

East Valley Astronomy Club

September 2002

www.eastvalleyastronomy.org

Scottsdale, Arizona

Fall Adopt-A-Highway Cleanup

By Martin Bonadio

It's time again to have some fun picking up trash! Our Club has scheduled its semiannual cleanup of the EVAC Mile scheduled for Saturday, October 26 starting at 8:00 AM. Our task is to pick up trash from the shoulder of the highway to the right-of-way fence (State crews are responsible for the median dividing the highway). Look for a sign up sheet at the February & March monthly meetings, or call me and let me know you want to attend. With 10 volunteers, we can finish by around 10:30am. We meet at Florence Junction (Intersection of Highway 60 and 79) on the north side in the far west corner of the parking lot (closest to the radio tower).

As in the past your reward for helping will be a free **club-sponsored** lunch at the Village Inn in Apache Junction (our own Randy Peterson is the manager) following the cleanup! These cleanups have always been a great time. On every one someone manages to find a very **interesting** "treasure"! So, come out, get some exercise, and get to know each other in the daylight. As well, the conversations at lunch revolve around telescopes, telescopes, and more telescopes.

See *Adopt A Hiway* cont'd on Page 2

EVAC EVENTS CALENDAR - 2002							
			<-- Members only -->				
	New Moon	Meeting	Local	Deep Sky	Gilbert	Other Events	Club Meeting Speaker
Sep	9/6	9/11	8/31	9/7	9/13	Northern AZ Star Party 9/6 & 7 Beginners Lab 9/14	
Oct	10/6	10/9	9/28	10/5	10/11	All AZ Star Party 4 & 5 Adopt A Hwy 10/26	
Nov	11/4	11/13	11/9	11/2	11/8	Boyce Thompson 11/2	
Dec	12/4	12/11	11/30	12/7	12/13	Christmas Party	

NOTE : The Local and Deep Sky parties are for members and by invitation only.
The public are welcome to attend the Gilbert Star Parties which are held at the Gilbert Library at Greenfield/Guadalupe, and which start at dusk on the dates shown.

Events for Sep & Oct

Sep 6 & 7 Northern Arizona Star Party
Sep 14 Beginners Lab at Dave Coshov's Home
Oct 4 & 5 ALL Arizona Star Party
Oct 26 8 AM – Adopt-A-Highway Cleanup

Hopefully, we'll have some first-timers. They need to know:

Participants must be at least 12 years old and work in groups, facing oncoming traffic. Dress appropriately; long pants, sturdy shoes/boots, long sleeves and/or sun block, hat, and heavy GLOVES. Safety vests to be worn will be provided. Please bring some water too, as you'll work up a sweat.

Pick up bags and other litter with caution-it could contain hazardous material, be hiding a snake, etc. A stick with a nail or hook is recommended to use instead of your hands, while a large bucket cuts down trips to the trash bags. Few large objects are found out there, but if lifting one, keep your back as straight as possible, the object close to your body, and let your legs and arms do the work.

Don't let anything surprise you-our fellow citizens dispose of everything imaginable along our roadsides. If anything looks odd or is really heavy, leave it alone! Note it's location and we'll notify the State about it afterwards. When a trash bag becomes full, place it on the very edge of the pavement, not in the pullout lane.

As with any government program, there are a few requirements to complete before starting. One is a briefing from the cleanup coordinator. The second is to sign the usual waiver for the State saying participants won't sue if something happens. The forms are kept on file so one signature covers you for all future cleanups.

Contact me at 480-926-4900 or email: <mailto:mbonadio@cox.net> if you want to help or have questions. Thank you.

If it's clear...

by Fulton Wright, Jr.
Prescott Astronomy Club
for September 2002

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 Wednesday, September 4, between 4 and 5 AM, you can see a bunch of stuff in the sky together. With binoculars look 15 degrees above the east horizon for the thin crescent moon on the left, Jupiter on the right, and M44, the Beehive cluster, in between them near Jupiter. The total span should be less than 4 degrees.

On Saturday, September 14, after about 8:00 PM, you can see a planet near a star. With a small (3 inch) telescope look 30 degrees above the southeast horizon for Mu Capricorni (mag

5) and Uranus (mag 6) one tenth of a degree apart. They will be close for a day or two on either side of this date.

On September 21, 22, and 30, between 4:00 and 5:00 AM, you can see some of Jupiter's satellites unusually close to each other. With a small (3 inch) telescope look 30 degrees above the east horizon for Jupiter. After about 4:20 AM on the 22nd you can also see Callisto's shadow on Jupiter.

On Wednesday, September 25, about 11:00 PM, you can see an asteroid near a star. With a small (3 inch) telescope look 35 degrees above the southeast horizon for 32 Ceti (the star, mag 6) and 1 Ceres (the asteroid, mag 7) a little over 2 arcminutes apart.

EVAC Meeting Minutes - August 14, 2002

Tom Polakis, Secretary

The meeting began with an introduction to star charts and field guides presented by Martin Bonadio and Rick Scott. They worked their way up from a planisphere to high-level publications such as Millenium Star Atlas and Sky Atlas 2000.0.

Tom Mozdzen showed off the club's new holographic laser collimator, which simplifies collimating Newtonian telescopes.

The 2003 election is around the corner. Many offices are already accounted for, but the important position of president is not. In other announcements, a beginner's lab will be held at Dave Coshow's house on September 14. We do not yet have a volunteer to host EVAC's holiday party in December.

The Northern Arizona Star Party will be held on September 6 and 7. See <http://www.pacorg.net/2002nasp.htm> for details. The All-Arizona Star Party will be held near Arizona City on October 4 and 5.

Member presentations began with Rick Scott's guided photographs of the Perseid meteor shower. Tom Polakis followed with a presentation about the Oregon Star Party. Steve Aggas showed CCD images of such objects as M16 and M8. Laurice Dee discussed the CONTOUR comet probe, and the Stardust comet sampling mission.

The main speaker for the evening was Steve Coe who talked about filters for astronomy. Steve began with solar and planetary filters, and worked his way out to filters for nebulae.

Tom Polakis, Tempe, AZ
Arizona Sky Pages <http://www.psiiaz.com/polakis/>

EVAC Board Meeting Minutes - August 16, 2002

Tom Polakis, Secretary

A board meeting was held at Martin Bonadio's house on August 16, 2002. Randy Peterson began with a treasurer's report. One suggestion for the future was to present a pie chart of expenses to show what members receive for their dues. The Web site needs to be changed to show that there are no longer \$5 memberships for the last quarter; instead, they are \$25, and carry through the following year. A discussion of club accessories for public viewing ensued. The club may consider purchasing planispheres and copies of good, beginner books such as "Nightwatch." Newsletter expenses are increasing due to new members desiring a printed copy. It was recommended that everybody who is receiving printed newsletters be e-mailed with encouragement to change to electronic-only. Martin took this action item.

Gene Lucas discussed the Riparian Institute as a possible future site for EVAC meetings. Getting on board may involve an EVAC donation. Note that the site will have an observatory. It has been recognized for some time that the meeting room at SCC is at its capacity, and we will need to move up. Dave Hertel will scope out alternative meeting rooms, and have something by the October meeting.

See *Board* Cont'd on page 4

The discussion of moving club meetings to Friday has been tabled until the meeting room team decides if EVAC will have to change locations. The change in location may result in a mandatory meeting day change.

The subject of special interest groups (SIGs) came up next. Most of them seem to be stagnating, and it's difficult to get people to participate. It was suggested that there may be too many of them, and they are too ambitious. Perhaps a more informal meeting along the lines of SAC's long-lived deep-sky group would work. A baby step may be to create SIG mailing lists for several subjects such as double stars, deep-sky, and telescopes. We will talk to Dave Kelly about creating these on the EVAC server.

The club may benefit from a survey in the future. It is of interest to learn how much experience members have, and what may be turning off the 30% to 40% turnover at the end of each year. The survey may be conducted over the Web page.

Finally, officers for 2003 were discussed. Regarding president, a few names were tossed around. People who know these individuals will discuss their potential future presidency with them.

Tom Polakis, Tempe, AZ
Arizona Sky Pages <http://www.psi-az.com/polakis/>

VOYAGERS 1 & 2:

NASA's Intrepid Explorers with Plenty of Endurance

By Laurice Dee, Ph.D. JPL Solar System Ambassador

25th Anniversary

The Voyager mission is celebrating its Silver Anniversary. No, it is not a wedding anniversary (sorry!). It's the mission's 25th year in space! If we were flying with both Voyagers 1 and 2 spacecraft right now, the Sun would appear as an extremely tiny sphere that glows faintly. The planets would be quite impossible to see. That's how far the robotic explorers are since leaving Earth 25 years ago – billions of miles out. Quite unbelievable!

A Little Bit of History

Exploring Jupiter and Saturn was the number one objective for the twin Voyagers after they were launched in August and September 1977. During their flybys of Jupiter and Saturn, they took awesome images of the planets while characterizing their atmospheres and chemical and geological compositions. The Voyagers discovered the Great Red Spot on Jupiter and the intricate structure of Saturn's rings. While identifying multiple new moons, the probes discovered active volcanoes on Jupiter's moon, Io, and surface features on Europa, another one of Jupiter's moons, that began early speculation of liquid under the surface. Along with Io and Europa, the Voyagers spotted Ganymede and Callisto that round up the 4 Galilean satellites. The explorers identified a thick nitrogen atmosphere at Titan, one of Saturn's largest moons.

See *Voyager* Cont'd on Page 5

Plenty of images were taken of the moons while identifying their individual characteristics. Voyagers also characterized the properties of the interplanetary solar wind.

After the main objective was completed, Voyager 1 took advantage of Jupiter's massive gravity to escape north out of the ecliptic plane (where planets, asteroids, and comets orbit the Sun) so that it would continue on a path toward interstellar space. Meanwhile, Voyager 2 continued on to be the first spacecraft to explore Uranus and Neptune. Observations of these two planets were carried out in a similar manner as those for Jupiter and Saturn. The biggest findings were the tilted magnetic fields at Uranus and Neptune and the Great Dark Spot at Neptune. After its August 1989 encounter with Neptune, Voyager 2 headed out of the solar system but in a different direction than Voyager 1 (i.e., south of the ecliptic plane).

The Voyagers' findings of the 4 outer solar system planets were quite monumental and drastically changed our understanding of the gaseous planets and the solar wind out to the orbits of Neptune and Pluto.

The Voyager Interstellar Mission (VIM)

Since 1990, the Voyagers have been involved in an interstellar mission to characterize the far outer heliosphere, the distant solar wind, and the interaction between the two. This phase of the mission will allow us to explore the most distant reaches of our heliosphere and allow us to take the first tentative steps in the transition regions between space dominated by the Sun and interstellar space.

So far, the Voyagers have seen dust from other than a planetary source and have characterized the solar wind – its speed, composition, and magnetic components – in the far outer heliosphere.

Milestone for Voyager 1

Voyager 1 became the most distant man-made object in the universe on 17 February 1998. It passed beyond 6.5 billion miles from the Sun. The previous record was held by NASA's

Pioneer 10 spacecraft. To picture what the distance really is like, imagine that in the time it takes for you to count from 1 to 3, you could have traveled 32 miles if you had been moving at Voyager's current rate of 39,000 mph relative to the Sun. Would you believe that Voyager 1 has been traveling at close to that speed for more than 24 years!

The Voyager Mission: Recap

One thought just came to my mind about these two intrepid explorers. Since they have been traveling in space for quarter of century, they definitely have been coming a long way. So much has happened in our world since Voyagers departed our planet Earth. When we follow their mission, it is almost like living in a time capsule. They have accomplished so much during the last 25 years and have brought back wealth of data that have opened our eyes to what space really is all about and allowed us to have a deeper understanding of what's around us that is quite astronomical in nature.

Lets picture us traveling with the Voyagers (one or the other, of course!) while they search for the edge of the solar system and the beginning of the heliopause. We'd experience changes in the dynamics of our Sun in the far outer heliosphere (the termination shock), as well as changes in the distribution of dust from interplanetary and interstellar sources.

We already know that our Sun is glowing faintly in the distance. But when we turn our eyes to the universe, we're in for a very special treat: multiple stars; scattered star clusters; cloud-like nebulas and fuzzy galaxies spotting throughout the universe. Imagine what it would have been like if we brought our "best" 'scopes!

Laurice Dee, Ph.D.

JPL Solar System Ambassador (Arizona Representative)

JPL Solar System Ambassadors Program

Jet Propulsion Laboratory (JPL) - Pasadena, CA

jplssambassador@wyndtell.com

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Tom Polakis, Tempe, AZ

Arizona Sky Pages <http://www.psi.az.com/polakis/>

Desert Sunset Star Party At the Kartchner Cavern State Park, Benson AZ

May 1-4, 2003

Hosted by: Chart Markers and More (Pat and Arleen Heimann) And the Arizona State Park Department

Mark your calendars and watch our website for updates <http://chartmarker.tripod.com>

Currently looking for volunteers for:

- * Evening talks – ½hour lectures
- * Afternoon presentations – 15-20 minutes
- * Afternoon demonstrations – to small groups, possibly repeatable

Provide a written title and brief description & Email to chartmarker@cox.net

Deadline for submission, Sept. 30, 2002

Backyard Astronomer Trivial Quiz

By Bill Dellinges

Ok gang, this month I ask you to put your thinking caps on for a pop quiz. Answers can be found at the end of the questions.

- 1) How many Astronomical Units are in a light year?
- 2) What apparent magnitude would the Sun be from Pluto?
- 3) Unable to verify his discovery of Pluto the following night due to clouds, what movie did Clyde Tombaugh see in town?
- 4) Who named the Galilean moons?
- 5) From what distance does the Sun no longer exhibit a disk?
- 6) Who discovered the fifth moon of Jupiter, Amalthea? (mag. 14.1).
- 7) How many Suns could fit between the Sun and Alpha Centauri, the next nearest star?
- 8) Earth's escape velocity of 7 miles per second is what percent of the speed of light?
- 9) The Solar System's diameter of about 7 billion miles (79 A.U.'s), is what percent of a light year?
- 10) What were the so-called "Royal Stars" of antiquity? (bright stars near the ecliptic, more or less spread equally apart).

Answers:

- 1) 63,239.8
- 2) -18.6 (300 times the brightness of the full moon).
- 3) "The Virginian" starring Gary Cooper.
- 4) Simon Marius (Mayer), a German astronomer as suggested to him by Kepler. Galileo called them the "Medicean Planets" or I, II, III, and IV.
- 5) From about the orbit of Saturn, the Sun's disk would be about 3 ½ arc minutes in diameter, right about the limit of the human eye's resolution.
- 6) Edward Emerson Barnard in 1892 with the Lick Obs. 36" refractor.
- 7) About 29 million.
- 8) 0.004 %.
- 9) 0.1265%.
- 10) Alderaran, Fomalhaut, Antares, and Regulus (use the acronym "afar" to remember).

Corrections From Previous Articles

It has been noted there are corrections on the bino articles that were in the May and June Newsletters.

Corrections:

- 1) In my bino article, part one (May) - to determine real field in degrees, divide 52.4 (not 52.5) into the (example) number 376 in "376'/1000 yards". That is, $376/52.4 = 7.17$ degrees. If it's stated metrically (105m/1000m), use the divisor 17.5.
- 2) Bino article 2 (June) - the price of \$8,000 should be \$9,200 for the Fujinon 25x150's (including mount) and is the cheapest model. It has non ED glass and straight through eyepieces. For 45 degree eyepieces and ED glass, the EM model is \$17,400 (gasp!!). Note the EM model is the only 45o e.p. model and only comes in ED glass.

ITEMS FOR SALE

Before I post this on Astromart, I want to offer these eyepieces up for sale to the EVAC members. Since I now have 2 longer focal length SCT telescopes, and no more refractor or dob I decided to re-think my eyepiece collection a little bit. So I have the following items for sale.

All are in LNIB condition and are optically excellent:

Televue 2" 4X Powermate - \$200 Televue 1.25"/2" 9mm Nagler - \$175
Televue 1.25" 8mm Plossl - \$70 1.25" Basic laser collimator - \$40
Vixen Lanthanum Super-wide 13mm 1.25"/2" - \$180

If you are interested call Martin Bonadio at 480-926-4900 home, 480-570-7163 mobile, or email at mbonadio@cox.net.



MORE FOR SALE

Meade Super Wedge	\$295	Scope Saver for LX Series	\$60
Meade HD Tripod	190	Meade 35mm camera mount	15
Meade #1812 12v to 18v conv	30	Meade LX200 front power panel	50

Contact George Kolb - EVAC Member @ 480-706-0936

BOYCE THOMPSON STAR PARTY

The Boyce Thompson Arboretum will be hosting another "night under the stars" on Saturday, November 2nd, from 6:00 PM till 9:00PM. EVAC members are invited to attend the buffet dinner and set up telescopes for public viewing afterwards. As this is a deep sky night, those who wish to remain after the public has left and continue to observe, may do so. The last one to leave (usually me!) will lock up the gate. Sign-up sheets will be available at the next two meetings, or you can contact me (Don Wrigley) directly via phone (480-982-2428) or e-mail (djwrigley@earthlink.net).

Don Wrigley, editor of the EVAC Newsletter, will be changing his email address effective October 1st. We will keep you posted as soon as we know what it will be...

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
- \$25.00 October – December & next year

Membership Renewals:

- \$20.00 January – December

Name Badges:

- \$7.00 each

Name: _____

Magazines: if renewal, customer # _____

(New) (Renewal)

- \$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: _____

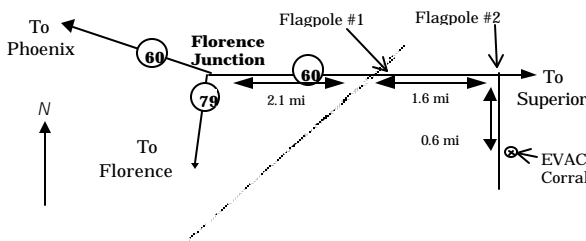
EVAC Star Parties

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.

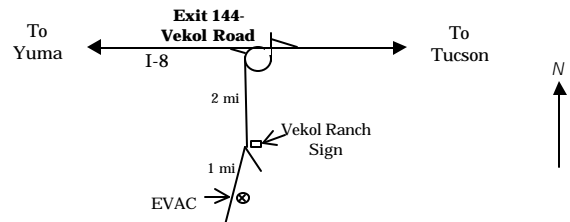


Deep Sky Star Party: Vekol Road Site

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
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VICE-PRESIDENT

Diana Jane'
(480) 833-2002

TREASURER

Randy Peterson
(480) 947-4557

SECRETARY

Tom Polakis
(480) 967-1658

PROPERTIES

Gary Finnie
gfinnie@kam-az.com

NEWSLETTER

Kathy Woodford and
Don Wrigley, Editor
(480) 982-2428

Silvio Jaconelli,
Coordinator
(480) 926-8529

East Valley Astronomy Club—2002 Scottsdale, Arizona

EVAC Homepage—<http://www.eastvalleyastronomy.org/>

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. Email: rgpeterson@cox.net

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.

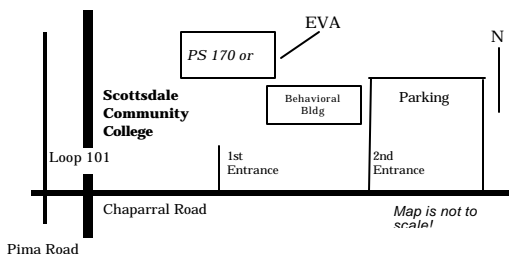
Address Changes: Contact Randy Peterson. Email: rgpeterson@cox.net or PO Box 2202, Mesa, AZ. 85214.

Newsletter: Contact Don Wrigley or Kathy Woodford, 423 W. 5th Ave, Apache Jct, AZ 85220. 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 send your contributions to Silvio Jaconelli SilvioJ@msn.com or Don Wrigley DJWrigley@earthlink.net. Contributions may be edited.

EVAC Library: The library contains a good assortment of books, downloaded imagery, and helpful guides. Contact Gary Finnie for complete details gfinnie@kam-az.com

Book Discounts: Kalmbach and Sky Publishing offer a 10% Discount to EVAC members on books and other items from their catalogs! When ordering, notify the person on the phone that you would like the "Club Discount." When ordering by mail, there is a line to subtract the 10% club discount.

EVAC Party Line: Let other members know in advance if you plan to attend a scheduled observing session. Contact Dave Coshow (480) 730-1132.



Deadline for the October Newsletter is Sep 25th



EVAC

PO Box 2202

Mesa, AZ 85214

Space is limited. Get your articles in early. May be edited for brevity.

Don Wrigley & Kathy Woodford, Co-Editors
Silvio Jaconelli, Coordinator
423 W 5th Ave, Apache Junction, AZ 85220

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, September 11, 2002