



Desert Skies

Tucson Amateur Astronomy Association

Volume LII, Number 1

January, 2006



False-color Spitzer Space Telescope infrared image of NGC 4725.

Cover Photo: This galaxy's solo spiral highlights the emission from dust clouds warmed by newborn stars. Sporting a prominent ring and a central bar, this galaxy is over 100 thousand light-years across and lies 41 million light-years away in the well-groomed constellation Coma Berenices. **Credit:** R. Kennicutt (Univ. Arizona), SINGS Team, JPL-Caltech, NASA [Astronomy picture of the day, Sept. 1, 2005.]

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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 (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. 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:

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

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President's Message

Happy New Year everyone. The newsletter is full of good-ies this month.

First off, please read through the TIMPA Report. We have much to be thankful for and many helpful volunteers - not the least of whom is Shawn Hermann, who is leaving us for a job in Tulsa. Thanks Shawn for your help along with Steve Ratts in getting the TIMPA Dome project going.

You will also notice a Membership Survey inserted into the newsletter. This is a very important tool for the current, and future, Board of Directors in helping to meet the needs of our membership and guiding the association to the next level. Please fill out the survey and bring it to the meeting.

There is also a contest for the membership to design a new logo for the club to use on apparel. Ann Scott has an article you should pay attention to.

Lastly, I want to thank David Levy for coming up with the 14-inch Meade LX200 GPS Schmidt-Cassegrain Telescope to be put in the TIMPA Dome. Meade Instruments has a very enthusiastic liaison in the person of Scott Roberts. Scotty is one of the nicest people you'll ever meet, and he promotes astronomy with all his heart, as does David. It's hard to thank these people enough. And CONGRATULATIONS go to David on celebrating 40 years of comet hunting. Now that's dedication!

Thom Peck

Meeting Information and Calendar of Events

TAAA MEETING DATE: Friday, Jan. 6 at the Steward Observatory Auditorium - Room N210

ASTRONOMY ESSENTIALS: 6:30 pm

Title: Star Party Essentials

Speaker: Steve Marten

Ever been asked by a new observer at a Star Party "What's this about String Theory?" An accurate and detailed discussion probably would take too long and be of little use to most observers but there are successful methods to best describe fundamentals of cosmology, and other areas of astronomy. There's a plethora of questions out there and they won't scare you away if you can put a few facts and references in order for any night behind the scope for family, friends or TAAA events. Many of you have your own "system" - see if this doesn't add to your understanding of how to relay your interest in Astronomy or spur new ideas.

GENERAL MEETING: 7:30 pm

Title: New Windows on Galaxy Evolution

Speaker: Robert Kennicutt (Institute of Astronomy, University of Cambridge)

Most of the energy released by young stars is emitted by galaxies in the ultraviolet and far-infrared regions of the electromagnetic spectrum, regions that are inaccessible to ground based telescopes. Now thanks to two space observatories, the Spitzer Space Telescope and the Galaxy Evolution Explorer (GALEX), we are able to obtain deep images of galaxies at these wavelengths that approach the resolution of ground based visible imaging. The data are allowing us to make complete, detailed maps of the current star formation, covering the full range of interstellar environments and evolutionary stages. The same data delineate the structure of dust in the interstellar medium in galaxies with unprecedented depth and detail, allowing us to probe the physical interplay between star formation and the ISM, down to the scales where star formation events are triggered. Observations from these and other surveys are producing a revolution in our understanding

of star formation in galaxies.

This talk will highlight observations of nearby galaxies as revealed by the Spitzer and GALEX observatories, with emphasis on two studies being carried out at Arizona (and now Cambridge), the Spitzer Infrared Nearby Galaxies Survey (SINGS), a comprehensive, multi-wavelength Legacy study of 75 nearby galaxies, and the 11 Mpc H-alpha and Ultraviolet Galaxy Survey (11HUGS), a complete census of star-forming galaxies within 11 Mpc of the Milky Way.

Our speaker, Robert Kennicutt, was a longtime faculty member at Steward Observatory until this past October when he began his new appointment as the Plumian Professor of Astronomy and Experimental Philosophy at the University of Cambridge. This is quite an honor - the Professorship dates back to 1704. Dr Kennicutt is still involved with Steward Observatory and visits frequently to collaborate with students and postdocs. He has been Editor-in-Chief of The Astrophysical Journal since 1999.

His research centers on star formation in galaxies, galactic evolution, and observational cosmology. He served as Co-Principal Investigator on the HST Key Project on the Extragalactic Distance Scale, which measured the definitive value for the Hubble constant. In May 1999 we heard Dr Kennicutt's lecture about that work which revealed the age of the universe.

BOARD OF DIRECTORS MEETING: Wednesday, Jan. 11
6:30 pm at Steward Observatory Conference Room N305

STAR PARTIES AND EVENTS:

31 Dec - TAAA Star Party at Las Cienegas

10 Jan - Lyons Elementary Star Party

12 Jan - Safford Engineering and Technology Magnet Middle School Star Party

12 Jan - AstroPhoto SIG at China Rose

18 Jan - Butterfield Elementary Star Party

18 Jan - Beginner's SIG at China Rose

21 Jan - TAAA Star Party and Beginner's SIG at TIMPA

26 Jan - Castlehill Country Day School Star Party

Meeting Information and Calendar of Events (cont.)

28 Dec - TAAA Star Party at Las Cienegas

NEWSLETTER SCHEDULE: Deadline for articles: Wed, Jan. 18. Printing: Mon, Jan. 23. Folding Party: Tues, Jan. 24.

Mailing: Wed, Jan. 25. The newsletter is mailed at least one week prior to the following month's General Meeting.

Club News

Member News

We welcome the most recent members to join the TAAA: Casey Berent, Ben Crowder, Hector Duarte, Keith Kendall, Mel Martin. 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.)

Apparel Logo Contest

The apparel logo needs an update, and we need your help! We are conducting a contest for a new apparel logo. The winner will receive \$50.00 worth of TAAA apparel. Here are the contest rules:

Only members are allowed to submit entries. All entries must be an original design made by the submitter. No more than one entry per person. Logos must be no larger than 2.5 inches high x 4 inches wide. Logos must use the words "TAAA" or "Tucson Amateur Astronomy Association". Entries must have the submitter's name, phone number or email address, and an actual size and color copy of the logo (electronic submissions are OK).

All entries must be submitted to Ann Scott. I will be at the apparel table during the meetings or you can email your entry to me at taaa-sales@tucsonastronomy.org, or you can call me for other arrangements at 749-4867. All submissions must be received by 1 March 2006.

The TAAA Board will select the finalists, and the membership will vote to select the winner from among these during the March meeting.

The TAAA board reserves the right to modify the winning logo to enable its conversion to a usable embroidery pattern. Please note that the winning entry must be made into an embroidery design. Do not use very small or numerous details in your entry, as these cannot be converted into a usable pattern. Good luck!

BEGINNERS' SPECIAL INTEREST GROUP PLANS FOR JANUARY

By Bill Lofquist

The TAAA Beginners' Special Interest Group tried another Moon Party in December, and we got weathered out again. We had a meeting at China Rose on December 7

and about a dozen folks came to that. On Saturday the 10th we planned to do some serious moon study, but the clouds did that in. However, about 15 people came out anyway, and we had a very nice evening of socializing, conversation about astronomy, and a presentation by Tom Watson about the observing program that is emerging.

In January we will try again with one of our regular sessions at TIMPA on January 21. This will be preceded by the usual meeting at China Rose Restaurant on Wednesday, January 18 at 6:00 PM. At that time we will review deep sky objects for viewing and other things of interest in the winter. The China Rose is at the corner of Speedway and Rosemont.

For those new to astronomy who are not familiar with the Beginners' SIG, our interest is in helping people get started in this exciting hobby. If you would like to learn about different types of telescopes, or if you have a new scope that you want to learn to use, this is a good way to start. If you want to sharpen your observing skills and become more familiar with the night sky, that, too, is what it is about. We hope you will join us.

We look forward to seeing you in January!

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. If you have a suggested topic or speaker in mind for either the Astronomy Essentials or Meeting Lecture send an email to Terri at treasurer@tucsonastronomy.org or call her at 977-1290.

TAAA Speaker Schedule		
Feb 3	Astro Essentials	Open
	General Meeting	Astro Imaging SIG Presentation
Mar 3	Astro Essentials	OPEN
	General Meeting	John Hill Large Binocular Telescope

Club News (cont.)

2006 Calendars

Calendars for 2006 are still for sale at regular meetings. 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. We must have a minimum of \$2500 in combined sales to receive a donation. We are really behind compared to last year. Even if you participated last year, you still need to sign up at the register again. So, if you shop Basha's, remember to have your Thank You card linked to the TAAA.

February Newsletter

By George Barber

I will be out of town on company business the last two weeks of January. Terri Lappin has graciously volunteered to edit the newsletter during my absence. Please note that the deadline for articles has been advanced to Wednesday, Jan. 18. Also, be sure to send your articles and contributions to taaa-newsletter@tucsonastronomy.org.

Star Parties & Events

TAAA Star Party at Las Cienegas (Empire Ranch)

Saturday, December 31, 2005

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

Lyons Elementary Star Party

Tuesday, 1/10/2006

East

No. of Scopes: 4

Lyons Elementary will be holding Family Science Night at 7555 E. Dogwood St. From Kolb and Speedway take Kolb Rd. south, past Golf Links to Escalante. Turn left (east) on Escalante and proceed about ¾ mile to Evergreen. Turn right (south) on Evergreen and proceed about half a mile

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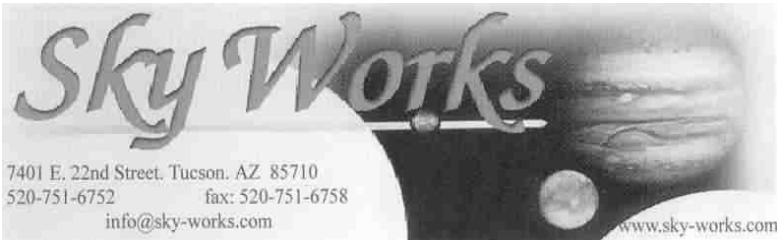
**Basha's Thanks a Million
 TAAA number 23178**

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 info@sky-works.com www.sky-works.com



Star Parties & Events (cont.)

to Dogwood, turn right (west) and proceed 1/4 mile to school. Viewing will be on the playground area behind the school. Contact person Sandy Blitz can be reached at 584-6600 or email sandra.blitz@tusd.k12.az.us. Set-Up Time: 6:00pm. Observing will be from 6:30 pm to 8:00pm. Sunset: 5:35pm Dark Sky: 6:35pm. Moon Phase: near Full Moon.

Safford Engr/Tech Magnet MS Star Party Central Thursday, 1/12/2006 No. of Scopes: 3

Safford Engineering and Technology Magnet Middle School will be hosting Math and Science Family Night at 200 E 13th St. From Broadway and Campbell drive towards downtown and stay in the right-hand lane. Make the first right-hand turn you can make onto Toole St before the train station dirt parking lot. Then turn right on to 12th Street; and again turn right into the second opening of the parking lot of Safford Magnet Middle School (as soon as you pass 13th Street). The school is located at 200 E 13th Street. The school field is right next to the school library. Contact person Elizabeth Evans-Razi can be reached at 225-3000 or email elizabeth.evansrazi@tusd.k12.az. Set-Up Time: 6:00pm. Observing will be from 6:30 pm to 8:30 pm. Sunset: 5:37pm Dark Sky: 6:36pm. Moon Phase: near Full Moon.

Butterfield Elementary Star Party Northwest Wednesday, 1/18/2006 No. of Scopes: 4

Butterfield Elementary will be celebrating Love of Learning at 3400 W. Massingale Rd. Take I-10 north to Ina Rd exit. Travel east on Ina to first stoplight past Thornydale. Turn left (north) at this light (Mereditih) and travel approx 1/4 mile to Clarisse, turn left. Follow Clarisse until it dead ends at school. Viewing will be basketball court (gate will be open). Contact person Lance Barnes can be reached at 579.5000 or email camrynjbarnes@yahoo.com. Set-Up Time: 6:00pm. Observing will be from 6:30pm to 8:00pm. Sunset: 5:45pm Dark Sky: 6:41pm. Moon Phase: near Full Moon.

TAAA Star Party and Beginner's SIG at TIMPA Saturday, 01/21/2006

Come on out and enjoy the winter 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. Directions to the TIMPA site are located on the outside flap of this newsletter.

Castlehill Country Day School Star Party Foothills Thursday, 1/26/2006 No. of Scopes: 3

Castlehill Country Day School will be holding Exploring the Night Sky at 3225 N Craycroft Rd. Contact person Michelle Meyer can be reached at 520.615-6342 or email riegalmeyer@aol.com. Set-Up Time: 6:00pm. Observing will be from 6:30 pm to 8:00pm. Sunset: 5:52pm Dark Sky: 6:48pm Moon Phase: (no moon during viewing).

TAAA Star Party at Las Cienegas (Empire Ranch) Saturday, 1/28/2006

Here's another chance to observe at our east side dark sky site. Enjoy the winter constellations!

TIMPA SITE NEWS

TIMPA Report

The TIMPA dome committee, under the leadership of Steve Ratts, has been hard at work! Plans for the TIMPA dome foundation and adjacent control room are nearly finalized and construction will begin soon. Construction will be performed by a well-established firm with experience building domes for both professional and amateur astronomers in Southern Arizona. Use of a construction firm should guarantee timely completion of the project and will ensure many years of reliable use. A much appreciated Thank You on behalf of all members of TAAA to those who have contributed their time and/or money to this project! We have raised nearly all that will be needed for the construction of the dome estimated at

nearly \$38,000. Finishing touches on this significant project require additional funds. There are needs for materials, skills, and financial support. Following is a list of items we know we'll need before the dome is operational. Plan to contribute so that you can know over the years that you played a role in constructing this TAAA milestone.

Member Time/Labor

- Electrical work
- Cleanup wiring at old dome site
- Interior and exterior painting
- Carpeting installation
- Furnishings installation
- Grounding rod

TIMPA SITE NEWS (cont.)

Material and equipment donations:

- Interior and exterior paint
- Carpeting and padding
- Warm room furnishings
- Cabinetry/shelves
- Dome control software
- Dome Motor and controllers
- Telescope
DONATED - by David Levy through Meade's generosity by way of Scott Roberts - 14" LX200 SCT GPS - Thanks!
- Pier and wedge for Meade 14" LX200
- Computer
DONATED - by Michael Turner - Thanks!
- UPS backup
- Meade DSI imaging system
DONATED - by Thom Peck - Thanks!
- CCD and control software
- Image Processing software
DONATED - MIRA AP by Mike Newberry of MIRAMETRICS - Thanks!

Monetary Donations (Ideas for raising funds)

- Fund raiser

- Dedications for donations

General Rules of Use

1. **No alcoholic beverages** - TIMPA is a City of Tucson Park where alcohol is prohibited.
2. Do not litter. Anyone using the site is responsible for cleaning up after themselves. Use the trash containers.
3. No fires.
4. Restrooms are provided for your convenience.
5. Be aware of hazards, i.e. tripping risks in the dark and the possibility of rattlesnakes. Do not kill any snakes.
6. Neither the TAAA nor TIMPA is responsible for items lost at the site.
7. Until further site improvements are completed, telescopes are to be set up on TAAA's observing pads or on the gravel parking lot. Do not set telescopes up on the TIMPA ramada area, north of the chain link fence.

TAAA Board of Directors Meeting - Dec 14, 2005

Attending: TAAA Board Members present: Thom Peck, presiding; Bill Lofquist, Steve Marten, Terri Lappin, Ken Shaver and Tom Watson. TAAA Members present: Ann, Luke and Rhiannon Scott.

President's Call to Order: 6:40PM

Review of November Minutes Accepted, Unanimous.

Member Feedback

- Interest in telescope making was strong at the Beginner's SIG meeting.
- Bret Inman suggested a possible facility for mirror making.

Announcements

- Ed Mattila offered to contribute his CDs as door prizes at the next meeting.
- Contributed 14" LX200 is officially available to TAAA. David Levy facilitated this gift. Thom Peck will write newsletter article.

Logo Design - Ann Scott

Ann presented guidelines for TAAA Logo Design Contest. Deadline for submission is March 1, 2006. Ann will email submissions to Board for review and selection of five finalists. These will be presented to members at March meeting and a vote will decide winner. The winning logo designer will receive an award of \$50. After selection, Ann will arrange for production and have new logo apparel at the April or May meeting. Board decided not to add \$1 to each item sold for support of our new observatory.

TAAA Survey

- TAAA Survey has been completed and will be included in the January issue of Desert Skies.
- The Board approved membership of the Survey Committee as of January 1, 2006, which will retain only Steve Marten (chair), and add Terri Lappin and Ken Shaver.

30" Telescope - Terri Lappin

- Terri is acting Coordinator for Michael Grindle until January.
- Terri is continuing to work on written agreement between TAAA and UofA on terms for construction and use of the 30" scope including that TAAA retain ownership of its property, be assigned reserved scope time in exchange for use of TAAA mirror and that the scope be completed and ready for use within one year of agreement.
- Project is on hold for now. Drafting has not yet commenced.

Web Re-Design Web site work continues and draft of web site will be available at next meeting or sooner.

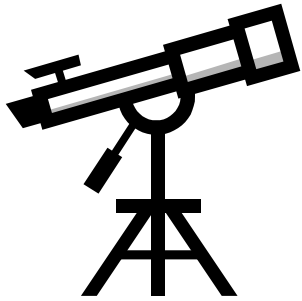
TAAA Budget

- Budget draft was presented by Bill Lofquist and discussed by the Board. Budget was approved for 2006 calendar year. Unanimous.

Status of the 16' Dome Construction Shawn Hermann was to present the TIMPA Dome construction plans but he could not be contacted due to unscheduled business travel. Steve Ratts is on business travel until December 20. Planning continues and status will be updated at next Board meeting.

TIMPA Key Cards - Thom Peck and Terri Lappin

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
Meade 10-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.

TAAA Board of Directors Meeting - Dec 14, 2005 (cont.)

- New TIMPA card change date is Feb 4, 2006. Ray Toscano will collect the old cards, secure new cards and distribute them.

Star Party Coordinators - Steve Marten

- Paul Moss has taken up School Star Party Coordinator duties successfully.
- Steve Marten is resigning as School Star Party Volunteer Coordinator effective no later than January 31, 2006.
- The Board discussed and approved Steve's suggestion that both School Star Party Volunteer Coordinator and Paid Star Party Coordinator both be supervised by one coordinator or the other as some volunteers devote most or all of their time to paid star party events.
- Andrew Cooper was commended for his efforts to support both paid and school star parties and for his leadership to members and the public at TAAA star party events.

Adjourn 8:45pm

Respectfully Submitted,
Steve Marten, Secretary

Desert Skies Classified

FOR SALE	5.5" folded f/15 achromat refractor, tube 57" long. Lens refigured by TAAA member Duane Niehaus and won Riverside Merit Award 1984. Tube assembly only: \$1300.00 Call Terri or Gary at 520-579-0185, or email tklappin@yahoo.com. [04/05]
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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.

Object of the Month by Alfredo Garcia

Hard to believe that 2005 went by so fast, but it did! It is 2006 now and time for yet another year of Object of The Months (OTM) to observe. I hope you have enjoyed reading all the submissions to date and learned a bit about some of the wondrous celestial objects I have chosen. I would welcome some feedback on what you think of them, so please e-mail me at alfredogarciajr@cox.net if you care to make a comment. Thanks!!

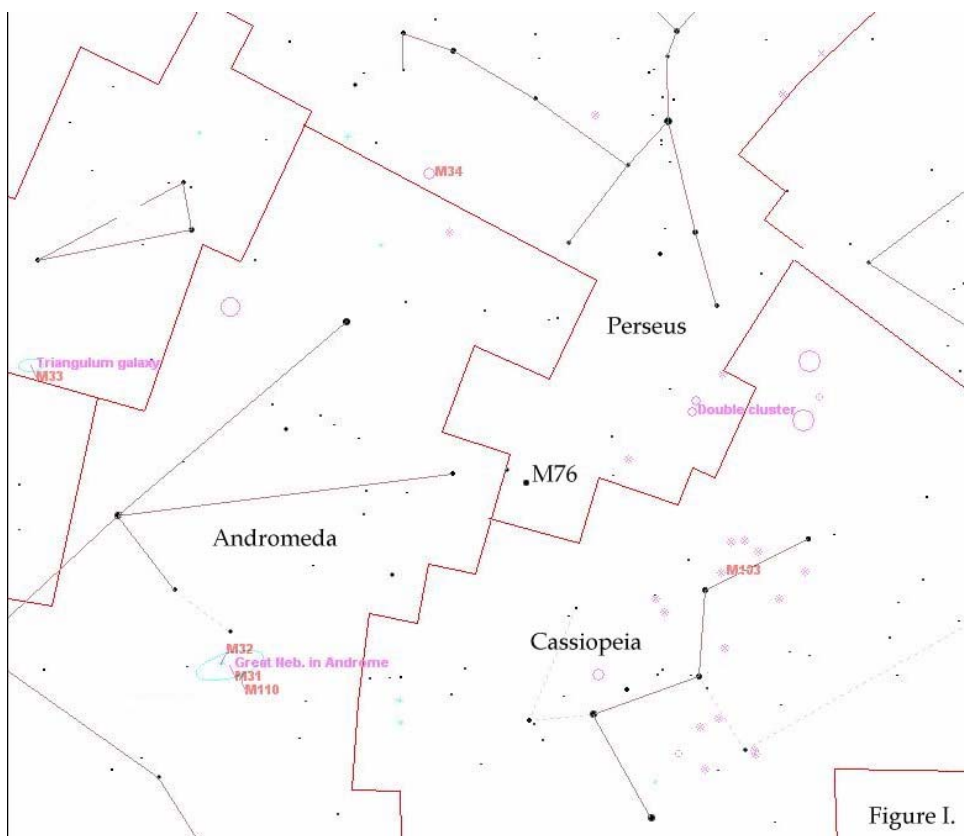
Now, let's turn our attention to January's OTM. I have decided to pick the nebula class of objects and select a particular type known as a planetary nebula. Despite their name, planetary nebulae have nothing to do with planets. They were named planetary because when early sky discoverers observed them visually, they did not appear as stellar point sources, but rather as small diffuse objects. To these discoverers they resembled the outer planets in our solar system such as Uranus and Neptune when seen in a telescope. In reality, planetary nebulae are shells of gas shed by stars late in their life cycles after using up all of their nuclear fuel. The star ejects a significant portion of its mass in a gaseous shell leaving an extremely hot central star that illuminates the shell. Our own star, the Sun, is expected to undergo the same process in a couple of billion years. Planetary nebulae do not last long at all in cosmic terms. The shell of gas expands and diffuses becoming invisible, and the star turns into a white dwarf.

This nebula was discovered on September 5, 1780, by the French astronomer Pierre Méchain while he was conducting

Object of the Month by Alfredo Garcia (CONT.)

comet searches. He reported it to Charles Messier was also compiling a list of "annoying" diffuse objects he found while searching for comets (so as to avoid confusion with his and other astronomers' comet search efforts). Messier observed it and designated it as M76 in his now famous catalog. It also goes by the common name, the Little Dumbbell Nebula. Other common names include: the Cork Nebula, the Butterfly Nebula, and the Barbell Nebula.

This planetary nebula is found in the constellation of Perseus, the son of Zeus. The accepted distance (though quite uncertain) to the Little Dumbbell Nebula is about 3 to 5 light-years and it is about 1 light-year across in linear size at these distance estimates. The central star of M76 is quite dim at magnitude 16.5 and is an extremely hot, bluish star with a temperature of over 100,000 K. The gas shell surrounding the star is expanding at a rate of about 42 kilometers per second.



If you go out observing (from the Tucson area) during January at about 8:00 PM MST and look to the north sky, you will find M76 at an altitude of about 69 degrees at the beginning of the month and at about 55 degrees in altitude at the end of the month. These high altitudes place it very nicely for observation. Since M76 is not visible to the naked eye (Size: 4.8 minutes/Magnitude: 12), coordinates are the best way to find it. The nebula is at RA: 1h 42m 40.1s and DEC: + 51d 35m 51s. If you do not have setting circles or an automated go to scope, you can find it by star hopping techniques if you are so inclined (See Figure I).

There are many outstanding images of M76 on the Internet. I suggest you look at the image at this web address: <http://www.noao.edu/outreach/aop/observers/m76block.jpg>. It is fantastic!

I was not able to find my old images of M76 (and I have not taken any recent ones), so I can not present you with a typical amateur result, but once again

Figure I.

the Internet abounds with many excellent amateur images. I suggest you Google M76 images and see for yourself. I have to get out during January 2006 and do some more of my own M76 imaging!

Clear Skies,
Alfredo

TAAA 2006 Activity Schedule

- Jan 3-4 Quadrantids during Crescent Moon
- Jan 21 TIMPA LQ 54% 00:29
- Jan 28 Las Cienegas N 0%

- Feb 18 TIMPA LQ 74% 23:19
- Feb 25 Las Cienegas LQ 5% 06:08

- Mar 17-20 TIMPA Jet Rally closed to observing
- Mar 25 Las Cienegas LQ 15% 04:40
- Mar 21-25 SARSEF at TCC So AZ Regional Science & Engineering Fair

- Mar 22-24 Raytheon Science Fest 9am-1pm
- Mar 25-26 Messier Marathon LQ 15% 04:40

- Apr 1 TIMPA 16' Dome Dedication
- Apr 21-22 Lyrids Last Quarter Moon
- Apr 22 ASDM Star Party LQ 27% 03:12
- Apr 22 TIMPA LQ 27% 03:12
- Apr 26-30 Desert Sunset SP Caballo Loco Ranch
- Apr 29 Las Cienegas FQ 7% 21:45
- Apr 29 T4T About Town
- Apr 30 T4T UofA Mall

TAAA 2006 Activity Schedule

May 5-6 Eta Aquarids First Quarter Moon
 May 6 T4T Alternate
 May 20 Kitt Peak Star B-Q LQ 41% 01:46
 May 20 TIMPA LQ 41% 01:46
 May 27 Las Cienegas FQ 1% 20:32

Jun 14-16 June Lyrids Near Full Moon
 Jun 17 TIMPA LQ 54% 00:19
 Jun 17-24 Grand Canyon Star Party
 Jun 24 Las Cienegas N 0%

Jul 22 Las Cienegas LQ 4% Monsoons
 Jul 28-29 Delta Aquarids New Crescent
 Jul 29 TIMPA FQ 22% 22:01 Monsoons
 Jul 29-30 Capricornids New Crescent

Aug 12 Perseids Full Moon
 Aug 19 Las Cienegas LQ 12% 02:37 Monsoons
 Aug 26 TIMPA FQ 10% 20:29 Monsoons

Sep 16 Kitt Peak Star B-Q LQ 24% 01:31
 Sep 16 TIMPA LQ 24% 01:31
 Sep 23 Las Cienegas FQ 3% 18:58
 Sep 23 All Arizona Star Party FQ 3% 18:58

Oct 8 Draconids Near Full Moon 96%
 Oct 14 ASDM Star Party LQ 38% 00:24
 Oct 14 TIMPA LQ 38% 00:24
 Oct 21 Las Cienegas N 0%
 Oct 21 Orionids New Crescent 1%

Nov 08 Transit of Mercury 12-5pm MST
 Nov 11 TIMPA LQ 55% 23:14

Nov 17 Leonids LQ 11%
 Nov 18 Las Cienegas LQ 3% 05:45

Dec 13 Geminids LQ 44%
 Dec 16 Las Cienegas LQ 12% 04:33
 Dec 23 TIMPA FQ 15% 20:53

Notes:

- There are no decent eclipses in 2006 for the western hemisphere; the best is a penumbral eclipse on Mar 14 visible at moonrise.
- The two best meteor showers of the year are most likely the Perseids on Aug 12-13 and the Geminids on Dec 13-14, both of which will have to compete with a full and bright last quarter moon, respectively.
- There does not appear to be a decent secondary weekend in late March or early April to put a TIMPA date on, the LQ Saturday of the 1st really would be an April Fool's day with an 18% moon setting at 22:58
- Rise and set calculated for central Tucson, actual times may vary by site. Moon phase accurate for 22:00 on the date (meteor showers not included).

Other Possible Dates:

- Spring, Summer, Monsoon or Christmas Party
- Important Workshops
- Special Training/Beginner Events during Monsoons

Dark Skies for January 2006

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

Sa/Su 31/ 1	18:57 - 5:58	Tu/We 10/11	5:24 - 5:59	Sa/Su 21/22	19:13 - 0:34
Su/Mo 1/ 2	19:27 - 5:58	We/Th 11/12	- - -	Su/Mo 22/23	19:14 - 1:34
Mo/Tu 2/ 3	20:41 - 5:58	Th/Fr 12/13	- - -	Mo/Tu 23/24	19:15 - 2:38
Tu/We 3/ 4	21:52 - 5:58	Fr/Sa 13/14	Full Moon	Tu/We 24/25	19:15 - 3:45
We/Th 4/ 5	23:00 - 5:59	Sa/Su 14/15	- - -	We/Th 25/26	19:16 - 4:53
Th/Fr 5/ 6	0:05 - 5:59	Su/Mo 15/16	- - -	Th/Fr 26/27	19:17 - 5:56
Fr/Sa 6/ 7	1:09 - 5:59	Mo/Tu 16/17	19:09 - 19:58	Fr/Sa 27/28	19:18 - 5:56
Sa/Su 7/ 8	2:14 - 5:59	Tu/We 17/18	19:10 - 20:54	Sa/Su 28/29	19:19 - 5:56
Su/Mo 8/ 9	3:18 - 5:59	We/Th 18/19	19:11 - 21:48	Su/Mo 29/30	19:19 - 5:55
Mo/Tu 9/10	4:22 - 5:59	Th/Fr 19/20	19:11 - 22:42	Mo/Tu 30/31	19:30 - 5:55
		Fr/Sa 20/21	19:12 - 23:37		

Weekend	Sun Set	Sun Rise	Mercury Rise Vi	Venus Set Vi	Mars Set Vi	Jupiter Rise Vi	Saturn Rise Vi	Vi=Visibility
31/ 1	17:28	7:23	6:23 6	19:03 -1	2:58 -1	2:59 -2	19:39 0	-3 brilliant
7/ 8	17:33	7:24	6:44 8	18:24 3	2:40 0	2:37 -2	19:09 0	0 conspicuous
14/15	17:39	7:23	7:03 -	Rise 8	2:24 0	2:14 -2	18:39 0	3 moderate
21/22	17:45	7:21	Set -	6:09 1	2:09 0	1:50 -2	18:08 0	6 naked eye limit
28/29	17:52	7:18	17:54 -	5:32 -2	1:55 0	1:26 -2	17:38 0	9 binoculars limit

By Erich Karkoschka

Constellation Report by Chris Lancaster

Cetus

The whale, or sea monster

Not too far south of the ecliptic and neighboring Taurus to the west is the constellation of Cetus. Through the ages, Cetus has been seen as several incarnations of sea monsters. The ancient Mesopotamians saw in the stars of Cetus a cosmic dragon named Tiamat. Traditional mythology depicts Cetus as the sea monster who was to receive Andromeda, daughter of Cepheus and Cassiopeia, as a sacrifice to act as retribution for her mother's boastfulness, but Perseus saved her by destroying Cetus with the head of the Gorgon called Medusa. All of these characters, with the exception of Medusa and Cetus itself, are marked by constellations in the same general area of the northern sky. Medusa has no constellation of her own, and Cetus lies farther south in the "wet" part of the heavens in the company of other constellations with connections to water like Aquarius, Eridanus, and Pisces. Today, Cetus is often illustrated as a more earthly and docile sea creature--a whale.

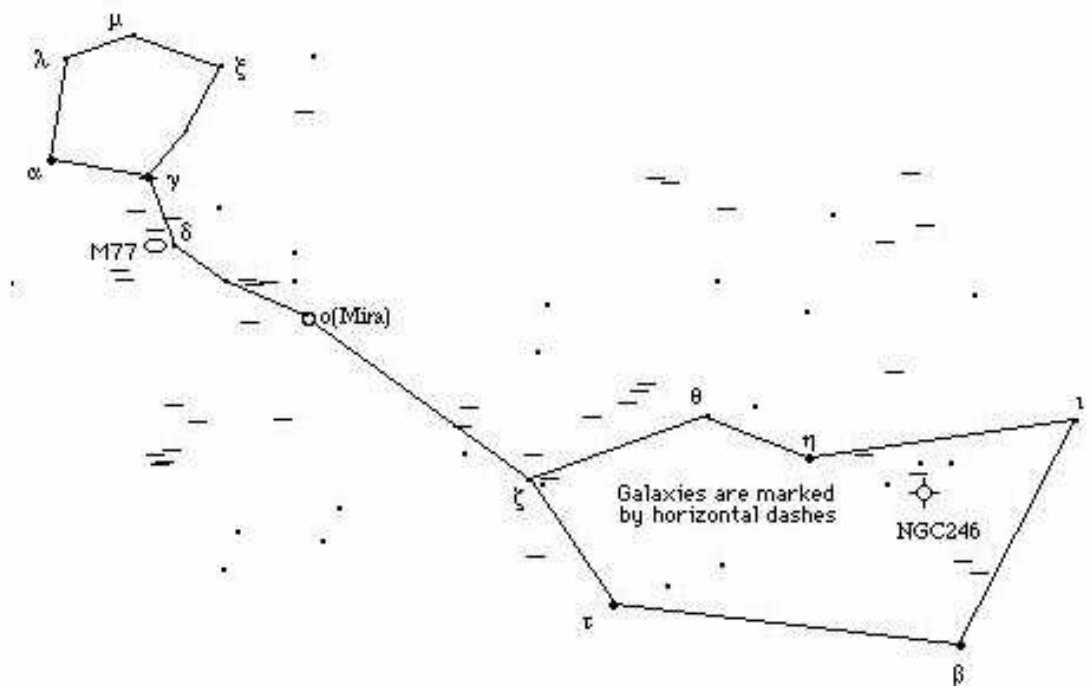
Cetus is the location of Mira (or Omicron Ceti), the first variable star to be discovered. The German astronomer David Fabricius was the first to note Mira's variability in 1596. Since that time it has taken dedicated observations to discover that Mira has a period of 331.65 days, and its magnitude varies dramatically from a fairly bright 2.0 to a feeble 10.1. Among the many categories of variable stars, Mira belongs to the type called long-period variables (LPV's), which are often called Mira stars. Interestingly, the Latin root "mira" means "wonderful," and it is the basis for the English word "miracle." Indeed, based on Mira's behavior, it may have seemed like a miracle to some people to learn that the universe contained such an enigma and was not the unchanging realm it was once thought to be.

Since Cetus lies far from the galactic equator, it is free from the obscuring dust that effectively hides distant galaxies from view. Therefore, Cetus is brimming with them and is a galaxy hunter's paradise. However, it is true that most may require determination to track down since the galaxies here share two traits popular with many galaxies, namely, being small and dim. The easiest to find is M77 (RA: 2h 42' 40", Dec: -0d 01'), a 10th magnitude spiral galaxy turned mostly face-on to us not quite one degree to the southeast of Delta Ceti. You may very well see others if

you look within two degrees north and east of M77. However, it may prove difficult seeing these 11th and 12th magnitude objects. The same holds true for an area 8.5 degrees due south of M77, but if they show themselves you'll be treated to a cluster of four galaxies, all about 30 arc minutes or less apart. Spirals, barred spirals, and elliptical galaxies are scattered all across Cetus. A typical star atlas may show more than thirty of them. But remember, they are all small with magnitudes dimmer than 11, so get your telescope with the best aperture and look closely for them.

For a change of pace, look 6 degrees north and slightly east of Beta Ceti, the constellation's brightest star. There you'll find NGC246, a planetary nebula of about 9th magnitude (RA: 0h 47' 05" Dec: -11d 51'). Some telescopes may show a mottled appearance; otherwise it will look like a fuzzy star. High magnification will make this nebula appear less like a point of light and darken the background to make it easier to detect.

Gamma Ceti is a double star by the name of Kaffaljhdma, which is Arabic for "the sea monster's head." This name previously referred to all the stars forming the circle marking Cetus' head, but now only identifies this single star. Its components are of magnitudes 3.7 and 6.4 with a PA of 295 degrees. High magnification is necessary to overcome the small separation of 3 arc seconds of this fine yellow/blue pair.



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Directions to TIMPA and Empire Ranch

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 entrance to TIMPA will be 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

Please DO NOT ask the caretakers for access to the TIMPA SITE. Contact a board member to arrange access to TIMPA. 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 and turn off at Exit 281 (Route 83 Sonoita-Patagonia Highway South). Travel south on Route 83 for about 19 miles and watch for the green and white milepost 40 sign along the right side of the road. Approximately ¼ mile past milepost 40, turn left into Las Cienegas. The road is dirt and has some "washboarding" so don't go too fast. At about the 2.9 mile point there will be a fork in the road. Stay to the right. When the road ends in a "T", take a left. You will cross a concrete section of the road down in a wash. Just up the hill from the wash (about .2 mile), turn left. Just ahead of you (.1 mile) 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.