



East Valley Astronomy Club

November 2004

www.eastvalleyastronomy.org

Scottsdale, Arizona

November 2004



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From the Desk of the President by Peter Argenziano 2004 EVAC President

I'll begin this month's installment by reminding everyone about the 2005 elections once again. Nominations have been published on our website at <http://www.eastvalleyastronomy.org/05elect.htm>. Nominations remain open until the day of the elections. Voting will occur at the upcoming November meeting -- Wednesday the 10th. While we have members nominated for most positions, unfortunately some key positions are still open as I write. We still do not have candidates for the following positions: President, Vice President, Treasurer, Events Coordinator, and Newsletter Editor. Please consider volunteering for one of these positions. Statistically speaking, one in twenty of our membership should step forward and perform the duties of an office each year.

I hope everyone had a chance to check out the recent total lunar eclipse. The East Valley seemed to fare better than our western neighbors with regards to cloud cover. I'm told this is the first total lunar eclipse to occur during a World Series game... how fitting that a game so full of statistics can add yet one more 'first'. I had originally planned to participate in a crater timing event, but my work scheduled intervened and the best I could do was be a visual observer without optical aid (outside of my eyes). No complaints though, as old Luna gave us a good show.

The October meeting was held in Dorrance Planetarium at Arizona Science Center and was well attended. Our guest speaker, noted author Phil Harrington, gave a very enjoyable presentation entitled 'Nights of Future Passed'. His talk concerned the changes in equipment available to amateur astronomers over the last half-century or so. Many of us smiled to ourselves as we revisited old astronomy advertisements. I don't believe I have ever seen such an extensive collection of such ads. A very entertaining evening indeed! A special THANK YOU to Martin Bonadio for scheduling Phil's appearance and Howard Israel for making it happen at ASC. Thanks guys! Since returning to Long Island, Phil asked me to extend his sincere gratitude to all who made his first trip to Arizona a memorable occasion.

The 2004 edition of the All-Arizona Star Party was probably not one of the more memorable occasions. The sky conditions were of the quality that usually keeps us at home, but many optimistic observers made the trek out to Farnsworth Ranch. The crowd assembled on Friday night was large for this event. I believe a total of 35 vehicles were counted. By midnight most of us had conceded to the clouds and crawled into our sleeping bags. Almost everyone present on Friday night departed at some point on Saturday. When I left during evening twilight, about six vehicles remained. There's always next year... and speaking of which, the website has already been updated with details for the 2005 event.

And meetings featuring accomplished authors don't stop in October... for the November meeting features Steve Coe, who will talk to us about supernovae. If you haven't read Steve's book 'Deep-Sky Observing - The Astronomical Tourist' you're missing a real treat. Steve's enthusiasm for observing really shines in this book. Reading it is almost as much fun as going observing with him... almost!

contd. from p.1

The December meeting finds us back at Arizona Science Center, where we will vicariously visit the oldest desert on the planet through our own Tom Polakis. Tom will give a talk on his recent stint as guest astronomer at an upscale eco-lodge in Namibia. Also in December is the EVAC Holiday Party. The event will be hosted by Jennifer and Tom at their home in Tempe on Saturday, December 18th. This year's soiree will follow a similar format as last year's: the club will provide a main course and soft drinks and guests are asked to bring a side dish or dessert. We'll also have door prizes to give away, some purchased by the club, some donated by merchants, and some donated by members. So, if you have some unused astronomical goodies lying around give me a call.

In closing this article, I'd like to answer a question I'm often asked by novice amateurs about starting their own astronomical library. Following is my top ten list of books (in no particular order) for those with such a query.

1. Turn Left at Orion by Guy Consolmagno and Dan M. Davis
2. Backyard Astronomers Guide by Terence Dickinson and Alan Dyer
3. Star Ware by Phil Harrington
4. The Year-Round Messier Marathon Field Guide by Harvard Pennington
5. A subscription to Sky & Telescope and/or Astronomy magazine
6. The Stars by H.A. Rey
7. Constellation Guidebook by Antonin Rukl
8. Seeing in the Dark by Timothy Ferris
9. Night Sky Observer's Guide by George Robert Kepple and Glen Sanner
10. Observer's Handbook (Royal Astronomical Society of Canada)

Those are my recommendations. It was hard to restrict the list to ten, and I'm sure others will have their own favorites.

Keep looking up!

Without officers and other volunteers, there can be no EVAC!

Peter has said that only about 1 in 20 of us need to serve in any given year, so do your part and get it out of the way for the next 20 years. Volunteer today!


If you like to do things your way, try being President.

If you know good astronomical speakers, become Vice President and ask them to speak at our meetings.

If you can use a word processor and spelling checker, edit the newsletter.

If you understand a spread sheet and can balance your checkbook become the Treasurer.

Do something! -- Your club needs YOU!



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A Summer Vacation Tracking Down UFOs

Erin Schumacher's summer job for NASA was to look for UFOs. Erin is a 16-year-old high school student from Redondo Beach, California, attending the California Academy of Mathematics and Science in Carson. She was one of ten students selected to work at NASA's Jet Propulsion Laboratory (JPL) in Pasadena as part of the Summer High School Apprenticeship Research Program, or SHARP.

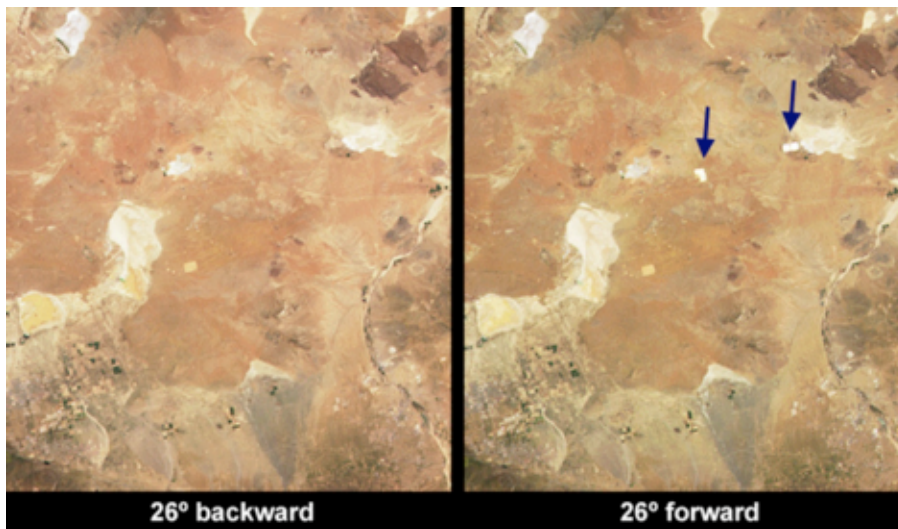
But is studying UFOs a useful kind of NASA research? Well, it is when they are "unidentified flashing objects" that appear in certain images of Earth from space. Erin worked with scientists on the Multi-angle Imaging SpectroRadiometer (MISR) project to track down these mysterious features. MISR is one of five instruments onboard the Earth-orbiting Terra satellite. MISR's nine separate cameras all point downward at different angles, each camera in turn taking a picture of the same piece of Earth as the satellite passes overhead. Viewing the same scene through the atmosphere at different angles gives far more information about the aerosols, pollution, and water vapor in the air than a single view would give. Ground features may also look slightly or dramatically different from one viewing angle to another.

Erin's job was to carefully examine the pictures looking for any flashes of light that might be visible from just one of the nine angles. Such flashes are caused by sunlight bouncing off very reflective surfaces and can be seen if a camera is pointed at just the right angle to catch them. Because the satellite data contain precise locations for each pixel in the images, Erin could figure out exactly where a flashing object on the ground should be. Her job was then to figure out exactly what it was that made the flash-in particular, to see if she could distinguish man-made objects from natural ones.

When Erin began working at JPL, scientists on the MISR project had already identified two large flashes out in the middle of the Mojave Desert in Southern California. These turned out to be from solar power generating stations. Soon, Erin began finding flashes all over the place. She learned how to apply her math knowledge to figuring out how the objects would have to be oriented in order to be seen by a particular MISR camera. One time, she and a team of MISR scientists and students went on a field trip to the exact locations of some flashes, where they found greenhouses, large warehouses with corrugated metal roofs, a glass-enclosed shopping mall, and a solar-paneled barn. For some flashes, they could find nothing at all. Those remain "UFOs" to this day!

Learn more about SHARP at www.nasasharp.com and Earth science applications of MISR at www-misr.jpl.nasa.gov. Kids can do an online MISR crossword at spaceplace.nasa.gov/en/kids/misr_xword/misr_xword1.shtml.

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



Two cameras on MISR made these images of the same part of the Mojave Desert. The camera pointed at an angle of 26 forward saw the flashes from two solar electric power generating stations. These objects are nearly invisible at the other angle.

Backyard Astronomer

By Bill Dellinges (10/04)

8x50 Binoculars and Double Stars

You don't need a \$5000 APO hi-end refractor to split many double stars. Some doubles have enough separation to be resolved in a "lowly" pair of binoculars-even your 8x50 finder! In recent years I've become very fond of observing double stars and noted that many could be split in the binoculars I was using to help me locate them.

There are obviously two factors involved as to whether you will be successful in this endeavor. 1) the size of the binocular and 2) the closeness of the pair's separation. I have chosen to use 8x50 binoculars for this discussion because it's likely many gazers out there have a glass in that size. This is also a standard size finder on many telescopes. In this size of instrument, as we'll see, we'll be limited to splitting double stars (DS's) down to only about 30" (arc seconds). To a DS nut, such a separation is huge -- a piece of cake in even a crummy telescope. Nevertheless, there is a considerable number of DS's out there with a separation in that range-and larger, such that a binocular armed observer can be kept busy all year.

I have used my 20x100 Miyauchis to split closer DS's, down to about 13" at 20x and 7" at 37x. But let's stick with the 8x50's as they're more common and easy to handle. I use Swarovski 8x50's.

One big point here: in attacking DS's with binoculars, it's a must they be *tripod mounted*. You can get away with hand held binoculars for general viewing or splitting DS's which are arc minutes apart, but under about 1 arc minute they'll have to be tripod mounted.

Let's start with some easy DS's.

Alpha Capricorni: (mag 4.2, 3.6, sep 378" [6.3']) Though not a true physical pair, just an "optical" double, it screams out for attention when the binocular viewer pans by it. The eastern star, a2, is the brighter of the two and 120 light years away; a1's distance is 1600 light years. A telescope reveals a2 to be a binary with an 11th magnitude companion.

Mu Scorpii: (mag 3.04, 3.57, sep 346" [5.76']) This is a beautiful naked eye DS and good eye test. Burnham states they share a "common proper motion" (CPM) though more than half a light year apart. However, the more updated Sky Catalog 2000 shows distances of 521 and 684 light years, thus this pair is likely only an optical double. Whatever, it's still captivating in binoculars. It's directly above NGC 6231 and h12, the "false comet".

Epsilon Lyrae: (mag 4.5, 4.6, sep 208.5" [3.5']) The two bright stars of the "Double-Double." Good eyes can split it without optical aid. Easy pickings, any binocular or finder will split it. This is a true binary system 160 light years away. Burnham's states a true separation of 13,000 Astronomical Units (1 A.U. = the mean Earth-Sun distance). That's 162 Solar System diameters, yet they're still linked by gravity. He believes the two star's period to be just under a million years.

56 Andromedae: (5.7, 6.0, sep 216" [3.1']) A nearly equal magnitude pair easily split in my 8x50's. Nicely placed next to the open cluster NGC 752.

Nu Draconis (Kuma): (mag 4.9, 4.9, sep 62") One of my favorite

DS's. This is the faint star in the head of Draco. They're a perfect match in magnitude, like cat's eyes in a dark alley; a joy to behold in any 8x50 binocular or finder. Kids love it in my 16x Astroscan.

Let us now enter the realm of sub-arc minute doubles...

Zeta Lyrae: (mag 4.4, 5.7, sep 43.7") Nearest "Parallelogram" star to Vega, an easy split in the 8x50's. Each star has a separate Flamsteed number (6 and 7 Lyrae).

Delta Cephei: (mag 3.9, 6.3, sep 40.8") The prototype for the Cepheid Variable standard candle for distance measuring is also a fine yellow and blue binocular DS.

61 Cygni: (mag 5.2, 6.0, sep 30") The first star to have its distance determined using parallax by Bessel in 1838. An easy double to split in my Swarovski 8x50.

Do we dare try resolving a triple star in our lowly 8x50's? Are they up to the task? No problem! Here are two triples I've busted with my 8x50's:

Rho Ophiuchi: (AC mag 5.0, 7.29, sep 151"; AD mag 5.0, 7.0, sep 156.3") This star, along with Antares, can be seen in the ubiquitous colorful photo of red and blue nebulosity above the Scorpion's heart. My 8x50 shows a neat triangle of three stars, a bright one east and two fainter ones to its west. It's actually a quadruple system, the AB pair (mag 5.0, 5.74, sep 3.1") were split in my Televue 85 at 75x.

Beta Capricorni: (AB mag 3.4, 6.2, sep 205.3"; AC mag 3.4, 9.0, sep 226.6") Located just below Alpha Capricorni. The bright star (A) is at the top of your field. B is in the 4 o'clock position from A. C is the faintest star at the 8 o'clock position and is very faint; you'll need dark skies, a sturdy tripod, and the eyes of E. E. Barnard to see it.

Other suggested DS's for 8x50 binoculars: **Psi Draconis** 4.9, 6.1, 30.3"; **Lambda Arietis** 4.8, 7.3, 37.5"; and **Psi Pisces** 5.6, 5.8, 30".

The above DS's were relatively easy. Their average separation was about **39"** (excluding the very wide A Cap, Mu Sco, Epsilon Lyr, and 56 And). The following DS's were JUST BARELY split with my 8x50's. Their average separation is about **29"**. They will be challenging. Care to try them?

Beta Lyrae (45.7"); large separation but one member is faint making it difficult); **57 Aquilae** (36"); **Beta Cygni (Albireo)** (34.4"); **Zeta Pisces** (23"); **Theta Serpentis** (22.4"); and **32 Camelopardalis** (21.5"). The last two here are special favorites of mine. They are superb DS's in large binoculars or small telescopes.

In the world of binoculars, how tight of a DS can you expect to split based on magnification alone? James Muirden in [How to Use an Astronomical Telescope](#) refers to something called the "240 rule". It's based on the fact the human eye can resolve two stars of equal magnitude about 4 arc minutes apart or 240" from which we get the "240 rule". We ask ourselves, how much do we need to magnify a DS such that the space between them appears to be 4' on our retina? Let's take our 8x and divide it into 240: $240/8x = 30$. That is, we need to magnify a 30" DS 8 times such that it appears to be 240" on our retina. So, we can expect to resolve DS's down to 30" with 8 power. Continuing: $240/20x = 12$ ", $240/37x = 6.48$ ". This is in rough agreement with my earlier comments that I could get down to 30" with my 8x50's and 13" and 7" with the Miyauchis at 20x and 37x respectively. If you

own 10x50's, you should be able to get down to 24" by the 240 rule. EVAC member Silvio Jaconelli informs me his superb Takahashi 22x60 Astronomer fluorite binoculars can push the envelope and split equal magnitude DS's down to 7". This is well below the 240 rule ($240/22x=11$ ").

This "Rule" is very approximate! Factors that can affect it are: seeing, optical quality of the instrument, observer's acuity, and magnitude of the components. The latter is important because it's

one thing to split two 6th magnitude stars and quite another to split a 6th and 9th magnitude star; the brighter star tends to overwhelm the fainter star, especially if it's a "tight" DS. Remember, a tripod is a must!

I hope this discussion has shown that much DS observing can be accomplished with a tripod and a modest pair of binoculars. It is not always necessary to drag out your monster light bucket to bust a few of heaven's beautiful double stars.

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

Dobsonian Scope for Sale (Oct.)

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ProStar secondary mirror mount

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Contact: Jerry Fryer @ (480) 990-7701

Want a new Meade Pictor 416XT for Christmas? (Nov.)

In the spring of 2000, I bought a Meade 8", f6.3, LX200 telescope and -- planning some serious astro-imaging -- a Meade Pictor 416XT CCD Autoguider/Imager. What can I say? I love and use the telescope, but I've never even taken the Pictor 416XT out of its case. All the components, filters, manuals, adaptors, the Autoguider and CCD camera are still in their original factory sealed condition and plastic wrap. Why? Well, the Pictor and its software are intended for use with a Microsoft Windows computer and I'm of the Macintosh faith. I know it sounds silly, but I just never got around to buying and learning to use a Windows laptop, but that's the actual fact.

The Pictor 416XT uses the Kodak KAF-0400 CCD chip with the extended blue response. As a CCD camera it's considered among the best available under \$5000! The Autoguider and camera will connect directly to the control panel jacks of Meade LX50, LX90 (APM) and LX200 telescopes (and probably others with similar electronic relay autoguider ports).

You can see a current Woodland Hills Camera & Telescopes Internet ad for this unit at:
http://telescopes.net/ccd__cameras.html

Meade's own description is at:
http://www.meade.com/catalog/meade_pictor/meade_pictor_416xt.htm

The Pictor 416XT normally sells for about \$2000 (I paid \$2035 with tax), but I'll sell it for \$1299 (new!).

Contact: John Matthews
phone: (602) 952-9808
email: john-cathy@cox.net

2 Month Event Schedule
Prepared
by
Howard Israel

		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 -- (2 events)	FOTA & Schwaar Star Parties	Boyce Thomp. & Sentinel	Sunset: 5:15 PM
		Dec. Events	
Sat. 12/4	Local Star Party	Boyce Thompson.	Sunset: 5:20 PM
Wed. 12/8	General Meeting	AZ Science Center	7:30PM Spkr. Tom Polakis
Fri. 12/10	Public Star Party	Gilbert Library	6:00 PM Setup
Sat. 12/11	Deep Sky Star Party	Vekol Road	Sunset: 5:15 PM

EVAC Meeting Minutes
Thursday, October, 14, 2004, 7:00 p.m.
Diane Cook, EVAC Secretary
Arizona Science Center

Pre-meeting presentations: “*Halloween*” video, followed by a preview of the news ASC planetarium presentation, *Galaxies*.

President Peter Argenziano opened the meeting after the presentations.

Announcements

All Arizona Star Party: October 15-16, Farnsworth Ranch, Arizona City

Volunteer Opportunities: Gilbert Riparian and Arizona Science Center October 27, lunar eclipse
Halloween – October 31, Private gated estate in Paradise Valley, 100 kids

RASC books available for \$17.00

November 12, 6-8 p.m., Gilbert Library – Discussion of

Telescope selection for Gilbert Rotary Observatory

November 13 – Boyce Thompson Appreciation Night

2005 Election – November 10

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

November Guest Speaker: Steve Coe

Member Presentations

Tom Polakis – Noise Reduction Software

Guest Presentation

Phil Harrington, Guest Speaker – “Nights of Future Passed”

Conversations In The Dark or The Art of Astrodynamicist and Mapmaker

The recent All Arizona Star Party (Oct. 15 & 16), turned out to be almost useless from an observing point of view. Astonishingly, for this time of year in Arizona, there were heavy clouds both nights. To be completely truthful, there was a period of an hour or so early Friday night when small parts of the night sky were visible, but otherwise clouds -- horizon to horizon were the norm. Star parties are usually held on weekends when there will be little or no moonlight -- to have the darkest skies for observing faint and distant objects. The AASP was no exception, with only the slightest light from a near new moon, and even that thin sliver of moonlight mostly obscured by clouds.

So what do astronomers do on a dark and windless night when the temperature is pleasant, but there is no chance to observe or use their treasured telescopes? They gather into small collegial groups and talk quietly about the clouds, about astronomy, about telescopes, about computers, and frequently about science in general -- these are after all, people with a deep interest in science and technology.

These conversations in the dark have a lovely quality which reminds me of conversations I remember from my childhood. On our front porch during long summer evenings -- conversations with family and friends. Friendly voices speaking quietly in the dark, the speaker completely invisible but wonderfully present.

I'll report two AASP conversations I had the privilege to be present for. I won't identify the speakers. Just as darkness that night provided anonymity, I will provide it here. These conversations were a kind of wonderful Astronomy for the ear and the mind, not the Astronomy of the eye we are so accustomed to.

The first conversation -- mostly from a man who has a front row seat on the process, was about a piece of Interplanetary performance art. But what a performance! The art of a Master Astrodynamicist -- the graceful multi-looping trajectory, which over the course of seven years, will take the Messenger probe from Earth (launch, 8/3/2004) to an orbit around the planet Mercury (orbit, 3/18/20011). This is the most complex trajectory yet flown by a human spacecraft! The trajectory requires six planetary flybys (one of Earth, two of Venus, and three of Mercury), to use gravity's force to modify the trajectory and finally allow orbital capture by Mercury. Imagine this graceful gravity dance which lasts more than seven years, travels millions of miles and requires five precise Deep Space Maneuvers (DSMs) to finally ease a camera and other instruments into an orbit around that small, hot, heavy planet most of us have only seen as a point of light soon after sunset or just prior to sunrise. The talk that night was of orbits -- time and distance -- left to the imagination -- the Astronomy of the Mind, was what a wonderful tour it would make if you could somehow magically "stowaway" on board and observe the views of the journey. After arriving home, I couldn't wait to visit:

http://messenger.jhuapl.edu/the_mission/trajectory.html
where this beautiful and adventurous path is detailed.

MESSINGER stands for MErcury Surface, Space ENvironment,

GEochemistry, and Ranging -- a NASA acronym of outstanding complexity if ever I saw one. But regardless of how the tortured name was evolved, the trajectory remains a thing of beauty! Messenger will make its first Earth flyby 8/02/05. Then on to Venus, first on 10/24/06 and again on 6/6/07. Finally, ever more Sunward, to flyby Mercury, once on 1/14/08, again on 10/6/08, and yet again on 9/30/09, and after DSM #5 it will, at last, settle into Mercury orbit on 3/18/11. Only then will the real science of this mission began! While it seems obvious that the power of gravity slingshots (or flybys) would be necessary to climb up and out to the gas giants of our Solar System -- to Jupiter say, and Saturn, it at first, seems strange that so many careful "steps" would be necessary to climb down the steep gravity well of the Sun toward, and finally to Mercury-- but there it is!

So this was the first delightful conversation I had the pleasure of hearing under the cloudy Arizona skies. The chance for that mental adventure made the drive to Farnsworth Ranch worthwhile and I wouldn't have missed it for any clear night's observing I can remember!

The second conversation was by a maker of the rarest and most exotic of maps -- astronomical topographic maps, and concerned mapping the data streaming back from the Cassini-Huygens mission to Saturn and to Saturn's moon Titan. The Cassini-Huygens mission is, of course, now in the vicinity of Saturn -- in the planetary corner of our Solar System it was built to explore. In fact, the newest pictures from Cassini -- those taken within the last few days, show features on Titan which were only matters of speculation during the conversation on that cloudy Star Party night. To see them for yourself, go to:
<http://saturn.jpl.nasa.gov/multimedia/images/latest/index.cfm>

Titan is huge. It's only a moon to Saturn, but it is larger than the planet Mercury and the only Solar System satellite with a thick and (until now) obscuring atmosphere. During the cloudy nighttime conversational speculation, the possibility was suggested that Titan might not have a solid surface. In other words, that it might only be an ocean world of liquid methane or ammonia. With the Cassini pictures from the last few days, it now seems clear that Titan has a solid surface with some real and mappable topography. I can imagine my anonymous friends' pleasure as "Titanic" surface features start to appear in his data and the very first -- ever -- topographic map of Titan begins to emerge under his hands.

So these are some of the reasons I found the All Arizona Star Party of 2004 to be a wonderful experience. Although the seeing was not good the listening was absolutely outstanding! And I would not trade that Saturday night under a heavy overcast for any clear night's observing I can ever remember. To those of you who saw Saturday's clouds and decided to leave -- I can only say you certainly didn't miss any good "seeing" but you definitely did miss out on some wonderful astronomy conversations -- in the dark!

John Matthews
EVAC newsletter editor

If it's clear...
by Fulton Wright, Jr.
Prescott Astronomy Club -- November 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 Thursday, November 4, about 6:00 AM, you can see two bright planets close together. With your unaided eye look 20 degrees above the east horizon for **Venus** (mag -4) and **Jupiter** (mag -2) about 3/4 of a degree apart. They are about as close the next morning, too. (See also the next entry.)

On Friday, November 5, about 6:00 AM, you can see the crater **Clavius on the Moon** at its best. Not only is this an especially interesting crater (big, with a series of decreasing size craters inside it) but also the Moon is high in the sky, the sun angle is good for showing detail, and libration tips the southern part of the Moon (which is where the crater is) toward us. It should be almost as good the day before. (See also the previous entry.)

On Wednesday, November 10, about 6:00 AM, you can see 4 solar system objects in a line. With your unaided eye start 5 degrees above the east southeast horizon and move up from **Mars** (mag 2), to the **Moon**, to **Venus** (mag -4), to **Jupiter** (mag -2). The mag 1 star to the lower right of the Moon is **Spica**.

On Wednesday, November 17, after midnight, you might see a few Leonid meteors. Meteor prediction has improved a lot in the last few years, and no one is predicting a big show this year, but you never know for sure when you are talking meteors.


On Saturday, November 20, about 6:00 PM, you might catch **Mercury**, 5 degrees above the southwest horizon. This is a poor elongation of Mercury. Think of it as a challenge, not a good view.

Subject: Solar Eclipse

A few years ago, as a solar eclipse approached, a planetarium director in Southern California sent out warnings to the community about the eclipse. He warned people not to look directly into the sun during the eclipse...

Soon after issuing the warning, the planetarium director received an indignant letter from a local resident... The letter read:
"Dear Director Atherton,

If an eclipse is so dangerous, you should never have scheduled one in the first place!"



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

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

Newsletter delivery option, check one:

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

Total enclosed \$

Name: _____

Address: _____

Phone # () _____

Email: _____

URL: _____

**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.

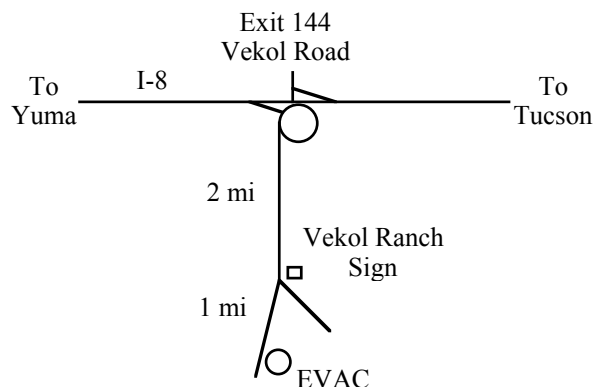
You can visit the Arboretum on the Internet at:
<http://arboretum.ag.arizona.edu/index.html>

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:

November EVAC Meeting Wednesday, Nov. 10, 2004

Location: Room PS - 172
Physical Science, (SCC) @ 7:30PM

December EVAC Meeting Wednesday, Dec. 8, 2004

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