



East Valley Astronomy Club

November 2001

www.eastvalleyastronomy.org

Scottsdale, Arizona

Fascinating Planetary Nebulae

By: Rich Jacobs, M.D.

The ghostly apparition seemed to float against the dark velvety background of sparkling pinpoint stars. One moment it was a pale gray disc and in the next moment, a perfect oval ring.

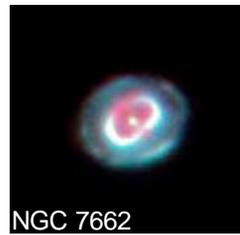


I was astonished that such an object was present among the stars. M57 looked ephemeral and unreal to me. Surely a slight breeze would blow it away any

moment. Or perhaps the Ring Nebula was merely a spot or flaw in my telescope's optics. As astonishment was replaced by wonder, I noticed that I saw this object much more "clearly" when I didn't look directly at it. That night, I discovered the power of averted vision. But this was only the first wonder that planetary nebulae would make known to me.

My newly acquired 6-inch Newtonian reflector, a Criterion RV-6 Dynascope, had only arrived *via* UPS that week. Before long, the little 6-inch scope became my portal to many diverse deep space vistas. When engaged in my celestial sight seeing, globular clusters, galaxies, emission and reflection nebulae, and even other planets in our solar system became my frequent stopping places. But for some reason, I continue to be captivated by planetary nebulae, like M57.

Perhaps my fascination with planetary nebulae stems from the knowledge that they represent the final gasps of dying Sun-sized stars. As these geriatric luminaries burn through their core hydrogen leaving only inert helium ash, they become unstable and develop out gassing bubbles and energetic jets



of plasma that interact with the space debris around them. The exotic vapors that make up these rounded nebulae produce the once mysterious forbidden lines of ionized oxygen and nitrogen. The physics of how these planetary nebulae are formed and how they assume their varied interesting shapes is still being worked out today. (Continued on next page)

EVAC & Other Events: 2001-2002

	New Moon	Meet	Local	Deep Sky	Other
Nov	11/15	11/14	11/10	11/17	11/8 - SCC Star Party 11/17 - Boyce Thompson Star Party 11/17 - Leonid Meteor Shower
Dec	12/14	12/12	12/8	12/15	Holiday party (TBA)
Jan	1/13	1/9	1/5	1/12	
Feb	2/12	2/13	2/2	2/9	
Mar	3/14	3/13	3/9	3/16	

Guest Speaker:

There will not be a guest speaker at the November meeting. Instead we will only have elections, a swap meet, and show & tell.

There will be no "dinner" before the November meeting. The Black-Eyed Pea where we normally meet for "Dinner with the guest speaker" has shut down. We are looking for another location to meet.

Arrival of Mars Odyssey at Mars, Cassini, Galileo, and STARDUST Missions:

By: Laurice Dee, Ph.D.; JPL Solar System Ambassador; NASA-JPL Solar System Ambassadors Program

Robotic solar system exploration is definitely full of exciting news! I would like to report an exciting event that occurred this week.

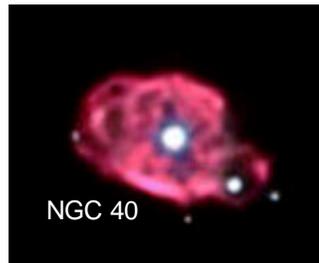
NASA's Mars Odyssey spacecraft, launched aboard a Delta II rocket this past April, successfully slipped into orbit around Mars on Tuesday evening (23 October 2001), capping its six-month, 285-million mile trek from Earth. It is the first probe to reach Mars safely after NASA lost two craft in 1999. Odyssey fired its main engine at 10:26PM EDT and was captured into orbit around Mars. At 10:55PM, flight controllers picked up the first radio signal from Odyssey as it emerged from behind the planet.

Pre-launch Preparations: Let me backtrack just a little bit, so that you would get the "big picture" of the mission.

Earlier this year, I pulled up the webcam from the Mars Odyssey website to observe technicians (in their bunny suits) working on the spacecraft daily at Kennedy Space Center (KSC). They were preparing the spacecraft for the 7 April 2001 launch at Cape Canaveral. The Gamma Ray Spectrometer (GRS) instrument was installed first, followed by the Thermal Emission Imaging System (THEMIS) instrument. Each scientific team watched like proud parents when their instrument was hoisted to the spacecraft and bolted on. The Martian Radiation Experiment (MARIE) was already installed prior to Mars Odyssey's arrival at KSC.

On the Launch Pad: Mars Odyssey passed the spin, lighting, and vibration tests with flying colors and was delivered to the launch pad (Pad 17A) after the completion of pre-launch preparations. The protective canister containing the spacecraft (with its

Or, perhaps I am fascinated by the fact that, like people, even stars live and die. But the death rattles of these dying stars paint many different wonderful shapes and patterns



that are unique to each planetary nebula. Of the 1143 planetary nebulae catalogued in the Strasbourg-ESO Galactic Planetary Nebulae Catalog, no two planetaries are exactly the same. Some are huge, like M27, the Dumbbell Nebula, or NGC 7293, the Helix Nebula. These behemoths of the planetary nebula realm fill the field of view of even low power eyepieces. Others are almost star-like in size, like IC 4997, in Sagitta; their presence can only be detected with the assistance of an O-III filter or detailed star atlas. And planetary nebulae produce a variety of colors that cannot be fully appreciated through the telescope eyepiece. But the astrophotographer's craft reveals the beautiful colors – blues, greens, reds, and even pastels, like teal – that adorn their countenance.



On the other hand, maybe I'm so taken with planetary nebulae because on that day, over 30 years ago, a newly purchased telescope and the Ring Nebula – a planetary nebula -- first introduced me to the awesome wonders of our Universe. The indelible first impression of that encounter may have created in me the special bond that I feel to these unique galactic senior citizens. And although many telescopes have come and gone throughout the years, the great joy that I get from visiting them has not faded.



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third stage attached to it) was hoisted all the way up to the top of the second stage that had already been assembled with the rest of the Delta II rocket (first stage and nine rocket boosters). The mobile tower, acting as a “cocoon”, had already been in place to protect the spacecraft and rocket from the outdoor elements, including weather. Several days later, both halves of the payload fairing encapsulated the spacecraft.

Day of Launch: On the day of launch (as well as a few days prior), various launch teams performed various checks to ensure a safe launch for Mars Odyssey. The weather was stable during the morning hours before the lift-off time of 11:02AM EDT (instantaneous launch window), and everything was go for the launch. No problems were reported from the teams that performed checks on the launch pad and at the launch control area.

A video camera was placed on the first stage, facing down where the solid rocket boosters could be seen. Another video camera was placed on the second stage, facing the spacecraft and its attached third stage. They both were activated during the last few hours before lift off. White puffs of super-cold liquid oxygen could be seen emitting from the rocket vent while the rocket was still on the pad with the spacecraft going into internal power.

After the fuel and liquid oxygen tanks were pressurized and last-minute checks of the launch pad and ground equipment were performed by the ground controllers, the main and vernier engines and solid rocket boosters fired to lift Mars Odyssey off the ground right on time. The rocket soared into space with each launch phase being executed properly. Mars Odyssey separated successfully from the third stage and deployed its solar panels right after slowing down from its spin. Spacecraft signal was received by the ground controllers without any problem. Mars Odyssey began its 280 million-mile cruise to Mars.

Interplanetary Cruise: During the interplanetary cruise, Mars Odyssey performed several trajectory correction maneuvers so that it could remain on course to Mars.

Additionally, the mission team performed “housekeeping” on the spacecraft subsystems, uplinked software patches and commands to the spacecraft, and received telemetry and pertinent information that were downlinked by Mars Odyssey. The team communicated with the spacecraft via Deep Space Network (DSN) while Mars Odyssey was on its way to Mars and will continue to do so while the spacecraft orbits Mars.

23 October 2001 Mars Orbit Insertion – A Big Day for Mars Odyssey: October 23rd, a little over six months since the launch, was a big day for Mars Odyssey and the mission team. The spacecraft was scheduled to arrive Mars at 7:26PM MST by firing its main engine to slow down its velocity so that it could be captured into orbit by Mars. The ground controllers needed to follow certain procedures for a successful Mars Orbit Insertion (MOI). A set of commands was sent to the spacecraft on the 15th of October so that it would execute the MOI upon arrival. After analyzing data that was transmitted by Mars Odyssey, the controllers uplinked quick commands to the spacecraft to fire its small thrusters to get into the proper attitude for the MOI.

I attended the MOI reception after I got off work that evening. The reception was held at Arizona State University (ASU) in Tempe. We all watched in anticipation when NASA-TV was shown on a huge screen. Cheers erupted when Mars Odyssey fired its engine to begin the MOI and transmitted its signal to Earth after it emerged from behind Mars shortly after the firing was completed!

Aerobraking: The aerobraking phase has already begun for Mars Odyssey today (Friday, 26 October 2001). In the weeks and months ahead, the spacecraft will repeatedly brush against the top of the atmosphere. By using atmospheric drag on the spacecraft, the mission team will reduce the long, highly elliptical orbit into a shorter, 2-hour circular orbit of approximately 250 miles altitude for the mission’s science data collection. Mars Odyssey will map chemical elements and minerals on the surface of Mars, look for water in the shallow subsurface, and analyze the

radiation environment to determine its potential effects on human health. Way to go, Mars Odyssey!!

Website: <http://mars.jpl.nasa.gov/odyssey>

Besides Mars Odyssey, two other spacecraft will be making history when they arrive or fly through their respective destinations. Another spacecraft has already made history while exploring the biggest planet of our solar system. Guess which spacecraft did it – you figure it out!

Cassini just celebrated its 4th anniversary in space this past October 15th. The spacecraft is on its way to Saturn and will arrive on 1 July 2004. Cassini definitely has come a long way since its launch four years ago (15 October 1997) with great flybys of Venus, Earth, and Jupiter. Both Cassini and Galileo performed extensive study of Jupiter and its Galilean satellites and huge magnetosphere from October of last year to this past April. Cassini made its closest approach to Jupiter this past December 30th at approximately 9 million miles. You've come a long way, Cassini, and we're with you every step of the way!
Website: <http://www.jpl.nasa.gov/cassini>

Galileo had a very successful flyby of Io earlier this month. The spacecraft has been having a very illustrious mission so far with plenty of flybys of the Galilean satellites and has brought back extremely interesting data of the inner solar system, asteroids, and the Jovian system during the last 12 years. Coming up for Galileo is one more flyby of Io and one flyby of a minor moon, Amalthea, this year and next year. Keep plugging along, Galileo, and enjoy the rest of your mission!
Website: <http://www.jpl.nasa.gov/galileo>

STARDUST is on track for its rendezvous with Comet Wild-2 in 2004. STARDUST took images of tracking stars that it will follow prior to the flyby, and they turned out well. Its navigation camera and other instruments are working well. STARDUST has already flown past the orbit of Mars, right into the asteroid belt, while orbiting around the Sun for the second time since launch. Fly safely,

STARDUST, when you're in the midst of the asteroid belt!

Website: <http://stardust.jpl.nasa.gov>

Even though I mentioned only four missions in this article, there are numerous solar system missions that have made history in solar system exploration. I will definitely update the list of missions for the December issue of EVAC newsletter.

If you have any questions or comments regarding various solar system missions, please e-mail me at laurice.a.dee@boeing.com.

The Backyard Astronomer's Equipment case

By: Bill Dellinges

Admittedly, this subject doesn't have the appeal of "my latest 90 inch GOTO, adaptive optics purchase". But let us prod on nevertheless. It amazes me how much research it takes to find a decent case to contain our astronomical toys. I have put up with this problem for many years. When I finally find something that meets my requirements, I feel like I've accomplished a miracle. You'd think you could walk into a photo shop and simply pick out the case you need. Nope! The problem in a nutshell is this: Although there are a million cases out there, any one shop will usually not have a great selection. They prefer to allocate space to other merchandise.

Unless you plan on running all over town seeking your dream case, I'd suggest the net. I bought a nice eyepiece case from Adorama (www.adorama.com) for around \$50. It's a medium size, 18"x13"x5.75" (I.D.) with pluck out foam. There is room enough for 11 eyepieces (lying on their side), 2 nebula filters, a focal reducer, a diagonal, and a 6 filter set, with a little room left. They also make a smaller and larger case (priced \$35-\$65). If you have lots of 1 1/4" stuff, get at least the medium size. I note Shutan (www.shutan.com) also offers small, medium, and large cases priced \$60-\$100.

Incidentally, awhile back I ordered one of those deluxe aluminum eyepiece cases from

Orion. I was horrified at its quality and returned it with a note of my displeasure. It was made in China by what appeared to be a three-year-old. It was very cheap looking and flimsy. Regarding their other plastic cases, I have no experience with them but wonder about the latches.

Do they have a metal hinge versus just a plastic one, which of course will eventually wear and break? Note: I don't see it advertised any more in their catalog, but they used to offer a Dorskocil case (18 7/8"x14 1/4"x8 1/4"), a bit large but might fill your needs. I found it at www.caseplaceusa.com for \$57.73. At www.atlascases.com I found some cases that looked interesting for eyepieces or small accessories, "blow molded" cases in ten sizes, \$27-\$89.

Let's talk large cases. I needed a deep case for 2" accessories and found it in a Tundra #718 (18"x13"x7"), about \$100. One outlet is www.cameratech.com. Another Tundra case, #821, (21"x13"x8.5")(I.D.) nicely houses my Miyachi 20x100 binoculars. Pelican, another heavy-duty plastic case like Tundra can be found at the above web sites.

Orion offers a Pelican #1650 case for a C-8. These cases would survive a plane crash. Jim's Mobile (www.jimsmobile.com), which advertises in S&T offers cases for ETX's and SCT's up to 8" in aperture for \$100-\$250. I found most of the above web sites hunting down a firm which could provide me with a case for my Questar. The original case is ok but offers no protection to the instrument. I wanted the smallest case possible and with pluck out foam. I found it at www.geminicases.com. Based on their light duty economy model #GI1318R-3, I was able to choose my foam type, latches, hinge, handle, and stay -- kind of a custom order! Price for this 13"x18"x9"(I.D.) very nice looking case was \$99.25 plus shipping (less than \$10)! I worked this order out with Mary Klavon, a nice sales lady there.

While shopping for binoculars recently, I made the rounds to most camera shops in the valley and found that Guild Camera Shop on Camelback Road (www.guildcamera.com)

seemed to have the best selection of equipment cases-though not as many as I would have liked to see. They also had the best selection of binoculars too, in my opinion.

Here are two more sources for cases: www.caseman.com; www.justcases.com.

You will see firms also offer many types of cases at their web sites, some look as though they're designed to ship nuclear weapons. I hope these tips may help you find your case.

Black Holes

By: Randy Peterson

A reminder that on Wednesday, November 7, Dr. Stoeger from the Vatican Observatory will be the guest speaker at the Arizona Science Center. His topic: Black Holes.

I am planning to attend this talk. If you have not been to the Science Center before, I would be able to take a couple extra people in my car. Your cost would be the \$5 entrance fee, unless you are a member of the Science Center. Email me by November 6 if you are interested. Randy Peterson -- rgp14159@aol.com

President's Message

By Martin Bonadio

Happy November EVAC! I hope you have been enjoying the cooler weather and some of the excellent post Monsoon observing opportunities that we have been afforded lately.

It has been a very busy few months for our club, and I thought that I would take the opportunity to highlight what has happened and what is going on.

First of all, EVAC hosted it's bi-annual Adopt-a-Highway cleanup on October 6th. Thanks goes out to all that helped with the effort. The crew of 16 members accounted for 22 bags of trash. Pedro Jane' succeeded in finding yet another "racy" videotape and is awarded the treasure award for this event. Ken Levy

also managed to get us in trouble with the management at Village Inn again. The management would be defined as Randy Peterson – General Manager - who is kind enough to tolerate our group twice yearly for lunch after the cleanup. Thanks again for all that helped.

Next, we had an awesome October meeting. A thanks goes out to Col. Bill Gregory for speaking at our meeting. This was not only appropriate for our club, but also extremely exciting to hear first-hand accounts of what space travel is all about. I still want to be a shuttle pilot when I grow up. ☺

The highlight of the month had to be the annual All-Arizona Star Party. Thank you, Diana Jane' and Don Wrigley for your efforts in organizing the event. I was able to attend on both nights. On Friday, there was a group of about 24 people and 17 telescopes. We stayed up well into the early morning hours observing wonderful deep sky objects, Jupiter, Saturn, and finally the moon. About 45 minutes into my early AM "nap", a group of coyotes decided to check out my tent. A quick bellow from me and they were off in search of more prosperous things. On Saturday, I awoke late (8am) and spent the day lounging around in the back of Steve Dodder's U-Haul truck. As the afternoon progressed many more people arrived. Dennis Young brought lots of his astro-scenery pictures to sell, and then set up his wonderful 28" telescope for a night's observing. There were about 200 people there, many of whom spent the night. Having stayed up so late the previous night, I focused my efforts on deep-sky objects that I had passed up the night before, and retired around 1am. The seeing on Saturday was much better, and the highlight of my trip was looking at the Helix nebula (a very large Planetary about 300 light years away) in Aqr. at over 400X in my 13.25" telescope. Randy Peterson and I also took some time on Friday night to test the limiting magnitude on our scopes the night before. I was able to get to 15.1 on my 13" while Randy reached about 14.8. On Saturday, I noticed a slight improvement on my 13.25" telescope, and would say that I reached about 15.4. We used a star field plotted in Sept. Sky & Tel. to work an area around the

Ring Nebula. There is apparently a faint IC galaxy in the area, but I never detected it.

Next, I want to point out a few more upcoming events that should be fun. It is obvious by looking at the success of the above events this fall that we have achieved a lot as a club. Two star parties are upcoming that offer another chance to get involved and have some fun:

Thursday, November 8th – Scottsdale Community College Star Party
Saturday, November 17th – Boyce Thompson Arboretum.

And there is one event that we still have not addressed:

The Holiday Party – Volunteers needed to host. The date and location to be announced.

The SCC star party is particularly important, as the school allows us to use room PS172 for our meetings each month. This is one way we try to repay them and have some fun with Steve Mutz and his astronomy class. The Arboretum offers a few hours of public viewing and then hours of dark-sky observing once most of the people leave. If you are interested in either of these events, please call me at 480-926-4900 or email me: mabastro@aol.com

Finally, Here is the roster for this coming year's officers. It's not too late to get your name on the ballot, and an election and public vote will be held at the November 14th meeting. Please contact me (per above) if you are interested.

President – Martin Bonadio
Vice-President – Diana Jane'
Treasurer – Randy Peterson
Secretary – Tom Polakis
Events Coordinator – David Coshow
Properties – Gary Finnie
Newsletter Editor – Don Wrigley
Newsletter Coordinator – Silvio Jaconelli
Board: Craig Dokken, Jack Grbcich, Gene Lucas, Dave Hertel, Howard Israel, & Paul Murray

As you can see, I have decided to run for President again. Even though I have a very busy year upcoming with work, my wedding, and a new home being built, I will remain committed to EVAC because I am thrilled with the level of volunteerism I have seen and the great people that I will be involved with next year as is evidenced by the list above. I'll leave this long message this month with a thank you to all members. And I'll also point out that even if you don't want to take a board or officer slot next year, don't shy away from participating in a SIG group, organizing an event, a workshop, or even hosting a star party. This is our club, and you will have my full support in putting together these types of activities.

Have a great November, Thanksgiving, and continued fall observing schedule! Clear Skies to all of you.

Treasurer's Report for the Third Quarter of 2001

By Randy Peterson – EVAC treasurer

Income taken in during the third quarter consisted of \$170 in membership fees, \$80 from a paid star party, and \$789 in shirts sold.

Our expenses include:

- Newsletter postage and printing costs (snail mail)- \$197
- Speakers Honorarium - \$50
- Dinner with guest speaker - \$29
- All AZ Star Party - \$129
- Messier Marathon award - \$9
- General meeting refreshments - \$44
- Board meeting refreshments - \$49
- IDA dues - \$100
- Properties - \$172
- Shirts - \$969

Our ending funds at the end of the quarter were \$4439.40, and \$94 in shirt inventory.

Significant items: we renewed our membership to the IDA, which had expired. They had the wrong address to EVAC, so we did not receive the renewal notice. Since we have a P.O. Box now, instead of a member's home address, it won't be changing, so we

shouldn't have this problem again (we had the same problem last quarter with our web-site invoice being sent to the wrong address). There was one lagging Messier Marathon award, as the bulk of the awards, \$55, were paid for earlier in the year. Rick Scott made an excellent investment for the club in an Astronomy lecture series. Costs for the All AZ were for the two port-a-johns, and advertisement flyers. We are a little less than \$100 in the red on our shirts. Because we ordered "very good" quality shirts, EVAC hasn't made any profit, because the price we charge covers our costs with very little left over. We hope to break even on the shirts within the next quarter.

Magazine Subscriptions

By: Randy Peterson - EVAC treasurer

One of the benefits of joining EVAC is obtaining a substantial discount on "Astronomy" and/or "Sky & Telescope" magazines. "Sky & Telescope" is \$30 per year through the club, and "Astronomy" is \$29 per year. Each is about \$10 less than subscribing on your own. You can save enough by subscribing to both magazines to pay for your yearly EVAC dues!

Some Q&A:

- **I don't currently subscribe. How do I start a subscription?** Fill out a club membership form and indicate which magazine(s) you wish to subscribe to, accompanied by your payment.
- **What if I already subscribe at the regular price?** You can renew your subscription at the club discount through the club treasurer.
- **What happens when the renewal notice comes to me in the mail?** You give your payment with your renewal notice and envelope to the club treasurer at the next meeting. If you prefer, send it to the EVAC P.O. Box. I send in the renewals to both magazines on a monthly basis, right after the club meeting.

- **What if I get another renewal notice after I've paid?** It is common to receive one more renewal notice after you have paid for your renewal. The EVAC payment to the magazine and the next renewal notice often cross in the mail. If you receive two more renewal notices after you have paid, please let me know ASAP.
- **Can I extend my subscription for more than one year?** No, the limit is currently one year at a time.
- **How do I get the 10% discount on products ordered from Sky Publishing?** You must be a subscriber to S&T. When you place your order, tell the customer rep that you are a participant in the CLUB PLAN, and you belong to EVAC.

If it's clear...

by Fulton Wright, Jr.; Prescott Astronomy Club
for November 2001

Shamelessly stolen information from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find data. When gauging distances, remember that the Moon is 1/2 a degree or 30 arcminutes in diameter.

On Friday, November 2, starting about 11:00 PM, you can see some events with Jupiter's moons. With a medium (6 inch) telescope, look 15 degrees above the east horizon for Jupiter.

Here is the schedule of events:

- 10:55 PM Io's shadow falls on Jupiter.
- 11:20 PM Europa's shadow falls on Jupiter (2 shadows).
- 12:07 AM Io moves in front of Jupiter.
- 1:11 AM Io's shadow leaves (1 shadow now).
- 1:43 AM Europa moves in front of Jupiter.
- 2:06 AM Europa's shadow leaves (no shadows now).
- 2:21 AM Io moves from in front of Jupiter.
- 4:30 AM Europa moves from in front of Jupiter.

On Sunday, November 4, at 6:00 AM, you can see 2 planets and a star lined up. With your unaided eye or binoculars look 5 degrees above the east horizon for Venus (mag -4), Mercury

(mag -1) near and to the left, and Spica (mag 1) farther and to the right. Venus and Mercury are near each other for the whole first week of November.

On Monday, November 5, about 11:00 PM, you can see the Moon near Jupiter. With your unaided eye or binoculars, look 20 degrees above the east horizon for the gibbous Moon with Jupiter 1 degree south of it.

On Sunday, November 18, between midnight and 6:00 AM, you might see a good Leonid meteor shower. With your unaided eye and a lawn chair look for the sickle of Leo rising in the east. The meteors may appear anywhere in the sky but it is best to face toward the radiant in Leo. Here are the predictions of 3 different groups for the peak activity of the night:

3:01 AM, about 15 meteors a minute, for an hour around this time.

3:28 AM, about 15 meteors a minute, for an hour and a half around this time.

6:00 AM, about 10 meteors a minute, for four hours around this time.

Twilight will begin to interfere about 6:00AM. The prediction of meteor showers has gotten much better recently, but there are still no guarantees. There is a bigger peak of activity predicted for about 11:00 AM but the sun will "be a problem" for people in North America.

On Sunday, November 18, starting shortly after 9:00 PM, you can see some events of Jupiter's moons. Here is the schedule of events:

- 9:13 PM Io's shadow falls on Jupiter.
- 10:10 PM Io moves in front of Jupiter.
- 11:02 PM Europa disappears in Jupiter's shadow.
- 11:26 PM Io's shadow leaves.
- 12:24 AM Io moves from in front of Jupiter.
- 3:26 AM Ganymede's shadow falls on Jupiter.
- 3:43 AM Europa appears from Jupiter's shadow.

On Monday, November 26, about 6:30 PM you can see two planets near each other. With a small (3 inch) telescope, look 40 degrees above

the south horizon for Mars (mag 0.5) and up and to the right 3/4 of a degree for Uranus (mag 6).

On Tuesday, November 27, at about 2:00 AM, you can see an asteroid near a star. With a small (3 inch) telescope, look 60 degrees above the southwest horizon for 57 Tau (mag 5.6) and 4 Vesta (mag 6.5) 5 arcminutes apart. Vesta is 1/3 of the way toward a mag 7.5 star north of 57. Vesta will be near 57 all night but not lined up so nicely. (Note: Sky and Telescope, November 2001, p. 103 lists the star as 55 Tau but I believe that is an error.)

On Friday, November 30, at 12:22 AM, you might see one of Jupiter's satellites peek out briefly. Theoretically, Ganymede emerges from Jupiter's shadow at 12:22 AM and disappears behind Jupiter 5 minutes later, but neither of these events is instantaneous. It will be a challenge to catch a glimpse of this satellite. This event should take place very slightly to the left of the top of Jupiter, at about latitude +35 degrees on the planetary eastern limb (northwest of Jupiter in the sky) and very close to the planet.

On Friday, November 30, just after sunset, you can see the Moon occult Saturn. With a small telescope (3 inch) look low in the east-southeast for the full moon. This will not be an easy event to observe because these objects will be very low and the Moon will be full. Here is the schedule of events:

- 5:19 PM Sun sets
- 5:30 PM Moon and Saturn rise
- 5:48 PM Moon covers Saturn
- 6:08 PM Saturn reappears

If you are going to look for Saturn's satellites, look out for extra stars in the field on November 13, 30, and December 2.

For Sale



7-inch f/9 refractor on iron tripod pier. Includes clock-driven German equatorial mount with synchronous motor. RA drive contains a reduction box with precision worm gear and 6-inch drive gear. Slow motion dec control. Designed and fabricated by James Landers of Phoenix, AZ, now deceased. Telescope presently mounted in roll-off roof observatory." Mr. Jack Jones came and looked at the telescope. He estimated the value at \$2500. or more. Asking price is \$2000. with buyer to take down and move. Contact: Shirley Landers - 623-582-1592

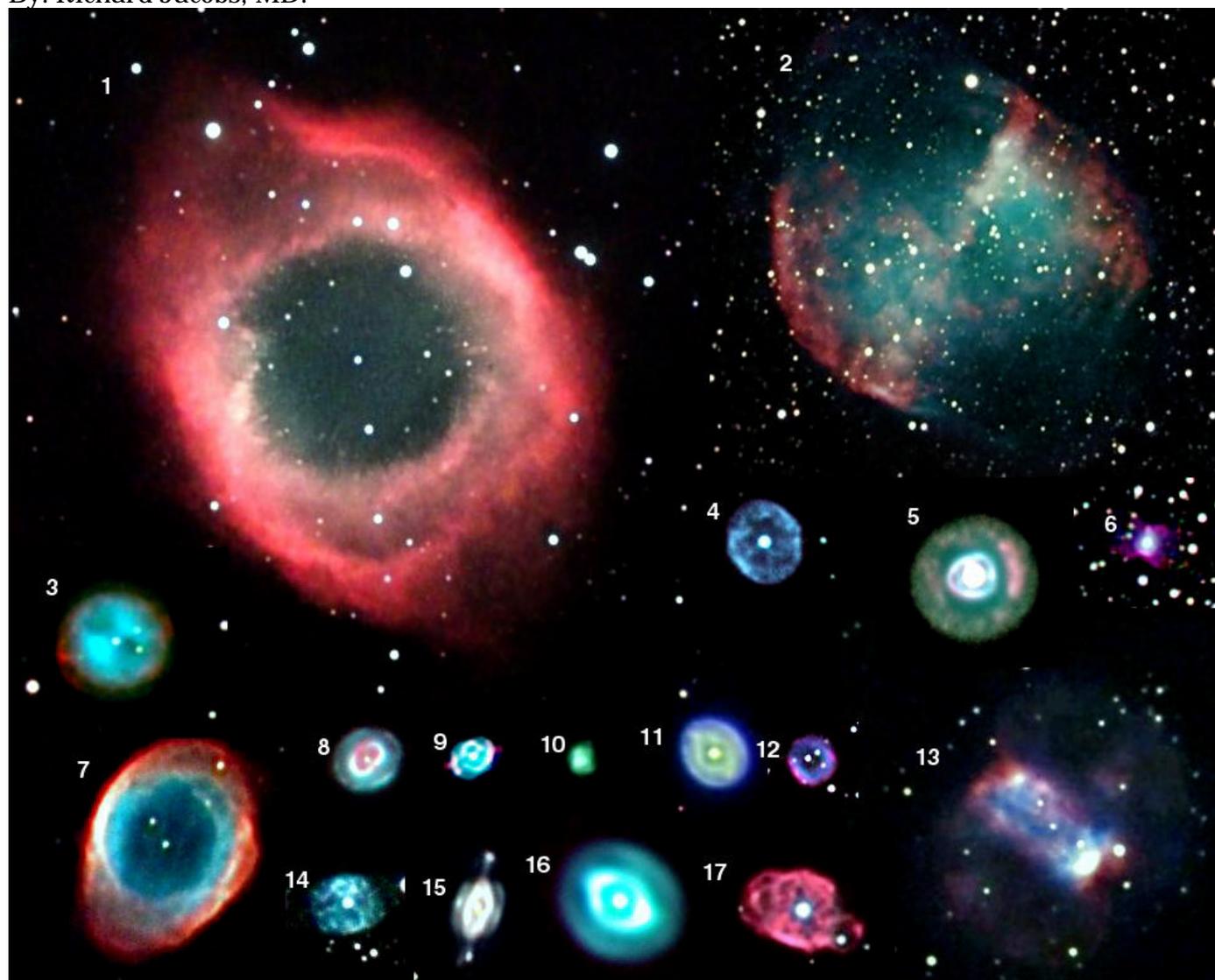
Celestar 8 Computerized, with Tripod, about three years old. I bought it for my daughter, she used it a few times and then lost interest. It has an 8 inch refractory. I am asking \$800.00. For information call Frank Vericolti - 602 375-3291

A 13.25" Dobsonian Truss telescope. Features **excellent** "Schwaar" figured primary mirror with enhanced coatings, dielectric secondary, 2" JMI focuser, in a handsome Starsplitter Compact tube truss mount. Telescope is f4.4 (FL = 1947) and is excellent for deep sky observing. It is very easy to setup, and can be handled by one person. Mount is very smooth, and the cabinetry is in great shape. Also includes laser collimator, cooling fan for primary, battery, and light shield. Asking \$1400 OBO. Contact Martin at 480-926-4900 or email mabastro@aol.com

Deadline for the next Newsletter
Submissions is November 23rd, 2001.
Send articles to JKLINE29@HOME.COM

Nebula Quiz

By: Richard Jacobs, MD.



Here's a planetary nebula quiz of images taken by myself over the last year. How many can you identify?

1. NGC 7293, Helix Nebula, in Aquarius
2. M37, Dumbbell Nebula, in Vulpecula
3. M97, Owl Nebula, in Ursa Major
4. NGC 1501, in Camelopardalis
5. NGC 2392, Eskimo or Clownface Nebula, in Gemini
6. NGC 2346, Butterfly Nebula, in Monoceros
7. M57, Ring Nebula, in Lyra
8. NGC 1862, Blue Snowball Nebula, in Andromeda

9. NGC 6543, Cats Eye Nebula, in Draco
10. NGC 6210, GreenGem, in Hercules
11. NGC 6826, Blinking Nebula, in Cygnus
12. NGC 2438 in M46, in Puppis
13. M76, Little Dumbbell, in Perseus
14. NGC 6906, Blue Flash Nebula, in Delphinus
15. NGC 7009, Saturn Nebula, in Aquarius
16. NGC 3242, Ghost of Jupiter, in Hydra
17. NGC 40, Bowtie Nebula, in Cepheus

East Valley Astronomy Club Membership Form

Please complete this form and return to the club treasurer at the next club meeting OR mail to EVAC, P.O. Box 2202, Mesa, AZ 85214, with a check or money order made payable to EVAC.

IMPORTANT:

ALL memberships expire on December 31 of each year.

New Member Only - select month joining:

- \$20.00 January – March
- \$15.00 April – June
- \$10.00 July – September
- \$ 5.00 October – December

Membership Renewals:

- \$20.00 January – December

Name Badges:

- \$7.00 each Name: _____

(New) (Renewal) Magazines: if renewal, customer #

- \$29.00/yr Astronomy Magazine
- \$30.00/yr Sky & Telescope

Newsletter delivery option, check one:

- E-mail (saves club postage/printing) U.S. Mail

Total enclosed \$ _____

Name: _____

Address: _____

Phone # (____) _____ E-mail _____

URL: _____

Polo shirt: Hanes, short sleeved, with pocket on left.

50% cotton/50% polyester.

EVAC logo in black on right.

Logo may not show up as well on Royal Blue.

Polo Shirt Order Form

SIZE	M	L	XL	XXL	XXXL
Color	Qty:	Qty:	Qty:	Qty:	Qty:
White					
Ash					
Light Steel					N/A
Light Blue					N/A
Royal Blue					N/A
Price>	\$16	\$16	\$16	\$18	\$19

T-shirt: Hanes "Beefy" T, short sleeved, white,

Pre-shrunk 100% cotton.

Four-color silkscreen picture of M-51 galaxy & EVAC logo

Two choices:

(1) **with** pocket, picture on back. logo on front

(2) **without** pocket, picture on front, logo on back

T-Shirt Order Form

SIZE	S	M	L	XL	XXL	3XL
Color:	Qty:	Qty:	Qty:	Qty:	Qty:	Qty:
White						
White w/pocket						
Ash						
Ash w/Pocket						
Price>	\$14	\$14	\$14	\$14	\$16	\$17

Clothing: IMPORTANT: Your shirt will not be made until a minimum of 12 polo shirts or 24 T-Shirts are ordered. Please be patient.

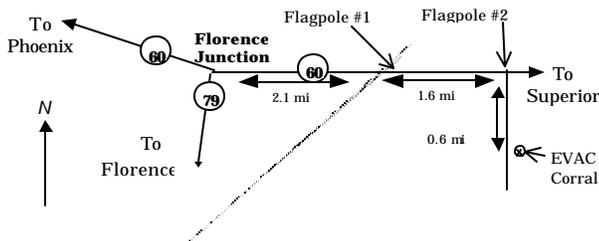
EVAC Star Parties

Local Star Party: Florence Junction Site

General Information: The Florence Junction site is the official site for the East Valley Astronomy Club's Local Star Party, typically held on the Saturday closest to Last Quarter Moon. Florence Junction offers reasonably dark skies within a short drive of most east Valley locations. (Report gunfire or illegal activity: 800/352-3796; Land use permit number: 26-104528.)

Location: N 33° 14' 40" W 111° 20' 16"

How To Get There: Take US 60 east to Florence Junction. Go past Florence Junction. 2.1 mi past FJ are railroad tracks, and on the right will be a flagpole. Do not turn there. Continue on for another 1.6 miles until you find the second flagpole on the right. This is your turn. Turn right, and continue on the dirt road for 0.6 miles. The corral is on the left, just before a gas-line sign.

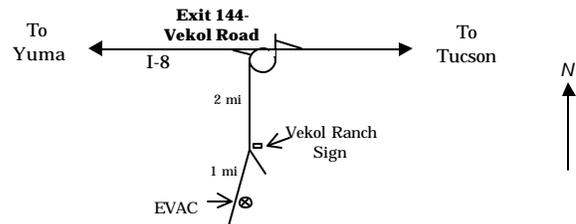


Deep Sky Star Party: Vekol Road Site

General Information: The Vekol Road site is the official site for the East Valley Astronomy Club's Deep Sky Star Party, typically held on the Saturday closest to New Moon. Vekol Road offers dark skies despite prominent sky glow from Phoenix to the north. The site is within 1½ hours drive time from most east Valley locations.

Location: N 32° 47' 55" W 112° 15' 15"

How to Get There: Take I-10 south and exit onto Maricopa Road. Continue through the town of Maricopa to SR 84, about 25 miles from I-10. Turn right on SR 84, after about 5 miles the road merges with I-8. Continue west and exit I-8 at Vekol Road—Exit 144. Turn left and cross the highway overpass. Before looping back onto I-8 take the dirt road to the left. Go south for 2 miles. At the Vekol Ranch sign bear right and continue south for another mile until reaching a large, open area on the left.



EVAC Officers

PRESIDENT

Martin Bonadio
(480) 926-4900

VICE-PRESIDENT

David Coshov
(480) 732-1132

TREASURER

Randy Peterson
(480) 947-4557

SECRETARY

Tom Mozdzen
(480) 497-5703

PROPERTIES

Rick Scott
(480) 821-5721

NEWSLETTER

Jim & Chris Kline

Membership & Subscriptions: \$20 per year, renewed in December. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact Randy Peterson. PO Box 2202, Mesa, AZ. 85214-2202. Email: rgp14159@aol.com

Club Meetings: Second Wednesday of every month at the Scottsdale Community College, 7:30 p.m. Normally Room PS 170 or PS 172 in the Physical Sciences Building. See map below.

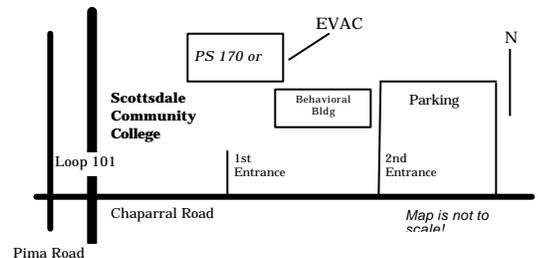
Address Changes: Contact Randy Peterson. PO Box 2202, Mesa, AZ. 85214-2202. Email: rgp14159@aol.com.

Newsletter: Contact Jim & Chris Kline. 1209 W. Palo Verde Dr., Chandler, AZ 85224. Email: jcline29@home.com Contributions may be edited. The Newsletter is mailed out the week before the monthly Club meeting. An electronic version is available in Adobe PDF format in lieu of a printed copy. Please notify Jim & Chris of your delivery preferences.

EVAC Library: The library contains a good assortment of books, downloaded imagery, and helpful guides. Contact Rick Scott for complete details, (480) 821-5721

Book Discounts: A 10% discount when ordering books from Kalmbach and Sky Publishing. Order forms have a line for club members to subtract discount from regular price.

EVAC Party Line: Let other members know in advance if you plan to attend a scheduled observing session. Contact Stan Ferris, (480) 831-7307.



East Valley Astronomy Club

Jim & Chris Kline, Editors

1209 W. Palo Verde Dr. Chandler, AZ 85224

EVAC on the Internet

EVAC Homepage: www.eastvalleyastronomy.org

E-mail Mailing List:

AZ-Observing is a fairly general mailing list about observing in Arizona. Included are star party information, who is going, as well as the latest observations and astronomical events.

To join, send E-mail with the "Subject: subscribe" to AZ-Observing@freelists.org

Although EVAC is a private club not open to the public, we do encourage potential new members to initially join us at our club meetings and/or star parties to help them determine the suitability of the club to meet their needs.

**Reminder: Next EVAC Meeting
Wednesday, November 14, 2001**