



# East Valley Astronomy Club

October 2001

[www.eastvalleyastronomy.org](http://www.eastvalleyastronomy.org)

Scottsdale, Arizona

## You Can Make Them Brighter

By: Rick Scott

A few months ago, I wrote an article titled "You Can't Make Them Brighter". So why am I now writing that you can make them brighter? The point of this article is about point objects like stars. Because stars are so far away, even the largest of them are effectively points; that is, they subtend virtually zero degrees of arc, at least for amateur equipment. Some observatories with large telescopes and special auxiliary equipment have been able to measure the angular size of some of the close, large stars, but that doesn't count for us.

So, if stars are just points of light, then no matter how much magnification you push your scope to, the result would still be a point if it wasn't for physics and something called diffraction. In the very early telescope days, before diffraction was understood or even known about, the opticians thought that the image of a focused star ought to have infinite brightness because the light captured by the aperture was all going to be contained in an infinitely small point. No matter how hard they tried to make better optics, the size of the focused star didn't get any smaller for a telescope of a given f-ratio. Eventually, the scientists of the time figured out what diffraction is and how it applied to the telescope problem.

In a most general sense, light can be thought of as rays travelling in straight

lines. That works for figuring out shadows and the general direction the light is travelling, but for focused images or light passing through small holes or thin slits, diffraction has to be considered. Diffraction causes light to bend when it passes an edge. In the case of our telescopes, that edge is whatever defines the aperture or entrance pupil. For the common Newtonian scope, the aperture is defined by the size of the primary mirror unless the diagonal mirror is undersized. For scopes that use corrector lenses like Schmidt Cassegrain's, Maksutov's or my Lurie-Houghton, or the main lens in refracting telescopes, the opening of the lens cell sets the aperture.

(continued on page 2)

### October Guest Speaker:

Lt. Col. William Gregory (Ret.). Mr. Gregory was the pilot on STS-67, launched Mar. 2, 1995 and worked on the mission that was focused on working with 3 UV telescopes. The mission also set a record at that time for Shuttle flight duration. Bill will be talking about the mission and the UV work of the flight.

### EVAC & Other Events: 2001

	New Moon	Meet	Local	Deep Sky	Other
Oct	10/16	10/10	None	10/20	10/6 - Adopt-a-Highway cleanup 10/12 & 13 - All AZ Star Party
Nov	11/15	11/14	11/10	11/17	11/17 - Leonid Meteor Shower
Dec	12/14	12/12	12/8	12/15	Holiday party (TBA)

The image of a focused star is actually a small disk called the Airy disk, named after the 19<sup>th</sup> century scientist Sir George Airy. The Airy disk is surrounded by a series of rings, with the first being the brightest and the others falling off in brightness. Usually, only the first ring is easily seen, but good-seeing conditions are necessary and only with stars that are not so bright that they dazzle the eye. In a perfect telescope, 83.9% of the light energy is contained in the Airy disk, 7.1% in the first diffraction ring, and 2.8% in the second ring. The diameter of the Airy disk only depends on the f-ratio of the telescope, being smaller for lower f-ratios (faster). The Airy disk of an f/5 scope is half the size of the disk of an f/10 scope. This should give you a hint about the title of this article. For a given aperture, a smaller Airy disk means that the light is focused to a smaller disk and is therefore brighter. The area of a circle is proportional to the square of its diameter, so a circle of half the size has one-fourth the area. If a given amount of light is concentrated into a disk with one fourth of the area, it will appear four times brighter. Remember that this only works for point objects like stars in a scope that is diffraction limited or nearly so.

Since all the light of a star is focused into the Airy disk and rings for any magnification, it's possible to increase the magnification to see dimmer stars. Referring to my earlier article, the sky itself is a diffuse object, so higher magnifications will make the sky background darker, but not the stars. Using this to our advantage, higher magnifications can be used to see more stars in galactic and globular clusters.

Here's an example using two of my telescopes. My Celestron 8-inch scope has an f-ratio of f/10 and a central obstruction of 2.75 inches. My 9.8-inch Lurie-Houghton (LH) has an f-ratio of f/4.5 and a central obstruction of 3.1 inches. In terms of aperture area, the Celestron has 44.33 square inches and the LH has 67.88 square

inches, so the LH collects 1.53 times more light or 0.46 magnitudes brighter. That doesn't take into account the difference in f-ratios, hence the size difference of the Airy disks. The area of the Airy disk in the LH is the square of 4.6 divided by 10 smaller than the disk in the Celestron, so the star image appears brighter by the square of 10 divided by 4.6 which is 4.73 or another 1.68 magnitudes for a total of 2.15 magnitudes! Now that makes for a very visible difference and I can certainly see the difference between the two scopes. Since I built the LH, clusters never looked so good and it became very apparent when I looked through the Celestron after using the LH for a year. I guess I'm now spoiled by having a fast f-ratio telescope.

I hope that between this article and the last you can see why fast scopes are desirable for observing stars and why large apertures are desirable for dim diffuse objects. Combining these two traits is a great combination for deep sky observing, but high quality, large aperture, fast optics are very difficult to make. When you get a good one, the viewing is very enjoyable indeed!

## **Solar System Mission Updates**

By: Laurice Dee, Ph.D., JPL Solar System  
Ambassador (AZ Representative)  
NASA-JPL Solar System Ambassadors  
Program

Since I did not have the opportunity to update all of you on various solar system missions during last month's meeting, I will provide updates in this article. I do hope to show all of you a quick video of the Mars Odyssey launch during the upcoming meeting. Besides showing the video, I will provide latest news on some of the missions.

Here's an update of the current and future solar system missions:

**Ulysses** – Is currently flying over the north polar region of the Sun to study maximum

solar activity at the north pole. The spacecraft has made interesting discoveries of our giant star, especially with its solar flares and magnetic field. Ulysses has already flown over the south polar region twice and the north region once since launch in 1990. *Have fun flying over the Sun, Ulysses!*

**Solar and Heliospheric Observatory (SOHO)** – Is currently studying the Sun during its maximum solar activity, especially solar flares and dark spots. The spacecraft is currently orbiting around the L1 point and has brought back interesting information about the Sun. *Enjoy observing the wonders of our Sun, SOHO!*

**Advanced Composition Explorer (ACE)** – Is currently analyzing composition of solar, interplanetary, and galactic matters and has brought back interesting results from the measurements. Like SOHO, the spacecraft is currently orbiting around the L1 point. *Keep the interesting information coming, ACE!*

**Genesis** – Is on its way to the L1 point and will arrive this coming November. The spacecraft will obtain precise measure of solar isotopic abundances and measure isotopic compositions of oxygen, nitrogen, and noble gases while orbiting around L1. *Enjoy your journey to L1, Genesis!*

**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!*

**Deep Space I (DS1)** – Is now on final approach to an extraordinarily risky close

encounter with comet Borrelly. The spacecraft will plunge into the comet's coma this coming September 22<sup>nd</sup>. It will attempt to pass within 2000 kilometers (1250 miles) of the nucleus at about 3:30 pm PDT while traveling at 16.5 kilometers/second (36,900 miles/hour). The spacecraft will try to smell, see, and hear the comet with its instruments, and if it survives it will describe its spine-tingling adventures to its anxious human colleagues elsewhere in the solar system. *Go for it, DS1, and the best of luck to you!*

**Comet Nucleus Tour (CONTOUR)** – Will visit and study at least 2 comets (Enke and Schwassmann-Wachmann 3) at the peak of their activity, close to the Sun, in November 2003 and June 2006, respectively. (If all goes well, CONTOUR will fly by comet d'Arrest in August 2009.) The spacecraft will assess how diverse these original building blocks of the solar system are. CONTOUR will also clear up the many mysteries of how comets evolve as they approach the Sun and their ices begin to evaporate. Launch will take place in August 2002.

**Deep Impact** – Will arrive at comet Tempel 1 in July 2005 and become the first mission to impact the surface of a comet. A 350-kg (770-lbs.) copper mass impactor will create a spectacular football field-sized crater, seven stories deep on a comet 6-km (approximately 4 miles) in diameter. This will be the first attempt to peer beneath the surface of a comet to its freshly exposed material for clues to the early formation of the solar system. Although the impact may seem powerful, there will be no measurable change to the comet's orbit and no threat to distant Earth.

**MESSENGER (MErcury Surface, Space ENvironment, GEochemistry and Ranging)** – Will be the first mission to perform scientific investigations on Mercury. The launch will take place in 2004, and the spacecraft will arrive in 2009. MESSENGER will investigate key scientific questions

regarding Mercury's characteristics and environment during the two complementary mission phases. Data will be provided by an optimized set of miniaturized space instruments and the spacecraft telecommunications system.

**Terra** – Is currently taking images of Earth and analyzing the planet's atmosphere and environment with its instruments. The spacecraft transmits data on the changes daily. Terra took aerial shots of the twin World Trade Center towers and their most heartrending damages. The images turned out very clear (i.e., the smoke was extremely visible). *We, along with Terra and Ikonos, will remember and pray for those that have been greatly affected by the 11 September 2001 attacks, as well as the two beautiful, robust buildings that once stood in Manhattan.*

**SeaWinds on QuickSCAT** – Is currently measuring velocity and direction of winds close to the ocean surface, as well as water temperature, in its polar orbit around the Earth. The spacecraft transmits data on a daily basis for the purpose of weather forecasting and research. *You're such a big help to the weather forecasters and researchers all over the world, SeaWinds!*

**High Energy Solar Spectrometric Imager (HESSI)** – Has been waiting to be launched for quite some time! The spacecraft will be taking x-rays of the solar flares and will be performing extensive spectral analysis of the flares and prominences during maximum solar activity. *Have patience, HESSI, and you'll eventually be in space!*

**Microwave Anisotropic Probe (MAP)** – Had a very successful launch last June 30<sup>th</sup> and flew past our Moon after orbiting three times around Earth. MAP is on its way to the L2 point where it will orbit while mapping the fossil light that would shed a light on what the early universe was like

billions of years ago. *You're so lucky to have the night sky to yourself, MAP!*

**Mars Global Surveyor (MGS)** – Completed the mapping of Mars earlier this year. The spacecraft has been taking images of unusual places on Mars and will serve as a communications relay for upcoming missions to Mars. *Excellent job, MGS, and we're proud of you!*

**Mars Odyssey** – Will arrive Mars on 23 October 2001 (early evening) to map the mineral content of the surface of Mars and check for radiation levels in the atmosphere and for water ice that may be underneath the surface. So far, the spacecraft is healthy and is getting closer to Mars with each passing day. *The very best of luck to you, Mars Odyssey!*

**Galileo** – Had a very successful flyby of Io this past August. Galileo has been having a very illustrious mission so far with plenty of flybys of the Galilean satellites, and it 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 are two flybys of Io and one flyby of a minor moon, Amalthea, this year and next year. By the way, the next flyby of Io is next month! *Keep plugging along, Galileo, and enjoy the rest of your mission!*

**Cassini** – Is on its way to Saturn. The spacecraft 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 30<sup>th</sup> at approximately 9 million miles. *You've come a long way, Cassini, and we're with you every step of the way!*

## President's Message

By Martin Bonadio

**Pluto-Kuiper** – Received funding for a three-month preliminary (feasibility) study that has been performed by three groups. These groups were selected by NASA, and a decision will be made soon on one of the three that will be involved with the full development of the mission. ***We do hope for funding to carry out the entire mission – from launch to completion of mission!!***

**Voyagers** – Are getting closer and closer to the edge of the solar system. Both twins were launched in the late '70s and flew past the gas planets – Jupiter, Saturn, Uranus, and Neptune. They brought back excellent images of these planets, as well as interesting data! I need to mention that it has been quite a nostalgic experience for me to be thinking about these Voyagers! *Like Cassini, you've come a long way, Voyagers, and have fun at the edge of our solar system!*

If you have any questions or comments regarding various solar system missions, please do send me an e-mail at your earliest convenience. My e-mail address is [laurice.a.dee@boeing.com](mailto:laurice.a.dee@boeing.com).

## EVAC Shirts Update

By: Randy Peterson  
EVAC Treasurer

Every shirt that has been ordered so far will be available to be picked up at the regular EVAC meeting on October 10th. And, if you have not already pre-ordered a shirt, there will be almost 4 dozen various sizes and colors of T-shirts and Polo shirts available to be purchased at the meeting.

We will continue to take pre-paid orders for shirts on an ongoing basis. This will be the best way to be assured of receiving the exact size/style/color shirt you want. There will be an assortment of shirts available for purchase at each meeting.

I hope everyone is enjoying the now clearing skies as the monsoon clears out. As well, now that the blistering summer heat has started to taper off, I hope you have the chance to get out and do some observing!

I had the opportunity a few weeks back to go observing with several members of the club. The main purpose of this trip was to view a possible asteroid occultation. While the event “passed” south and east of our location, we did enjoy watching the asteroid – as a dim telescope object – pass close enough to its target star so that the two were indistinguishable for about 20-30 minutes. The rest of night was spent under very clear and stable skies looking at a number of great deep sky objects. I'm hoping to get out under clear skies again this coming weekend as well even though the moon doesn't set for a few hours after dark. I have a summer observing list that I'm way behind on!!

Shortly after, I set up my scope in the yard for a few mornings and enjoyed the planets Jupiter, Saturn, and Venus as they are now higher in the sky before dawn than in past months. The climax of this observing run was watching the Saturn occult by the Moon!! Wow! I hope others saw this too. It was truly spectacular to watch the rings materialize off the dark limb of the moon.

Coming up in the next few weeks we have our fall adopt-a-highway cleanup on October 6<sup>th</sup>, and the All-Arizona Star party on October 12<sup>th</sup> – 13<sup>th</sup>. I hope you are able to attend both events. While one is a little more laborious – it's always a great time to talk telescopes while we clear trash from 1 mile of highway, and then again for another few hours at the **free** lunch sponsored by the club.

Last order of business this month, and the most important, is the nominations for the 2002 EVAC Officers. Many officers have

served the maximum 2 years in their current positions, and a few others have had changes in their personal and work schedules that prevent them from holding second terms. It's up to you as members of EVAC to step forward if you are interested in a position with the club. Not only is this a great way to get to know other amateurs in the community, it's always a lot of fun to organize and manage club events for everyone! I have truly enjoyed my experience as President so far! If you are interested, definitely give me a call or drop me an email (Martin: 480-926-4900, [mabastro@aol.com](mailto:mabastro@aol.com)).

Here is the current list of nominations:

- President – **Open!**
- Vice President – **Open!**
- Treasurer – Randy Peterson
- Secretary – Martin Bonadio
- Properties – **Open!**
- Star Party Coordinator – David Coshow
- Newsletter Editor – **Open!**
- Newsletter Coordinator – Silvio Jaconelli
- Board Members (Need 5) – Jack Grbcich, **4 Open!**

Again – the future of EVAC relies on volunteerism to keep it going. We have had a strong past, and we have an even stronger opportunity going forward.

In the wake of the tragedies that have affected our country, I will conclude my monthly message with my usual “clear skies” with the understanding that it has greater meaning to me now than ever before!

## **EVAC Meeting Minutes**

By Tom Mozdzen

**7:30pm:** Martin Bonadio once again punctually called the meeting to order. A moment of silence was observed for the victims of the recent terrorist attack. After some brief humor, Martin gave some beginner's tips on buying a new telescope. There were about ~50 people in attendance with several guests present.

**Upcoming** star parties and events were discussed:

- All Arizona Star Party - October 12-13.
- Gilbert Library – 2<sup>nd</sup> Friday of each month – Hosted by Riparian Skywatch.
- Dinner with the speaker @ 5:30pm at Blackeyed Pea – Scottsdale Pavilions shopping center (Pima & Indian Bend).
- Next beginner's lab – September 29 at Dave Coshow's house.
- Special thanks to those who volunteered to be SIG leaders.
- Tom Polakis has published an article in Astronomy Magazine focusing on Sagitta, Vulpecula, and Delphinus.
- Joe Orman/Rick Scott has a picture of the day published in Astronomy Magazine and it also made it into a German publication as well.

Volunteers needed for:

- EVAC Family meeting organizers.
- Adopt-a-highway Oct. 6<sup>th</sup>.
- Newsletter Article collector
- Arizona Explorer Magazine – Article Collaborations

### **8:00 Break**

### **8:15 Show and Tell**

**Chris Schur** – Chris showed us several CCD photos taken with his 12” Newtonian. He showed a variety of pictures ranging from Galaxies, Aurora, and yes, to the moon.

### **8:30 Main Speaker**

Dr. Steve Odewahn. Steve gave us a talk about galaxy formation and a new distant galaxy just recently discovered which displayed traits predicted of the very early universe.

### **9:15 pm Meeting Adjourned.**

## If it's clear...

By Fulton Wright, Jr.  
Prescott Astronomy Club  
For October 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 Tuesday, October 2, after 2 AM you can see a number of events with Jupiter's moons. With a medium telescope (6 inch) look 30 degrees above the east horizon for Jupiter. Here is the schedule of events:

- 2:15 AM Europa moves in front of Jupiter.
- 2:20 AM Europa's shadow, already on Jupiter, leaves
- 2:29 AM Io's shadow falls on Jupiter
- 3:46 AM Io moves in front of Jupiter
- 4:41 AM Io's shadow leaves Jupiter
- 5:01 AM Europa moves from in front of Jupiter

On Tuesday, October 2, from about 7:00 to 8:00 PM, you might see an asteroid cross a globular cluster. With a medium (6 inch) to large (12 inch) telescope look 15 degrees above the southwest horizon for M4 and 15 Eunomia. This won't be easy because Eunomia is magnitude 11, about as bright as some stars in the cluster, and the event will be low in the sky.

On Sunday, October 6, at 10:16 PM, you can see the Moon occult a star. With binoculars or a small (3 inch) telescope look 15 degrees above the east horizon for the waning gibbous Moon next to Epsilon Tauri (mag 3.5). The star is uncovered at 11:12 PM.

On Tuesday, October 9, after 2 AM, you can see several events with Jupiter's moons. With a medium telescope (6 inch) look 30

degrees above the east horizon for the planet. Here is the schedule of events:

- 2:12 AM Europa's shadow falls on Jupiter (1 shadow)
- 4:22 AM Io's shadow falls on Jupiter (2 shadows)
- 4:51 AM Europa moves in front of Jupiter
- 4:57 AM Europa's shadow leaves Jupiter (1 shadow)
- 5:39 AM Io moves in front of Jupiter
- 6:31 AM the Sun rises

On Thursday, October 11, after midnight the night of October 10-11, you can see a number of events with Jupiter's moons. With a medium telescope (6 inch) look 10 degrees above the east-northeast horizon for Jupiter. Here is the schedule of events:

- 12:07 AM Io moves in front of Jupiter (only 1 moon, Callisto, is visible)
- 1:03 AM Io's shadow, already on Jupiter, leaves
- 1:48 AM Ganymede appears from behind Jupiter
- 2:19 AM Europa appears from behind Jupiter
- 2:20 AM Io moves from in front of Jupiter (all moons are now visible)

On Sunday, October 28, about 6:00 AM, you can see Venus and Mercury near each other. With your unaided eye or binoculars look low in the east for Venus (mag -4) and, less than a degree away, Mercury (mag -.5). They will be close all during the following week.

## For Sale:

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](mailto:mabastro@aol.com)

Celestron Celestar 8" Schmidt-Casegrain telescope. Dual Focal length – f10 with f6.3 reducer/corrector. 2 Finderscopes - Telrad & 9x50mm Asking \$875.00 Contact Terry (480) 985-3170.

<p>Deadline for the October Newsletter Submissions is <b>October 22<sup>nd</sup>, 2001.</b> Send articles to <a href="mailto:JKLINE29@HOME.COM">JKLINE29@HOME.COM</a></p>
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## 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
<b>Price&gt;</b>	<b>\$16</b>	<b>\$16</b>	<b>\$16</b>	<b>\$18</b>	<b>\$19</b>

**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						
<b>Price&gt;</b>	<b>\$14</b>	<b>\$14</b>	<b>\$14</b>	<b>\$14</b>	<b>\$16</b>	<b>\$17</b>

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

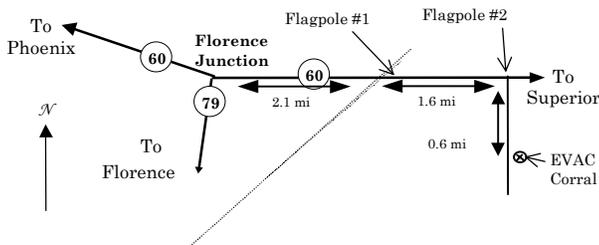
### EVAC Star Parties

**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.

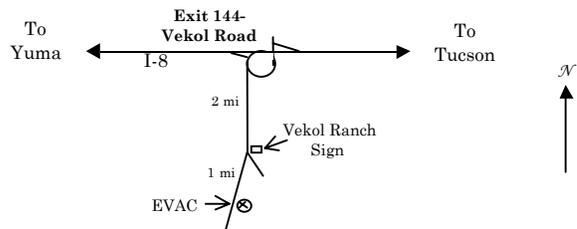


**Deep Sky Star Party: Vekol Road Site**

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 Coshow  
(480) 732-1132

**TREASURER**

Randy Peterson  
(480) 947-4557

**SECRETARY**

Tom Mozden  
(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](mailto: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.

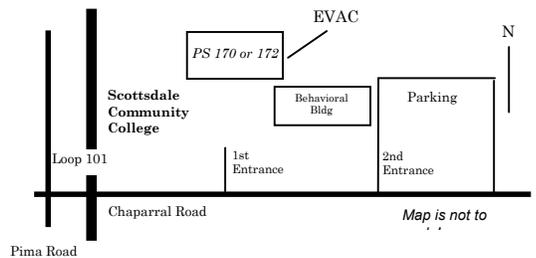
**Address Changes:** Contact Randy Peterson. PO Box 2202, Mesa, AZ. 85214-2202. Email: [rgp14159@aol.com](mailto:rgp14159@aol.com)

**Newsletter:** Contact Jim & Chris Kline. 1209 W. Palo Verde Dr., Chandler, AZ 85224. Email: [jkline29@home.com](mailto:jkline29@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.



Jim & Chris Kline, Editors  
1209 W. Palo Verde Dr. Chandler, AZ 85224

**EVAC on the Internet**  
**EVAC Homepage:** [www.eastvalleyastronomy.org](http://www.eastvalleyastronomy.org)

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**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](mailto:AZ-Observing@freelists.org)

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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, October 10th, 2001**