



East Valley Astronomy Club

December

Newsletter

1997

EVAC MEETING HIGHLIGHTS

by Aaron McNeely, Secretary

President Sheri Cahn started the November meeting at 7:30 pm. Including the main speaker, there were 50 persons present, 40 of these members and 10 newcomers. Sheri discussed the following events:

Local Star Party: November 22 at Florence Junction.
Deep Sky Star Party: November 29 at Vekol Road.
EVAC Meeting: December 10 at SCC.

Old Business

New EVAC Officers - Nominations for new officers were taken, and the election itself was held, at the November EVAC meeting with the following results:

President:	Sheri Cahn
Vice President:	Kathy Doyle
Treasurer:	Kathy Woodford
Secretary:	Don Wrigley
Properties:	Enrico Alvarez
Board of Directors :	Steve Bell
	Joe Goss
	Tom Polakis
	Dave Richardson
	Bernie Sanden
	Joseph Silver
	Gary Zimtbaum

Congratulations to all of the new EVAC officers and board!

Adopt a Highway - EVAC maintains the twice a year cleanup of a 1-mile stretch of Route 60 near Florence Junction for which we receive the publicity of a sign. Sam Herchak reported that the cleanup went very well despite the low number of volunteers. The following EVAC members participated: Anne Beeby, John Durham, Bernie Sanden, Jon Sargeant, Mike Sargeant, and Art Zarkos. Consult the October and November newsletters for more information.

Observing Guides - Paul Dickson is selling copies of his "110 Best of the NGC" and "Messier Logbook" for \$5 and \$15 respectively. Paul has created a new magnum opus with his "Hunting the Herschel 400," available for \$25 at the meeting. Paul will also have available copies of the RASC "Observer's Handbook 1998" for \$12. Club members can also order the "Astronomical Calendar 1998" of Guy Ottewell for \$17. Both of these works are multi-purpose guides to celestial events during the upcoming year.

Gene Shoemaker Memorial - EVAC has decided to send a card to Carolyn Shoemaker expressing our sadness over the sudden death of her husband Eugene Shoemaker, the famous planetary astronomer. The card was available at the November EVAC meeting for those wishing to express their condolences.

New Business

Desert Vista School Star Party- Don Wrigley requested that EVAC members participate in this event to be held on Friday, December 5th. Contact Don for more information (982-2428).

Feature Presentation

Pieter Burggraaf is an amateur astronomer who was commissioned by the Bureau of Land Management to write a history of the Harquahala Field Station, a "forgotten 1920's Smithsonian Institution Observatory."

UPCOMING CLUB EVENTS

- EVAC Club Meeting, Dec. 10, 7:30 pm
SCC, Physical Science Bldg., Room 172
- Local Star Party, Dec. 20, Sunset -5:23 pm
Florence Junction site
- Deep Sky Star Party, Dec. 27, Sunset -5:27 pm
Vekol Road site
- EVAC Club Meeting, Jan. 14, 7:30 pm
SCC, Physical Science Bldg., Room 172
- Local Star Party, Jan. 17, Sunset -5:44 pm
Florence Junction site

Pieter spoke about his research into the history of the Field Station.

The Harquahala Field Station was used as a solar observatory from 1920 to 1925 and is located about 75 miles northwest of Phoenix. The closest major town is Wenden. The site is located in the Harquahala Mountains, at around 1 mile of elevation, and is very remote.

The Field Station was originally commissioned by the Smithsonian Astrophysical Observatory and was operated by Charles Greeley Abbot. Their goal was to measure the "solar constant," the daily energy output of the sun received by a location on earth, with the hope of using this information in weather prediction. Abbot possessed many interests related to the sun, he performed solar observations on Mt. Wilson in California, utilized the sun for cooking, and even attempted to document solar cures for diseases. Abbot picked the Harquahala Mountains because this region is one of the most cloud-free areas on earth.

The Field Station itself was constructed and completed in 1920 of stucco masonry which quickly succumbed to the harsh conditions on the mountaintop. Some of the solar instruments used by the observers were the following: The Pyroheliometer, a device utilizing two thermometers to measure the direct heat of the sun; The Pyranometer, a device used to measure the energy in directions away from the immediate solar disc. The observers also recorded daily the spectrum of the sun on photographic plates. The data collected from these devices was sent via radio to Wenden and then forwarded to the Smithsonian in Washington. The data was used in weather prediction for places as far away as New York City.

The Field Station was closed in 1925 after a colorful 5 year history. This story is detailed in Pieter's book: "Harquahala Letters: Arizona's Forgotten 1920's Smithsonian Institution Observatory" (1996, Arizona State Office of the Bureau of Land Management). The research involved a trip to Washington where Pieter was allowed to browse through the original documents and letters associated with the Field Station (he even found letters written by such notables as Alexander Graham Bell and Theodore Roosevelt). The BLM issued one thousand copies of the book free to the public, it went quickly out of print. The Phoenix Public Library (Central Branch) has a copy for anyone interested. (Ed. Note- Properties also has a copy, that is currently checked out.)

Interested individuals can also visit the site of the Field Station and see the remains of the adobe structure that still stand. Pieter estimates that the building will be destroyed within the next 5 years. A visit to the site requires a four wheel drive vehicle, and the road is treacherous and not maintained.

TOP 10 REASONS TO NOT RENEW YOUR EVAC MEMBERSHIP

by Robert Kerwin

10. If it only costs \$20 a year, it can't be any good...can it?
9. I'd have to spend time sorting out the newsletter from my bills and junk mail.
8. Helpful, friendly advice on choosing the right equipment is fine, but I've got money to burn!
7. People have too much fun at those meetings and star parties—astronomy is supposed to be serious.
6. I might feel guilty saving money on Astronomy and Sky & Telescope publications while everyone else has to pay the full price.
5. There's too many people in astronomy already—going to those public star parties only encourages more people to become interested.
4. Don't mind meeting new people at star parties, but I can never figure out who they were in daylight!
3. Learning about new comets and other events is OK for some people, but I'd rather get the complete story in Astronomy and S&T after they have occurred.
2. Looking through other people's scopes really isn't that much fun.
1. Don't want to miss a single episode of Beverly Hills 90210!

Seriously, the \$20 you spend on your EVAC membership will be one of the best astronomy investments you will make this year. For the price of an average astronomy book, you can have:

- * An informative monthly newsletter with articles from EVAC members and many other sources.
- * Monthly meetings with interesting guest speakers and an opportunity to talk astronomy with other club members. Monthly deep sky and local star parties.
- * Opportunities to share your interest in astronomy with the public.
- * Friendly people who are willing to help you out with advice on equipment and observing.

Don't delay—renew your membership today!

DECEMBER MEETING

December's meeting will be a swap meet/show and tell/social gathering. We will be meeting at SCC, December 10th, at 7:30 p.m. Bring a snack and join the festivities.

SPACE TREMORS CAN AFFECT EXPERIMENTS

by Dave Dooling

United States Microgravity Payload-4 - Flight Day 11

A satellite slowly spiraling back towards Earth shouldn't have much in common with an earthquake. They don't, except for how you analyze the subtle ways that the two shimmy.

"I like to say we're measuring earthquakes in space," said Melissa Rogers, OARE project scientist for the Orbital Acceleration Research Experiment (OARE). "It's all vibrations."

Measurements taken by OARE, and made available with other data through the Principal Investigator Microgravity Services (PIMS) at NASA's Lewis Research Center, tell scientists how smooth a ride their experiments are getting on the fourth U.S. Microgravity Payload (USMP-4) mission now aboard Space Shuttle Columbia.

"OARE measures a different part of the acceleration environment than the Space Acceleration Measurement System (SAMS)" described in an earlier story, said Rogers, who works for the Universities Space Research Association. "It's what we call the quasi-steady microgravity environment."

That stems from the fact that the Shuttle and all other satellites aren't really circling the world. They're spiraling inward, ever so slowly, as the last traces of Earth's atmosphere drag on them. The amount of drag depends on the size of the craft, its altitude, and how active the sun is (it heats and expands the outer atmosphere).

Located between the Shuttle's belly and the payload bay, OARE includes a single triaxial sensor head that measures acceleration on all three axes.

Materials experiments aboard USMP-4 and other space missions are sensitive to vibrations and movement. So NASA outfits the shuttle with accelerometers to measure their effects. This lets scientists correlate their results with what the Shuttle was doing at the time.

"The orbiter is experiencing drag and that's slowing it down," Rogers said. "But an object in the orbiter doesn't experience that same drag because the orbiter protects it."

So unless an object is strapped down, it moves relative to the orbiter - until it hits a wall. Rogers compared it to riding in your car and hitting the brakes: you press against the seat belt while anything loose slides forward until it hits the dashboard.

"The second part of the problem has to do with most things not sitting on the spacecraft's center of mass," she continued. At any distance from the satellite's center of mass, an object is at a slightly different orbital altitude and tries to pull ahead or fall behind.

"So just based on the location of an object in the orbiter, you get some acceleration," Rogers said.

For that reason, missions are planned so the orbiter holds a specific attitude relative to the Earth (called

local vertical/local horizontal) and minimizes accelerations on the experiment samples. Like the Moon, it rotates once per orbit to hold the same face to the Earth.

"All these things are predictable if you know the altitude, atmospheric density for the solar cycle, and other factors," Rogers said. In addition, PIMS has built up a file of the effects of thruster firings, waster water dumps, and even cabin depressurizations so scientists can plan experiments around those, or request that they be deferred to a more convenient time.

"PIMS provides accelerometer data, analysis, and interpretation to investigator teams," Rogers explained. "We work with the principal investigators to figure out what is needed for their missions and how best to schedule their experiments."

Since PIMS was started in 1993, "we've built up a strong reputation for knowing what the data mean."

That includes finding things that many people would miss. When Rogers was in graduate school at Virginia Tech, she saw an old saying which was reversed to describe how they studied seismic data: "I wouldn't have seen it if I hadn't believed it." It applies here.

"We go in looking for something and see it because we believe it has to be there," Rogers said. Not that they invent things. It's just that accelerometer data are inherently noisy, and patterns can be as tough to see as ripples in a storm.

Initially, station will be equipped with a modified version of SAMS to collect data during assembly. The gradual buildup will help them isolate new vibrations in newly arrived modules.

These data will be recorded on board and the hard disks returned to Earth. Eventually, the complete ISS will be equipped with a new SAMS II system sporting up to nine triaxial sensor heads. To ease the load on the station's data transmissions, scientists will be asked to select the vibration bands to which their experiments will be most sensitive. If they don't choose wisely, then there won't be an archive from which to retrieve the data.

"They're going to have to be really smart" to figure out ahead of time which data to request, Rogers said. "We've had principal investigators ignore the microgravity environment, but come back when they found out that something affected them."

WELCOME NEW MEMBERS

by Sam Herchak

As the year comes to a close, please join me in welcoming EVAC's newest members:

Wayne Begun
Stephen Churley
Edward Denny
Mark Foltyn
John Gray
Ernie Grenz
Don Jones
Ray Lambert
Craig Linblad
Chuck O'Keefe
Ed Peterson
Gerry Rattley
Brian Schauer
Gilbert Seely
Kirk & Beverly Stubbs
Jim Weisenberger
Kathy Woodford (our new treasurer)
Kathy Doyle (our new v-president)

In addition, these past EVAC members have rejoined:

Wendy Wallace
Don Pfohl
Ken Tullis

CLASSIFIEDS

For Sale: Twenty years of Sky & Telescope magazine (1977-1997), all in excellent condition. Asking \$200. Call Mike, (602)926-4765. (1-98)

For Sale: Complete 2 camera Olympus OM-1 outfit For Sale! Perfect for astronomical work! This outfit includes: 1 Silver Body OM-1, 1 Black Body OM-1, recently serviced, slight wear of black paint in few edges. Leather covers for each camera. 1 large webbing carrying strap. 1 Tamrac Cuban hitch type quick release camera strap. Rigid brown carrying case for Complete outfit. (it all fits!). 3 superb Olympus H. Zuiko lenses: 24mm f 2.8 in case, 200mm f 4 in case, 50mm f 1.4 (fits with either camera in its case). New 2' prime focus camera adapter, Olympus mount (by Orion) for astrophotography using 2" focuser. Beattie Intenscreen Plus in Black Body OM-1 for astronomical/low light photography (has a visible scratch on the edge). New Varimagni Finder (1.5x/2.5x viewfinder magnification) in case with instructions. Lens hoods and covers for each lens. 2 Remote Cable shutter releases. 49mm Hoya skylight filter (matches 50mm lens). 49mm Hoya 80a filter. 49mm Hoya Pl filter. 55mm Hoya skylight filter (matches 200mm lens). 55mm Hoya Pl filter. Lens cleaning kit with paper, blower/brush and fluid. OM-1 owners guide. New Kodak Professional Photoguide 5th Edition. The

following films (3-5 months old and refrigerated the entire time): 2 rolls of 36 exp Ektachrome P1600 Daylight film. 1 Roll of 24 exp Elite II Daylight 400 film. 1 Roll of 36 exp Fuji Provina 1600 daylight firm (near expiration date). Sadly selling to pay off debts. \$1150, no trades, no single item sales.

Steve Reed 602-613-4950 sunny@goodnet.com (2-98)

For Sale: AstroSystems Laser Collimator (the best).....\$140

Tele Vue: 2" 35mm Panoptic.....\$290

2" 20mm Nagler, Type 2.....\$300

1.25" 4.8mm Nagler.....\$145

2" 2x Big Barlow with 1.25" adaptor.....\$130

2" Paracorr coma corrector with 1.25" adaptor....\$215

1.25" Vixen Lanthanum 2.5mm\$120

Orion Large eyepiece and accessory Case & accessories (includes dust Brush, large dust blower and microstar eye piece cleaning cloth).....\$40

Note: I will sell everything for \$1250

All are in new condition, 5-8 months old with very light usage. No defects. Case foam has been cut to allow 6 large items: 8x50 finder scope, 2" parracor, 2" barlow, 35mm Panoptic, Laser Collimator and 20mm Nagler. With all this, still has room for 4 1.25" eyepieces. Sadly selling to pay off debts. Might ship, but prefer you pick up in Phoenix area. Steve Reed sunny@goodnet.com 602-613-4950. (2-98)

For Sale: 1-1/4" eyepieces; 6mm, 12mm, 18mm, 25mm Kellners, 16mm and 24mm Konigs. 1-1/4" screw-in filters; Green, Light Yellow, Yellow Green, Orange, Light Red, .9 Neutral Density, .6 Neutral Density, .3 Neutral Density and Light Pollution. 1-1/4' 2x Barlow lens. All for \$120. Contact Randy Beal, 1733 E. Scenic St., Apache Junction, AZ, 85219, phone 983-6798. (2-98)

For Sale: 8" Meade StarFinder Dobsonian, 2" eyepiece focuser, 3 eyepieces and filters. Like New - \$325. Call Chuck O'Keefe 451-8013. (3-98)

Ads run for four months, as noted by the date at the end of ad. Ads are for members only and must be of an astronomical nature. No used cars.

THANK YOU

I would like to take this space to thank all of you that help to make this newsletter great. I would like to thank Sam Herchak for showing me how to publish this newsletter, the calendar that he produced and for all the articles that he contributed. Also, I want to thank Tom Polakis, Robert Kerwin, Bernie Sanden, Bill Dellinges and Aaron McNeely for their contributions. If I failed to mention your name, I apologize, your contribution to the newsletter has been appreciated.

I have been the editor for two years and now its time to pass the torch. Aaron McNeely has volunteered to take over. I hope that the club members will assist him as much as they have helped me in the past. Thank you.

Robert G. Kearney, Jr.