



Desert Skies

Tucson Amateur Astronomy Association

Volume LVI, Number 10

October, 2010



Comet Hale-Bopp

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Cover Photo: Comet Hale-Bopp, taken by Dean Ketelsen in 1997.

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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

- Your membership expires as indicated on your mailing label.
- 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:

Susan Donnelly
TAAA/Desert Skies Editor
susandonnelly@tucsonastronomy.org

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)

President's Message

I was so excited to learn that on a recent Saturday night, we had over 40 club members attending club star parties! Club events are thriving, participation is up, and we've only just started the fall season of clear skies. Many of the members posted observing reports on our TAAA e-mail forum after the weekend was over, and while they each had a different experience, a common theme was that fun was had by all. If you missed out on the fun, don't worry, there will be plenty of other opportunities for you to get out under the stars over the next few months.

There's a whole lot going on in addition to the star parties. The Chiricahua Astronomy Complex is continuing to improve as various construction projects move forward. We are fortunate to have members with long-term visionary skills (Bill Lofquist and John Kalas, among others) who have pushed forward on complex planning. By now many of you have already visited the site and enjoyed the natural beauty and extremely dark skies, but if you haven't, I encourage you to sign up for the next event. Even though the complex is only in its infancy, the star parties out there are fantastic!

I continue to be impressed by the number of members willing to volunteer their time to help others with astronomy, and also to help the club. A special welcome this month to our incoming Newsletter Editor, Susan Donnelly. Assembling a quality newsletter is a task that most of us could never accomplish, but Susan brings a level of enthusiasm and skill that promises to result in an outstanding TAAA publication. I'd also like to welcome our incoming Astronomical League Representatives, Paul and Cathy Anderson. If you have any questions about the AL, want to begin an AL Observing Program, or are ready to earn an observing award, Paul and Cathy will be glad to help you out. They represent the Astronomical League, but they also represent what makes TAAA the best astronomy club in the world – a sharing spirit and eagerness to help.

Here's hoping that each of you finds some time at the eyepiece this month!

Keith Schlottman

Meeting Information and Calendar of Events

TAAA MEETING DATE: Friday, October 1st, at the Steward Observatory Auditorium – Room N210

ASTRONOMY ESSENTIALS: 6:30 pm

Title: *Objects in the Night Sky*
 Speaker: Steve Marten

In addition to our usual fall parade of constellations and the late night return of Orion and friends later this year, Jupiter will be at or near opposition as Venus, Mars and Saturn switch to morning views. What shall we focus on besides great deep-sky objects such as the Triangulum Galaxy (M33)? Answer: Almost half of the year's meteorite activity (Orionids, Taurids, Leonids, Geminids and Ursids) is only three months of time. Come join us for a Walk Around the Night Sky that features the best viewing objects for this fall. This is an introductory level lecture.

GENERAL MEETING: 7:30 pm

Title: *Hunting for Extra Dimensions with Black Holes in the Universe and in the Large Hadron Collider*
 Speaker: Dimitrios Psaltis, PhD

You've likely heard that astrophysicists believe there's more to our universe than the three dimensions of space and one of time. How many dimensions are there? No one knows, but astrophysicists are trying to answer that question using all the tricks up their sleeve. Whatever the answer, it could have a ripple effect in our understanding of physics at the most fundamental level. At the October 1st meeting, Dr Dimitrios Psaltis will tell us what can be determined about the extra dimensions through the study of black holes and what the Large Hadron Collider might reveal.

Dr. Psaltis is an Associate Professor of Astronomy and Physics at the University of Arizona. He is a member of the Theoretical Astrophysics Program at the UofA. He was born in Greece and attended Aristotle University of Thessaloniki. He received his Masters and PhD in Astronomy from the University of Illinois, Urbana-Champaign in 1994 and 1997, respectively. His post doctoral work was done at the Harvard-Smithsonian Center for Astrophysics and later at MIT. He has been at the University of Arizona since 2003. He and his wife are divers, having dived all over the world. He also holds a private pilot license.

UPCOMING LECTURES

November is Member's Night. There will be a sign up sheet at the October meeting, or you can contact Keith Schlottman at president[at]tucsonastronomy.org. Usually, presentations are limited to 15 – 20 minutes. They must be about some aspect of astronomy.

BOARD OF DIRECTORS MEETING: Wednesday, October 13th, 6:30 pm. The meeting is held at Steward Observatory Conference Room N305.

Nov 5	<i>General Meeting</i>	Members Night Starts at 6:30pm, no Astronomy Essentials Lecture
Dec 3	<i>Astronomy Essentials</i>	<i>Tentatively Scheduled</i>
	<i>Invited Lecture</i>	Don McCarthy James Web Space Telescope

STAR PARTIES AND EVENTS:

- 04 October – Astro-Imaging SIG at China Rose
- 08 October — Pima County Natural Resources Star Party
- 09 October - Solar Viewing for AF-SIG
- 09 October -- TAAA Star Party at CAC
- 09 October — TAAA Star Party at Las Cienegas
- 09 October — SAS and TAAA Star Party at Whipple
- 13 October — Pima Community College (SOLAR) Star Party
- 13 October — Safford Middle School Star Party
- 14 October — Banks Elementary School Star Party
- 14 October – Astronomy Fundamentals SIG
- 16 October — TAAA Star Party at TIMPA
- 16 October — Boy Scouts of America (SOLAR) Star Party
- 16 October — Immaculate Heart Academy Star Party
- 28 October — Senita Valley Elementary Star Party
- 04 November — Drachman Montessori Star Party
- 29 October thru 12 November — Great World Wide Star Count

Club News

Newsletter Schedule

Deadline for articles: Sat, October 16. The newsletter is published at least one week prior to the following month's General Meeting.

Member News

We welcome these members who have recently joined the TAAA: Brian Kelman, Barbara Bosworth, Erika Tinley, and Lee Hermansen. Glad to have all of you join! New members can pick up a member's pack at a meeting if they didn't request it by mail. Hope you'll make it to our star parties or meetings so we can all get to know you. (Updated membership lists are available at our website after logging in as a member. You can also pick one up at most meetings.)

Astro-Imaging SIG Meeting

Monday, October 4, 7pm

China Rose, NE corner Speedway/Rosemont

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

Cosmology and Space Exploration SIG

For our next meeting on October 21, Nick DeMesa will give a presentation titled *Extrasolar Planets with Potential for Life* at 7 pm in room A120 at the UA library. (Ask the downstairs desk for directions.) Come join us to discuss this and other fascinating subjects! You can email at alanzaldua706@yahoo.com to let us know if you plan to attend.

Astronomy Fundamentals Special Interest Group

Astronomy Fundamentals special interest group meets on the 2nd Thursday of every month with some stimulating discussions from both TAAA members and members of the scientific community. In addition, when we launch a new observing program, we have a presentation about that program that discusses the history, folklore and the necessary requirements to complete the program. On October 14th we will launch another observing program – the Solar System Observing Program.

The Astronomy Fundamentals Special Interest Group (AFSIG) will meet on Thursday, October 14, at 6:30 pm in room 253 of the Environmental and Natural Resources Building (USGS and Weather Service) on the northeast corner of Sixth Street and Park Avenue on the campus of the University of Arizona.

For more information please email fundamentals@tucsonastronomy.org. All members of TAAA and new members particularly are welcome to AFSIG meetings!

Basic Astronomy Course Coming in October

The Astronomy Fundamentals SIG is offering, once again, "Introduction to Fundamentals of Astronomy". It will be held on three successive Saturdays starting October 23rd. Each Saturday we will present a different set of topics – all of which are directed toward the novice observer – it is also a nice refresher course for the seasoned amateur.

October 23rd

We will cover Basic Astronomy, including celestial motion, the celestial coordinate system, and types of celestial objects.

October 30th The subject will be Equipment Basics, including telescopes, mounts, eyepieces, filters, and other observing accessories. **November 6th.** We will discuss Observing Basics, including locating objects, seeing conditions, and hints and tips on observing various types of objects.

The classes will be held at the regular AFSIG meeting location: Room 253 in the USGS building at 6th and Park on the UA campus. Each day will consist of several presentations, with frequent breaks and a break for lunch. We expect the class to run from 9:00 AM until midafternoon on each day.

November 6th we plan to have a pot-luck dinner followed by an observing session at our TIMPA location. Enrollment will be limited to 20 attendees, so don't miss out. You may enroll in all of classes, or just the ones that interest you.

You may register my emailing at fundamentals@tucsonastronomy.org with your name, email address and phone number. If you cannot attend all three dates, please list the dates you will be attending. Your registration will be confirmed via email. Also, there will be signup sheets at the 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.

AFSIG Observing Programs

Astronomy Fundamentals special interest group has several observing programs in which our members can participate. Please review the list and join us either as a participant in one or more of these programs... or to volunteer to assist the group leader.

Because some novice members may be unsure on what to look for and/or how to find the objects of interest, the observing sessions are guided in all our programs. Based on the Astronomical League's Observing Clubs, our programs use a select number of these objects or features so that if the participant wants to continue and get the AL's certificate they have a significant start on it. Each program has its own coordinator who sets the schedule and runs the program. All programs are open to all members and are designed so that you can participate at your own speed. To learn more, please contact the program coordinator.

Club News (cont.)

Constellation Observing Program

Learn the night sky. This systematic observing program allows you to identify and learn the various constellations that fill our night sky and it doesn't stop there. Not only do you learn the bright stars in each constellation, but you identify the deep sky objects within each constellation. When you complete this program, you will know 20 constellations and have a good grasp on how to navigate the night sky and have a modest understanding of what lies behind that veil of stars that greet our eyes each night. This program is open to all TAAA members at no charge and all are welcome. To learn more please contact Paul and Cathy Anderson at fundamentals@tucsonastronomy.org or call (625-5035).

Lunar Observing Program

How much do you know about the Earth's Moon? It is our nearest celestial neighbor and it is very fascinating indeed! Would you like to learn more about it? Well, we do have a Lunar Observing Program sponsored by the Astronomy Fundamentals special interest group. The Lunar Observing Program consists of locating a list of prominent (and some not so prominent) lunar features, which can be seen at different stages of the lunar cycle. It is a guided observing program meaning that there will be regularly scheduled, leader-led, observing sessions to aid in finding features and completing the requirements. After completing requirements for observing all of the targets, the observer will receive an AFSIG Lunar Observing Certificate. Additionally, each of the required targets is also part of the Astronomical League's Lunar Club. So, you can be well on your way to fulfilling that goal, if you so desire. For more information, please contact Mary Turner at fundamentals@tucsonastronomy.org or Bob Gilroy at rgilroy1@cox.net.

Solar Observing Program

The Solar Observing Program (like all of our observing programs) is open to all members of TAAA at no charge. It is a guided program which means that at the scheduled observing sessions, there is someone there to guide you in finding the 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. 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.

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**New Observing Program - The Solar System -
Launch October 14th**

Thursday, October 14 at the U.S.G.S. Building in Room 253 on the NE corner of 6th St. and Park Ave at 6:30p.m. Please use the parking on the east side of the building, which is free after 5p.m. and on Saturdays. We live in a mini universe that we call our Solar System consisting of eight (or is it nine??) planets. In addition there are planetesimals, the Asteroid Belt, the Kuiper Belt, the Oort Cloud – there are comets and meteors. Now is the time to learn firsthand about this interesting place and observe the planets, planetesimals and other interesting objects. On October 14th AFSig is launching a new observing program – The Solar System Observing Program coordinated by Mike Finerty. To register, please email Mike Finerty at fundamentals@tucsonastronomy.org with your name, email address and phone number. There will be sign-up sheets at the general meeting.

Night Sky Network Toolkits

Below is a list of our Night Sky Network Outreach Toolkits and other resources for teaching astronomical concepts. The Night Sky Network program recognizes the essential role that amateur astronomers play in public astronomical education by providing us with these toolkits well suited for use at star parties. They were developed by the Astronomical Society of the Pacific under contract with NASA. If your scope is not well suited for public viewing, or if you want a change of pace, consider bringing a toolkit to one of our community star parties. They are also great options for those questionable, cloudy nights. Each toolkit contains several projects; you pick and choose what you want to use. A Resources CD and a Training DVD is also included. Individual training in their use is available upon request.

With each use of a NSN toolkit we are closer to qualifying for the next toolkit.

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Club News (cont.)

Night Sky Network Toolkits:

PlanetQuest: explains planet detection techniques

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

Black Hole Survival Kit: what is a black hole and how does it affect objects nearby

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

Shadows and Silhouettes: covers lunar phases, eclipses, and transits

Exploring the Solar System: scale model of solar system and NASA exploration of planets

Supernova!: life cycle of massive stars, touches on life cycle of sun-like stars

Mirrors and Glass – An inside look at telescopes: how telescopes work

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

Please make arrangements with Terri Lappin to borrow any toolkit.



Space Missions Workshop

Saturday, September 25 9 am to noon
Steward Observatory Room N305

The Space Missions Workshop is coming together nicely and will probably have taken place by the time you read this. We'll have a report in the next newsletter. The next workshop will be held in February or March. There are a few topics being considered so watch the newsletter for our announcement.

Halloween will soon be upon us. Use this opportunity to hold a neighborhood observing session. This Halloween treat is relatively safe and the parents can enjoy it as much as the kids do!

Jupiter will be well placed all evening long. It should be transiting Jupiter's disk while the ghosts and goblins are out collecting candy (and a few photons if you're serving them up). Callisto will be by itself on one side of Jupiter. Europa and Ganymede will be on the other side. (See <http://homepage.ntlworld.com/mjpowell/Astro/Naked-Eye-Planets/Jupiter-Path.htm>) The Red Spot will also transit (meaning it crosses the line connecting Jupiter's N and S poles) at about 7pm. Can you see it? Just over 3-degrees NE of Jupiter you'll find Uranus. It's not as impressive as Jupiter, but it's easily found being so close to Jupiter. The moon won't interfere on Halloween, so you might want to include the Andromeda Galaxy or M13 if your location permits them.

Here are a few guidelines to help make your Halloween a success. Set up your telescope near the sidewalk with a jack-o-lantern or similar attention getting, but dim, light source nearby. Make sure power cords don't become trip hazards. Leave your patio lights off so the kids don't head for your front door. Be sure to have a stepladder handy for the little ones. People tend to support themselves by leaning against the telescope so politely warn them not to touch your telescope. I suggest you use an eyepiece with some eye relief. These are easier for the public to use. However I also recommend using an inexpensive eyepiece. Many kids wear makeup, and it can get all over your eyepiece! You'll want to clean your eyepiece after the night is over. It's always best to ask the eyepiece manufacturer about cleaning your lenses, but there are general cleaning instructions included in the TAAA Member's Pack.

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

Halloween gives us a chance to do some informal outreach across the entire city. I hope you'll join in on the fun. Several TAAA members have done this for years and the stories I've heard are very inspiring. Please tell me about your experience.

The Starry Messenger Special Interest Group provides an environment in which TAAA members can enhance their knowledge and understanding of astronomy and related concepts. We offer tools and techniques for explaining astronomy to people of all ages. Any TAAA member involved in astronomy outreach is supporting the goals of the Starry Messenger SIG. Even if you have never attended a SM-SIG workshop or meeting, we consider you a member of the SMSIG and value your contribution.

Starry Messenger in Our Midst

There will be no Starry Messenger in Our Midst article this month, but this feature will return next month.

TAAA 2011 Calendar

We need your Photos!

We are investigating putting together a custom TAAA calendar for 2011. For this, we're soliciting photos from club members. Any photo of interest would be considered including astro-photos, star parties, home observatories, club events, etc. We hope to get far more submissions than can possibly be printed so no promises are made that your photo will be included. We're sure all the photos will be excellent and we'll have a hard time choosing the finalists for a calendar but want to select from a variety of themes. By submitting a photo, permission to publish it in the calendar will be assumed. They will, of course, not be used for any other purpose and full photo credit will be given. We may also want to montage some of the photos.

We should be able to handle most common formats. If you have something you'd like to submit, please send it to plymate@noao.edu or teresa@as.arizona.edu. Thanks!!

Member's Events

TAAA Star Party at CAC

Saturday, October 9.

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@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 Star Party at TIMPA

Saturday, October 16

Come on out and enjoy the summer skies! TIMPA star parties are great for both beginners and experienced observers. Our novice members can get help with observing issues or equipment problems, as there are many experienced members there who would be happy to help. If you don't own a telescope, come anyway, because there are lots of telescopes set up and everyone is invited to look through them. This is a great way to check out different telescope designs before you make that all-important decision to buy. There is no scheduled talk for this activity, just come out and enjoy. 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 after sunset. It's also a good idea to bring insect repellent. Directions to the TIMPA site are located on the last page of this newsletter. The new observatory at TIMPA, featuring a 14-inch telescope, should also be open for use.

TAAA Star Party at Las Cienegas (Empire Ranch)

Saturday, October 9

Las Cienegas (formerly Empire Ranch) has been our normal dark-sky observing site for quite a number of 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. Bring a telescope if you have one, but you don't need one to attend. Any member would be glad to let you look through their telescope. And, there are now restroom facilities at the site. Las Cienegas is at 4000 feet so be prepared for cool temperatures after sunset. It's also a good idea to bring insect repellent. See the directions to Las Cienegas on the last page of this newsletter.

The Great World Wide Star Count

The Great World Wide Star Count (<http://www.starcount.org>) campaign for monitoring light pollution by observing Cygnus will be October 29 through November 12.

Rattlesnake Alert!

Be alert for rattlesnakes! 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.desertmuseum.org/books/nhsd_rattlesnakes3.php.

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, so be careful when walking.



TAAA Board Meeting — 08 September 2010

Attending: Board members present (8): Keith Schlottman (presiding), Bill Lofquist, Luke Scott, Teresa Bippert-Plymate, Ken Shaver, George Barber, John Kalas, Michael Turner. Members present (11): Terri Lappin, Claude Plymate, Mark Meanings, Bob Gilroy, Paul Anderson, Ann Scott, Cathy Anderson, Gary Rosenbaum, Liz Kalas, Dean Ketelsen. Guests (1): Richard Watson.

Call to Order: The President called the meeting to order at 6:30 pm.

Minutes: Minutes from the August Board meeting were approved unanimously.

Member Feedback

- None

Announcements for Record

- Teresa and Claude Plymate are requesting photographs from members to use in the club calendar.
- The President noted that the number of members attending the Board meetings is encouraging.
- A 12-inch Meade SCT and a 3-inch refractor have been donated to the club. Luke Scott will pick up the donations.
- George Barber is resigning as Member-at-Large effective 8 September.

Member-at-Large

- A motion was entered by Bill Lofquist and seconded by Keith Schlottman appointing John Croft as Member-at-Large. The motion was approved unanimously.

Upcoming Meetings

- Steve Marten will present Mary Turner's quarterly objects at the October meeting.
- Terri Lappin is assembling the 2011 speaker schedule.
- November is Members Night. Members wanting to present should contact a Board member.

Treasurer's Report (Teresa Bippert-Plymate)

- There were no unusual expenses in the preceding month.

Special Interest Group Status Reports

- Starry Messengers (Terri Lappin): The SIG will hold a 25 September workshop on NASA/JPL/ESA missions focusing on tie-ins to public outreach. The workshop will be presented by Loretta McKibben.
- Astronomy Fundamentals (Bob Gilroy): (1) Flandrau Science Center has offered use of its mezzanine for AFSIG meetings. While appreciative of the offer, the AFSIG will continue to meet at the USGS. (2) The AFSIG proposed that the club offer two scholarships to Flandrau students to attend the AFSIG class. A motion was entered by John Kalas and seconded by Keith Schlottman authorizing two seats in each AFSIG class for scholarships for Flandrau students. The motion was approved unanimously.
- Cosmology and Space Exploration: No report.
- Astro-Imaging: No report.

School Star Parties (Mark Meaning)

- Two school star parties are scheduled for September.
- October is booked with seven school star parties.

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@sa-ida.org
www.sa-ida.org

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

TAAA Board Meeting — 08 September 2010 (cont.)**Web Team Report (Terri Lappin)**

- Web site code being changed to facilitate site updates and maintenance. Web Team members are updating various sections.
- Terri Lappin demonstrated use of the Night Sky Network's calendar to show and schedule club events.

30-inch Telescope Project

- Mark Meanings reported on the status of the 30-inch mirror and presented options with rough cost estimates for mounting the mirror. The President appointed Mark as chair of the 30-inch working group. The working group should report to the Board in October with target dates for developing a plan for the project.
- Dean Ketelsen reported that an equatorial mount for a 24-inch mirror has been offered to the club at no cost. The mount is currently in New River, Arizona. Dean will coordinate a trip to assess the condition of the mount.

TIMPA and Gila Monster Observatory (Michael Turner)

- Michael Turner presented a list of needed repairs to the TIMPA observing pads and observatory. The estimated cost is \$1000 for materials and equipment rental. All labor will be donated. A motion was entered by Michael Turner and seconded by Bill Lofquist authorizing expenditure of funds from the TIMPA account to make the repairs to the TIMPA observing pads and Gila Monster Observatory.

CAC (John Kalas and Bill Lofquist)

- John Kalas reported that he has not yet received a quote for property insurance from the Mahoney Group.
- John reported that a quote of \$6500 for a 3-camera security system was received from a company in Sierra Vista. Other options will be considered.
- A new entry sign has been purchased, but will not be installed until a security system is in place.
- Bill Lofquist reported that additional funds are needed for Phase 2 and he will send a request to club members for funds for the RV spaces.
- A pledge was received from Michael and Mary Turner to purchase a steel storage unit.
- Fund Raising Committee members attended a workshop on how to use Foundation Center materials available at the public library.
- Four CAC projects currently need funding: sleeping quarters, education center, observatories, and caretaker residence.
- A letter has been sent to Celestron soliciting funds for the Ramada.
- Wally Rogers donated a 7-inch Maksutov telescope on a Losmandy mount to the club several months ago and it is being evaluated by Claude Plymate.
- A motion was entered by John Kalas and seconded by Michael Turner authorizing use of TIMPA funds to purchase a storage unit for CAC in lieu of moving the current TIMPA storage unit to CAC as was originally planned. The motion was approved by a vote of 7-1.

Other

- Paul and Cathy Anderson have been appointed as Astronomical League Correspondents.
- A motion was entered by Keith Schlottman and seconded by Ken Shaver authorizing Terri Lappin to pay fees required to reserve a booth at the 2011 Tucson Festival of Books. The motion was approved by a vote of 6-2.
- Claude Plymate requested that the Board give an honorary membership to Leo [Cavagnaro] who will be visiting from Argentina. A motion was entered by Bill Lofquist and seconded by John Kalas approving a non-voting membership for Leo [Cavagnaro]. The motion was approved by a unanimous vote.
- Prior to the Board meeting on 8 September 2010, a vote was conducted by e-mail authorizing John Kalas to act as TAAA representative for CAC Phase 2 construction. The vote was 7-0 in favor.

Meeting adjourned at 9:35 pm.

Respectfully submitted,
Luke Scott
Secretary

Items of Interest

The Great World Wide Star Count

The Great World Wide Star Count (<http://www.starcount.org>) campaign for monitoring light pollution by observing Cygnus will be October 29 through November 12.

Websites: Trips on the Internet Super-Skyway
By Rik Hill

We will not have an article in this category this month, but this feature will return next month.

Photography by Dean Ketelsen

Top right, the Veil nebula - a supernova remnant where a star running out of fuel blows off part of it's mass into a shell of gas. A reasonably sized image like this or larger resolves the nebula into twisted filaments of red (again, from hydrogen) and blue (a mix of hydrogen, oxygen and other elements).

Bottom right, a shot of NGC 7331 with nearby companions, and a half degree to the upper right, is a galaxy cluster known as Stephan's Quintet. Both of these objects have north to the left, as opposed to north up in the above images.



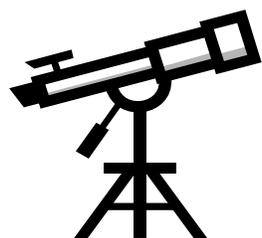
Dark Skies for October 2010

DARK SKIES (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm, 20=8pm, 22=10pm, 0=12am
RISE, SET, VISIBILITY for sun and bright planets: rise for morning object, set for evening object

Th/Fr	30/01	19:31	-	23:24	Su/Mo	10/11	20:02	-	5:03	Th/Fr	21/22	-	-	-
												FULL		
Fr/Sa	01/02	19:30	-	0:29	Mo/Tu	11/12	20:56	-	5:04	Fr/Sa	22/23	MOON		
Sa/Su	02/03	19:28	-	1:37	Tu/We	12/13	21:53	-	5:05	Sa/Su	23/24	-	-	-
					We/Th	13/14	22:51	-	5:05					
Su/Mo	03/04	19:27	-	2:46	Th/Fr	14/15	23:49	-	5:06	Su/Mo	24/25	-	-	-
Mo/Tu	04/05	19:26	-	3:55	Fr/Sa	15/16	0:46	-	5:07	Mo/Tu	25/26	19:02	-	19:25
Tu/We	05/06	19:25	-	5:00	Sa/Su	16/17	1:41	-	5:07	Tu/We	26/27	19:02	-	20:19
We/Th	06/07	19:23	-	5:01						We/Th	27/28	19:01	-	21:18
Th/Fr	07/08	19:22	-	5:01	Su/Mo	17/18	2:35	-	5:08	Th/Fr	28/29	19:00	-	22:21
Fr/Sa	08/09	19:21	-	5:02	Mo/Tu	18/19	3:29	-	5:09	Fr/Sa	29/30	18:59	-	23:27
Sa/Su	09/10	19:20	-	5:03	Tu/We	19/20	4:23	-	5:09	Sa/Su	30/31	18:58	-	0:33
Weekend	Sun	Sun	Mercury	Vi	We/Th Venus	20/21 Mars		Jupiter		Saturn		Vi	Vi=Visibility	
Sa/Su	Set	Rise	Rise	Vi	Set	Vi	Set	Vi	Set	Vi	Rise	Vi		
02/03	18:05	6:17	5:28	6	19:11	0	19:36	4	5:20	-3	6:07	-	-3 brilliant	
09/10	17:56	6:22	5:59	-	18:42	2	19:24	5	4:49	-3	5:43	-	0 conspicuous	
16/17	17:48	6:27	Set	-	18:10	6	19:12	5	4:18	-3	5:20	6	3 moderate	
23/24	17:40	6:32	17:53	-	17:35	9	19:01	5	3:47	-3	4:56	4	6 naked eye limit	
30/31	17:33	6:38	17:57	-	17:00	9	18:51	5	3:17	-3	4:32	2	9 binoculars limit	

By Erich Karkoschka

Telescopes for Borrowing



Free service



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

Meade 10-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.

Chiricahua Astronomy Complex

Facility Update

John Kalas – Construction Coordinator/CAC Site Director

TAAA Member, John Croft, has been busy at the site addressing the weed problem. With his trusty weed whacker, John has done a tremendous job clearing the weeds. As a result of my request for volunteers for a CAC maintenance committee, four members stepped forward and offered to help out; John Croft, Mark Meanings, Warren Hensey and Bill Hosley. John Croft will coordinate the group. Many thanks go to John, Mark, Warren and Bill.

The weather cooperated nicely for the September monthly star party on 9/11. It was great to be back using the site after the July and August cancellations. We had the largest crowd yet with about 30 folks and 18 vehicles enjoying a very pleasant evening. About eight vehicles stayed all night and left on Sunday morning.

On 9/1, Bill Lofquist and I traveled to Bisbee to submit the Phase 2 building permit to the Cochise County Permit Dept. The review went very well with only a few minor adjustments to two detail documents which required a return trip the next day. We expect to have an approved permit by the time you read this article. Both of our contractors, Randy Maddox and Peter Ammon, are final quoting the work required under Phase 2. We should be able to start construction in early October with the clearing of the public area and the RV site.

Now that we have "property" on the site in the form of a bathroom facility, I have investigated adding property insurance coverage to our current liability insurance policy. Pending board approval, we should have property insurance by the end of the month. The Eridanus well group, which includes Robert Crawford, Sam Rua, Erich Karkoschka, John Kalas and the TAAA, is also in the process of purchasing property and liability insurance for the well house, well head and its small parcel.

Due to the recent vandalism issues at the site, I visited a security company in August about a video surveillance system for the site. Unfortunately, the quote came back with a cost that is too expensive, at this time. We will have to re-think our requirements to see if a more economical system is available.

Public Star Parties



Smithsonian Astrophysical Observatory
Fred Lawrence Whipple Observatory

Star Party

See the Sun and Stars Through a Telescope
Free and Open to the Public
Saturday, October 9



Smithsonian Institution
Fred Lawrence Whipple Observatory
Visitors Center
near Amado, Arizona



Telescopes provided courtesy of the Sonora Astronomical Society (SAS) and the Tucson Amateur Astronomy Association (TAAA).

3 p.m.	Visitors Center opens
3-6 p.m.	Safe viewing of the Sun (next to Visitors Center)
6 p.m.	Informal lecture presented by Observatory staff
~6:45 p.m.	Observing begins (next to Visitors Center)

On view: In the afternoon -- the Sun. At dark, Venus, Mars, Neptune, Uranus and Jupiter; double stars, star clusters and the Moon.

Dress for cool evening temperatures. Small flashlights and binoculars are useful to bring. *Lecture seating is limited, so you might want to bring a lawn chair.* Please cooperate with staff directing parking when you arrive. The parking spaces nearest the building are reserved for TAAA/SAS members and their telescopes. Visitors should park along the driveway or in the parking area outside the gate or along the road as directed.

After dark, use parking lights only until you are headed downhill on the road, please!

For more information call 670-5707. In case of threatening weather, call 670-5707 after 3 p.m. on the 9th for information about star party cancellation.

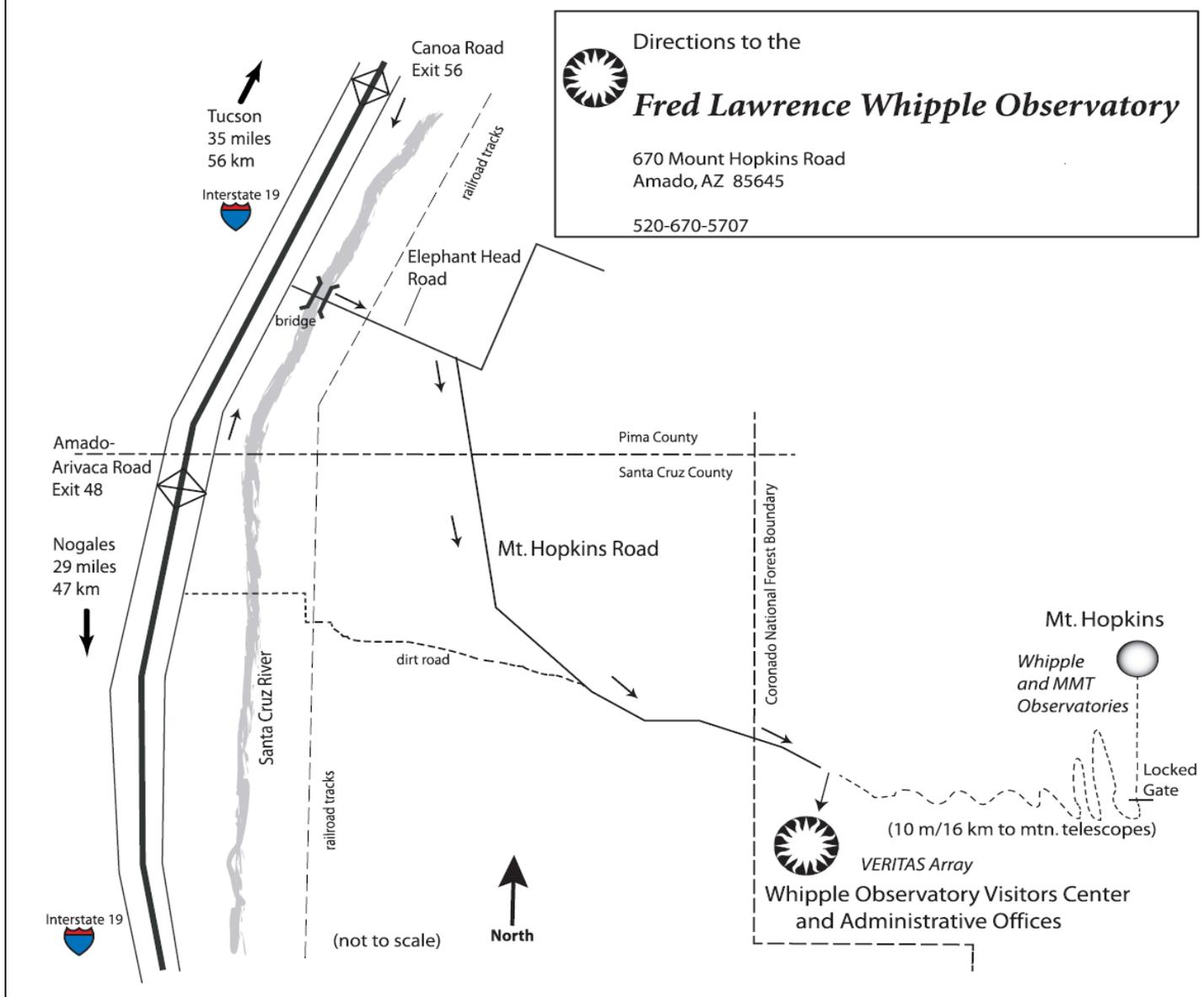
670 Mount Hopkins Road
Amado AZ 85645 USA

<http://www.cfa.harvard.edu/flwo/starparty.html>

Map 

Public Star Parties (cont.)

School Star Parties (Mark Meaning)



From Tucson:

Take Interstate 19 south, past Green Valley to exit 56 (Canoa). At the bottom of the exit ramp, take second right at roundabout and continue around until you can drive under the freeway to the frontage road on the east side. Turn right on the frontage road and drive 3 m/5 km to Elephant Head Road. Turn left and drive east, crossing the bridge on the Santa Cruz River. One mile/1.6 km past the railroad tracks, turn right on Mount Hopkins Road. Drive southeast about 7 m/ 11 km to the Administrative offices and Visitors Center.

From Nogales:

Take Interstate 19 north to exit 48, (Arivaca Road/Amado.) Drive north on the eastside frontage road to Elephant Head Road. Turn right and drive east, crossing the bridge on the Santa Cruz River. One mile/1.6 km past the railroad tracks, turn right on Mount Hopkins Road. Drive southeast about 7 miles/11 km to the Administrative offices and Visitors Center.

Como llegar al Centro de Visitantes del Observatorio Whipple

De Tucson: Tome la Interestatal 1-19 hacia el sur, pase Green Valley hasta la salida 56 (Canoa). En la parte de abajo de la rampa de salida, gire a la izquierda y conduzca hacia el este hasta la carretera que está paralela a la Interestatal. Gire a la derecha en esta carretera paralela y siga por 5 kilómetros hasta el "Elephant Head Road." Siga en dirección este en "Elephant Head Road" más allá de la puente hasta "Mount Hopkins Road." Conduzca hacia el sureste en "Mount Hopkins Road" como por 11 kilómetros hasta llegar al Centro de Visitantes.

De Nogales: Tome la Interestatal 1-19 hacia el norte, tome la salida 48 (Arivaca Road/Amado). Siga en dirección norte en la carretera de este que paralela a la Interestatal por 3 kilómetros hasta llegar a "Elephant Head Road". Siga en dirección este en "Elephant Head Road" más allá de la puente hasta "Mount Hopkins Road." Conduzca hacia el sureste en "Mount Hopkins Road" como por 11 kilómetros hasta llegar al Centro de Visitantes.

Community Star Parties

All members are asked to support the TAAA School Star Party program and other community events listed below. TAAA either sponsors or co-sponsors these events. These are great opportunities for beginners as you may 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.

Pima County Natural Resources Star Party

Friday, October 8.

General Area: West; Volunteers Requested: 3

Nautical Twilight: 6:52pm; Moonrise: 07:26am; Moonset: 6:27pm

Pima County Natural Resources will be doing a Night with the Stars for an estimated 50 students and parents at 7300 W. Hal Gras Road. 1.5 miles south of Gates Pass Road or 3.8 miles north of Ajo Way. Viewing will take place in Tucson Mountain Park, Ironwood Picnic Area, near restrooms on right side of road. Contact person Sandy Reith can be reached at 520-615-7855 x104 or sandy.reith@pima.gov. Observing will be from 7:00pm to 9:00pm, with setup 30 minutes prior to start.

Pima Community College (SOLAR)

Wednesday, October 13

General Area: North; Volunteers Requested: 2

Pima Community College (SOLAR) will be doing a Earth Science Day for an estimated 20 students and parents at Northwest Campus, Shannon and Magee. North on Oracle to Ina. West on Ina to Shannon. Turn right. Campus will be on the right at the first signal. Viewing will take place on the second floor court yard. Contact person Denise Meeks can be reached at or dmeeks@pima.edu. Observing will be from 09:00 to 1:00pm, with setup 30 minutes prior to start.

Safford Middle School Star Party

Wednesday, October 13.

General Area: Central; Volunteers Requested: 5

Nautical Twilight: 6:46pm; Moonrise: 12:32pm; Moonset: 10:51pm

Safford Middle School will be doing a Family Science Night for an estimated 75 students and parents at 200 East 13th St. 3 blocks south of Broadway/ 6th Ave - downtown. Viewing will take place on the playing field. Contact person Mark 'Eb' Eberlein can be reached at 520 225 3091 or mark.eberlein@tusd1.org. Observing will be from 7:00pm to 9:00pm, with setup 30 minutes prior to start.

Banks Elementary School Star Party

Thursday, October 14.

General Area: South; Volunteers Requested: 6

Nautical Twilight: 6:45pm; Moonrise: 1:15pm; Moonset: 11:49pm

Banks Elementary School will be doing a Exploring the Night Sky for an estimated 100 students and parents at 3200 S. Lead Flower. From Speedway and the freeway, go South on frontage road to 22nd, West on 22nd to Mission, South on Mission to Ajo, West on Ajo to Kinney, North on Kinney to Bopp, West on Bopp to Lead Flower, North on Lead Flower- follow signs to the school. We are located approximately 5 miles West on Bopp from Kinney Rd.. Viewing will take place in the Basketball Court area on playground. Contact person Veronica Vironet can be reached at 908-5755 or Veronica.Vironet@tusd1.org. Observing will be from 6:00pm to 8:00pm, with setup 30 minutes prior to start.

Catalina Council Boy Scouts of America (SOLAR)

Saturday, October 16.

General Area: North; Volunteers Requested: 6

Catalina Council Boy Scouts of America (SOLAR) will be doing a Solar Observing for an estimated 200 students and parents at Fort Lowell Park. From Broadway, Speedway or Grant, north on Craycroft Road to Glenn. Right on Glenn into Fort Lowell Park. Left into the first major parking lot. A sign will be posted near the park entrance and at the parking lot entrance. Viewing will take place Near Ramada #3. Contact person Joe Statkevics can be reached at 520-663-2079 or joestat@raytheon.com. Observing will be from 09:00 to 12:00, with setup 30 minutes prior to start.

Community Star Parties (cont.)

Immaculate Heart Academy Star Party

Saturday, October 16.
 General Area: North; Volunteers Requested: 6
 Nautical Twilight: 6:43pm; Moonrise: 2:25pm; Moonset: 12:46am

Immaculate Heart Academy will be doing a Dad's Club Campout for an estimated 200 students and parents at 410 East Magee Road. Go North on Oracle to Magee. Turn East on Magee. Proceed ¼ Mile and school is on the south side. Viewing will take place Event is on soccer field behind School Office. Star viewing area will be roped off parking spaces on the east drive just up from the circle. Contact person Les Schumack can be reached at 301-6548 or schumack1@comcast.net. Observing will be from 7:00pm to 9:00pm, with setup 30 minutes prior to start.

Senita Valley Elementary Star Party

Thursday, October 28.
 General Area: East; Volunteers Requested: 6
 Nautical Twilight: 6:31pm; Moonrise: 10:21pm; Moonset: 11:51am

Senita Valley Elementary will be doing a Family Science Night for an estimated 300 students and parents at 10750 East Bilby Road. East tro Houghton, South on Houghton, East on Bilby to address. Viewing will take place at the large playground/sports field. Contact person Christa Kirk can be reached at 626-5930 or ckirk@yahoo.com. Observing will be from 6:00pm to 10:00pm, with setup 30 minutes prior to start.

Drachman Montessori Star Party

Thursday, November 11.
 General Area: South; Volunteers Requested: 3
 Nautical Twilight: 6:25pm; Moonrise: 05:03am; Moonset: 4:18pm

Drachman Montessori will be doing a Night with the stars for an estimated 45 students and parents at 1085 S 10th Ave. Corner of 22nd St. and 10th. East of freeway. Viewing will take place at the Play ground or Court yard. Contact person Melissa Martinez can be reached at 883-4407 or melissam_2000@yahoo.com. Observing will be from 6:30pm to 8:30pm, with setup 30 minutes prior to start.

Desert Skies Classified

FOR SALE	Collection of 35 years of both Sky & Telescope and Astronomy magazines. Contact Dorinda Crouthers at doriecrouthers@cox.net [11/10]
FOR SALE	Meade 12 inch LX 200 GPS system/ \$2,800.00. In very good shape. About six years old. Lots of extras including JMI wheely bars. Call for more details. Jim at 520-751-4961 or starman1000@msn.com [02/11]

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.

Constellation Report by Chris Lancaster

Sagittarius

As the fall sky darkens into view, we see the thickest part of our Milky Way galaxy forming a broad band stretching from roughly northeast to southwest. It is where this river of stars thickens in the southern regions, marking the direction of the center of our galaxy, that we find Sagittarius. The classical representation of Sagittarius established by the Greeks and Sumerians is that of an archer, typically a centaur (half man and half horse) with his bow and arrow aimed west toward Scorpius. The more modern image in the stars of Sagittarius, and one which is easier to recognize, is of a teapot tilting to the southwest as if serving tea into an unseen cup, and the misty whiteness of the Milky Way rising northward is the "steam" emerging from the spout. Due to Sagittarius's privileged spot in the sky, it is packed with deep sky objects which can be viewed with any range of instruments from small binoculars to the largest of backyard telescopes.

So when we go outside to observe Sagittarius, where do we begin? Let's approach it in a way which groups the constellation's three main categories of deep sky objects--globular clusters, open clusters, and emission nebulae.

At the bottom of the "teapot" are three easy to find globular clusters. M54 is 1.7 degrees west south-west of Zeta Sagittarii. M70 lies midway between Zeta and Epsilon, and M69 is 2.5 degrees directly west of M70. These three are similar in size and appearance, all between 7' and 10' in size and near magnitude 8. Off the lid of the "teapot" is M28. This is a medium sized globular 1 degree northwest of Lambda Sagittarii with a nicely defined core.

If you now slide just short of 3 degrees to the east north-east of M28 you'll see the incredible M22. This cluster is bigger and brighter than any globular cluster on Messier's list. It is estimated to contain up to 1 million stars spanning about one hundred light years in diameter. Just recently astronomers using the Hubble Space Telescope have seen evidence of wandering planet sized objects as small as 80 times the mass of Earth swarming through the interior of M22. Another large cluster is M55, rivaling M22 in size and brightness. This one is to the southeast of the teapot's handle.

Table of Globular Clusters:

Object	RA	Dec	Size	Mag.
M54	18h 55.1m	-30d 28' 6"	6'	8.7
M70	18h 43.2m	-32d 17' 4"	4'	9
M69	18h 31.4m	-32d 21' 4"	4'	8.9
M22	18h 36.4m	-23d 54' 22"	22'	5.1
M28	18d 24.6m	-24d 52' 15"	15'	8.5
M55	19d 40.0m	-30d 57' 15"	15'	7.1

A variety of rich open clusters are scattered in the northern regions of Sagittarius. M24 gives you a real appreciation of how closely packed stars can appear to be when viewed from a distance. Your naked eye can see M24 as a glowing oval star cloud about 2 degrees long and more than half a degree wide. The real treat is viewing it in a large aperture, wide field telescope. The tiny stars, like back-lit spray from a patio mister, offer a hint at the staggering number of stars in a large galaxy such as ours. These points of light condense even further to form NGC6603. This tiny cluster packs about 100 12th magnitude stars in a round area within M24's boundaries. While you're here, make an attempt at Barnard 92, a dark nebula along the northwest edge of M24. The stars disappear behind this 12'x 6' blob of obscuring dust, thus revealing its presence.

M23 and M25 are two large clusters loosely dotted with stars. M23 is somewhat teardrop shaped with over 100 stars of magnitude 7 and dimmer. M25 and M21 has about half that number of stars, with M25 being covering about 4 times the amount of sky as M21. M18, one degree south of M17 (discussed below), is a very sparse cluster of about 15 stars of magnitude 8.

Table of Open Clusters:

Object	RA	Dec	Size	Mag.
M23	17h 56.9m	-19d 01' 27"	27'	5.9
M25	18h 31.7m	-19d 14' 37"	37'	6.2
M24	18h 18.4m	-18d 25' 120"x 40"	4.5	
M18	18h 19.9m	-17d 08' 7"	7'	8.0
M21	18h 04.7m	-22d 30' 12"	12'	7.2

Those fond of emission nebulae will not be disappointed here either. M8, the Lagoon Nebula, is a huge cloud and associated star cluster showing a bright knot near the center and a dark lane traversing its middle. NGC6530 is a cluster of young stars swimming within the nebulosity. M20, the Trifid Nebula, is a more challenging nebula but easily seen in dark skies. Its name comes from the dark lanes of dust trisecting the brightest part of the nebula. M17, near the borders of Scutum and Serpens Cauda, is a breathtaking cloud of hydrogen assuming the shape of a swan or check mark.

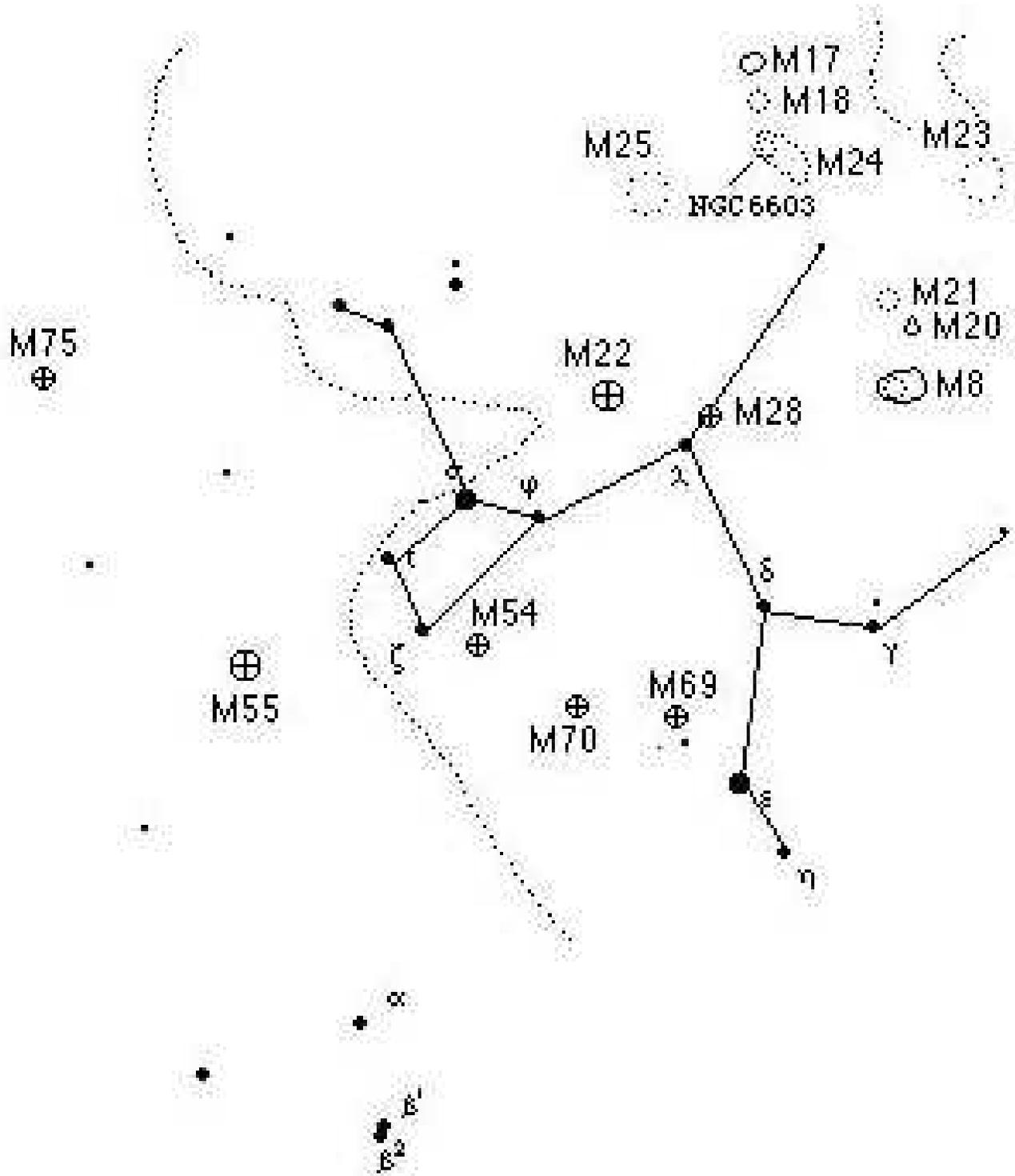
Table of Emission Nebulae:

Object	RA	Dec	Size	Mag.
M8	18h 03.7m	-24d 23' 60"x 35"	5.0	
M20	18h 02.4m	-23d 02' 29"x 27"	9.0	
M17	18h 20.8m	-16d 10' 46"x 37"	6.9	

By no means should you stop at the objects listed here. Sagittarius is full of many others that will keep you busy for hours.

Constellation Report by Chris Lancaster (cont.)

Sagittarius Map



Tucson Amateur Astronomy Association
P.O. Box 41254
Tucson, AZ 85717

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 "wash boarded" 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.