



East Valley Astronomy Club

June 1999

www.eastvalleyastronomy.org

Scottsdale, Arizona

EVAC Meeting Highlights

May 12, 1999

Tom Mozdzen, Secretary
tjmozdzen@worldnet.att.net

Call to Order: President Silvio Jaconelli called the meeting to order at 7:33 pm. There were ~60 attendees, some of them guests.

Announcements: The Corral is now once again the official Florence Junction site. Art and Mike suggested another site near Cotton Canyon, and several people volunteered to visit the site and help make a recommendation.

Diana Jane' is the new events coordinator, thanks to her husband nominating her in absentia. However, Diana is enthusiastic about the work and has asked for volunteers to help her.

A show of hands was taken for those interested in teaching a new member class, and those interested in attending a new member class. This is to help the new members come up to speed quicker on various aspects of amateur astronomy. Six were willing to teach and 10 were willing to learn.

Show and tellers were reminded to introduce themselves so that new members (and the secretary) could come to learn the names of other members.

Tom Polakis walked us through the member survey. It went very well and was fun to take.

The Boy's Club star party has been called off. Those who were planning on attending show go to the Vekol site instead on June 11th.

Gene Lucas reminded us of the Riverside Telescope Makers Conference coming up May 28th.

Don Wrigley reminded us of the June 18th event at the Arizona Museum for Youth from 8-11pm. It is near Center and University in Mesa. The club earns \$75 for this one.

Don happily mentioned that there were 20 sign ups for the Boyce-Thompson star party.

Guest Speaker: Jeff Hester, professor of physics and astronomy at ASU, was our guest speaker for the evening. His personal observing telescope is the Hubble Space Telescope. (It must be nice not to have to worry about aperture envy!)

He showed us pictures of the 1993 servicing mission in low earth orbit, and show us Hubble images of the Veil Nebula (Cygnus Loop), 30 Doradus in the LMC, NGC 604, and the Eagle nebula (M16). Some of the tiny details in that photo were as big (small) as our solar system.

(continued on next page)

EVAC & Other Events: 1999

	New Moon	Mtng	Local	Deep Sky	Other
Jan	17	13	9	16	
Feb	16	10	6	13	
Mar	17	10	13*	20	13: Messier Marathon*
Apr	16	14	10	17*	17: Sentinel Star Gaze*
May	15	12	8	15	9-16: Texas Star Party 28-31: Riverside TMC
Jun	13	9	5	12	12-19: Gr Canyon SP
Jul	13	14	3	10	1-7: Universe '99
Aug	11	11	7	14	13-14: Stellafane
Sep	9	8	4	11	10-11: N AZ Star Party 17-19: Astrofest
Oct	9	13	2 nd & 30 th	9*	9: All-AZ Star Party* 4-10: Okie-Tex SP 8-10: Starry Nights Fst
Nov	8	10	(oct)	6	
Dec	7	8	11	4	

He then gave us an idea of how large space is by telling us how long it takes light to travel various distances. (He also quoted Douglas Adams' "Hitchhikers Guide to the Galaxy" to help reinforce it).

Light takes:

- 1/7 second to go around the earth
- 1.25 seconds to go to the moon
- 8.5 minutes to go to the sun
- 4 yrs for the nearest star
- 25,000 yrs to the center of our galaxy (5x recorded history)
- 2 million yrs to the nearest galaxy—Andromeda

An HST photo showed a field of galaxies in "empty space". Space is so filled up with stars that there are more stars in the universe than grains of sand on all of the beaches in the world!

We were then treated to a brief basic explanation of star formation. Fusing hydrogen together is .7% efficient. This may sound small, but one gram of hydrogen fusion would yield enough energy to boil 12 swimming pools.

The Eagle Nebula is a place where stars are forming. The density of the interstellar matter there is still less dense than the best vacuum on earth. Air has a density of $\sim 1 \times 10^{19}$ molecules/cubic cm, man made vacuums are $\sim 1 \times 10^9$, and the Eagle Nebula is a measly 1×10^4 . Infrared is the best frequency to observe star formation.

Some big stars will fuse hydrogen to helium to carbon and eventually down to iron, and then stop there. Supernovas are required to generate the higher atomic number elements such as uranium. Our solar system was formed by interstellar gas which was enriched by supernovas prior to formation.

The talk ended around $\sim 9:00$ pm, and we had a solid 30 minutes of intriguing questions and answers.

Show and Tell: Laurice Dee gave us an update presentation on the Stardust mission to collect interstellar dust (outside the earth-moon system) It will make 3 heliocentric loops between 1999 and 2001. The space craft is capable of realtime analysis of the dust it collects.

It will also intersect comet Wild 2 in 2004 and return to earth around 2006 when the comet material will be analyzed in greater detail.

She also mentioned that the X-ray observatory was delayed because the rocket it intended to use, failed on an earlier mission. Once the failure is understood and corrected, the mission will proceed.

Meeting Close: The meeting was called to a close at 9:50 pm

EVAC Survey Results Are In

Tom Polakis, EVAC

What are the interests of club members? What do members like and dislike about club meetings? Are members satisfied with the newsletter? These are the questions that should be the basis of decisions made by EVAC's board. Rather than responding to sporadic opinions, we thought it best to conduct a survey to sort things out. The results not only answer some of our questions, but they also provide some interesting information about the make-up of the East Valley Astronomy Club.

The survey was held on May 12, 1999, at the Club general meeting. While this sample admittedly creates an obvious bias toward those who attend meetings, it was the best way to acquire the largest possible data sample quickly. All told, 61 EVAC members filled out the 25-question survey.

Rather than filling the newsletter with charts, I'll summarize the most interesting points of the survey. If you want to see the details, here's the Web site where the data is presented in reduced form:

[http://www.psiaz.com/polakis/evacsurvey/
evacsurvey.html](http://www.psiaz.com/polakis/evacsurvey/evacsurvey.html)

The survey began with three questions regarding telescope ownership. Nearly half of the respondents own one telescope, while two-thirds own two or more. One in seven own four or more scopes, and should seek help for their addiction immediately! When asked what type of telescope gets the most use, Newtonians beat out Schmidt-Cassegrains by a narrow margin. Refractors pulled in a respectable 15% of the vote. Compare this against a 1989 survey in the Saguaro Astronomy Club, when that number was 3%. Three out of four EVAC members own telescopes larger than 6 inches in aperture, while a full 25% own scopes larger than 14 inches. These numbers are comparable to the 1989 SAC survey.

<h1 style="text-align: center;">June 1999</h1> <p style="text-align: center;">All Times MST</p>							<p>The moving moon went up the sky, And no where did abide: Softly she was going up, And a star or two beside... —Coleridge</p>
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
		1 Dedication of Lick Observatory, 1888	2	3	4	5 EVAC Local Star Party Mars stationary	
6 	7	8 <i>Wed June 9:</i> Moon near Jupiter <i>Thur June 10:</i> Moon near Saturn	9 EVAC Meeting 7:30 pm at SCC	10 <i>Tomorrow:</i> Venus at greatest evening elongation	11 <u>Grand Canyon Star Party</u> (June 12-19)	12 EVAC Deep Sky Star Party Moon near Aldebaran	
13 	14 <i>Flag Day</i> Moon near Mercury	15	16 Moon near Venus	17 Moon near Regulus	18	19	
20  <i>Father's Day</i>	21 Solstice Sun enters Gemini	22 Moon near Mars & Spica	23	24	25 H. Oberth, b. 1894	26 Moon near Sabik	
27	28  Mercury at greatest evening elongation	29 G.E. Hale, b. 1868	30 Tunguska event, 1908				

The club consists of many veteran amateur astronomers. Two-thirds of those who replied indicated they have been interested in astronomy for more than 15 years. Half of these folks who indicated 15 years of interest have owned telescopes for that full length of time. It is notable that nearly half of those surveyed have owned a telescope for five years or less. This leads one to believe that a beginners' program would be a useful addition to the club's services. Over half of the members who responded have been members of EVAC for three years or less.

The clubs interests are diverse, but out-of-city (deep sky) observing placed well ahead of the other categories. In-city (lunar and planetary) observing finished last. Depending on who you ask, the latter result can be thought of as either something to accept and adjust to or something to rectify. Regarding club speakers, members are most interested in hearing professional astronomers talk about space beyond the Solar System. Amateur observing finished high. This is curious, as very few club talks have dealt with this topic.

EVAC members were evenly split between Tempe, Mesa, and Scottsdale as the meeting location; Chandler and Phoenix ranked low, as expected. Note that the next largest meeting room at SCC after PS 172 is the colossal auditorium. Any further growth may put us in need of a new venue. The survey bias may have showed up in this question, but Wednesday overwhelmingly won as the preferred meeting day, with a weaker preference toward the center of the week. Friday finished last. Members favor 9:30 as the time the meetings should end by a wide margin.

The survey indicates excellent star party attendance. Only about one-fourth of the respondents don't attend any star parties. About two-thirds attend 5 or more per year, with the 3rd Quarter Moon star parties being more popular. Members generally agree that the 3rd Quarter star parties are at an appropriate distance. Nearly one in three think that the New Moon star parties are too distant, though.

Perhaps the most interesting result to come out of the survey was a dead-heat tie between those who agree and disagree that EVAC should pursue purchasing land for a club observing site. The result is similar when asked about a club observatory. Here is an

indication a priori of why other clubs have parted ways due to this most divisive issue.

An EVAC member typically takes 10 to 30 minutes reading the club newsletter. This result and the favorable response from a verbal survey of how many people would be interested in receiving the newsletter electronically indicate that this is a good future direction for those who prefer it. Newsletter printing and mailing costs are far and away the largest chunk of club budget—a chunk that could be reduced vastly with today's technology. Stay tuned for further information.

Nearly all of the members present expressed an interest in a club field trip to an observatory. Over half would participate in public star parties and educational outreach. Even the 20 or so out of 61 who would participate in scope or mirror-making classes point toward this being a worthwhile future project. Is anybody interested in spearheading any of these efforts?

Finally, the club was asked to name a good item to purchase with our funds. Leading the way with 12 votes is a loaner scope, or at least a larger one. Other members wanted an improved library, a laser collimator, and A/V equipment. One request was made for a coffee maker, which we hope is not a statement on the liveliness of our meetings. Another wished upon a star for a 60-inch or larger telescope to be bought cheaply.

I have repeatedly made the point that neither the Board or the club exist in a vacuum. Hopefully this survey will help us gauge members' interests. In addition to the survey, I have collected benchmark data about other clubs. It is also posted at my Web site at:

<http://www.psi-az.com/polakis/clubs.html>

New EVAC Web Site!

Robert Kerwin, EVAC

The EVAC web site has moved! Please visit us at our new address:

<http://www.eastvalleyastronomy.org>

There will be a link to the new site from the old location that I will maintain through the end of the year (at least).

If it's been a while since your last visit, take a few minutes to explore the site. Many features are updated regularly. Of course, I'm always open to suggestions on improving the site. I've already had several good suggestions that I will hopefully be working on over the coming weeks.

A special thank you goes to Bob Erdmann, who donated the space for the site and processed the domain name registration.

For Sale

6" f/5 Newtonian (1.5" diagonal). Edmund Scientific optics; Novak 3-pt cell, spider and diag holder; University 1.25" rack and pinion focuser (all metal). Scope on simple Dob mount; with 6X30 finder OR Telrad (your choice) and 25mm Celestron SMA eyepiece. Tube assembly is EQ-ready; has been on GEM previously. \$275.00. Steve Bell: 602-485-6129, days; 602-867-7680 eves; steveb0513@aol.com

If it's clear...

Fulton Wright, Jr., Prescott Astronomy Club
June 1999

Shamelessly stolen information from *Sky & Telescope* magazine, *Astronomy* magazine, and anywhere else I can find data.

On Thursday, June 3, at about 8:30 PM you can see an asteroid near some stars. With a small (3 inch) telescope look 30 degrees above the east southeast horizon for Delta Ophiuchi (magnitude 2.8). 0.6 degrees up and to the left is magnitude 9 star. 6 arc minutes to its right is the asteroid 3 Juno at magnitude 10.6.

On Saturday, June 12, at about 8:30 PM you can see Venus near the Beehive cluster. With a small (3 inch) telescope look 25 degrees above the west horizon for Venus (magnitude -4). It will be on the right edge of the cluster

On Wednesday, June 16, at about 8:30 PM you can see a conjunction of the Moon and Venus. With your unaided eye or binoculars look 25 degrees above the west horizon for the crescent moon. Venus is 2 and 1/2 degrees up and to the right.

On Thursday, June 17, at about 9 PM you can see an asteroid near a star. With a small (3 inch) telescope look 50 degrees above the southeast horizon for 21 Hercules (magnitude 6, not easy to find). 2.5 arc minutes up and to the left is 41 Daphne (magnitude 10).

On Thursday, June 24, at about 8:15 PM you can see three objects in a row. With your unaided eye or binoculars look 13 degrees above the west northwest horizon. Left to right you will see Mercury (magnitude 0), Pollux (magnitude 1), and Castor (magnitude 2).

Change in Duties

The club thanks Aaron McNealy for his generous service as our past newsletter editor and wishes him well in his future endeavors. Tom Mozden, formerly the club secretary, will become the newsletter editor. Tom Polakis will take over duties as secretary.

NASA News

Prepared by Martin Bonadio
 June 3, 1999

Dwarfs Gain Cosmic Respect

Too massive to be planets and too cold to be stars, five stellar wannabes are finally earning some cosmic respect. The recently discovered gaseous objects fall into a new category below stars and above planets, said Davy Kirkpatrick, staff scientist at the Infrared Processing and Analysis Center at NASA's Jet Propulsion Laboratory in Pasadena.

Typical brown dwarfs, so named because of their relative size and darkness, do not have enough mass to start the nuclear fusion engine that powers stars like the sun. Even though they're called cool, they still generate some heat from collapsing gases. Still, even among brown dwarfs, the five new objects are unusually cool. Scientists detected the presence of methane, a gas that only forms at less than 1,652 degrees Fahrenheit - just four times the temperature of a typical kitchen oven.

The methane brown dwarfs, estimated to be about 30 light years from Earth, are located in the constellations Leo, Virgo and Corvus and the Big Dipper area of Ursa Major. They cannot be seen with a naked eye. The brown dwarfs were discovered while researchers analyzed data gathered by telescopes in Arizona and Chile as part of the Two-Micron All Sky Survey, a project sponsored by NASA and the National Science Foundation.

NASA Measure of Universe Questioned

Researcher Says Estimate of 13 Billion Years May Be Off By 20 Percent

A new radio-telescope technique has established a "golden ruler" for measuring cosmic distances and raises doubts about the claim last week that NASA astronomers had determined the age and expansion rate of the universe.

Jim Herrnstein of the National Radio Astronomy Observatory said his method produces "the most precise distance ever measured to a remote galaxy" and suggests a 15 percent to 20 percent margin of error in the technique used by the astronomers sponsored by the National Aeronautics and Space Administration.

The NASA team led by Wendy Freedman of the Carnegie Institute in Washington said last week that

they used the Hubble Space Telescope to successfully achieve the goal of measuring within an uncertainty of only 10 percent the speed at which the universe is expanding, a value called the Hubble constant.

Based on its study, the team concluded that the universe is 12 billion to 13 billion years old and is expanding at an accelerating rate of 70 kilometers per second for every 3.3 million light-years in distance from the Earth.

Bacteria Can Grow in Simulated Mars

Researcher Says Methane Making Microbe 'Grows Just Fine and Dandy'

An exotic Earth bacteria thrives in laboratory conditions that imitate the environment of Mars, raising fresh hope that the red planet may harbor life now or at least did so in the past, a researcher says.

Timothy A. Kral of the University of Arkansas said that a methane-making, oxygen-hating microbe "grows just fine and dandy" in a simulated Martian environment that could not support most forms of life on Earth. All of these types of microbes, he said, use nitrogen and hydrogen to make methane, a natural gas that can be used as fuel.

Kral said the experiment also raises the possibility that the microbes could be used to cause a change in the planetary climate of Mars. NASA has been studying the idea of one day sending a methane-producing robot spacecraft to Mars, Kral said. Using hydrogen brought from Earth and carbon dioxide from the Martian atmosphere, it would be possible to make and store methane, he said. The fuel then would be available when people are eventually sent to Mars.

Fundamental Questions in Physics

Quoted from D. Allan Bromley in his opening address at the plenary session at the American Physical Society Centennial Meeting in Atlanta, Georgia.

Elementary particle physics and cosmology are slowly coming together to address some of the most fundamental questions in physics, because with ever more powerful accelerators, it becomes possible to recreate, if only for tiny fractions of a second, the conditions that were present within the first moments of the existence of our universe. Atomic and nuclear technology has found wide application in biology and medicine, and the interconnections are growing on almost a daily basis. In communications, single optical fiber bandwidths have been doubling every nine months and the actual in-the-field telephone company products now lag the research frontiers by only four years. The resulting communication and computation explosion has truly reduced our planet to a global village and changed the entire nature of our society. There are far too many other exciting developments at the frontiers of physics to attempt a complete list here.

With regard to the future, there are ten open questions in physics that strike me as being of particular interest.

1. How does mass originate,
2. Does nonbaryonic dark matter exist, and if so, in what form,
3. Why are we in a matter universe,
4. What is the ultimate fate of our universe,
5. What is the structure of quantum gravity,
6. Are quarks and leptons truly elementary, or composite,
7. Do the physical constants change with time,
8. What are the consequences of a nonzero neutrino mass,
9. How does one build a quantum computer,
10. And finally, is room temperature superconductivity possible.

Former APS President D. Allan Bromley is Sterling Professor of the Sciences and Dean of Engineering at Yale University and former advisor to the Bush Administration.



East Valley Astronomy Club

Membership Form

Please complete the information on the form and return to the address below along with a check payable to EVAC for the appropriate dues amount. See below:

Enclosed:
 ___ \$20 Annual
 ___ \$15 April—Dec
 ___ \$10 July—Dec
 ___ \$ 5 Sept—Dec
 ___ \$27 *Sky & Telescope*
 ___ \$29 *Astronomy Magazine*
 ___ \$ 7 EVAC Nametag
 ___ Total

Kathy Woodford
 EVAC Treasurer
 PO Box 213
 Apache Junction, AZ 85217

Circle: New Member Renewal

Please Print (indicate confidential information)

Name _____
 Address _____

 Phone _____
 Email _____
 URL _____

How did you hear about EVAC? _____

Major areas of interest (circle): General observing; Lunar/Planetary;
 Deep Sky; Telescope making; Astrophotography; CCD/Computer;
 Archaeoastronomy; Other: _____

EVAC on the Internet

www.eastvalleyastronomy.org

E-mail Mailing Lists

EVAC-mls is a mailing list for club announcements and quick notification of astronomical events.

EVAC-Board is for EVAC business. All club members are welcome to participate.

AZ-Observing is a fairly general mailing list about observing in Arizona. Included are star party information, who is going, as well as the latest observations and astronomical events.

To join, send E-mail with the "Subject: Subscribe" to the "-request" mailing address at psiaz.com. For example, you would send the request for AZ-Observing to "AZ-Observing-request@psiaz.com"

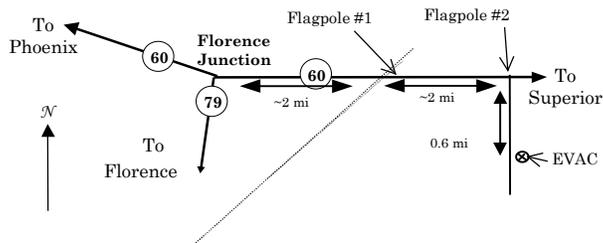
EVAC Star Parties

Local Star Party: Florence Junction Site

General Information: The Florence Junction site is the official site for the East Valley Astronomy Club's Local Star Party, typically held on the Saturday closest to Last Quarter Moon. Florence Junction offers reasonably dark skies within a short drive of most east Valley locations. (Report gunfire or illegal activity: 800/352-3796; Land use permit number: 26-104528.)

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

How To Get There: Take US 60 east to Florence Junction. Go past Florence Junction. About 2mi past FJ are railroad tracks, and on the right will be a flagpole. Do not turn there. Continue on for another ~2 miles until you find the second flagpole on the right. This is your turn. Turn right, and continue on the dirt road for ~1/2 mile. The corral is on the left.

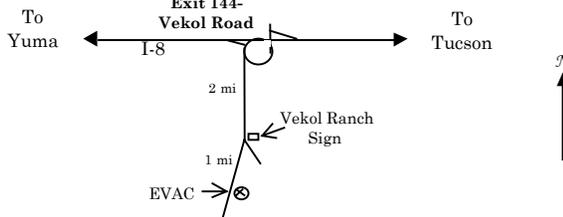


Deep Sky Star Party: Vekol Road Site

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 skyglow from Phoenix to the north. The site is within 1½ hours drive time from most east Valley locations.

Location: N 32° 47' 55" W 112° 15' 15"

How to Get There: Take I-10 south and exit onto Maricopa Road. Continue through the town of Maricopa to SR 84, about 25 miles from I-10. Turn right on SR 84, after about 5 miles the road merges with I-8. Continue west and exit I-8 at Vekol Road—Exit 144. Turn left and cross the highway overpass. Before looping back onto I-8 take the dirt road to the left. Go south for 2 miles. At the Vekol Ranch sign bear right and continue south for another mile until reaching a large, open area on the left.



East Valley Astronomy Club—1999

Scottsdale, Arizona

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

EVAC Officers

PRESIDENT
Silvio Jaconelli
602/926-8529

VICE-PRESIDENT
Pedro Jane'
602/833-2002

TREASURER
Kathy Woodford
602/857-3438

SECRETARY
Tom Mozdzen
602/497-5703

PROPERTIES
Enrico Alvarez
602/837-0486

Membership & Subscriptions: \$20 per year, renewed in December. Reduced rates to *Sky & Telescope* and *Astronomy* available. Contact Kathy Woodford, P.O. Box 213, Apache Junction, AZ 85217, 602/857-3438. Email—ariz.kat@juno.com

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

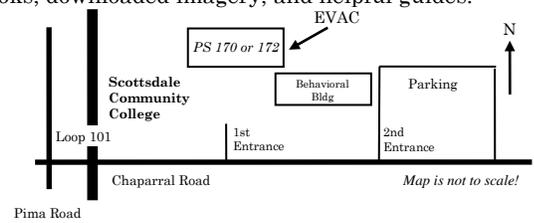
Newsletter: Mailed out the week before the monthly Club meeting. Send contributions to Tom Mozdzen, 1532 West Sherri Drive, Gilbert, AZ 85233. Email—tjmozdzen@worldnet.att.net. Contributions may be edited.

Address Changes: Contact Bill Smith, 3430 N. Mountain Ridge Unit 32, Mesa, AZ 85207, 602/854-8071. Email—bsmithaz@aol.com

EVAC Library: The library contains a good assortment of books, downloaded imagery, and helpful guides. Contact Enrico Alvarez for complete details, 602/837-0486.

Book Discounts: Great savings through Kalmbach and Sky Publishing. Contact Kathy Woodford, PO Box 213, Apache Junction, AZ, 602/857-3438. Email—ariz.kat@juno.com

EVAC Party Line: Let other members know in advance if you plan to attend a scheduled observing session. Contact Stan Ferris, 602/831-7307.



Tom Mozdzen, Editor

1532 West Sherri Drive • Gilbert, AZ 85233

Contents

- Jeff Hester's talk recapped
- EVAC Survey Results
- New EVAC Web Site (www.eastvalleyastronomy.com)
- For Sale
- If it's clear...
- Nasa News
- Fundamental Questions in Physics

Dont Forget: EVAC Meeting on Wednesday, June 9

Speaker: Steve Coe will speak about Wm. Herschel and will include a slide show.