



East Valley Astronomy Club

September 2004

www.eastvalleyastronomy.org

Scottsdale, Arizona

September 2004

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From the Desk of the President

by

**Peter Argenziano
2004 EVAC President**

As the summer begins to wind down, here's to clear skies for all of us. While the monsoon season this year hasn't produced the rainfall we needed, at least we did get a few storms. After all, if it's going to be cloudy it might as well rain!

I hope everyone is thinking about the upcoming EVAC elections. Nominations for, and elections to, any office are open to any member-in-good-standing. Nominations are open until the beginning of the November meeting, when the elections will be conducted. All terms begin on January 1st. Remember, any position may be contested.

We have a definite need to fill many important positions in 2005 (well, they are all important). We need a President, Vice President, Treasurer, Newsletter Editor, Events Coordinator, and two Board Members. Please consider volunteering – EVAC needs you! As you can see, some vital positions need to be filled, for without volunteers there is no club.

The September star party slate includes the Local Star Party at Boyce Thompson Arboretum State Park on the evening of the 4th. Sunset is at 6:45 PM. We are starting to get to that time of year when we have to be mindful of our arrival time at the Local event. Remember that the park closes at 5:00 PM and we have been asked not to arrive before 5:30 PM. The Public Star Party, held at the Riparian Institute in Gilbert (Greenfield and Guadalupe), is scheduled for the 10th. The following night is the Deep Sky Star Party at the Vekol Road site. Star party details are available on the website.

The September meeting is on the 8th, and we are pleased to have as our guest speaker astrophotographer Tony Hallas. Tony and Daphne's work is widely published. Tony will be talking to us about how their work has evolved over the last decade from film to digital. He will probably have some of his prints for sale at the meeting. If you would like further information, please visit: <http://www.astrophoto.com/>

Looking ahead to October, EVAC will be sponsoring the annual All-Arizona Star Party! This year's big event is scheduled for October 15th and 16th at Farnsworth Ranch (south of Arizona City). This year's event actually begins on Thursday evening (October 14th) at the Arizona Science Center in downtown Phoenix. This is the revised date and location for the October general meeting, and we are quite pleased to have none other than noted author Phil Harrington as our guest speaker. Many of you are, no doubt, familiar with Phil's books – Star Ware; Star Watch; Touring the Universe through Binoculars; Astronomy for All Ages; The Deep Sky: An Introduction; and others – or his work as an associate editor and contributor for Astronomy magazine, or for his Talking Telescopes internet discussion forum. For more information on Phil, please visit his website at: <http://www.philharrington.net> This is an event you don't want to miss!

I am planning to host an astro swap meet and weenie roast at this year's event. I'm tentatively planning this event for Saturday afternoon around 3:00 PM. Complete details about the 2004

contd. from p.1

All-AZ Star Party are available here:
<http://www.eastvalleyastronomy.org/aasp.htm>

Speaking of the All-Arizona Star Party, I have developed an observing list for those who are planning to attend on Friday night. All those who successfully complete the list will receive a free hot dog and soft drink at the swap meet and weenie roast the following afternoon. OK, the list will actually still work on Saturday night too... and everyone receives a free hot dog and

soft drink at the swap meet and weenie roast on Saturday afternoon, but you get the idea.

The list contains 14 bright planetary nebulae (mag 9.9 or less) which are well placed for observing that evening. See the printed list elsewhere in this newsletter! (*Editor's note: p.2A*)

Keep looking up!

**EVAC Meeting Minutes
August 11, 2004
by Diane Cook, Secretary**

President Peter Argenziano opened the meeting at 7:30 pm. After guest introductions, Dave Williams, Property Manager, gave an update on in-service equipment and library resources available to members and guests.

Peter announced that Phil Harrington will be our October 14th guest speaker. Phil is associate editor of *Astronomy* magazine and noted author of equipment evaluation books, such as Star Watch. Phil's topic is related to how astronomy equipment has changed over the past 2 decades.

Reminder – EVAC's Public Star Party is the second Friday of each month at the Riparian Institute at Greenfield/Guadalupe.

2005 Elections – There are several officer and Board Member vacancies. See EVAC website for election process and vacancies.

Recognition

Tom Polakis – The Oregon Star Party (text and photos) in September *Astronomy*
Bernie Sanden – The Oregon Star Party (photo) in September *Astronomy*
Chris Schur – M27 in September *Sky & Tel*
Peter Argenziano – Globular Clusters and Lunar Observing Programs (June)

Member Presentations

All Member Show-n-Tell Presentations

Howard Israel – Saving 300 Bucks – inventive presentation on how to save money on astronomy equipment
John Matthews – Recent Travels – pictorial presentation of John's recent travels to RTMC, Grand Canyon, VLA and other sites
Peter Argenziano – Observing the Moon with Lunar Map Pro – demonstration of software used in Peter's Lunar Observing program
Don Wrigley – Collimating a Newtonian Telescope – laser collimation demonstration, with instructions and suggestions
Jim Gutman – Binoviewer Update – demonstration of a variety of binoviewers' features and options



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Resisting Retirement: Earth Observing 1

by Patrick L. Barry

The Hubble Space Telescope isn't the only satellite that scientists have fought to keep alive beyond its scheduled retirement. Scientists also went to bat for a satellite called EO-1, short for Earth Observing 1, back in 2001 when the end of its one-year mission was looming.

The motivation in both cases was similar: like Hubble, EO-1 represents a "quantum leap" over its predecessors. Losing EO-1 would have been a great loss for the scientific community. EO-1, which gazes back at Earth's surface instead of out at the stars, provides about 20 times more detail about the spectrum of light reflecting from the landscape below than other Earth-watching satellites, such as Landsat 7.

That spectral information is important, because as sunlight reflects off forests and crops and waterways, the caldron of chemicals within these objects leave their "fingerprints" in the light's spectrum of colors. Analyzing that spectrum is a powerful way for scientists to study the environment and assess its health, whether it's measuring nitrate fertilizers polluting a lake or a calcium deficiency stressing acres of wheat fields.

Landsat 7 measures only 8 points along the spectrum; in contrast, EO-1 measures 220 points (with wavelengths between 0.4 to 2.5 μm) thanks to the prototype Hyperion "hyperspectral" sensor onboard. That means that EO-1 can detect much more subtle fingerprints than Landsat and reveal a more complete picture of the chemicals that comprise the environment.

As a NASA New Millennium Program mission, the original purpose for EO-1 was just to "test drive" this next-generation Hyperion sensor and other cutting-edge satellite technologies, so that future satellites could use the technologies without the risk of flying them for the first time. It was never meant to be a science data-gathering mission.

But it has become one. "We were the only hyperspectral sensor flying in space, so it was advantageous to keep us up there," says Dr. Thomas Brakke, EO-1 Mission Deputy Scientist at NASA's Goddard Space Flight Center.

Now, almost three years after it was scheduled to be de-orbited, EO-1 is still collecting valuable data about our planet's natural ecosystems. Scientists have begun more than a dozen environmental studies to take advantage of EO-1's extended mission. Topics range from mapping harmful invasive plant species to documenting the impacts of cattle grazing in Argentina to monitoring bush fires in Australia.

Not bad for a satellite in retirement.

Read about EO-1 at eo1.gsfc.nasa.gov. See sample EO-1 images at <http://eo1.usgs.gov/samples.php>. Budding young astronomers can learn more at spaceplace.nasa.gov/eo1_1.htm.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Editor's note: see two EO-1 pictures on p. 5

Backyard Astronomer

By Bill Dellinges (7/30/04)

Some Fall Double Stars

I find observing double stars more intriguing every year.

I hope the following selection of six fall double stars might help you catch the fever too.

16 and 17 Draconis (R.A. 16h 36m, Dec. +52° 55')

Magnitudes	Separation	Position Angle	Spectral Class
AB 5.4 6.4	3.2" (Arc sec.)	108°	B9 V
AC 5.1 5.5	90.2"	194°	B9 V

Gamma and Beta Draconis, in the head of the dragon, point directly west to this dainty triple star. Even a pair of 8x50 binoculars splits the AC pair of Mag 5.1 and 5.5, separated by a generous 90.2" (this is both 16 and 17 Draconis). My TeleVue 85 (3.3") at 60x hints at A's duplicity. At 100x there is no doubt that A is accompanied by a Mag 6.4 star 3.2" away (this is AB, or 17 Draconis). It's a thrill to see what was thought to be merely a double turn into a triple right before your eyes with the addition of power (I need to get out more).

Nu Draconis (R.A. 17h 32m, Dec. +55° 10')

AB 4.9 4.9	62"	312°	Ap, Ap
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This is one of my favorite doubles. Both a binocular and equal magnitude pair, it is the faintest star in the head of Draco. I love to show it to the public in my AstroScan at 16x. Hand held binos will resolve the two 4.9 mag stars - like cat's eyes staring at you from a dark alley. A common question from the Peanut Gallery: How far apart are they, really? At their distance from Earth of 99 light years, they'd have to be about 2,300 Astronomical Units (the Sun-Earth mean distance) apart!

Epsilon Lyrae (R.A. 18h 44m, Dec. +39° 37')

Epsilon 1&2:4.5 4.6 208.5" (3.5') (The main two bright stars)

AB	5.1 6.2	2.6"	357°	A6 V, F1 V
CD	5.3 5.5	2.3"	94°	A8 V, A8 V

The famous "Double-Double" of course. Good eyes can split the main Mag 4.5 and 4.6 stars, which are 3.5' (minutes) apart, without optical aid. My TV85 at 143x can cleanly split each of these two stars. The north pair (Mag 5.1, 6.2) has a Sep of 2.6", the south pair (Mag 5.3, 5.5) a Sep of 2.3". My 5" refractor can split the two tight pairs at 104x. Usually you'll find one pair more difficult to split than the other. Sue French finds the wider unequal north pair easier to split (S&T 9/2000). My notes show the 5" found the south pair easier. The TV85 at 120x recently saw both pairs equally well. Perhaps things balance out, as the north pair, though wider, has a dimmer secondary. Which pair do you find easier? The system is 160 light years away. Each tight pair is separated by a true distance of about 160 A.U.'s or about twice the diameter of our Solar System. The two pairs are separated by 13,000 A.U.'s (0.2 light years) yet are still bound to each other gravitationally. Also note the two pairs are aligned perpendicularly to each other!

ADS 12093/Struve 2470 and ADS 12101/Struve 2474. (R.A. 19h, 08.8m, Dec.+34°46')

ADS 12093 & ADS 12101 Sep ~ 10'

ADS 12093 6.6 8.6 13.4" 271° B3, (not listed).

ADS 12101 6.7 8.8 16.2" 262° G5, (not listed).

"The Poor man's Double-Double." If you're having trouble resolving Epsilon Lyrae and need an ego boost, follow these directions: a line through Zeta and Delta Lyrae take you to Iota Lyrae. From there, drop down south-southeast about 2 degrees to find two 6th mag stars about 10' apart. It is plotted in the Bright Star Atlas 2000 as a single double star. Even my Tele Vue Ranger (2.8") at 26x splits each star into a double. The TV85 at 100x gives the best view. Both pairs, like Epsilon Lyrae, fit easily in a low power field. The unique thing about these two doubles is how close they are in magnitude and, due to almost identical position angles, aligned perfectly to each other-like a mirror image! They make for a much easier Double-Double to split than Epsilon. But this is just a fun exercise as I can find no data showing that these two pairs are related to each other. That's probably why they have separate Struve and ADS designations. But we can dream, can't we?

61 Cgyni (R.A. 21h 06m, Dec. +38° 45')

AB	5.2 6.0	30"	150°	K5 V, K5 V
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This easy double is famous for having been the first star whose distance (11.5 light years) was determined by parallax in 1838 by F. Bessel, who selected it due to its high proper motion of 5.22" per year ("The Flying Star"). Though an easy double to resolve, look at it for its historical significance. My 8x50 binos can easily split the Mag 5.2, 6.0 stars with a Sep of 30". A TV85 at 60x shows them nicely. Both are spectral types K5 V and should be yellow or orange. I see only white with my slightly colorblind 61 year old eyes.

Struve 2816/ADS 15184 (R.A. 21h 39m, Dec. +57° 29')

AB	5.6 13.3	1.6"	324°	(spec types not listed in Sky Cat. 2000)
AC	5.6 7.7"	11.7"	121°	
AD	5.6 7.8	19.9"	339°	

contd. from p.4

This triple star in Cepheus is gorgeous! And easy! It's a little off the beaten track but easily found imbedded in IC 1396 just south of Mu Cephei, Herschel's Garnet Star. My TV85 at 24x splits this triple. The bright A star is Mag 5.6. The C star is Mag 7.7, Sep 11.7". The D star is Mag 7.8, Sep 19.9". This system is actually a quadruple star as A has a 13th mag B companion 1.6" away. I have not been able to split the tight AB pair even with a C14 at any power. I suspect the problem is due to the faintness of the B star. I was able to sweep up 2816 with the TV85 at 24x and its 2.8o field by first finding Mu Cephei, then moving south in declination a little more than 1 degree. I recognized this resolved triple immediately. Also in the same field is Struve 2819. I rank this trio of stars among my top three favorite triples along with Iota Cassiopeiae and Beta Monocerotis.

I urge you to check out these multiple stars this fall after summer temperatures drop below the melting point of lead.

September Classified Ads (Wanted & For Sale)

Noncommercial advertisements for Scopes or Astronomical equipment, books, computers, or software — Wanted or For Sale — will be accepted from current EVAC members.

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 are "tagged" with the first issue in which they appeared.**

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

or send 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."

Dobsonian Scope for Sale (Aug.)

8" Discovery Dob.

Custom Aluminum Bearing Wheels

DX-3 Crayford Focuser

Two finders: Quick Release Rigel & 8 X 50 Meade

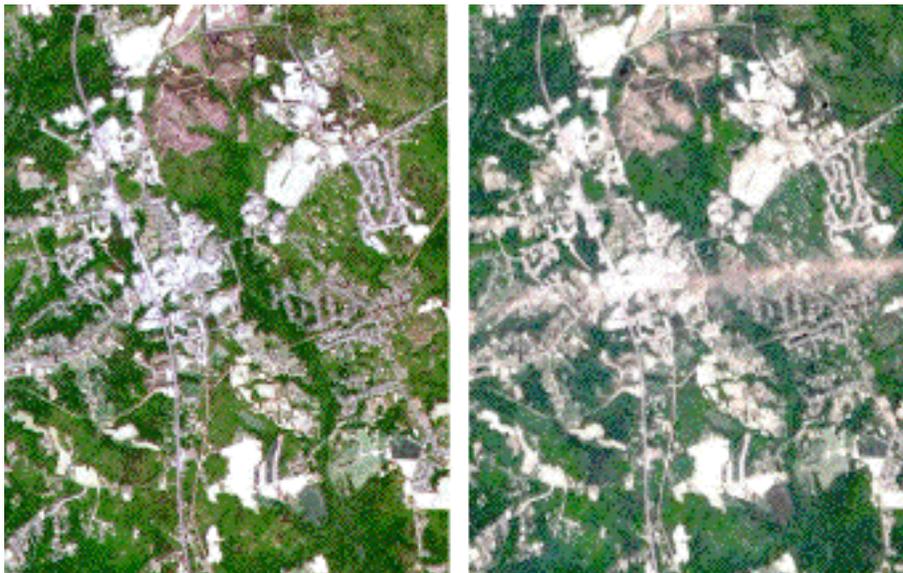
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(Editor's note: See NASA Space Place on p.3) These images, made from EO-1 data, are of La Plata, Maryland, before and after a tornado swept through May 1, 2002.

3 Month Event Schedule
Prepared
by
Howard Israel

		Sept. Events	
Sat. 9/4	Local Star Party	Boyce Thompson	Sunset: 6:45 PM
Wed. 9/8	General Meeting (new room)	SCC Prfmg. Arts Cntr. (PAC)	7:30 PM Spkr. Tony Hallas
Fri. 9/10	Public Star Party	Gilbert Library	7:30 PM Setup
Sat. 9/11	Deep Sky Star Party	Vekol Road	Sunset: 6:38 PM
		Oct. Events	
Fri. 10/8	Public Star Party	Gilbert Library	7:00 PM Setup
Sat. 10/9	Local Star Party	Boyce Thompson	Sunset 5:58 PM
Thurs. 10/14	Gen. Meeting @ ASC	AZ Science Center	7:30 PM Spkr. Phil Harrington
Fri. & Sat. 10/15 & 10/16	All AZ Star Party	Farnsworth Ranch (AZ City)	Sunset: 5:53 PM
		Nov. Events	
Sat. 11/6	Local Star Party	Boyce Thompson.	Sunset: 5:20 PM
Wed. 11/10	General Meeting	SCC PS-172	7:30PM Spkr. Steve Coe
Fri. 11/12	Public Star Party	Gilbert Library	6:00 PM Setup
Sat. 11/13	Deep Sky Star Party	Vekol Road	Sunset: 5:15 PM

Astro-Imaging Group Forming In Fall
Howard Israel

All indications point to a surge of interest in CCD imaging among amateur astronomers using digital cameras, as well as dedicated astronomical CCD devices. Based on the great images provided by acknowledged experts like Chris Schur and Tom Polakis, many EVAC members look on these works with great envy; wishing they could in some small measure, duplicate these images. Toward that end, your East Valley Astronomy Club will begin an Astro-Imaging User Group this fall.

The purpose of the group will be to call upon experts in the club to share their experience and expertise in astro-imaging using a wealth of different software and equipment including web and digital cameras and astronomical CCD imaging devices.

Planned are beginners' labs, workshops, field trips and extensive use of our web site to share experiences and images obtained through the User Group. Stay tuned for further information upon the conclusion of the monsoon season.

A Visit to a Very Large Telescope

John Matthews (8/04)

Returning from a recent ten day visit to Colorado, my wife and I decided to make our first visit to the Very Large Array (VLA) Radio Telescope located near Datil, New Mexico. Actually, I've heard it said, that the VLA is located near Socorro, NM or near Magdalena. Relatively speaking, I suppose this might be true, but driving there, you discover that the VLA is actually located in splendid isolation on the Plains of San Agustin -- not even really *near* the tiny New Mexican town of Datil.

The Very Large Array is one of the world's largest radio telescopes, consisting of some 27 huge dish antennas, each 25 meters (82 feet) in diameter, which can be positioned in a Y-shaped array spanning a distance as large as 22 miles in diameter. In this configuration, when the received radio signals are combined, it gives the resolution of a dish some 36 km in diameter. However because the total antenna is not *really* 36 km in diameter, the sensitivity is *only* equivalent to a dish 130 meters (422 feet) in diameter! Still, these are mind boggling aperture numbers for those of us accustomed to thinking in optical telescope terms. Moreover, the VLA is only one instrument of the National Radio Astronomy Observatory (NRAO) which, "operates advanced radio telescopes spanning the western

hemisphere." We're talking about BIG Science here!

Still, our tour guide -- a bright young lady astronomer from the University of Wisconsin, working toward an advanced degree -- managed to remind us that whether using optical or radio instruments, our fascination with the sky and the universe are always shared constants.

Interestingly, if you visit the VLA, you will almost surely see it in operation. It's *Radio* astronomy, remember. This telescope works days, nights and in almost any weather (except lightning storms). It is interesting to carefully note the changing position of the antennas over time and realize you are seeing the 1 degree per 4 minute swing to compensate for the rotation of the earth.

So even if you are a "dyed in the wool" eyepiece only star gazer, I urge you to visit this interesting observatory when you are in the neighborhood. Meanwhile, here are two interesting web sites you can investigate:

<http://www.nrao.edu/>

<http://www.vla.nrao.edu/>



If it's clear...
by Fulton Wright, Jr.
Prescott Astronomy Club -- September 2004

Shamelessly stolen information from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find info. When gauging distances, remember that the Moon is 1/2 a degree or 30 arc minutes in diameter. All times are Mountain Standard Time unless otherwise noted.

On Wednesday, September 1, around 5 AM, you can see Venus and Saturn about 2 degrees from each other. With the unaided eye look 40 degrees above the east horizon. They are also close the morning before.

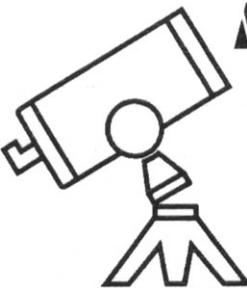
On Friday, September 10, about 5:45 AM, you can see Mercury (mag -0.5) near Regulus (mag 1.5). With binoculars look 10 degrees above the east horizon. Regulus will be 1/3 of a degree above Mercury. Any morning within a few days of the 10th will be a good time to find Mercury. You can also catch Venus, the Moon, and Saturn up higher.

Starting Sunday, September 19, for about a week, you can see a fast moving asteroid. With a medium (6 inch) telescope look for 4179 Toutatis low in the south in the evening. The table below gives the position each night at 9:00 PM as seen from Prescott, but it should be fairly accurate anywhere in Arizona. It also shows its magnitude, the number of arc seconds it moves each minute, and its altitude above the horizon in degrees. Notice that as the week progresses, Toutatis gets brighter, moves faster, and gets lower in the sky. The closest approach to the earth (too far south to be visible in Arizona) is only 4 times farther than the Moon!

Toutatis data for 9:00 PM MST in Prescott, Arizona

Date	R.A. (J2000)	Dec.	mag.	Motion ("/min.)	Alt.
Sun. Sep. 19	21 38 36.1	-20 28 46	10.9	3.08	+32
Mon. Sep. 20	21 35 54.4	-21 31 05	10.7	3.73	+32
Tue. Sep. 21	21 32 33.8	-22 48 39	10.5	4.64	+31
Wed. Sep. 22	21 28 14.7	-24 28 02	10.2	5.97	+30
Thu. Sep. 23	21 22 22.6	-26 40 04	10.0	8.03	+28
Fri. Sep. 24	21 13 50.5	-29 43 32	9.7	11.40	+25
Sat. Sep. 25	21 00 10.0	-34 13 10	9.4	17.37	+21
Sun. Sep. 26	20 34 44.1	-41 14 57	9.1	28.92	+14

Toutatis passes fairly close to 7th magnitude stars about 8:40 on the 24th, 9:00 on the 25th, and 10:00 on the 26th. See Sky & Telescope, September 2004, p. 82 for more information and a finder chart.



Mr. Telescope

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Jack Johnston

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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

Newsletter delivery option, check one:

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

Total enclosed \$

Name: _____

Address: _____

Phone # () _____

Email: _____

URL: _____

Membership Renewals:

- \$20.00 January – December

Name Badges:

- \$7.00 each Name: _____

Magazines: if renewal, customer # _____

(New) (Renewal)

- \$29.00 /yr. Astronomy Magazine
- \$33.00 /yr. Sky & Telescope

**Local Star Party Site
Boyce Thompson Arboretum**

General Information: The Boyce Thompson site is still considered the **new** local site by some EVAC old-timers. However, it has now become our preferred nearby site. It has some privacy and possibly safety advantages over the older Florence Junction site. In addition, it is the location where EVAC provides star parties twice yearly for members of the Friends of The Arboretum (FOTA) -- an organization of members and supporters of the Arboretum. Some current EVAC members were first introduced to EVAC through these delightful evening potluck dinners and star parties

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

How to get there: Drive East on US 60 past Florence Junction. The Arboretum is located at Milepost #223, and is about an hour's drive from Phoenix. Just before you enter the town of Superior, the Arboretum's location is marked with a large brown and white State Park Sign and there is a right turn lane to exit the highway at the entrance. On local EVAC star party nights, please plan to arrive at the Arboretum **after** 5:30 pm -- to avoid being confused with regular Arboretum patrons who are required to leave the park at the regular 5:00 pm closing time.

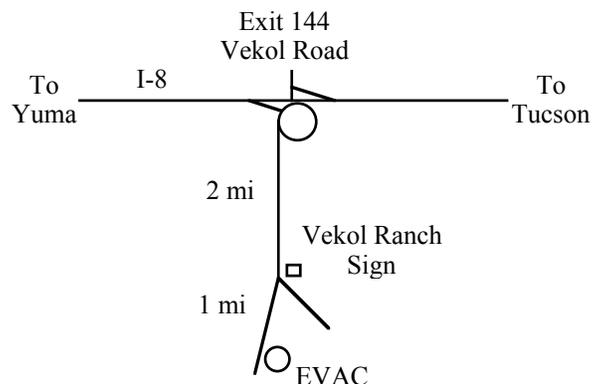
You can visit the Arboretum on the Internet at:
<http://arboretum.ag.arizona.edu/index.html>

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 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 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

Vacant, (duties being
shared by other officers)

TREASURER

Jack McEnroe

SECRETARY

Diane Cook

EV. COORDINATOR

Howard Israel
(480) 893-7523

PROPERTIES

Dave Williams

NEWSLETTER

John Matthews
(602) 952-9808

WEB MASTER

Marty Pieczonka

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 the Treasurer:
Jack McEnroe at: keystoneconsulting@earthlink.net

Address Changes: Contact: Jack McEnroe. PO Box 2202 Mesa AZ 85214-2202

Club Meetings: Second Wednesday of every month at the Scottsdale Community College, 7:30 p.m. Meet in Room PS 172 (Physical Science Bldg.).

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 Dave Williams at: davewilliams@cox.net
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 Star Party Line: Let other members know in advance if you plan to attend a scheduled observing session. Contact Events Coordinator Howard Israel at (480 893 7523).



**East Valley
Astronomy Club**

**EVAC
PO Box 2202
Mesa, AZ 85214**

**EVAC Homepage:
www.eastvalleyastronomy.org**

Reminders:

September EVAC Meeting Wednesday, Sept. 8, 2004

Special Location: (PAC) @ 7:30PM
SCC the Performing Arts Center

October EVAC Meeting Thursday, Oct. 14, 2004

Location: AZ Science Center
600 E. Washington St.
Phoenix, AZ 85004 @ 7:30PM

2004 All-AZ Planetary Nebula Observing List
 October 15, 2004

Sunset is at 17:58 Twilight ends at 19:15 Moonset at 19:03

Object	AKA	Con.	RA	Dec	Mag	Size	SBr	SC	Window
NGC 6210	PK 043+37.1	Her	16h44m40.1s	+23°47'34"	9.3	16"	15.1	12.7	19:03-20:06
Little Gem	NGC 6818	Sgr	19h44m13.3s	-14°08'35"	9.9	20"	16.1	15.0	19:03-21:09
Cat's Eye	NGC 6543	Dra	17h58m31.9s	+66°38'09"	8.8	20"	15.0	11.1	19:03-22:40
Blinking Planetary	NGC 6826	Cyg	19h44m55.3s	+50°32'23"	9.8	25"	16.5	10.4	19:03-23:55
Ring	M 57	Lyr	18h53m44.9s	+33°02'14"	9.7	1.3'	18.8	15.3	19:03-22:32
Campbell's Hydrogen	PK 064+05.1	Cyg	19h34m56.2s	+30°31'22"	9.6	7.5"	13.7	12.5	19:03-23:09
Dumbbell	M 27	Vul	19h59m48.2s	+22°44'09"	7.6	6.7'	20.4	13.9	19:03-23:18
Saturn Nebula	NGC 7009	Aqr	21h04m26.3s	-11°20'44"	8.3	29"	15.3	12.8	19:15-22:43
Helix	NGC 7293	Aqr	22h29m54.4s	-20°48'49"	7.6	16.3'	22.3	13.4	19:22-23:12
Blue Snowball	NGC 7662	And	23h26m08.1s	+42°33'48"	9.2	17"	15.1	13.2	19:15-03:21
NGC 246	PK 118-74.1	Cet	00h47m18.5s	-11°50'41"	8.0	4.1'	19.7	12.0	20:45-02:23
NGC 1360	PK 220-53.1	For	03h33m27.8s	-25°51'06"	9.6	6.4'	22.3	11.3	01:20-03:19
Cleopatra's Eye	NGC 1535	Eri	04h14m29.7s	-12°43'23"	9.6	21"	15.9	12.2	00:16-05:10
Eskimo	NGC 2392	Gem	07h29m27.2s	+20°54'15"	9.9	20"	16.1	10.5	01:48-05:10

Object = common name or designation AKA = alternate object designation Con. = constellation RA = right ascension
 Dec = declination Mag = magnitude SBr = surface brightness (mag/arc-sec²) SC = magnitude of central star
 Window = optimum observation window (object is above 30°)