting allowed, 75/month)
TAAA Dark Site: http://tinyurl.com/3d8ts9 (discussion of dark site issues, posting allowed)

Desert Skies is published monthly by the
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Meeting Information and Calendar of Events

TAAA MEETING DATE: Friday, May 6th **meeting will be held at the Lunar & Planetary Lab**, aka Kuiper Building, aka Planetary Sciences. This is the building just east of Flandrau Planetarium on University Blvd. Enter the front doors; go up one flight of stairs or take the elevator to the third floor, and into the Atrium/Lobby. The lecture hall is room 308 with entrances just off the Atrium.

Astronomy Essentials Lecture: 6:30 pm
Title: ***Seasonal Objects***
Speaker: Dr. Mary Turner, TAAA

Dr. Mary Turner was unable to present the seasonal objects report last month so she'll do it this month. She'll talk about objects easily found with small telescopes, including fascinating stories from mythology and scientific facts – all useful information for you to share with others at an upcoming public event like the Sharing the Sky Star Party which is the very next evening .

GENERAL MEETING: 7:30 pm
Invited Lecture
Title: ***All in a Day's Work***
Speaker: Several presenters

Amateur astronomers in Tucson are like amateurs all over the country, with one exception. They live in the Astronomy Capitol. Several amateurs in the TAAA work in the field of astronomy as either research assistants or technical support. We also have a few professional astronomers in the TAAA who are amateurs at heart, maintaining their grip on the amateur side of astronomy partially through membership in the TAAA. This month, we are giving some of those who work in the field of astronomy an opportunity to tell about what they do at work.

Collectively, our speakers have well over 75 years of experience working in the field of astronomy or a closely related area. On the slate of presenters we have: Alan Strauss (UA SkyCenter), Dolores Hill (UA Lunar & Planetary Lab (LPL) meteorite expert), Rik Hill (Catalina Sky Survey/LPL), Erich Karkoschka (UA LPL Neptune and Titan studies), and Ron Probst (National Optical Astronomy Observatory astronomer). Each presenter will talk for about 20 minutes.

Alan Strauss is a relatively new kid on the block. He's been working for the UA SkyCenter for the past year and a half. The UA SkyCenter offers the public a hands-on approach to astronomy and other sciences in a unique setting atop Mt Lemmon. Alan has a PhD in Education. As Program Leader for the SkyCenter, he'll be able to tell us about the various programs that are available to the public. In addition, he'll share information on other initiatives such as remote observing and teacher education. He'll also share some of the new images that have been taken through the 32-inch RCOS Schulman telescope.

Dolores Hill came to Tucson with her husband, Rik, about 32 years ago. They also joined the TAAA at about that time. Dolores attended the Uof A as a student and has worked at the Lunar & Planetary Lab (LPL) for 30 years in the field of meteoritics. Her current position is a Senior Research Specialist. She'll talk about types of meteorites, some of the methods used to study them at the UA, and LPL's contribution to the science of meteoritics. Emphasis will be placed on the distinction between identification, classification, and in-depth research.

Rik Hill is a Senior Research Specialist who has worked at LPL for 18 years. He also attended the UofA after serving in the Navy. For the past 12 years, he's worked for the Catalina Sky Survey (CSS), operated out of LPL. The CSS is currently responsible for approximately three quarters of Near Earth Object discoveries each year. Rik will give an overview of the 3 facilities comprising CSS: the Catalina Sky Survey at Mt. Bigelow, Mount Lemon Survey on Mt. Lemmon, and the Siding Spring Survey in Australia. Plans are in the works for a robotic follow up telescope that will see first light this summer and a proposed project to put three 1.8m binocular telescopes on Mt. Hopkins.

Erich Karkoschka was a graduate student at LPL beginning in 1983 (the same year he joined the TAAA). He received his PhD in Planetary Sciences in 1990. His position as a Senior Research Scientist at LPL is funded by NASA grants. He will talk to us about the rotational periods of the planets. He'll examine the techniques for determining rotational period and will discuss how our knowledge has improved over the 350 year history of measuring rotational periods of planets. For Neptune, he'll present a more detailed discussion about his recent work, in particular how features seen in Voyager and Hubble Space Telescope images may be more suitable to determine Neptune's rotational period than observations by Voyager 2 at radio wavelengths. A few very short movie clips about Neptune's rotation will also be shown.

Ron Probst is an astronomer at the National Optical Astronomy Observatory. If all goes well, he'll be able to give his presentation despite being scheduled for observing with the Cerro-Tololo Inter-American Observatory 4-meter telescope in Chile. We are not planning a video feed; Ron will actually be observing from the Tucson offices of NOAO. The days of the professional astronomer huddled at the eyepiece are long gone!

Calendar of Events

STAR PARTIES AND PUBLIC EVENTS:
30 Apr –TIMPA Star Party
30 Apr – CAC Star Party
30 Apr – May 1 Cochise Days festival in Sunsites on Saturday and Sunday
2 May- Astro-Imaging SIG Meeting
2 May - Immaculate Heart High School Star Party
6 May - TAAA General Meeting
6 May - Pima Air and Space Museum Star Party
7 May - Sharing the Sky Star Party – Astronomy Day
9 May - Immaculate Heart Academy Star Party
10 May - Agua Caliente Elementary School Star Party
11 May - TAAA Board Meeting
12 May - AFSIG Meeting
13 May - Pusch Ridge Christian Academy Star Party
16 Apr— AFsig Solar Observing Group
18 May - Newsletter Article Deadline
19 May – SESIG presents Backyard Lessons from Space Agriculture
21 May – Solar Observing Club
28 May – TAAA Spring Star-B-Cue at Kitt Peak
28 May— AFsig Star Party at TIMPA

BOARD OF DIRECTORS MEETING: Wednesday, May 11th, 6:30 pm. The meeting is held at Steward Observatory Conference Room N305.

NEWSLETTER SCHEDULE: Deadline for articles: Wednesday, April 20th. The newsletter is published at least one week prior to the following month's General Meeting.

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.

Member News

We welcome these members who have recently joined the TAAA Glad to have all of you join! Hope you'll make it to our star parties and/or meetings so we can all get to know you. (Updated membership lists are available at our website after logging in as a member.)

President's Message

As the days get longer and hotter, I'm reminded that one of the closest celestial objects available to observers is our own Sun. I'm fascinated to think about the Sun's effects on life here on Earth - we need it to live, yet too much exposure to it can be deadly. Amateur astronomers have numerous tools available for solar observing - are you taking advantage of any of them?

Of course you never want to look directly at the Sun, but solar observing is fairly easy. A very basic way to observe the Sun is to use a simple pinhole in a piece of paper to project an image of Sol onto another piece of paper. You can purchase special film to create a safe mask for your existing telescope, or you can buy a filter. "White light" filters allow you to observe sunspots, which have been slowly increasing recently, or you can invest in a more expensive Hydrogen Alpha filter that will reveal stunning prominences and Solar flares. There are special telescopes with built-in filtering systems (one of the largest manufacturers of Solar telescopes, Lunt Solar Systems, is right here in Tucson).

Most of us think of the night sky when we think about amateur astronomy, but there is a lifetime of learning available during the daytime when it comes to our own Sun. The TAAA Astronomy Fundamentals Special Interest Group (AFSIG) hosts regular solar observing sessions at Ft. Lowell Park in Tucson. If you have never observed the Sun, these gatherings are an excellent way to check out some gear and to learn how to safely observe the Sun. Don't forget your sunscreen!

As usual, there are many other activities happening in TAAA. Browse through the newsletter and look for something that interests you - and don't forget to share our hobby with your friends!

Keith Schlottman

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
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 So AZ

Monthly meetings
2nd Wednesday, 5:30 - 7 pm.
3225 N. First Ave

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

Club News

Club Election of Officers at May Meeting

Every year the TAAA conducts elections to establish officers for the coming year. The following candidates are running for office this year:

President: Keith Schlottman
Vice President: Bill Lofquist
Secretary: OPEN
Treasurer: John Croft
Member-at-Large: Claude Plymate
Member-at-Large: Michael Turner
Member-at-Large: John Kalas

At this time, no candidate has been identified for the position of Secretary. The paper ballot at the May 6th monthly meeting will have this position blank, but available for a write-in candidate. If anyone would like to serve the club in this position or any of the other positions, please contact one of the Nominating Committee members below.

John Kalas – jckalas[at]cox.net
Mary Turner – umurf[at]earthlink.net
George DeGon – georgedegon[at]yahoo.com

A candidate can be added to the ballot at the elections as long as he or she is present to accept the floor nomination or has confirmed their acceptance of the nomination in writing via e-mail or letter prior to the election. Please consider supporting the club in this important position.

Astro-Imaging SIG Meeting

Monday, May 2nd, 7pm
China Rose Restaurant, NE corner Speedway/Rosemont

Our presentations feature CCD images, planetary webcams, and film. Come see some of the state-of-the- art imaging over some Chinese food, or just show up and enjoy the show! For more information, contact Steve Peterson.

Upcoming Lectures

Here is the upcoming lecture schedule. The summer schedule of speakers will soon be determined. If you have a suggestion, contact Terri Lappin at terrilappin[at] tucsonastronomy.org.

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May 6	*Astronomy Essentials*	Mary Turner Seasonal Objects
	Members Night *Starts at 6:30pm*	Theme: TAAA members who work in the field of Astronomy
Jun 3	*Astronomy Essentials*	Bob Gilroy Topic TBD
	Invited Lecture	OPEN

Astronomy Fundamentals Special Interest Group - AFsig

By Ben Bailey
Thursday, May 12, 6:30 pm
U.S.G.S. Building – room 253 - Northeast corner of Park Avenue and Sixth Street (Free parking after 5:00 pm behind the building In the parking lot.)

We will hold our regular monthly AFSIG meeting for May. Remember, we are successful only if you participate. I am looking forward to seeing you there. The Astronomy Fundamentals special interest group meets on the 2nd Thursday of every month with some stimulating discussions from both the TAAA members and members of the scientific community. In addition, when we launch a new observing program, we have a presentation about that program discussing the history, folklore and the necessary requirements to complete the program.

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Club News

Space Exploration Special Interest Group (SESIG)

By Al Anzaldua

The scheduled **May 19** presentation by Jason Cook has encountered a scheduling problem, so will be replaced by Al Anzaldua's new slide presentation about Mars's future place in a solar system economy titled, ***Our Terrafying Friends: Phobos and Deimos.***

After Al Anzaldua's presentation in May, SESIG will suspend its presentation program until **September 22**, at which time Raytheon space engineer, Phil Eklund, will give a slide presentation titled, ***The High Frontier: Exploiting Inner Solar System Resources.*** Both presentations will take place promptly at 6:30 pm in the large conference room at the Woods Memorial Branch Library, 3555 N. 1st Ave., just south of Prince Road.

Sign-up sheets for these talks will also be provided at the general membership meetings. You can also RSVP by contacting Al Anzaldua at 520-409-5797 (cell) or alanzaldua[at]tucsonastronomy.org.

AFsig's Observing Programs

AFsig Observing Clubs

By Bob Gilroy

All of our observing programs are open to all members of TAAA at no charge. They are guided programs which mean that at the scheduled observing sessions, there is someone there to guide you in finding the objects/features needed for successful completion of the program. You can join the program 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 you 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 re-cording 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[at]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 in 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 bright 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 Anderson at m44m46[at]live.com.

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 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.

Club News (cont.)

Upcoming SIG Activities:
Sharing the Sky/Astronomy Day – May 7, 2011

As an organization, what does the TAAA offer the next generation of amateur astronomers? Is attending a meeting and lecture something they want? Perhaps not. Information on the internet makes the lecture experience blasé to some. The same can be said about observing when you consider that the kids today have always had the Hubble Space Telescope images available. Finding ways to satisfy the curiosity of today's young people is a daunting challenge, but one that needs to be faced by the TAAA. The Starry Messengers SIG needs to consider that our mission includes encouraging young people to take a greater interest in astronomy. If you are interested in this subject, email me at terrilappin[at]tucsonastronomy.org. Send me your ideas or thoughts. I might schedule a meeting if there's enough interest among the members, so be sure I know you are interested.

Any TAAA member involved in astronomy outreach is considered a member of the Starry Messenger Special Interest Group. Even if you have never attended a SMSIG workshop or meeting, you are supporting the goals of the Starry Messenger SIG. We value your contribution. 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.

Another Successful TAAA Red LED Lamp Workshop…
Michael Turner and Ken Shaver

Five for Five! That is the number of TAAA red LED lamps that worked the first time after completion of the lamp workshop on Aril 16, 2011. Michael Turner and Ken shaver guided the students through the first lamp build using the new Prototron printed circuit board.

The day started off with Michael explaining how the lamp build would progress. He introduced the students to the lamp schematic and how to identify the various electronic components and wires.

Next, we disassembled the lamp, removed the lamp wiring and added the potentiometer that controls the brightness of the LEDs. Finally, we added the DC power jack and ran 4 wires from the base to the head of the lamp. Next, it was lunch time.

The next order of business was to populate the circuit board. This phase is where the difference between the original circuit building method of using the component leads as the "circuit board traces" and having a professionally designed and created printed circuit board really became evident. In the past, the component leads were very forgiving of excessive solder and heat, while the new circuit board was very demanding that not too much heat or solder was used.

The final assembly of the lamp consisted of modifying the lamp head "pan" to accommodate the new printed circuit board, soldering the new wiring coming from the lamp base to the circuit board and a second QA check to insure the combined lamp and circuit board worked properly together. I am happy to report there were NO failures.

The lamps were then completed by securing the base plate and the glass filter plate.

Club News (cont.)

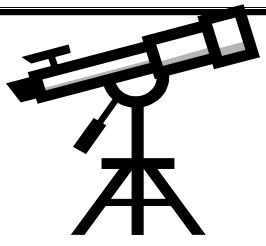
Night Sky Network Toolkits

NASA, through sponsorship of the Night Sky Network, recognizes the essential role amateur astronomers play in public astronomical education. Under contract with NASA, the Night Sky Network team at the Astronomical Society of the Pacific has developed a series of toolkits for amateur astronomers to use in informal settings such as star parties and other outreach events. Below is a list of the Outreach Toolkits received by the TAAA. 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 back-ups for cloudy nights. 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 these hands-on projects. You may need to provide fresh batteries, scissors, or a bag of flour, depending on what project you select. A Resources CD and a Training DVD is included. Individual training in their use is available upon request. Please make arrangements with Terri Lappin (smsig [at]tucsonastronomy.org) to borrow these toolkits. Normally, you can keep a toolkit for a month at a time.

Night Sky Network Toolkits:
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 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*

Telescopes for Borrowing



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✦
Only for Members

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

These telescopes are in the program

Sears 60mmf/15 on equatorial mount
Unitron 62mmf/14.5 on equatorial mount
Meade 90mm ETX
Coulter Odyssey8 8-inch f/4.5 Dobson
Meade10-inch f/4.5 on equatorial mount
Meade 10" LX200 GPS (requires training session)

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

Club New (cont.)

SHARING THE SKY – FLANDRAU SCIENCE CENTER
National Astronomy Day Star Party and Fundraiser
Saturday, May 7

Mark your calendars for Saturday, May 7, from 3:00 to 10:00 PM. This year Sharing the Sky and Flandrau Science Center will be celebrating National Astronomy Day on the University of Arizona Mall across from Flandrau Science Center.

As in years past, we will have telescopes set up for solar viewing in the afternoon and for night sky viewing in the evening. There will also be some special hands-on activities utilizing the Night Sky Network Toolkits for children and adults. We will need members to help with these activities so, if you don't have a telescope and would like to help, we would appreciate your assistance with these activities and collecting donations. We would like to request that members supporting the event who have canopies, bring them and set them up to enhance the early-afternoon sun protection of the donation tables and hands-on activities.

David and Wendee Levy would like to thank all of you for supporting this worthwhile event. Support from the TAAA is essential for the success of this activity. There will be sign-up sheets at the May club meeting or you can call or e-mail John Kalas at 620-6502 or jckalas[at]cox.net to volunteer.

Spring Kitt Peak Star-B-Cue
Saturday, May 28

The TAAA has scheduled a star party and pot-luck barbecue at the picnic grounds up on Kitt Peak on Saturday, 5/28, starting at 4:00 pm. A maximum of 70 TAAA Members and families will be allowed to participate. A gas-fired barbecue grill at the ramada will be fired up starting at 4:30 pm and members are invited to cook their dinners between 4:30 and 6:30 pm. Bring a dish to share with other members. The grill will be turned off at 6:30 pm. Telescope observing will commence after sundown. Kitt Peak allows the club to observe as late as we want. Be prepared for cool temperatures and mosquitoes.

There will be a sign-up sheet on the table at the back of the lecture hall at the start of the May 6th meeting. Because of the popularity of this event, attendance will be initially limited to TAAA Members and their immediate family members only. If, after all TAAA Members have had an opportunity to sign up, there are any openings or cancellations, the attendance of guests will be considered. If you are unable to attend the May meeting, phone and e-mail reservation requests will be taken on a first-come, first-serve basis after 9:00 am Saturday, 5/7. Contact John Kalas at 620-6502 or via e-mail at <jckalas[at]cox.net>.

It is very important for all attendees to abide by the rules established by Kitt Peak and respect the facility. Adherence to the rules will help to continue TAAA activities on Kitt Peak in the future.

1. No vehicles are allowed above the picnic grounds after 4:00 pm.
2. Only the Ramada gas-fired barbecue grill is permitted for cooking food at the picnic grounds. No open fires or use of the personal barbecue grills is permitted.
3. All trash must be placed in the garbage receptacles.
4. Use of cellular phones and radio walkie-talkies is prohibited. All cell phones must be turned off.
5. No alcoholic beverages are permitted.

When leaving the picnic grounds after dark, if possible, use your parking lights until you have reached the main road and are headed downhill after exiting the picnic area.

Dark Skies for May 2011

DARK SKIES (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm, 20=8pm, 22=10pm, 0=12am
MAY

By Erich Karkoschka

Sa/Su	30/01	20:34	-	4:09	Tu/We	10/11	1:18	-	3:57	Sa/Su			
	21/22	20:55	-	23:24									
					We/Th	11/12	1:54	-	3:56				
Su/Mo	01/02	20:35	-	4:07	Th/Fr	12/13	2:29	-	3:55	Su/Mo	22/23	20:56	- 23:59
Mo/Tu	02/03	20:36	-	4:06	Fr/Sa	13/14	3:06	-	3:54	Mo/Tu	23/24	20:57	- 0:31
Tu/We	03/04	20:37	-	4:05	Sa/Su	14/15	3:47	-	3:53	Tu/We	24/25	20:58	- 1:00
We/Th	04/05	20:47	-	4:04						We/Th	25/26	20:58	- 1:28
Th/Fr	05/06	21:42	-	4:03	Su/Mo	15/16	-	-	-	Th/Fr	26/27	20:59	- 1:57
Fr/Sa	06/07	22:33	-	4:01	Mo/Tu	16/17	FULL MOON			Fr/Sa	27/28	21:00	- 2:27
Sa/Su	07/08	23:20	-	4:00	Tu/We	17/18	-	-	-	Sa/Su	28/29	21:01	- 2:59
					We/Th	18/19	20:52	-	21:01				
Su/Mo	08/09	0:02	-	3:59	Th/Fr	19/20	20:53	-	21:56	Su/Mo	29/30	21:02	- 3:35
Mo/Tu	09/10	0:42	-	3:58	Fr/Sa	20/21	20:54	-	22:43	Mo/Tu	30/31	21:03	- 3:41

Club Star Parties

TAAA Star Party at CAC

By John Kalas
Saturday, April 30

Due to a scheduling conflict on Saturday, May 7th with the Sharing The Sky public star party, the date for the ***May CAC Star Party has been changed to April 30th***, one week earlier. The club will have a booth set up at the ***Cochise Days festival in Sunsites on Saturday and Sunday, 4/30 & 5/1.*** If you would like to attend the May CAC Star Party, you could plan to arrive in Sunsites a little early and either support the club at our booth or just enjoy the annual celebration. We participated in the Cochise Days festival last year and we had a great time.

The Chiricahua Astronomy Complex (CAC) is the club's newest 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 cold temperatures. Try to arrive before sunset. Unlike the other two club observing sites, TIMPA and Las Cienegas, the CAC site requires that members 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, contact CAC Director John Kalas via e-mail at jckalas[at]cox.net or by phone at 620-6502. Reservations will be on a first come – first serve basis. Depending on the number of members interested in attending, guests may not be allowed.

Directions to CAC:
The Chiricahua Astronomy Complex is about 90 miles and a 1½ hour drive from the TTT Truck stop at Craycroft Road and Interstate 10.
Take I-10 East from Tucson past Benson.
Exit I-10 at Dragoon Road (Exit #318) – Turn right onto Dragoon Road at bottom of exit ramp.
Travel 13.5 miles southeast to intersection with Route 191 and turn right (south).
Travel 17.9 miles south (past Sunsites and Margie's Corner Café at High St. on the right and Border Patrol checkpoint) to intersection with Route 181 at Sunizona and turn left (east).
Travel 10.9 miles east to intersection with S. Price Ranch Road and turn right (south). S. Price Ranch Rd. is a dirt road just before you reach mile post 49 (cluster of mailboxes on right on Rte. 181).
Travel ½ mile south on S. Price Ranch Rd. to intersection with E. Perseus Way (wide dirt road with E. Perseus Way street sign on left) and turn left (east).
Travel east on E. Perseus Way slightly more than ¼ mile to entrance of Chiricahua Astronomy Complex, address 9315 on right (twin brown gates flanked by white rail fences set back 50 feet from road). Look for TAAA sign on left side of entry road.

TAAA and AFSIG Star Party at TIMPA

By Ben Bailey and Bob Gilroy
Saturday, April 30

If the weather cooperates, it should be a good observing night for everyone. The various AFSIG Observing Clubs will be active. The Gila Monster observatory will be open for your observing pleasure, along with the 5 new scopes donated to AFSIG by Wally Rogers.

The Astronomy Fundamentals sig will have 2 Dobsonian telescopes available for hands-on training for those who need and/or want it. Members of the AFsig Committee will be available to answer any astronomy question you may have. If we don't have the answer for you immediately, we can research it for you. These telescopes, along with 3 Celestron "go-to" telescopes are available for members to use while at TIMPA.

This is a great way to check out different telescope designs before you make that all-important decision to buy. We'll do our best to get you the answers you need. If you have friends or relatives who are curious about amateur astronomy, feel free to bring them along. The TIMPA site features a large parking area, and full restroom facilities. Be prepared for cool temperatures.

Las Cienegas (Empire Ranch)

Note: The club is no longer scheduling monthly star parties at this site. The site may still be used by members, but it is recommended that members make their interest known via the taaaforum e-mail listserver to organize the activity. This will preclude someone going to Las Cienegas, only to find out that no one else went down. Las Cienegas (formerly Empire Ranch) had been the club's dark-sky observing site for many years. Please try to arrive before sunset. Stay as long as you like, but let everyone know when you are ready to leave; someone may be taking astro-images. There are restroom facilities at the site. Las Cienegas is at 4000 feet in elevation so be prepared for cold temperatures. The directions to Las Cienegas are located on the last page of this newsletter.

Astronomy Events

Grand Canyon Star Party - *Time For Reservations!*

18-25 June, 2011
Jim O'Connor

It's about time to lock down plans to attend the 2011 edition of the Grand Canyon Star Party. GCSP 2011 is the 21st annual collaboration between the National Park Service and astronomers from around North America to bring astronomy outreach to Park visitors. The current version of the event, begun by Dean Ketelsen and now beginning its 21st consecutive year, is held concurrently on both the North Rim, coordinated by the Saguaro Astronomy Club, and the South Rim, coordinated by Tucson Amateur Astronomy Association.

General information regarding GCSP is found at:
http://www.tucsonastronomy.org/gcsp.html
If you intend to participate this year, email your intentions to me at:
gcsp[at]tucsonastronomy.org.

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

ALCON 2011 - Bryce Canyon

June 29 – July 2
Robert Taylor
ALCON 2011 Publicity Committee Chair robtaylorslc[at]gmail.com

As you may know ALCON 2011 will be happening this year from Wednesday June 29th through the Night of Saturday July 2nd 2011 at Bryce Canyon National Park. This year ALCON will be co-hosted by the Astronomical League, the Salt Lake Astronomical Society and Bryce Canyon National Park. We are very excited about this particular ALCON because of the location and focus on observing at one of the darkest skies in the lower 48. We have an outstanding line-up of speakers, events, sponsors and vendors including John Dobson, Carolyn Shoemaker and others, hands on demonstrations, a live feed remote telescope for imaging and southern hemisphere site viewing, a Star-B-Q dinner and much more. Please see the ALCON page for the latest line-up of speakers.

We hope to see you at this year's ALCON. If you have additional questions please don't hesitate to contact us. Please see the AL ALCON page for additional information regarding the event as well as travel information about getting to Bryce. http://alcon.astroleague.org/accommodations, http://www.nps.gov/brca/index.htm and http://slas.us/

Archaeoastronomy Conference

June 16-18
Albuquerque, NM
Conference on Archaeoastronomy of the American Southwest | P.O. Box 20578 | Sedona, AZ 86341
Albuquerque, NM

Final arrangements for the 2011 Conference on Archaeoastronomy of the American Southwest on June 16-18 in Albuquerque have been made. The conference announcement, with the latest details, can be downloaded from the website at www.caasw.org. The due date for abstracts has been moved to May 14th. The standard paper length is 20 minutes, but other durations may be available if requested. Abstracts should be limited to 300 words or less.

The Registration fee is $75 for the three days. The address for mailing in your registration fee is on the announcement. The list of nearby hotels is being finalized and will be on the website shortly. Consult the website as additional details and information is made available.

Member's Events

Introduction to Fundamentals of Astronomy

By Bob Gilroy


Ben Bailey


Robert Gilroy


Cathy Anderson


Paul Anderson


John Croft


Dennis Dawson


Steve Martin


Dennis McMacken


J. D. Matzger


Connie Walker

On March 12, March 19 and March 26 Astronomy Fundamentals special interest group held another Basic Astronomy Education Class entitled "Introduction to Fundamentals of Astronomy".

Each day of the class was devoted to a different aspect of Amateur Astronomy.
Day 1, "Basic Astronomy", included presentations on Constellations, the Celestial Sphere, Stars and Deep Sky Objects. The presentations were powerful and challenging to some.
Day 2, "Equipment Basics" took us into telescopes, eyepieces, filters, mounts, and accessories. We even had a preview of Astronomy Fundamentals Observing Clubs. Very helpful information on equipment.
Day 3, We put it all together with instruction on "Observing Basics". This was all about observing tips and techniques, and getting started.

Participants attended each day, which began at 9:00 AM and concluded at about 4:00 PM. The class was held in room 253 at the USGS Building on the UA campus. On the last day, March 26, the class enjoyed a celebratory pot-luck dinner and a star party at the home of Dennis McMacken. Feedback from the attendees has been very positive. Here are a few comments taken from the class survey:

> "Thank you for your attention and commitment to helping us newcomers to advance." – J.A.
> "Nice to have examples of equipment, books, etc." – M.M.
> "The manual with copies of the slides is quite helpful for taking notes." – L.C.
> "Thanks for the coffee and nibbles." – J.C.
> "I can't thank you all enough" – R.M.

These were just some of the comments submitted. All the comments are appreciated and will be utilized to tweak the program to present meaningful and timely presentations. I want to thank the students for their time and effort and participation on our program. Also, I want to thank our presenters - Great job!
…And special thanks to Dennis McMacken who not only helped in planning and executing the program but also procured the classroom for us and acted as moderator for the entire three days. In addition, he made a fine presentation on the Celestial Sphere. Plans are to offer the class again sometime within the next six months. Details will be published in a later newsletter.


Observing The Planets


Solar Viewing

CHIRICAHUA ASTRONOMY COMPLEX

Construction Update

John Kalas – Construction Coordinator/CAC Site Director

The Messier Marathon held at the CAC Site on April 2nd didn't work out as well as we had hoped. Early clouds made the marathon impossible to complete. Several attendees, who had observed the night before at CAC and did very well, decided to leave. The weather did clear up late in the evening, but the opportunity to do well with the marathon had passed. Next year, we will try again and hopefully the weather will be more conducive.

NOTE: Due to a conflict with the Sharing The Sky Public Star Party on May 7th, the May CAC Star Party will be moved to Saturday, April 30th.

The Phase 2 construction project is moving forward very rapidly. All ten 12'x12' concrete telescope pads have been poured. The roll-off roof observatory concrete slab has been poured. By the time you read this information, the 8.4 meter diameter amphitheater concrete pad will have been poured. The gravel pads for the two steel storage containers have also been installed. I will be calling for the delivery of the two storage containers, currently being held in Tucson, within the next few weeks. The electrical conduit has also been run to all ten telescope pads, the roll-off roof observatory and the amphitheater. Randy Maddox plans to start the construction of the roll-off roof observatory during the week of 4/25.

Sulphur Springs Valley Electric Coop has installed the underground power line extension from the current bathroom facility over to the RV Area. Peter Ammon, our excavation contractor, has backfilled the electric cable trench and has also finished the clearing of the RV Area. Unfortunately, that is the extent of the work that will be done at the RV Area until further donations are collected to run the electric service to all four RV spaces and to gravel the road surfaces. If you would like to support this portion of the Phase 2 construction project, please contact Bill Lofquist.

Large Binocular Telescope Tour

By Ben Bailey

On Saturday, April 16, several members of TAAA led by John Kalas toured the Large Binocular Telescope (LBT) on Mt. Graham. TAAA Vice President, Bill Lofquist, set up the trip when he happened to run into LBT Manager, Michael Midkiff, in the dentist's office.

We met at the LBT Base Camp near Safford in the morning. Soon we began the drive up Mt. Graham to the LBT site at 10,400 feet elevation. After over an hour of curvy paved, then unpaved roads we arrived at the LBT parking lot.

After eating lunch in the cafeteria/break room, we began the tour in the telescope control room. How amazing that the main controls consist of three monitors, a mouse and a keyboard. Next, we went to see some of the electrical and cooling systems that power the scope and ensure that its instruments and mirrors operate at the optimum temperature.

The entire telescope housing rotates and we found ourselves traversing circular hallways to reach staircases and elevators while making our way to the main scope. What an impressive sight! We were allowed to walk along the catwalks that surround the scope, while Michael regaled us with all the technological wonders therein. The dual 8.4 meter mirrors looked capable of resolving any detail in the universe. Well, to my amateur eyes, anyway.

Moving to the base of the telescope, it became very obvious just what a behemoth the LBT is. Michael tilted the scope in altitude mode and the 640 ton monster made almost no sound as it traversed its hydrostatic bearings. We wrapped up the tour by taking in the large, steel-wheeled, truck assemblies that the outer housing rides on. After that came the long ride down Mt. Graham.

Many thanks to the LBT staff, especially Michael Midkiff for a very enjoyable day!

SCHOOL AND PUBLIC STAR PARTIES

All members are asked to support the TAAA School and Public Star Party programs and other community events listed below. TAAA either sponsors or co-sponsors these events. These are great opportunities for beginners, as you only need to know a few objects in the sky. Even without a telescope, you can be valuable in other capacities. Sign up sheets for many events can be found at the meeting or contact a TAAA officer.

Immaculate Heart High School

Tuesday, May 2 – North
625 East Magee Road
2 scopes already engaged
This event is for 30-40 ninth graders.
Directions: North on Oracle Road, past Ina Road, take a right on Magee at the traffic light. The High School is about ½ mile on the left.
Viewing will be from 7:30 to 9:30.

Pima Air and Space Museum

Friday, May 6 – Southeast
6000 East Valencia Road
2 solar scopes already engaged for morning event, 10:00 to 12:00 AM
This is a Space Day event for which schools will be at the Air and Space Museum. Two solar scopes are requested to go along with other attractions. Middle schoolers will be in attendance.
Directions to the Air and Space Museum. Take Exit #267 from I-10 and go about ½ mile past the B-52 tails. Turn into the first parking area on the right and enter the grounds through the gate on the south end of the parking lot.
Viewing area will be outside the Space Gallery.

Immaculate Heart Academy

Monday, May 9 – North
410 East Magee Road
2 more scopes needed
This event is rescheduled from the one rainy night we had in April.
Directions: North on Oracle Road past Ina Road. Turn right (east) on Magee, the second signal past Ina and Oracle. The driveway to the school is roughly ¼ mile from Oracle Road on the right (south) side of the street.
Start time is 7:30, ending at 9:30, with setup at 6:45. Roger Schuelke is the leader for this one.

Agua Caliente Elementary School

Tuesday, May 10 – East
11420 East Limberlost Road
2 more scopes needed
This is a large event that needs six scopes. Four have already signed up.
Directions: Go north on Houghton Road past Tanque Verde to Prince. Turn right (east) on Prince. Turn left on Melpomene Way. Turn right on Limberlost Road. The school is on the right. Pass the school and turn right on Homestead to get to the viewing area.
Start time is 7:00, and it ends at 9:00, with setup 30 minutes before.

Pusch Ridge Christian Academy

Friday, May 13 – North
9500 North Oracle Road
3 scopes needed
This event is for 6th graders.
Directions: Drive north on Oracle Road to the intersection of Calle Concordia. The school entrance is on the right. Viewing will be on the football field.
The event starts at 8:00 and ends at 10 PM. This is four days before full moon, so bring your polarizers and binoculars.

Desert Skies Classified

FOR SALE 	Homemade 10" F/5.8 Newtonian Telescope - Built for both observing and photography on exceptionally rugged double fork arm base with rollers. Guide scope is 4" a f/11 with + or - 2.5 deg. RA and DEC positioning. See Sky &Telescope (May 1978) magazine for photos of scope and illustrations of a guiding system that reduced periodic tracking error by more than 93%. illuminated cross hair reticles provide. A novel support for the secondary mirror virtually eliminated star spikes on long exposures. Two Bar low lenses and ten eyepieces from 6.0 to 35 mm provide magnifications from 42 to 636 power (theoretically). Eleven colored filters for planetary viewing. Also Olympus OM-1 camera with 2" focusing sleeve. Also included are For measuring double stars separation. Please acknowledge receiving this notice. Thank you Lou Faix ljf747pl[at]wbhsi.net Phone: 825-7421 10/11
	Your ad will run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call or e-mail the newsletter editor.

Planetary Nebulae of the Month – by Christian Weis

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

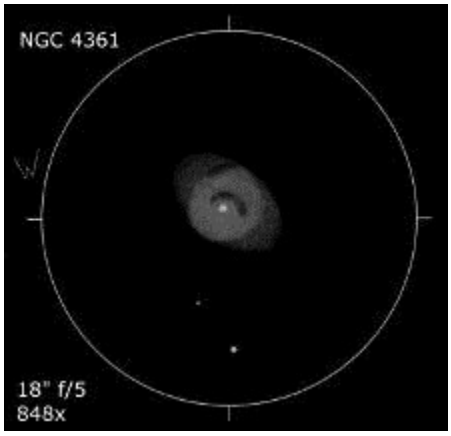
NGC 4361 is a bright PN in the southern constellation Corvus, the raven that was discovered by the great William Herschel in 1785, who lived in the United Kingdom, and who discovered more than 2400 objects. With an apparent magnitude of 10m9 and a size of almost 2 arcminutes, NGC 4361 is quite an easy object. One should be able to detect it with a 2" telescope. However, as always, the more aperture you have, the more you can see. I observed this PN on two occasions with an 8" SC telescope and an 18" Newtonian, respectively. The first observation was made on May 15th, 2010, at the Star-B-Que on Kitt Peak. The second one was on February 10th, 2011 from the Austrian Alps.

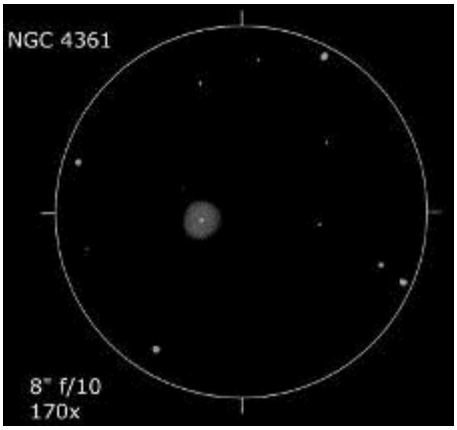
With the 8", the appearance was circular, the central star is visible with direct vision, the nebula seems to be evenly bright and sharply defined, NGC 4361 is located in a nice star quadrangle; fst 6m6 (Vir), 170x, 8" SC

My description with the 18" reads: Very bright, pretty small but nonstellar at 94x, central star very bright, some structure, disk is evenly bright with direct vision, with averted vision some fainter parts show up every now and then, has a fainter shell, greenish; needs time; fst 7m2 (UMa), 452x, 848x, 18" f/5 Newtonian

NGC 4361

RA: 12h 24.5 min
Dec: -18° 47´
Constellation: Corvus
Brightness: 10m9
Central star: 13m0
Size: 93x37 arcsec
Distance: 2600ly

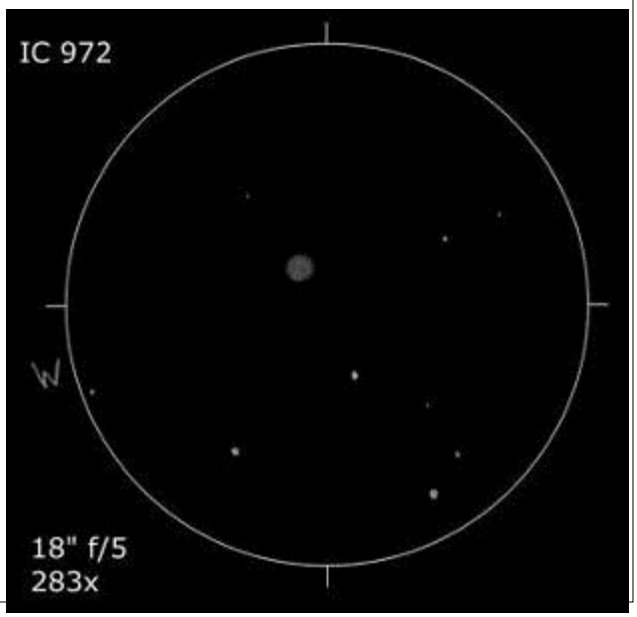




IC 972, which is also known ad Abell 37, is a faint PN in Virgo. There are discrepancies concerning the brightness. Some sources (like my planetarium software) say 14m9, however, in Kent Wallace´s and Doug Snyder´s database, an apparent magnitude of 13m6 is given, which seems more realistic. I suppose, that 14m9 refers to the photographic magnitude. This may sound a little scary, but with a size of some 50 arcseconds, the surface brightness is a little brighter and one should be able to see IC 972 with telescopes as small as 10", when the conditions are favourable and some "tricks" are used (filters, black cloth, averted vision, hyperventilation etc.).

On February 9th, 2011, I was able to observe this nice PN with my 18" Dobsonian. Interestingly, IC 972 appeared immediately with averted vision and could even be seen directly. Sometimes, PNs spring a surprise. It is circular and evenly bright. No central star could be seen (17m3 according to Wallace and Snyder), UHC and [OIII] filters help, but the PN can also be seen without any filter at all. fst was 6m6 in Virgo, the magnification was 283x

IC 972 (Abell 37)
RA: 14 h 4.4 min
Dec: -17° 14´
Constellation: Virgo
Brightness: 13m6
Central star: 17m3
Size: 43x40 arcsec
Distance: 6500ly



TAAA Board of Directors Meeting
12 April 2011

Attending: Board members present (4): Bill Lofquist (presiding), Luke Scott, Teresa Bippert-Plymate, John Croft. Members present (8): Bob Gilroy, Claude Plymate, Terri Lappin, Al Anzaldua, Jim O'Conner, Susan O'Conner, Paul Anderson, Cathy Anderson
Call to Order: The Vice President called the meeting to order at 6:30 pm.
Minutes: Minutes from the March 2011 Board meeting were approved unanimously.

Member Feedback

- The April main lecture by Dr. Shirley received positive comments from many members.

Upcoming Meetings

- TAAA members who work professionally in astronomy will give short presentations at the May meeting.
- The May meeting will be held in the Lunar and Planetary Laboratory auditorium.

Treasurer's Report

- The club has $45856.18 in checking. All routine bills are paid.
- 6 new members joined during the previous month.

Special Interest Group Status Reports

- Astronomy Fundamentals (Bob Gilroy):
    1. The Fundamentals of Astronomy class completed on 26 March and a potluck Star Party was held that night. Feedback from participants has been largely positive. A few participants thought the course content was too intense. The class may be offered in the fall if there is sufficient interest.
    2. The five telescopes donated by Wally Rogers to TAAA for use by the AFSIG have been delivered. The equipment will be housed in the TIMPA storage facility and will have TAAA property tags affixed.
    3. Bad weather has hampered progress in the AFSIG observing clubs.
    4. Creation of a “Sky Puppies” observing club modeled after the ALCON Sky Puppies club is being considered.
    5. Concrete work on the TIMPA observing pad is complete.
- Astro-Imaging: No report.
- Starry Messengers: Terri Lappin is continuing to organize the TAAA hands-on activities for the Sharing the Sky Star Party.

Grand Canyon Star Party (Jim O'Conner)

- Jim and Susan O'Conner will be meeting on 21-22 April with Grand Canyon Park staff to scout the new observing venue.
- Joe Bergeron is preparing logo artwork for the 2011 Grand Canyon Star Party. The Board will be asked next month to authorize purchasing memorabilia for this year's event.
- A motion was entered by the Vice President and seconded by the Treasurer authoring sale of excess 2009 and 2010 Grand Canyon Star Party shirts at $5.00 each. The motion was approved 4-0.

Web Site

- The web site working group has met with 3 professional web developers to discuss content management. An additional meeting is scheduled for 18 April. The purpose of the meetings is to understand what is available and gather cost information, with the intent of making a report to the Board.
- Terri Lappin reported that all club members have been added to the Night Sky Network. Message groups have been created for the SIGs and star party volunteers. A training session for NSN coordinators is tentatively scheduled for 23 April at Steward Observatory.

Newsletter

- Cathy Anderson and Terri Lappin reported that guidelines are needed for newsletter inputs. The April newsletter was 21 pages in length, and, as a result, the printed version of the newsletter was edited to 18 pages. The Board concurred that guidelines are needed. Cathy will work with Terri Lappin to develop guidelines and will bring these to the Board at the May meeting.

Chiricahua Astronomy Complex

- Ten observing pads and the roll-off roof observatory slab have been poured.
- An “Evening Under the Stars” is schedule for Sunsites area residents on 23 April.

Other

- The Secretary will update the club's tri-fold flier.

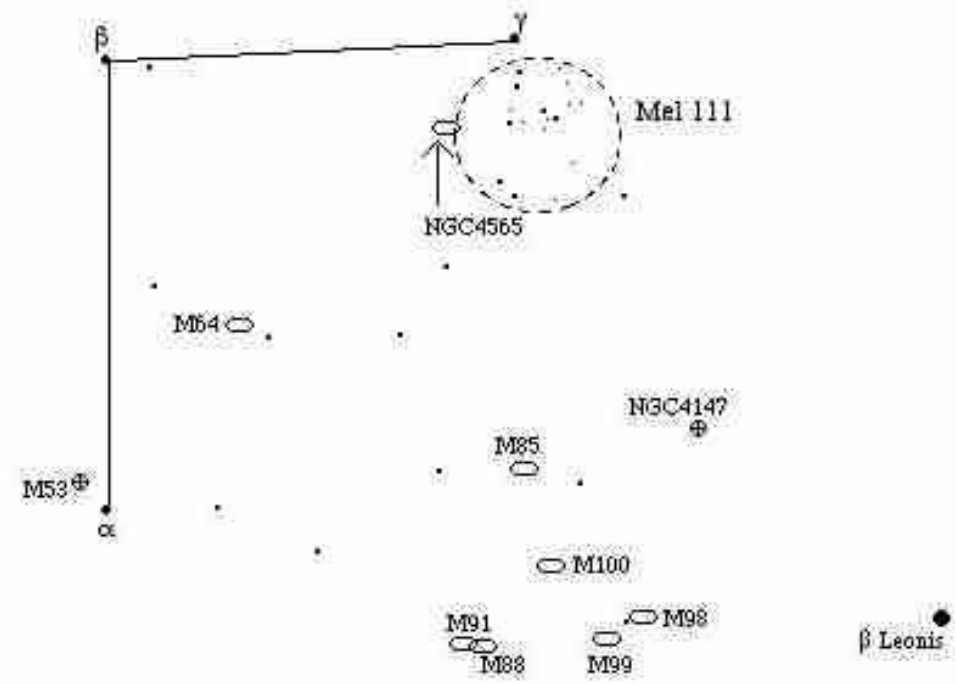
Meeting adjourned at 8:40 pm.

Respectfully submitted,

Luke Scott,
Secretary

CONSTELLATION REPORT BY CHRIS LANCASTER

Coma Berenices
Berenice's Hair



Stargazers are presented with the best collection of galaxies the sky has to offer in the springtime skies. Here we find the Virgo cluster of galaxies, and most, as the name suggests, are located in the constellation Virgo. However, a large number are within the dim constellation of Coma Berenices.

The name of this constellation comes from Berenice II, who was the queen of Ptolemy III, ruler of Egypt circa 240 BC. When Ptolemy III left to fight an especially dangerous battle, Berenice II pledged to sacrifice her long, golden hair, of which she was very proud, if her husband returned victorious. When he did, she placed the hair in a temple honoring the goddess Aphrodite. To their dismay, the hair disappeared from the temple a short time later, so the court astronomer, Conon, comforted the royal couple by saying that the goddess was so enamored by the gift that she placed the queen's hair in the heavens so that everyone could admire it. You can find Berenice's hair by looking between the nearby constellations of Leo bordering to the west and Bootes to the east.

To the naked eye, the most distinguishing feature of the constellation is the large open cluster Melotte (or Mel) 111, which appears as a hazy spot sprinkled with a small handful of brighter, naked eye stars near the northwest section of Coma Berenices. This is one of the nearest star clusters to Earth at 260 light years, and for that reason is spread out across a large chunk of the sky. Binoculars are best for viewing this cluster which measures 5 degrees across. The most prominent shape of the cluster reminds me of a vintage propeller-driven fighter plane with its wings folded up as when stored on an aircraft carrier.

Overall, there are about 3,000 galaxies in the Virgo cluster. While over 200 bright members can be found within the boundaries of Virgo, more than 60 similar objects can be found in Coma Berenices. Scanning the area will bring galaxy after galaxy into view. M64 deserves special mention since its bright 8.0 magnitude glow is easy to find slightly less than one degree to the northeast of 35 Comae Berenices (RA 12h 56.7' Dec +21d 41'). This galaxy is nicknamed the "Black Eye Galaxy" because of a huge dark mass of dust wrapping around the bright nucleus. At a dark, clear site you should see close to half of the inner disk darkened by the dust cloud in contrast to the outer glow of the galaxy's oval.

NGC4565 is a favorite to those familiar with it. It is turned edge-on to our line of sight, and measures 15' in its longest dimension and only 1' in width. It appears much like a knife blade against the darkness of space, and running along its length is an easily noticeable dust lane which bisects the egg-shaped nucleus. Find NGC4565 7' in RA east of 17 Comae Berenices, the closest 5th magnitude star of Mel 111, or RA 12h 36.3m Dec +26d 00'.

We can summarize other Messier galaxies as follows:
M85 Mag. 10.5 Spiral RA 12h 25.4' Dec +18d 11'
M88 Mag. 10.9 Spiral RA 12h 32.0' Dec +14d 25'
M91 Mag. 11.1 Spiral RA 12h 35.5' Dec +14d 30'
M98 Mag. 11.4 Spiral RA 12h 13.8' Dec +14d 54'
M99 Mag. 10.5 Spiral RA 12h 18.8' Dec +14d 25'
M100 Mag. 10.8 Spiral RA 12h 22.9' Dec +15d 49'

Closer to our home galaxy are two bright globular clusters, M53 and NGC4147. M53, magnitude 8 and 16' in diameter, has a broad nucleus saturated with stars 1 degree northeast of Alpha Comae Berenice. NGC4147 is one-third the size of M53 and has few, if any, resolvable stars, but its obvious nucleus is easy to find 6.5d northeast of Beta Leonis.

WEBSITES: TRIPS ON THE INTERNET SUPER-SKYWAY—Rik Hill

Here Comes The Sun!

Solar activity is starting to pick up. We now have very few days of a zero sunspot count. So people are starting to take more of an interest in the sun. This was obvious last week when I gave a presentation on the solar coordinate system to the TAAA Astronomical Fundamentals SIG. Many were unaware of all the helpful websites out there that can make any amateur solar observer well informed and an expert on observing the sun.

With some personal deference I would point out the website for the Association of Lunar & Planetary Observers - Solar Section (ALPOSS) website that Walter Haas asked me to start back in 1982. At that time there was only the AAVSO and BAA that engaged in amateur solar observing and nether had a good, informative website. The pages dealt mostly with the counting of sunspots which appeals to only a portion of the amateur solar community. The ALPOSS has emphasized the morphology and morphological evolution of solar activity. I handed off the running of this group to Rick Gossett in 1994 and it subsequently went to Kim Hay about 10 years later. The website that I created for the ALPO also changed hands to another private server (rather than the Lunar & Planetary Lab system) and can be found here:

http://alpo-astronomy.org/

The ALPOSS can be accessed by going to the "Solar Section" link off this page. Here are articles and pages to help the novice solar observer get up to speed with the best amateur observers. There are also ephemerides not only for the current cycle but for previous years so you can understand your old observations in detail. Links to other solar institutions and webpages are available there as well. You can spend many days exploring this site.

The AAVSO Solar Section is largely involved with sunspot counts and is responsible for the American Sunspot Number. They do show some morphological photos but do not do the kind of in depth study that the ALPOSS does. The AAVSO-Solar Sect. also has a fun SID-Section for the detection of Sudden Ionosphere Disturbances created by solar flares. They describe what they are, how to detect them, how to build the equipment and some examples of recent SIDs. Check all this out at:

http://www.aavso.org/solar

The Astronomical League has a solar observing group called the Sun Spotters Club. They have a program of observing goals and a group of observing forms that look remarkably like the ones for the ALPOSS. This is because I designed them all and was requested to start this Club by the late Rollin Van Zant. I just lifted the ALPOSS forms which were working well for us over the previous decade. Since then they have each evolved a bit and are a good form to use. The League solar site is at:

http://www.astroleague.org/al/obsclubs/sunspot/sunsptcl.html

The British Astronomical Association also has a very active Solar Section with an entry page at:

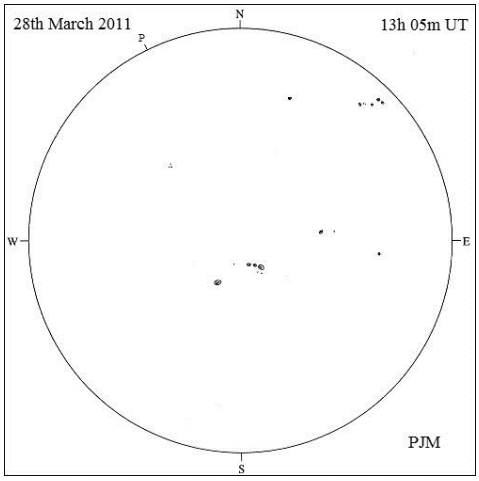
http://www.britastro.org/~solar/index.php?style=new

which contains much of the same kind of of the previous two websites. It deserves some exploration.

But I've saved the best for last! One BAA member has put together the best solar website I've yet seen. This is Peter Meadows and his site is at:

http://www.petermeadows.com/indexsolar.html

Here you will find just about all the information and forms you need to get going. One of the most valuable things on Peter's website are the excellent sets of Stonyhurst Disks so you can determine the solar latitude and longitude of sunspots and other features directly by using these properly. He has many pages of educational material that will keep you busy for hours and will not doubt become a permanent reference. In fact, you could have this as your sole solar reference and it would serve well! Bookmark it.



Well, I hope this has helped you shine a little light on this subject. {I know….groan!}

As always, if you have a topic you'd like explored or have some interesting URLs you've turned up, drop me a line at: rhill@lpl.arizona.edu

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Address Service Requested

Please consider renewing your membership on time. Renewal month and dollar amount appears on your address label. Magazine subscriptions are not included. TAL fee is included if participating in TAL. See details on page 2.

Directions to TIMPA and Las Cienegas

Directions to TIMPA Site

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

From the North:

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

From the East:

1. Take Speedway Blvd. west and it turns into Gates Pass Rd..
2. Go over Gates Pass and continue west to Kinney Rd..
3. Turn right (north) on Kinney Rd. and continue past the Desert Museum.
4. Kinney Rd. bends left at the entrance to Saguaro National Park West and becomes Mile Wide Rd..
5. Take Mile Wide Rd. west about five miles to Reservation Rd.. Mile Wide Rd. ends at Reservation Rd. and you must turn right (north) onto Reservation Rd..
6. Take Reservation Rd. north about one mile. The entrance to TIMPA will be on the right.

NOTE

A gate card is required for TIMPA access. Please **DO NOT** ask the caretakers for entry to the TIMPA SITE. A list of TIMPA key keepers is available on the TAAA website, or by contacting a board member. For scheduled TIMPA star parties, a designated TAAA representative will provide access to the site.

Directions to Las Cienegas (Empire Ranch)

GPS coordinates: 31 deg 47.356' N, 110 deg 37.913' W

Take I-10 East from Tucson. Take Exit 281 (Route 83 Sonoita-Patagonia Highway South). Travel south on Route 83 for about 19 miles, watch for green and white milepost 40 sign on the right side of the road. Approximately ¼ mile past milepost 40, turn left into Las Cienegas. The road is dirt and is "washboarded" so go carefully. At about 2.9 miles, there is a fork in the road. Stay to the right. When the road ends in a "T", take a left. Cross over a concrete section of the road down in a wash. Just up the hill from the wash (about .2 mile), turn left. 0.1 mile ahead will be the end of an abandoned airstrip with a covered ramada. The club members have been setting up several tenths of a mile down the runway. If you arrive after dark, as a courtesy to other members, use only your parking lights to approach the set-up location.