Desert Skies

Tucson Amateur Astronomy Association

Volume LI, Number 12 December, 2005

Ready for Astro-Photography!

Cover Photo: TAAA members participated in a Barn Door Workshop on November 19, 2005. They are shown here holding their finished products. The Beginners' Special Interest Group sponsored the workshop, led by Lou Faix. We can look for some outstanding astrophotos taken with these high tech instruments in the near future.

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

Office/Position	*Name*	*Phone*	*E-mail Address*
President	Thom Peck	327-7825	president@tucsonastronomy.org
Vice President	Bill Lofquist	297-6653	vice-president@tucsonastronomy.org
Secretary	Steve Marten	307-5237	secretary@tucsonastronomy.org
Treasurer	Terri Lappin	579-0185	treasurer@tucsonastronomy.org
Member-at-Large	George Barber	822-2392	mal1@tucsonastronomy.org
Member-at-Large	Tom Watson	795-2484	mal2@tucsonastronomy.org
Member-at-Large	Ken Shaver	762-5094	mal3@tucsonastronomy.org
Chief Observer	Wayne Johnson	586-2244	chief-observer@tucsonastronomy.org
AL Correspondent (ALCor)	Nick de Mesa	797-6614	alcor@tucsonastronomy.org
Astrophotography SIG	Steve Peterson	762-8211	astro-photo@tucsonastronomy.org
Computers in Astronomy SIG	Roger Tanner	574-3876	astro-comp@tucsonastronomy.org
Beginners SIG	Bill Lofquist	297-6653	novice@tucsonastronomy.org
Newsletter Editor	George Barber	822-2392	taaa-newsletter@tucsonastronomy.org
School Star Party Scheduling Coordinator	Paul Moss	722-2704	School-star-party@tucsonastronomy.org
School Star Party Volunteer Coordinator			school-sp-volunteers@tucsonastronomy.org
Webmaster	Dean Salman	574-9598	taaa-webmaster@tucsonastronomy.org
Club Sales	Ann Scott	749-4867	taaa-sales@tucsonastronomy.org
Equipment Loan Coordinator	Jerry Penegor	320-1872	elc@tucsonastronomy.org
Librarians	Claude Plymate Teresa Plymate	883-9113	librarian@tucsonastronomy.org
Grand Canyon Star Party Coordinator	Dean Ketelsen	293-2855	gcsp@tucsonastronomy.org
General Information	Thom Peck Terri Lappin	327-7825 579-0185	Taaa-info@tucsonastronomy.org
TAAA Board Of Directors	All Board Members		taaabod@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 (only one discount allowed)

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 $ 5.00
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 $ 3.85

Donations are accepted for the following funds: SA-IDA/Light Pollution, TIMPA, Education, 30" Telescope & Land, 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. Partial page submissions should be submitted in Word compatible files via e-mail or on a floppy disk. Full-page articles, artwork, and photos can be submitted camera ready. We will not publish slanderous or libelous material! Send submissions to:

George Barber
TAAA/Desert Skies Editor
15940 W Ridgemoor Ave Tucson AZ 85736

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President's Message

With the holidays upon us, our thoughts are with those special members and loved ones who have less than perfect health. Positive thought and reassurances go a long way toward recovery.

We also have a lighter star party schedule, but that doesn't mean we should let up on the volunteering, especially for the school star parties. Do yourself a favor and attend these events.

The TIMPA site is being worked on. The SMR Construction Company has been given the go-ahead by the Board of Directors to begin work on the 16-foot dome. They are also contracted to construct a new TIMPA-approved access road. We should have a good observatory with control room early in 2006.

With the holidays come changes in some schedules. We will have newsletter deadlines a week earlier so that much of the activity surrounding that process frees up time at the end of December.

I would like to wish all a happy and healthy holiday season.

Thom Peck

Meeting Information and Calendar of Events

TAAA MEETING DATE: Friday, Dec. 2, at the Steward Observatory Auditorium - Room N210

ASTRONOMY ESSENTIALS: 6:30 pm

Title: The Sun and Solar Observing
Speaker: George Barber

You don't have to wait until dark to study the stars! Our Sun is an excellent opportunity to see a star in action. In this talk, some basics about the Sun will be presented, along with proper equipment for safely observing our nearest star.

GENERAL MEETING: 7:30 pm

Title: Helioseismology -- The Music of the Sun
Speaker: Frank Hill, Global Oscillation Network Group (National Solar Observatory)

The sun is filled with sound -- it rings like a bell, and has millions of notes in its musical scale. Since the sound is trapped below the surface, we can probe the inside of the sun by carefully measuring the tones of the sound. This field of astronomy is known as helioseismology, the study of solar oscillations. In his lecture Dr Hill will describe the basic principles behind the science, discuss the ways to deduce what is happening inside the sun, and present some of the exciting new information learned about the solar interior. These include the bizarre way the sun rotates, solar tornadoes under sunspots, and the appearance of sunspots on the side of the sun that is turned away from the earth. Dr Hill will also briefly touch on asteroseismology, where the same technique is being used to unravel the interiors of other stars.

Dr. Frank Hill is on the staff of the National Solar Observatory. He is the director of the Global Oscillation Network Group (GONG) Program, which operates six instruments around the world to observe the solar oscillations. He received his PhD from the University of Colorado in 1982, and has been working in the field of helioseismology since 1976.

BOARD OF DIRECTORS MEETING: Wednesday, Dec. 14, 6:30 pm at Steward Observatory Conference Room N305

STAR PARTIES AND EVENTS:
26 Nov - TAAA Star Party and Beginner's SIG at TIMPA
03 Dec – TAAA Star Party at Las Cienegas
03 Dec - Astrophoto SIG Dinner and Observing
07 Dec - TAAA Beginner's SIG at China Rose
08 Dec – Astrophoto SIG at China Rose
09 Dec - Painted Sky ES Star Party
10 Dec - TAAA Beginner's SIG Moon Party at Bill Lofquist's
31 Dec – TAAA Star Party at Las Cienegas

NEWSLETTER SCHEDULE: Deadline for articles: Sat, Dec. 17. Printing: Mon, Dec. 19. Folding Party: Tues, Dec. 20. Mailing: Wed, Dec. 21. The newsletter is mailed at least one week prior to the following month's General Meeting.

Club News

January 2006 Newsletter

The deadline for the January newsletter has been advanced one week so that everyone can enjoy the holidays. Your submissions will be due by December 17.

Member News

We welcome the most recent members to join the TAAA: Jennifer Morehead and Chris Adams, and Alistair Symon. Glad to have all of you join! New members should be sure to pick up a new members pack at a meeting. Hope you'll make it to our star parties or meetings so we can all get to know you. (Updated membership lists are available to any member at most meetings, so pick one up if you need it.)

Richard Dougall, TAAA member who was seriously injured in a construction accident, is now recovering at home.

Club News (cont.)

You can call him at 245-5441.

Ed Finney's cancer has returned and he is undergoing 3 weeks of radiation therapy. Our thoughts and prayers are with him and Ellen. As of this writing he's at St Joseph's Hospital being treated for severe pain caused by a tumor pressing on his spine.

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've got hats, T-shirts, denim shirts, and patches. For those who placed orders, TAAA jackets will be delivered at the December meeting. We take cash and checks.

2006 Calendars

Calendars for 2006 are for sale at regular meetings this fall. You'll find them at the same table where you purchase TAAA apparel. This year's calendar is "Celestial Wonders", produced by Sky Publishing. The cost is $10 each (~$3 off the regular selling price), or $9 each for more than one. This calendar has information about astronomical events, both historical and observational... plus illustrations showing positions of the moon and bright planets for the month.

Proceeds from the sale of these calendars will be used appropriately as decided by the board. Thank you to all who support the TAAA through the purchase of the yearly calendars.

Basha's Thanks A Million Program

The Basha's Thanks A Million program is underway now through March 31, 2006. If you shop at Basha's, ask the cashier to link your Thank You card to the Tucson Amateur Astronomy Association. Our ID # is 23178. (Basha's customer service has a list of ID numbers if you forget our number.) Even if you participated last year, you need to sign up at the register again. At the end of the program, provided we meet a minimum of $2500 in combined sales, the TAAA will receive a donation equal to 1% of the total purchases made by our members. Thank you to all the members who participated last year, which resulted in a donation to the TAAA of over $70. So, if you shop Basha's, remember to have your Thank You card linked to the TAAA (ID #23178).

Upcoming Lecture Schedule

Below is our upcoming lecture schedule. We are always looking for Astronomy Essentials speakers. These are given by our own members so please consider presenting a 30-minute lecture about some basic astronomy topic.

Our 2006 invited lecture schedule is in the works. Under consideration are lectures about Mars and the Large Binocular Telescope. If you have a suggested topic or speaker in mind send an email to Terri at treasurer@tucsonastronomy.org or call her at 977-1290.

Date	Lecture	Speaker	Topic
Jan 6	Astro Essentials	Open	
	General Meeting	Open	
Feb 3	Astro Essentials	Open	
	General Meeting	Astro Imaging SIG presentation	

Beginners' Special Interest Group December Activities

By Bill Lofquist

The Beginners' Special Interest Group had a very nice turnout for the November 5th night at TIMPA. Reports were that the observing was very good.

If you read this on time, for those who might want some observing activity for the **Thanksgiving weekend**, there will be another open night at TIMPA on **November 26th**. We will use the November observing list that Mary Turner prepared for us at that time. We hope to see some of you then.

The main activity for December is a Moon Party at the home of Bill Lofquist on Saturday, December 10. Since it starts to get dark early, we will begin to set up any time after 5:30. This will be preceded on Wednesday, December 7 by an indoor meeting at China Rose Restaurant at the corner of Speedway and Rosemont. That will begin at 6:00. We will do some preparation for our moon observations.

Also, we will review a draft of an observing program that Tom Watson has prepared for us. This will be a short and long-range plan for the Beginner's SIG and will give all of us an opportunity to take our observing skills as far as we would like.

To get to Bill's house for the Moon Party on December 10, he lives at 1935 West Harran Circle. This is near the intersection of Ina Road and La Cholla Boulevard. Go south from that intersection on La Cholla Boulevard. The first traffic light is at Omar, and Donaldson Elementary School is on the left. Turn left on Omar and turn right at the first street, which is Amahl. Go one half mile and turn left on Harran Drive. (You will see that Amahl changes to Sesame Lane at that point.) The next left off of Harran Drive is Harran Circle. We are the first house on the left on the cul de sac. If you get lost, call us at 297-6653.

Everyone is welcome. If you have a scope or a pair of binoculars, bring it with you. For those who are interested, we can also do some photography.

We hope to see you there. Have a great Thanksgiving holiday!

Club News (cont.)

Astro-photo SIG Meetings

Saturday, December 3, 3:00/4:30 pm
Thursday, December 8, 7:00 pm
China Rose, NE corner Speedway/Rosemont

In addition to our Thursday meeting at China Rose Restaurant we're planning to meet for early dinner at "Argenziano's" Italian Restaurant, 16251 S. Houghton Rd. (Houghton Rd. 1/2 block north of Sahuarita Rd. on the east side of the road...you can't miss it!), Saturday afternoon, 03DEC05 at 3:00 PM. The food is great and prices very reasonable! After dinner we will travel a short distance to Steve Peterson's backyard observatory (construction almost complete) to setup (weather permitting) under some clear, dark skies (no kidding, just ask Dean Salman!) at about 4:30PM. The Sun sets at about 5:19PM. The observatory has power receptacles outside the building and ample space for setup for up to about a dozen or so telescopes (bring your own extension cords and outlet strips) around the building. Since parking may be a little tight, check with other interested parties about carpooling. There is a "Porta-Potti" on site (unless the flush toilet gets hooked-up in time ;>).

This is a great chance to practice astrophotography or CCD imaging under very dark skies with power and toilet onsite (three of the basic astro-imaging needs). This is also a chance to network with other like-minded imagers in the same gathering. All those interested in attending please confirm by emailing Steve Peterson at: astro-photo@tucsonastronomy.org for detailed directions, and a head count; and remember: A PHOTON IS A TERRIBLE THING TO WASTE!

Items of Interest

WEBSITES: TRIPS ON THE INTERNET SUPER-SKYWAY

By Rik Hill

Whose news do you use?

Trying to stay on top of the latest discoveries and explorations in astronomy and space science? In this day and age of web news, that can be a challenge. Most of us go first to good ol' Sky and Telescope for the breaking news at: http://skyandtelescope.com

Which is good but often not the latest or comprehensive. Astronomy Now (U.K.) has their own news website too: http://www.astronomynow.com

Which is also pretty good but a little behind the cutting edge. Better and timelier astronomical/space coverage can be found at Universe Today: http://www.universetoday.com

And also at SpaceWeather: http://www.universetoday.com

These two are usually updated daily and the latter often uses images and reports from amateur astronomers on current activity on places like Mars, Jupiter and the Sun.

A good page for more international astronomical/space news is the World Science page at: http://www.world-science.net

It tends to carry a broader spectrum of scientific selection of news but does a good job on astronomical topics.

If this more varied diet of news is what you want, one of the old staples in the scientific news business is appropriately named Science News: http://www.sciencenews.org

Items of Interest (cont.)

This is written for the scientist and often articles not in a field your familiar with will be a bit challenging, especially with the specific lexicon. If you prefer a more generalized approach try Discover Magazine news page at: http://www.discover.com

A good space science news page is the Space.com news page at: http://space.com/news,

And they tend to carry more foreign space related stories. You'd be surprised how much you don't hear over here!

For a more space oriented bent you might try Spaceflight Now: http://spaceflightnow.com

I like this one because it keeps me up on the smaller launches that light up our skies. This lets me get my camera ready!

For the real aficionado of spacecraft and space science, more launch and satellite news can be had at: http://www.sat-index.com

This is for the really hard-core satellite watchers among us.

If you were to peruse these every day you'd be better informed than most professional astronomers on a wide range of topics!

Got a website you think is pretty good? Send me the URL and I'll check it out.

Steward Observatory Public Evening Lectures

The Steward Observatory faculty gives popular public series talks in the Steward Observatory Lecture Hall every other Monday at 7:30 PM. Upcoming lectures are listed below. The complete lecture schedule can be found at http://viking.as.arizona.edu/~taf/pubeve/pub_lect.html.

Dec 5	Dr. Christy Tremonti	Gone with the Wind: Insights into How Galaxies Use (and Lose) their Gas (from the Sloan Digital Sky Survey).

Dark Skies for December 2005

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

We/Th 30/ 1 18:45 - 5:41	Su/Mo 11/12 4:20 - 5:48	Th/Fr 22/23 18:52 - 23:56
Th/Fr 1/ 2 18:45 - 5:41	Mo/Tu 12/13 5:26 - 5:49	Fr/Sa 23/24 18:52 - 0:51
Fr/Sa 2/ 3 18:46 - 5:42	Tu/We 13/14 - - -	Sa/Su 24/25 18:53 - 1:48
Sa/Su 3/ 4 19:21 - 5:43	We/Th 14/15 Full Moon	
	Th/Fr 15/16 - - -	Su/Mo 25/26 18:53 - 2:48
Su/Mo 4/ 5 20:32 - 5:43	Fr/Sa 16/17 - - -	Mo/Tu 26/27 18:54 - 3:51
Mo/Tu 5/ 6 21:44 - 5:44	Sa/Su 17/18 18:49 - 19:12	Tu/We 27/28 18:55 - 4:59
Tu/We 6/ 7 22:55 - 5:45		We/Th 28/29 18:55 - 5:57
We/Th 7/ 8 0:02 - 5:46	Su/Mo 18/19 18:50 - 20:11	Th/Fr 29/30 18:56 - 5:57
Th/Fr 8/ 9 1:07 - 5:46	Mo/Tu 19/20 18:50 - 21:10	Fr/Sa 30/31 18:57 - 5:57
Fr/Sa 9/10 2:11 - 5:47	Tu/We 20/21 18:51 - 22:06	Sa/Su 31/ 1 18:57 - 5:58
Sa/Su 10/11 3:16 - 5:48	We/Th 21/22 18:51 - 23:02	

Weekend	Sun	Sun	Mercury		Venus		Mars		Jupiter		Saturn		
Sa/Su	Set	Rise	Rise	Vi	Set	Vi	Set	Vi	Rise	Vi	Rise	Vi	Vi=Visibility
3/ 4	17:17	7:08	5:40	4	20:15	-4	4:34	-2	4:25	-1	21:35	0	-3 brilliant
10/11	17:17	7:13	5:32	3	20:08	-4	4:06	-1	4:04	-1	21:06	0	0 conspicuous
17/18	17:20	7:17	5:43	3	19:54	-4	3:41	-1	3:43	-1	20:37	0	3 moderate
24/25	17:23	7:21	6:02	4	19:33	-3	3:18	-1	3:21	-1	20:08	0	6 naked eye limit
31/ 1	17:28	7:23	6:23	6	19:03	-1	2:58	-1	2:59	-2	19:39	0	9 binoculars limit

By Erich Karkoschka

Star Parties & Events

TAAA Star Party and Beginner's SIG at TIMPA
Saturday, November 26

Come on out and enjoy the late autumn 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 anyways, 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 cold temperatures after sunset. Directions to the TIMPA site are located on the outside flap of this newsletter.

TAAA Star Party at Las Cienegas (Empire Ranch)
Saturday, December 3

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 astrophotos. 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. There are no restroom facilities at the site, so be prepared. Las Cienegas is at 4000 feet so be prepared for cold temperatures. Attendees should park their vehicles either perpendicular to the airstrip facing toward the center of the strip, or parallel to the airstrip along either side facing west. That way, when you are ready to leave, you will not have to back up and turn on your bright white backup lights. See the directions to Las Cienegas on the outside flap of this newsletter.

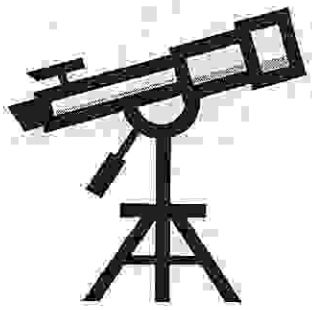
Painted Sky ES Star Party — Northwest
Friday, 12/9/2005 — No. of Scopes: 6

Painted Sky ES will be hosting Night of Lights at 12620 N Woodburne Ave. Go north on Oracle to 1st Ave and turn left (west). Continue as road curves north, past second stoplight at Tangerine (Safeway on right) to the next street, Woodburne and turn left (west). School is 1/8th mile further on right. Viewing will be on the athletic field. Contact person Lorraine Morgan can be reached at 520 203-6565 or email tabash@aol.com . Set-Up Time: 6:00pm. Observing will be from 6:30 pm to 9:00 pm. Sunset: 5:20pm Dark Sky: 6:17pm Moon Phase: First Quarter.

TAAA Star Party at Las Cienegas (Empire Ranch)
Saturday, December 31

Ring in the New Year while enjoying the dark skies at Las Cienegas.

Telescopes for Borrowing



Don't own a telescope?
The TAAA Loaner Program is your answer!
There's no cost to you.
We have the following telescopes:

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)

New members, here's your chance to begin learning and observing the sky before buying any equipment.
Loaner Program is available to any current member after meeting requirements detailed in the TAAA Loan Policy.
Contact the Equipment Loan Coordinator listed in the "Desert Skies" for details about the telescopes.

Object of the Month by Alfredo Garcia

This month, the OTM is an integral part of our solar system. The Italian astronomer Giuseppe Piazzi discovered the first of these objects in 1801. At first he thought the object he had discovered was a new comet, but it was later determined that it was not a comet, but more like a small planet. Another three of these objects were discovered between 1802 and 1807. Then, 38 years passed before the next of these objects was discovered. Today, of course, astronomers know of thousands and thousands of them.

These "small planets" belong to the class of objects known as asteroids. The word asteroid has its derivation from the ancient Greek word "asteroeid Es", meaning star-like. You can easily see where the name comes from because when you observe asteroids thorough a telescope, they basically look like a star except that these "stars" wander among the background stars.

In reality asteroids are not stars, but rocky and metallic objects that orbit the Sun. They are too small to be considered planets and are often referred to as minor planets or planetoids. They range in size from over 1000 kilometers down to the size of pebbles. Sixteen of these asteroids have a diameter of 240 kilometers or greater. Their orbits bring them inside Earth's orbit to beyond the orbit of Saturn. The majority of them, however, are contained within a main belt that exists between the orbits of Mars and Jupiter known as the Asteroid Belt (Figure I).

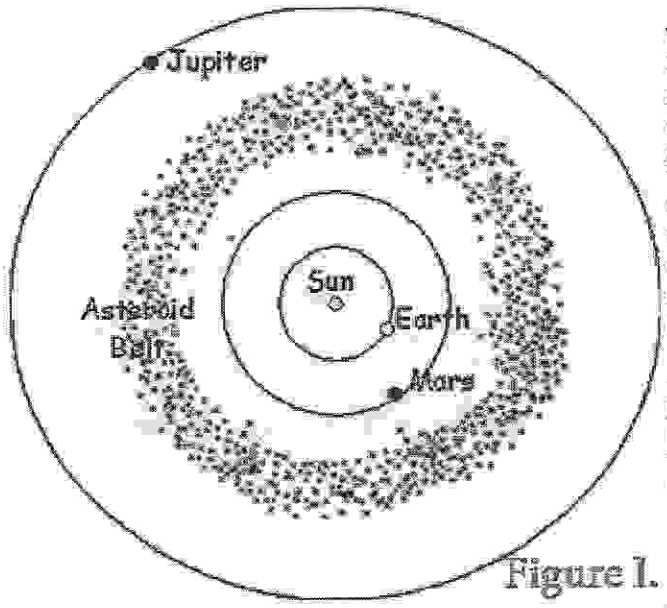


Figure I.

Without any further introduction, I present to you the December 2005 OTM, the asteroid known as 4 Vesta. As the number in front of the name infers, Vesta is the fourth object of this type to be discovered and as mentioned above, the last to be discovered until some 38 years later when the Asteroid 5 Astraea was discovered. The German astronomer Heinrich Wilhelm Olbers discovered 4 Vesta on 29 March 1807. It was named after Vesta (of Roman mythology), who was the sister of Zeus, Poseidon, and Hades and the daughter of Saturn and Ops. Incidentally, Olbers also discovered asteroid 2 Pallas and a periodic comet (13P/Olbers) in 1815. The asteroid 1002 Olbersia is also named in his honor.

Asteroid 4 Vesta has a maximum size of about 525 kilometers and is actually not circular in shape. It is the third largest of the main belt asteroids and also the brightest reaching a magnitude of 6.3. This brightness makes it the only asteroid to be visible to the naked eye. The asteroid has a rotational period of about 5.34 hours and an orbital period around the Sun of 3.64 years. Its orbit brings it as close as 2.15 astronomical units (AUs; 1 AU = ~93,000,000 miles) to the Sun and as far away as 2.57 AUs. During the month of December (at 2200 MST) 4 Vesta will be as far way as 1.74 AUs on 1 December and close as 1.56 AUs from Earth on 31 December. Its speed of apparent motion across the sky ranges from about 16.8 arc-seconds/hour at the month's beginning to about 40.8 arc-seconds/hour by month's end. This degree of apparent motion will allow you easily see it "move" from hour to hour with respect to the background stars.

Asteroid 4 Vesta will be well placed for observation during the entire month of December at around 2200 MST from Tucson, AZ. It will be situated from about 20 (01 Dec 05) to 50 degrees (31 Dec 05) in altitude above the east horizon in the constellation of Gemini. As the month progresses, its magnitude range will be from 7.1 to 6.4. This increase in brightness should make it a naked eye object by month's end, but you will have to go to a dark sky location and of course a moonless night. This range places it well within the observation capabilities of even the smallest telescopes. The map at Figure II shows the asteroid's path in the sky throughout the month and it can used it to star hop to the asteroid. The dimmest stars shown on the map are magnitude 10.0. 4 Vesta is best observed later in the evening when it is highest above the horizon and also during periods when there is no bright moonlight, though this is not absolutely necessary due to 4 Vesta' magnitude range.

For those with setting circles and/or automated GO TO telescopes, see Table I to locate the asteroid using RA and DEC coordinates. I picked an arbitrary time of 2200 MST from Tucson, AZ, and show the asteroid's position at 5-day increments throughout the month. I also have shown the asteroid's altitude above the horizon and associated magnitude on the respective dates.

Table I. December 2005 4 Vesta At 2200 MST, Tucson, AZ

Date (December)	1	5	10	15	20	25	31
RA (hrs min)	07 36	07 34	07 31	07 28	07 23	07 19	07 12
Dec (degs min)	20 23	20 36	20 54	21 15	21 37	22 00	22 29
Alt (degs)	19.9	23.6	28.5	35.6	38.8	44.1	50.7
Magnitude	7.1	7.0	6.9	6.8	6.7	6.6	6.4

Object of the Month by Alfredo Garcia (cont.)

Though 4 Vesta is visible as a star-like object in a telescopic field of view and you can trace its movement from hour to hour against the background stars, though the motion is not always easy to perceive. But, this apparent movement can be easily "captured" in astrophotographs or CCD images over time by employing some asteroid imaging techniques.

This author was not able to image 4 Vesta prior to the deadline date for the newsletter input. However, I have produced some simulated images of 4 Vesta (or for that matter any asteroid), as they would look if you employed the imaging techniques that follow.

If you track on the background stars during your exposure, then the asteroid movement will be recorded as a trail on the image (Figure III).

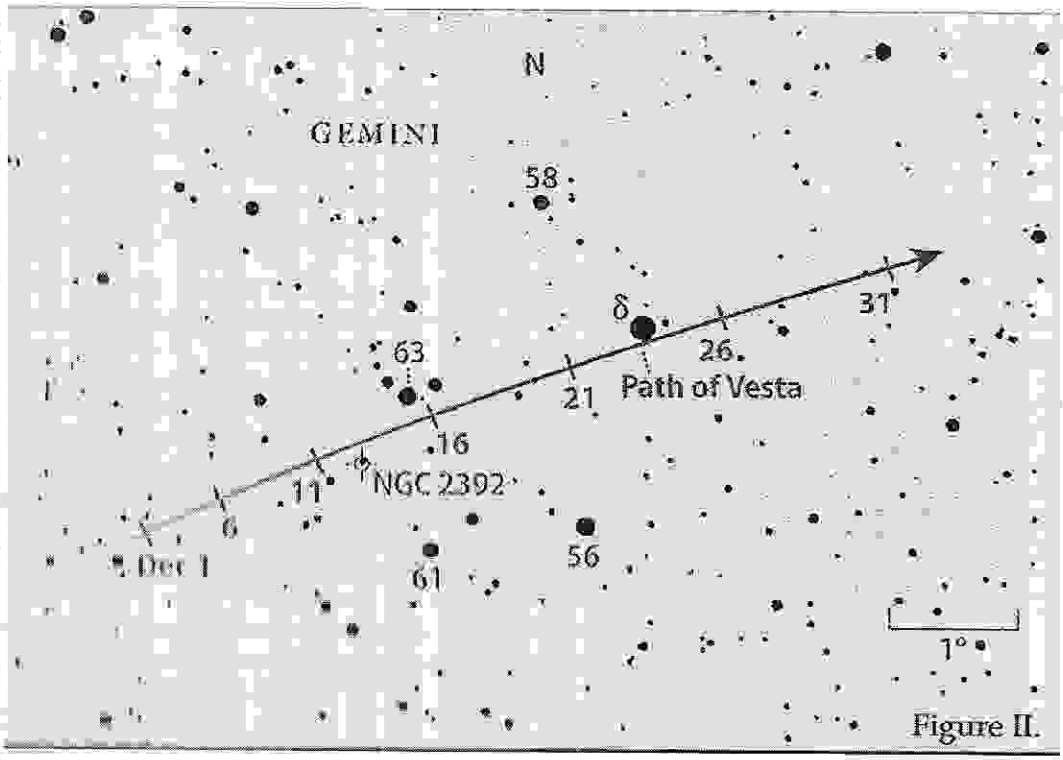


Figure II.

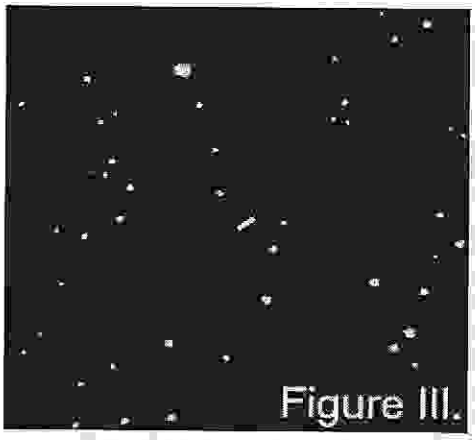


Figure III.

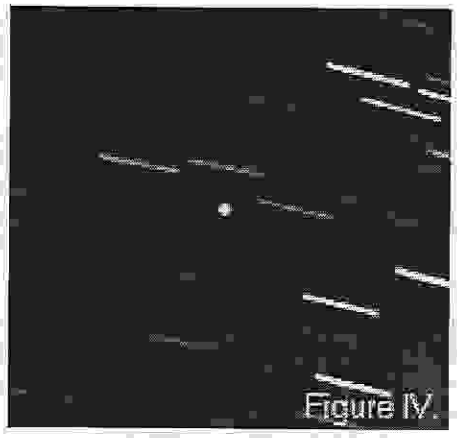


Figure IV.

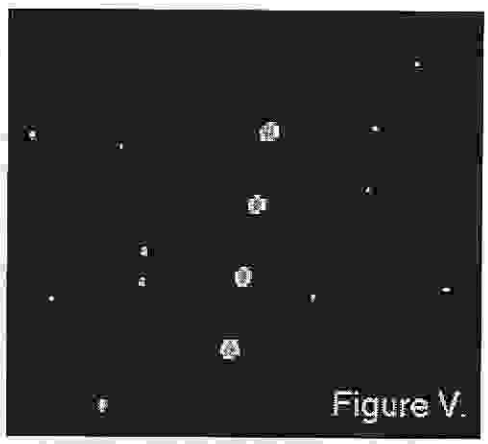


Figure V.

If you track on the asteroid during exposure, then the stars will be trailed (Figure IV). You can also take shorter exposures over time to minimize star and asteroid trailing and then combine the images to show the asteroid as a star like object moving across the exposure field (Figure V). All of these imaging techniques are good and fun to use and also help you to improve your imaging skills. So all you astrophotographers and CCD'ers, get your cameras ready for what should be a nice imaging opportunity outside of the usual planetary and deep space objects we "shoot".

Good luck on your imaging endeavors.

TAAA Board of Directors Meeting - November 9, 2005

Attending: TAAA Board Members present: Thom Peck, presiding; Bill Lofquist, Terri Lappin, Steve Marten, and Ken Shaver. TAAA Members present: Steve Ratts and Shawn Hermann.
President's Call to Order: 6:45PM
Review of October Minutes: Previous Board of Director Meeting Minutes accepted (5-0), with the following revisions: proceeds of paid star parties have been directed to the General Fund since April, 2005; website link for Grand Canyon Star Party should be to "contact us" email link.
Member Feedback: Attending members were impressed with our November meeting speaker, Dr. Bill Stoeger. Vatican Observatory Group and the University of Arizona.
Announcements

- Vote for constitutional amendment regarding voting procedures passed 94-3.
- Ann Scott has decided not to order additional denim shirts pending likely new TAAA logo.

Status of the 16' Dome Construction - Steve Ratts and Shawn Hermann:

- Board reviewed proposal from SMR and discussed methods to cover costs including dedicated donations to the 16' Dome Project.
- SMR Proposal includes building and foundation, placement of dome, 12 x 16 air-conditioned control room, plans, permits and taxes. Total materials and equipment cost is $19,582, labor $17,763 and total cost $37,345. This total does not include lighting and electricity installation, painting, finishing and flooring. Also, replacement cost of any Ash dome parts or accessories needed for proper operation of the dome is not included.
- A suggestion to secure a bid from another firm with less experience in constructing domes was rejected by the Board.
- Board voted to approve SMR Proposal to construct the dome (5-0)
- Shawn and Steve will ask for a re-bid for the separately bid graded gravel access road to the dome, pads, and star party area road using TIMPA approved materials, and if work bid is of value and under $3,000, they may proceed; approved (5-0).

Beginner's SIG – Bill Lofquist

- Board favorably received Tom Watson's Proposed Observing Certificate Program including participation in star party events as part of the qualification.

TIMPA Key Cards - Thom Peck

- As Beginner's SIG frequently holds meetings on scheduled TIMPA nights, the Board directed (5-0) that at least two Beginner SIG staff members hold card keys. Beginner's SIG will schedule a staff member to open TIMPA on scheduled nights.

TAAA Survey - Steve Marten

- TAAA Survey was evaluated and approved with several revisions. Terri will convert the survey into a publisher format and send to Board for final review and electronic vote.

TAAA Equipment - Terri Lappin

- Terri recommended replacement of failing projector; Board approved 5-0, with a limit of $1,000.

30" Telescope - Thom Peck

- Thom appointed Terri to act as Coordinator for Michael Grindle until January.
- Terri recommended that a written agreement between TAAA and UofA on terms for construction and use of the 30" scope including that TAAA retain ownership of its property and be assigned reserved scope time in exchange for use of TAAA mirror. Board approved 4-0.

TAAA Forum "Off-Topic" Messages – Terri Lappin

- Terri reported that she has uploaded revised TAAA Forum Guidelines on the Forum site. All Forum members will receive an electronic copy of the guidelines every month.

Adjourn 9:40pm
Respectfully Submitted,
Steve Marten, Secretary

Desert Skies Classified

For Sale:	Orion 100mm, F/6 Astroview refractor with clamp rings, dovetail adapter plate and 30mm finder scope for sale for $225. Optics are excellent as is scope condition. Frank ,520-743-0018 [12/05]

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.

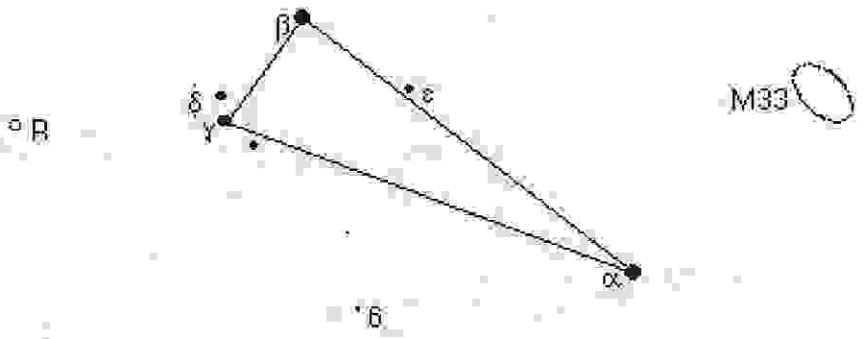
Constellation Report by Chris Lancaster

Triangulum

There are many fanciful stories from mythology that those from ancient civilizations tied to the stars to explain the origins of the constellations. Triangulum, by contrast, has a more worldly derivation. Just as we see a simple triangle, so did the Romans who named this group of three stars Deltotum from its resemblance to the Greek letter Delta. Other explanations for why the stars of Triangulum caught the attention of early astronomers say that it was because the simple shape is reminiscent of the Nile delta or the island of Sicily. But no matter what the origin, it has a fitting name. Triangulum is easy to spot near the zenith on November nights between the double arcs of stars forming Andromeda and the short hook pattern of Aries.

If Triangulum were a rock band, then it would be a one hit wonder. That's because it has an object that out classes every other point of interest within the constellation. This is, of course, M33, or the Pinwheel Galaxy. Along with M31 (the Andromeda Galaxy), and our own Milky Way, M33 is the third large galaxy in the Local Group, which is composed of several, mostly dwarf sized galaxies within 2 to 3 million light years of each other. M33, at 2.8 million light years distant, is slightly farther away than M31, and is also smaller--50, 000 light years across compared to around 100,000 for M31. And, adding to the comparison between the two, we see M33 more face on, while M31 is tilted more toward an edge-on orientation. What all this leads to is the fact that M33 covers a large part of the sky--60'x 40', or well exceeding the area of the moon. This means that to capture the entire galaxy in an eyepiece, low power, such as 40 to 50 times, is essential. In addition, its magnitude 6 light is spread over such a large extent that dark, transparent skies are also a requirement to see its diffuse glow. It is this nature of M33 that makes it difficult to find at times.

With that said, point your telescope a bit less than 4.5 degrees west of Alpha Trianguli, the star that marks the apex of the triangle (or at RA 1h 33m 51s Dec +30d 39' 37"). M33 will show a soft glow at its nucleus, which decreases gradually outward. It has two major arms, which have a lumpy, convoluted structure and trace a stretched out "S" shape. With enough aperture and sky transparency, there is enough contrast to easily see its spiral form.



Once centered on M33, you can increase power to study some of the details within it. Its fat arms are knotted with star clusters and nebulae. One of the largest H II regions known in any galaxy is near the edge of M33's visible face. This is NGC604, an expansive hydrogen emission nebula and associated star cluster that is close to 1,000 light years in diameter. In medium-sized scopes, it will appear as a distinct fuzzy clump of material about 10' to the NE from the center of the galaxy. The chemistry of this region of M33 is similar to the Orion nebula. It should be easy to spot as the most prominent feature of the galaxy besides the galactic nucleus itself.

While it is easy to forget that Triangulum has other things to offer besides M33, lets mention a couple of other objects before leaving this region of the sky. A nice, close double star, 6 Trianguli, is on the opposite side of the triangle from M33 below the line connecting Delta and Alpha Trianguli. Use high power to overcome the 3.8" separation to see a magnitude 5.2 primary and 6.6 secondary. While some historical accounts of 6 Trianguli describe a yellow or gold primary and a blue or sapphire secondary, my experience with this double, which match a small sampling of others' descriptions, is of two similar pale yellow stars, with the secondary showing a slightly gray-yellow tint. The spectra of these two stars are G5 and F6, which indicate that some color difference may be apparent.

The best variable star in Triangulum is the long period variable R Triangulum, which is four degrees east of the corner of the triangle marked by Gamma Trianguli (RA 2h 37m 16.6s Dec +34d 15' 54"). It is just beyond naked eye visibility at its maximum magnitude of 5.7, and then over a period of 266 days it oscillates between that and a feeble magnitude 12.5