



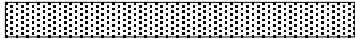
East Valley Astronomy Club

February 2003

www.eastvalleyastronomy.org

Scottsdale, Arizona

February 2003



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From the Desk of the President by Peter Argenziano 2003 EVAC President

Well, we all made it through my first monthly meeting as EVAC President. Overall, I thought things went smoothly. I am working on getting a handle on the audio/visual equipment in the meeting room – hopefully I will have all of this technology figured out by next meeting! As always, I welcome your suggestions and comments.

As I peruse the EVAC Calendar of Events, this year is shaping up to be a fantastic time to be an amateur astronomer in Arizona. There are currently about 50 star parties scheduled for this year; some public, some private, some sponsored by other clubs and organizations. Add to that some special events and it is quite easy to fill up your personal calendar with many astronomical events.

Some 2003 highlights, already on the calendar:

- 12 Local Star Parties (for members and invited guests) at the Florence Junction site.
- 12 Deep Sky Star Parties (for members and invited guests) at the Vekol Road site.
- 12 Public Star Parties at the Riparian Preserve in Gilbert.
- 4 Equipment Shoot-Out Star Parties (for members only) at the Vekol Road site.
- 4 Beginner’s Labs
- 2 monthly planetarium shows at Scottsdale Community College.
- Numerous private Star Parties
- Field trip to Steward Mirror Lab in March.
- Desert Sunset Star Party, May 1st through 4th, at Kartchner Caverns State Park.
- Astronomy Day, May 10th, at Arizona Science Center.
- The Grand Canyon Star Party in June.
- The 10th Annual Messier Marathon on March 29th and 30th.
- The All-AZ Star Party in October.

Complete details of all events can be found on our website, in the newly redesigned Calendar of Events section. A very special ‘thanks’ to our Events Coordinator, Howard Israel, for all his hard work in arranging and communicating such wonderful events! Please contact Howard if you have any ideas or suggestions for club sponsored events.

Each of us, at one time or another, has contemplated the purchase of some new astro gear. Whether it’s a telescope, a mount, filters, eyepieces, chairs, tables, accessories... we’ve all been there. We start by identifying the need, that’s the easy part. The hard part comes into play when trying to decide on the particular equipment, given today’s vast possibilities and choices. We live in a great time for the amateur astronomer!

contd. on p.2

contd. from p.1

So, how do you proceed? For many, the next step involves getting recommendations and opinions from our peers – other amateurs. We may visit one of the many online discussion groups, we may speak with other club members, or we may visit one of the online review sites (Cloudy Nights, Excelsis, ScopeReviews). I am proposing that we look within. Rather than spiritual reflection, what I am suggesting is that East Valley Astronomy Club, Inc. becomes just such a resource; not only for our members, but for the astronomy community at large.

How do we get there? The groundwork is already in place: we have an Equipment Review section on our website. The next step is up to each one of us. Take a few minutes some cloudy evening, and visit this area. Read the 'Review Writers Guidelines'. Then, write reviews on some of your equipment. Given the size of our membership, and the diverse collection of equipment we possess, we could quite easily become the preeminent astronomy equipment review site on the internet. How appropriate that an astronomy club, located in arguably the best astronomical location in the country, be the source of such information. Ladies and gentlemen... start typing!

The single largest expense that EVAC has each year involves our monthly newsletter. While printing costs keep increasing, the major expense here is the mailing of newsletters. If at all possible, I ask you to change your method of newsletter delivery from a mailed hardcopy to electronic delivery. It is published in Adobe PDF (portable document format) for which the reader application is freely available – there's even a link to download it on our website. Please consider switching to electronic delivery. If you simply must have a printed copy, and are unable to print one yourself, consider picking one up at Mr. Telescope in Phoenix, Photon Instruments in Mesa, or at the next monthly general meeting.

In closing, I would like to remind everyone that it is time to renew your EVAC membership, if you haven't done so already. You may use the renewal form contained in this issue of the newsletter or print one from our website. Please contact the Treasurer, Stanley Bronstein, for further details. Thank you!

I look forward to another great year for East Valley Astronomy Club, Inc.
Keep looking up!

EVAC Meeting Minutes January 8, 2003 by Tom Polakis, Secretary

January's meeting opened with a new EVAC president, Peter Argenziano. He had visitors and Board members introduce themselves. Following this, he gave a pitch for members to subscribe to the electronic newsletter. Note that the newsletter is EVAC's single largest expense. Webmaster Marty Pieczonka spoke about updates to the club's site at <http://www.eastvalleyastronomy.org>.

Treasurer Stanley Bronstein made an acknowledgement to Randy Peterson, our Treasurer for the past two years. He reviewed the annual budget, and noted that there are 95 members who have not yet renewed.

Events coordinator Howard Israel announced the availability of beginners labs. See the calendar, and contact Dave Coshov for details. Howard is setting up an inside tour of Steward Mirror Lab for either March 8 or March 15. Stay tuned for more information.

After the break, EVAC members did an all-show-and-tell meeting. Rick Scott donated Dennis Overbye's "Lonely Hearts of the Cosmos" to the club library.

Tom Polakis followed with a presentation about using a Webcam to image bright astronomical subjects. Joe Orman spoke about the University of New Mexico's Meteorite Museum, which he visited with special permission.

Silvio Jaconelli gave practical advice about observing double stars, including mention of magnitude difference effects and correct magnification. Rick Scott then showed his photographs of the Very Large Array, a radio telescope in central New Mexico.

Next up was Don Wrigley.

He showed some video of planets and the moon acquired using the simple Meade electronic eyepiece. Finally, Gene Lucas spoke about Comet 2002 Y1 (Juels-Holwerem), which was discovered by Charles Juels near Gene's home in Fountain Hills.

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

Schedule of Comming Events By Howard Israel, Events Co-ordinator

Month	New Moon	Meeting Date	Local Star Party	Deep Sky Party	Gilbert Library	Other Events	Club Meeting Speaker/Topic
February	02/01	02/12	02/22	02/01	02/14	02/07	AJ Crayon
			Boyce Tompson	Vekol Road		Highland HS	Observational Sketching and drawing
March	03/02	03/12	03/22	03/01	03/14	TBD	Adam Block
			Boyce Thompson	Vekol Road Eye Piece Shootout		Stewart Mirror Lab visit	Astronomer Kitt Peak Observatory
				03/29			High Resolution CCD imaging
				Arizona City MESSIER			
				MARATHON			
April	04/01	04/09	04/19	04/26	04/11	04/18	Dr. Jeff Hester
			Boyce Tompson			Beginners Lab	Professor of Astronomy Ariz. State University

Local and Deep Sky Star Parties are for member's only and invited guests. Please observe star party etiquette. For Star Party information, call the Star Party Hotline @ 480 893 0013.

The General Public is welcome to attend public star parties sponsored by EVAC at the Gilbert Public Library on the second Friday of each month, weather permitting. Observing begins at dusk. EVAC volunteers and telescopes are always welcome. The library is located at Greenfield/Guadalupe. For further information, call the Star Party Hotline @ 480 893 0013.

Beginners Lab will be held on Friday, April 18, 2003 at the home of Dave Coshow. 2113 E. Yale Drive, Tempe, AZ. Setup and observing begins at 7:00 PM. E. Yale Drive is located 1/2 mile south of the intersection of Baseline Road and Price Road, west of the Loop 101. For further information, call Dave Coshow @ 480 730 1132. Non-members are invited but they must call for a reservation since space is limited.

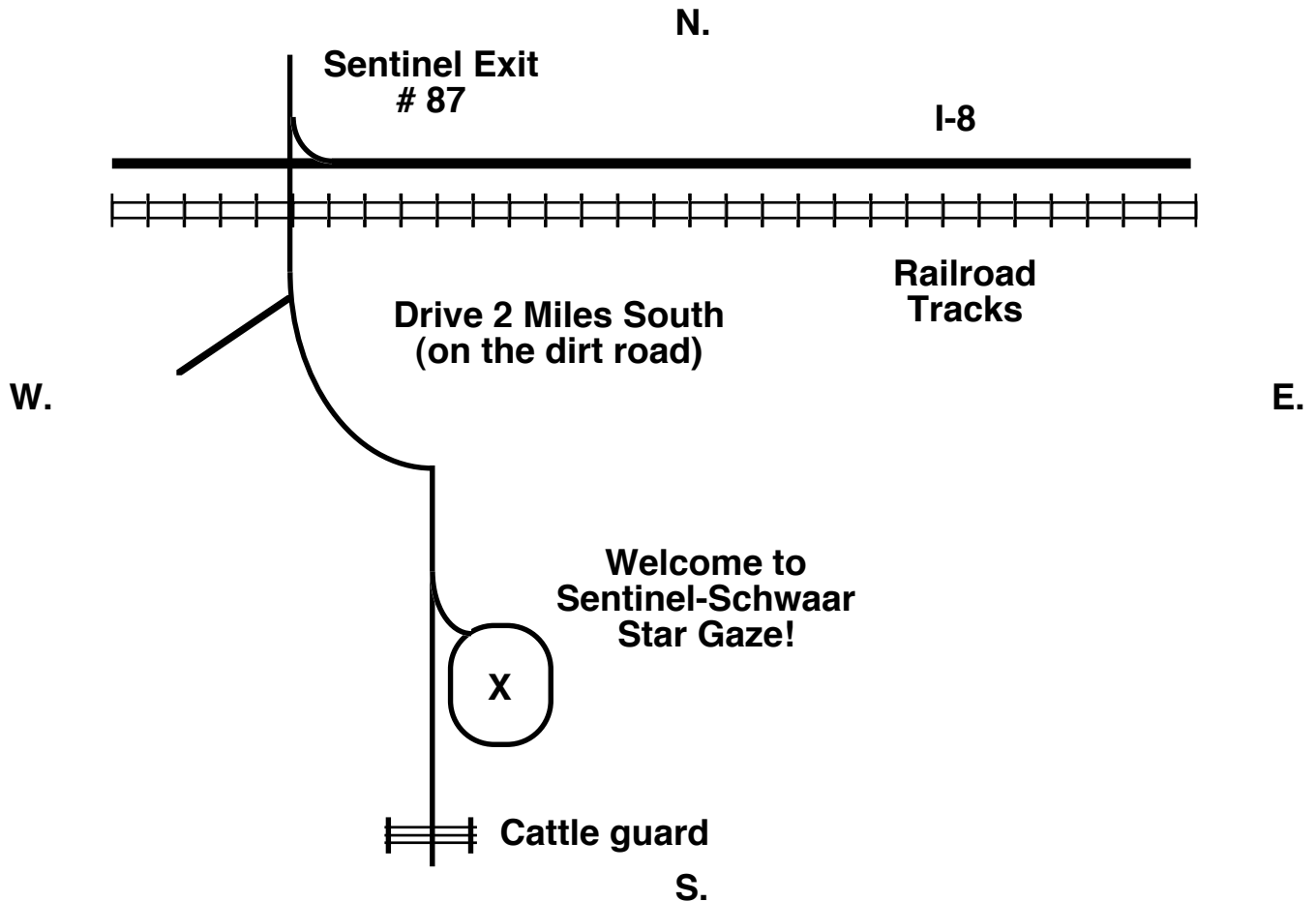
EVAC Star Party for Highland High School Physics Club on Friday, February 7, 2003, 7:00PM – 10:00 PM. Volunteers are needed to provide telescopes. Call Dave Coshow @ 480 730 1132 if you wish to volunteer. The school is located at 4301 East Guadalupe Road. About 50 students are planning to attend, so we should have a minimum of 8 telescopes. Thanks to those who have already volunteered.

Eyepiece Shootout details in March Newsletter
Messier Marathon details can be found at the SAC website.
Stewart Mirror Lab visit is still waiting for final confirmation date.
We encourage suggestions for upcoming events.

Sentinel-Schwaar Star Gaze Sat. March 1, 2003

Here is the information for the Sentinel-Schwaar Star Gaze for Mar. 1, 2003. I chose a date before the Messier Marathon because it is very hot at Sentinel, AZ if I pick a New Moon date after April. So, please show up with a list of galaxies in Virgo, Leo and Coma....then wait up late for all those Summer goodies to rise up for your enjoyment. Also, lots of planets to view on this night, if you are so inclined. If you are the member of a club other than SAC, encourage some new folks to attend. Hoping for some great viewing on a cool, clear night.

Steve Coe



The Sentinel-Schwaar Star Gaze is a chance for astronomers to meet at an Arizona dark sky site. It is sponsored by the Deep Sky Group of the Saguaro Astronomy Club in memory of Pierre Schwaar. There is no registration and no fee to attend, just show up and enjoy the night sky. In the past, folks have arrived on Friday, for two nights of observing. There are no facilities at the site, it is just a large flat area in the middle of the desert southwest. It gets both hot and cold, depending on the whim of the weather, so bring cool water and warm clothes. Please be courteous about white light, many observers and photographers are going after very dim objects.

To get to the site, drive to Gila Bend, AZ. and get on the I-8 freeway going West toward Yuma. The Sentinel exit is #87, about 30 miles west from Gila Bend. Take the exit and go South, under the freeway and across the railroad tracks. Go straight South on the dirt road and drive 2 miles until you see a large, flat area of the desert to your left, white rocks mark the site. It is before a cattle guard. YOU ARE THERE!

stevecoe@ngcic.org

Author: Deep Sky Observing--The Astronomical Tourist

Saguaro Astronomy Club web site:

www.saguaroastro.org

Planetary Imaging Using a Webcam

by Tom Polakis

It is a correct impression that "competitive" CCD imaging is extremely pricey and time-consuming. The learning curve is steep, and the rewards just aren't always there for all that investment. If you're willing to stick to the bright subjects, however, a Webcam may be the ticket for you. Some of the finest lunar and planetary images are taken with Webcams, and they were purchased on a shoestring budget.

A Webcam is nothing more than a tiny CCD chip embedded in a plastic casing with the appropriate firmware to create digital movies. They can generally be bought these days for around \$100, or "less than the price of a quality eyepiece (to use a tired cliché)." For astronomical use, there is general agreement that Philips is making the best product. The light sensitivity of the chip is good, and the chip has exceedingly tiny 5.6-micron pixels -- 640 by 480 of them. Their ToUCam is a good choice, but the more common Vesta Pro serves well. Unfortunately, Philips has given up on the U.S. market, and it's rare to find them. As of this writing, a company in Georgia named Pocketscope (<http://store.yahoo.com/pocketscope/toucam.html>) is selling the ToUCam for \$80. Quantities are limited; act now!

In addition to the Webcam, you will need a telescope that tracks and an adapter for connecting your camera. Steven Mogg sells adapters for many popular cameras from Australia, mostly for around \$20 at (<http://webcaddy.com.au/astro/adapter.htm>). Finally, you will need a computer for running the software. A laptop works best for carrying out to the telescope.

How large will Saturn appear on your monitor? Before you proceed, it is important to know your image scale. This is simply the angle subtended by a pixel. If the focal length of your system is long and your chip has small pixels, your image scale will be large. You want this number to be less than 0.5" per pixel, and some would suggest much less. It is easily calculated by multiplying 206 by the pixel size, and then dividing by the focal length. My 10" f/5.6 with a 2.5x Barlow has a focal length

of roughly 3500mm. With 5.6-micron pixels, the image scale works out to 0.33 arcsec/pixel. That means that Saturn's rings will subtend about 136 pixels, which is a pretty good image size. Multiplying 0.33 by the number of pixels on the chip tells me that the entire frame is a diminutive 3.5' by 2.6'. Acquiring even a bright target on the chip can be challenging!

There are two advantages to Webcam imaging over using a digital camera. One is that all that glass in the digicam and eyepiece elements is eliminated from the equation. The larger advantage, though, is that you acquire many frames in a short period of time. At 25 frames per second, you have well over 1000 frames in a one-minute segment. And stacking those frames is where the magic begins!

By stacking many individual frames, much of the noise present on each individual image is averaged, and to the eye, eliminated. Seeing problems are also diminished, as each frame is automatically registered by the freeware. One such piece of freeware is Registax (<http://aberrator.astronomy.net/registax/>). It reads in an .AVI movie file, and aligns each frame, ranking each one for quality. Frame ranking is a nice feature, as the user is then allowed to decide how many "good" frames to keep before proceeding with the stacking operation. The frames are next stacked, and the resulting image is much less noisy than any individual frame. Finally, image processing operations are done to the stacked image. This can be done inside Registax, though it is a bit weak in this regard. Instead, you may look around for software that does more sophisticated sharpening than the unsharp mask in Registax.

On a night of only average seeing, my 800-frame stack of Saturn showed the Encke Minimum and an array of cloud bands on the globe of the planet. The image can certainly benefit from further processing. Now I'm awaiting that night of subarcsecond seeing to produce those ultimate planetary images. And producing them with a plastic Webcam will make it all the more rewarding.



A single video frame



Many frames "stacked" to reduce noise and improve sharpness.

On The Horizon Comming Astronomical Events and Activities

2003 All Arizona Messier Marathon March 29 - 30, 2003

Information has been posted on the SAC web site:

<http://www.saguaroastro.org>

If you plan on attending please read the announcement in its entirety for details.

Just as an FYI the dates and solar events are:

Saturday, March 29

4:11pm moon set

6:49pm sun set

8:08pm astronomical twilight

Sunday, March 30

4:55am astronomical twilight

5:29am moon rise

6:13am sun rise

Anyone desiring a copy of the web site announcement can have an ASCII text or PDF file sent via e-mail.

Happy Marathoning,

AJ Crayon acrayon@mindspring.com

Lowell Observatory Star Party June 5-8, 2003

Lowell Observatory will host its first-ever multi-day Star Party, where enthusiasts from around the country will gather for world-class telescope viewing and other adventures in astronomy.

Held June 5-8, 2003, the Lowell Star Party will feature some of the best that Flagstaff has to offer: a heritage rich in astronomical discovery, clear skies, and access to tourist attractions, restaurants, shopping, and more.

Lowell Star Party sponsors include some of the biggest names in astronomy, including Astronomy Magazine, Celestron, and Meade Instruments Corporation. "Star party attendees have an opportunity to interact with some of the heaviest hitters in astronomy," says Russell Tweed. "Several sponsors also will be donating products to be given away to lucky star party participants."

Evening viewing parties will be based at the Arizona Snowbowl ski resort, Highway 180 and Snowbowl Rd. "Situated at an elevation of 9,300 feet, Snowbowl is an ideal location for night sky observing," says Tweed. "The high-elevation observing area coupled with Flagstaff's reliably clear skies will make for an exciting event."

During the day, star party participants can choose from a variety of activities including tours of Meteor Crater, the U.S. Naval Observatory, the new Shoemaker Astrogeology building at the U.S. Geological Survey, and Lowell Observatory's own

daytime scientific presentations in the Steele Visitor Center and the Rotunda Library at Lowell Observatory's historic campus, 1400 W. Mars Hill Rd.

Many recreational activities also are available to those wanting to explore Flagstaff and the surrounding area. Nearby attractions include the Grand Canyon, Oak Creek Canyon, the Museum of Northern Arizona, the Riordan Mansion, the Arboretum and many more.

During the star party, attendees also may participate in "Astronomy Safaris," exclusive, behind-the-scenes tours and events only for small groups. The daytime safari, called "Behind the Scenes at Lowell," gives participants access to areas of the observatory's historic campus not ordinarily available to the public.

Nighttime "Astronomy Safaris" allow participants to choose between a private viewing session on Mars Hill or research observing at Anderson Mesa. The "Private Viewing" safari includes 90 minutes of exclusive telescope viewing through the historic 24-inch Alvan Clark refractor led by an experienced member of the Lowell staff. During the "Research Observing" safari, groups will join professional astronomers as they gather images and data using one of many research telescopes on Anderson Mesa. Both nighttime safaris are risk-free; fees will be refunded if it is cloudy and observing is obstructed or telescopes are not in operation for any reason.

A number of lodging options are available. For those interested in staying at the observing site, Arizona Snowbowl has 130 camping/telescope spaces, which can be booked on a first-come, first-served basis with the online registration. Little America Hotel, La Quinta Inn and Sleep Inn are offering discounted accommodations for Lowell Star Party registrants; when making a reservation, ask for the Lowell Star Party room block.

The registration fee for the Lowell Star Party is \$60 (\$40 for Friends members) for the full 4-day event and \$30 for single-day registration (\$20 for Friends members). Star party attendees will also receive a 20 percent discount in Lowell Observatory's gift shop.

For complete event information and to register for the Lowell Star Party, visit <http://www.lowell.edu/Public> then click on "Lowell Star Party" at the top of the page.

Note: For general information, please contact Russell Tweed by phone at (928) 774-3358 ext. 267 or via email at tweedr@lowell.edu. For questions or problems regarding online registration, please contact Jeff Hall by phone at (928) 774-3358 ext. 227 or via email at jch@lowell.edu.

Life on Earth is expensive, but it does include
free trips around the Sun!

On The Horizon (contd.) Comming Astronomical Events and Activities

Grand Canyon Star Party 21-28 June 2003 South and North Rim

web site:
<http://www.tucsonastronomy.org/gcsp.html>

Further Info:

For South Rim information, write to:

Dean Ketelsen
1122 East Greenlee Pl.
Tucson, AZ. 85719
520-293-2855
ketelsen@as.arizona.edu

For North Rim information or registration, write to:

Deloy Pierce
P.O. Box 674
Farmington, UT. 84025-0647
801-451-8215
grndcnynstarsnr@utah-inter.net

South Rim Lodging:

All Rim Lodging or Trailer Village (Xanterra) 303-338-6000 This number is often very busy, FAX them at 303-338-2045 or online at

<http://xanterra.com/>

2003 RTMC Astronomy Expo

May 23, through May 25, 2003

(Memorial Day weekend)

<http://www.rtmc-inc.org/>

The 35th Annual RTMC Astronomy Expo will be held Friday, May 23, through Sunday, May 25, 2003 (Memorial Day weekend). It will be held at the YMCA Camp Oakes, five miles southeast of Big Bear City on State Route 38 at Lake Williams Drive between mileposts 44 and 45. This location is about 50 miles northeast of Riverside in the San Bernardino mountains.

Excellent maps and directions are available at:
<http://www.rtmc-inc.org/Maps%20and%20Directons.htm>

Location

Longitude 116° 45' 15" West
Latitude 34° 13' 50" North
Altitude 7,600 Feet

Moonrise and Moonset (PDT)

Friday, May 23: Moonrise 2:04 AM; Moonset 1:10 PM
Saturday, May 24: Moonrise 2:32 AM; Moonset 2:08 PM
Sunday, May 25: Moonrise 2:58 AM; Moonset 3:04 PM
Monday, May 26: Moonrise 3:23 AM

Theme:

Theme:

The theme for 2003 is "Building Your Own Observatory."

Questions?

If you have any questions about the Riverside Telescope Makers Conference or would like to request additional registration materials, please call (909) 948-2205, or send e-mail to Robert Stephens at: rstephens@foxandstephens.com

© RTMC-INC.ORG

February Guest Speaker Wednesday February 12, 2003

Our guest speaker for the February meeting will be AJ Crayon of Saguaro Astronomy Club. AJ will discuss sketching what you observe at the eyepiece.

Speakers have also been scheduled for March and April's meetings... please check out the Events Calendar for details on monthly meetings and other club events.

Here's a link to the Calendar:

<http://www.presenceknown.com/calendar/>

Free Classified Ads (Wanted or For Sale)

Starting this month, brief non-commercial advertisements for Astronomical equipment, books, computers, or software -- Wanted or For Sale -- will be accepted from current EVAC members, (another good reason to renew your membership, if you have not already done so).

Ads will be run on a "space available basis" and may be edited slightly to best fit the space. Ads should consist of a brief text description and must include a current member name and an evening phone number. You may include your email address if you wish. Ads will be run until canceled or until they have appeared in three issues of the newsletter (whichever occurs first). Ads will be "tagged" with the first issue in which they appear.

Ads can be emailed to: john-cathy@cox.net
(this address may change in the future)

or sent by U.S. Mail to:
EVAC PO Box 2202
Mesa, AZ 85214

Please mark the subject line of the email or the envelope, "EVAC Newsletter Ad."

East Valley Astronomy Club Membership Form

Please complete this form and return it 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:

- Email (saves club printing & postage) U.S. Mail

Total enclosed \$

Name: _____

Address: _____

Phone # () _____

Email: _____

URL: _____

Local Star Party Sites

1: Florence Junction Site

General Information: The Florence Junction site is one of the two official sites for the East Valley Astronomy Club's Local Star Parties, 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. EVAC's Land Use Permit #26-104528 applies to this site.

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

2: Boyce Thompson Arboretum Site

General Information: The Boyce Thompson site is very new. As of this writing only one Star Party has taken place there as a second local site, although EVAC members have held Star Parties there at the request of the Arboretum on a twice yearly basis. The site is still being evaluated and seems to have some privacy advantages over the FJ site.

Location: N 33° 16' 52" W 111° 09' 35"

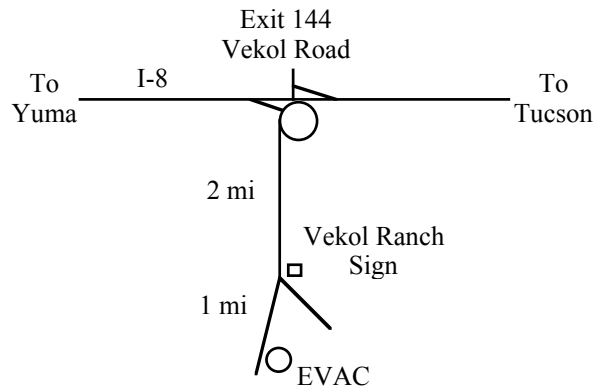
How to get there: Drive East on US 60 past Florence Junction for both sites. About 3.7 miles East of Florence Junction (after crossing railroad tracks) you will see a (second) flagpole on your right. Turning right (South) here and following the dirt road for 0.6 miles you will reach the FJ #1 site (marked by an old corral on your left). Continuing past the flagpole turn-off on US 60 and over Gonzales Pass will bring you to the Boyce Thompson Arboretum just before you enter the town of Superior. The Arboretum is marked with a large brown and white State Park Sign and there is a right turn lane.

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 90 minutes drive time from most East Valley locations.

Location: N 32° 47' 55" W 121° 15' 15"

How to get there: Take I-10 South and exit onto Maricopa Road. Continuethrough 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 thighbway overpass. Before looping back onto I-8 take the small road (now paved) 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

Peter Argenziano
(480) 633-7479

VICE PRESIDENT

Diana Jane
(480) 833-2002

TREASURER

Stanley Bronstein
(480) 922-3845

SECRETARY

Tom Polakis
(480) 967-1658

PROPERTIES

Gary Finnie
gfinnie@kam-az.com

NEWSLETTER

John Matthews
john-cathy@cox.net

COORDINATOR

Silvo Jaconelli
(480) 926-8529

East Valley Astronomy Club

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

Membership & Subscriptions: \$20 per year, renewed in December. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact Stanley Bronstein. PO Box 2202 Mesa AZ 85214-2202.

Address Changes: Contact Stanley Bronstein. PO Box 2202 Mesa AZ 85214-2202

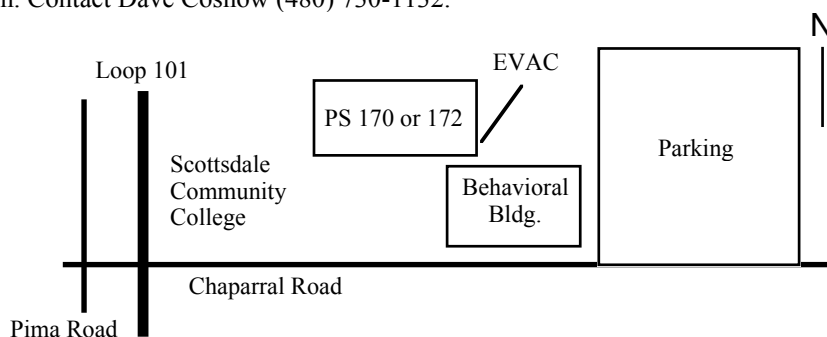
Club Meetings: Second Wednesday of every month at the Scottsdale Community College, 7:30 p.m. Normally Room PS 170 or PS 172 in the Physical Sciences Building. See map below.

Newsletter: Email John Matthews at: john-cathy@cox.net The newsletter is mailed out the week before the monthly Club meeting. An electronic version is available in Adobe PDF format in lieu of the printed copy. Please send your contributions to John Matthews at: john-cathy@cox.net Contributions may be edited.

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

Book Discounts: Kalmbach and Sky Publishing offer a 10% discount to EVAC members on books and other items from their catalog. 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 club 10%.

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



EVAC
PO Box 2202
Mesa, AZ 85214

**Reminder: Next EVAC Meeting
Wednesday, February 12, 2003**

EVAC Homepage:
www.eastvalleyastronomy.org