March 2012



VOLUME 26 ISSUE 3

THE OBSERVER East Valley Astronomy Club

From the Desk of the President by David Douglass

March is upon us and once again and it is time for the SAC-sponsored All Arizona Messier Marathon (AAMM). The scheduled dates are March 23rd and 24th, with the actual marathon on the evening of March 24th, and morning of the 25th. This year, the gathering will again be at the abandoned airstrip at the Antenna site, west of Phoenix at the Hovatter road exit. Complete information, including maps, and full marathon rules can be found at the SAC web site (http://www.saguaroastro.org/ content/messier2012.htm). You can also get to their site by going to the EVAC web site (http://www. evaconline.org/) on click in the link at the lower left ("2012 All Arizona Messier Marathon").

The year 2009 was the International Year of Astronomy. From my prospective, 2012 is shaping up to be a pretty good one too. At least 2012 is going to be a "busy" year in the field of astronomy. We have the Messier Marathon for March, the Annular Eclipse in May, the Transit of Venus in June, and then we have our own personal observing schedules. Good thing we have lots of spare time. Changes are underway at the GRCO. We are recruiting new site and operations managers. We are recruiting new and former GRCO volunteer operators. Being a GRCO volunteer operator is not an every weekend commitment. When we have enough volunteers on the roster, it usually turns out to be about one evening every couple of months. Of course, if you want more time there, you are welcome to do so.

The March meeting starts at 7:30 pm on March 16th. We will hold a special GRCO O&A at 6:15 Continued on page 5

The Backyard Astronomer

A Few Days at the Old Pueblo by Bill Dellinges uesday: To celebrate our 29th wedding anniversary (one Saturn year), my wife Lora and I decided to spend a few days in the Tucson area.

First stop, Starizona. As we usually attack Tucson through the back roads via Florence and Oracle Junction, we always make time to drop in on Dean Koenig's telescope shop as we drive south on Oracle Road. He and his staff were busy with customers, phone calls, and the usual tinkering with after-market gizmos. The open back room and part of the front counter were awash with wires and telescope guts, looking as though the staff was trying to build a nuclear reactor.

Dean waved, smiled, and off we went in search of the house where John Dillinger, the notorious gangster, was arrested in 1934 (his gang was busted at the Congress Hotel the same day). This was of interest to me because I had recently attended a lecture on the subject and thought it might be interesting to see this house at 327 North Second Ave. A picture of the cute cottage was shown at the lecture and there is suppose to be a small plaque on its fence reading, "Yes, We Know." However, we discovered there is no 300 block on North Second Ave.

(Surprise #1, the first of several).So this quest is going to require more research.

UPCOMING EVENTS:

Public Star Party - March 9 General Meeting - March 16 Local Star Party - March 17 All-Arizona Messier Marathon - March 24

Check out all of the upcoming club events in the Calendars on page 8

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The Backyard Astronomer

Continued from page 1 We were staying at the Paca de Paja B&B in Diamond Bell Ranch, 25 miles west of Tucson (www. pacadepaja.com). Somewhere between these two points, there is something called the Interstellar Light Collector (www.starlightusues). I had read about it in a magazine. Apparently they have a 48 foot high 25 ton array of mirrors that gathers moonlight and directs it to a nearby building where the beams can be focused on patients for therapeutic purposes (What?). I had emailed about the possibility of a visit



Starizona

or tour but was told the operation was down for repairs (Surprise #2).

Wednesday: Today it's off to Kitt Peak Observatory. I lost count how many times I've been there. Every couple years though, I like to drop in for a visit. It's a stunning location with a fantastic view. If you're an astro-nut, you'll feel like you've died and gone to heaven being surrounded by perhaps 25 observatories. Three are open to the public by either self tours or paid guided tours. The three observatories open



Kitt Peak National Observatory

to the public are the 84" and 158" telescopes and the large distinctive McMath Solar Telescope. The visitor center and gift shop is quite nice too. The latter is the second best observatory astronomy gift shop I've seen after McDonald Observatory.

Thursday: A few miles west of Tucson on route 86 (the Ajo Highway), Kinney Road takes you north to the Arizona Sonora Desert Museum, Old Tucson Studios, and Saguaro National Park. After a short hike at the latter, I wanted to check out an interesting B&B on Kinney Road I had considered staying *Page 2*

at. Cat Mountain Lodge (www.catmountainlodge. com) is unique in having on its grounds a roll off roof observatory available to guests. Spencer's Observatory is a 12'x12' structure equipped with a C-14 and Meade 10" SCT telescopes. The lodge offers 3 hour and 2 hour tours of the night sky for \$150 and \$100 respectively (up to 5 people). A staff person that day was kind enough to show me the rooms and interior of the observatory. Everything looked quite nice, though

there was a bit of road noise from Kinney Road. The lodge's breakfast is served next door at Coyote Pause Restaurant, a charming little mom and pop eatery that we've dined at several times on other trips.

Friday: Tucson is not the same town I remember from my first trips in the 1970's. The traffic is appalling and the city is still without a freeway system (if you discount I-10 running through the western section of town). Nevertheless, the town still retains a few gems left over from the old days. One is Tohono Chul Park, a small garden oasis just west of the intersection of Ina Road and Oracle Road (www. tohonochulpark.org). Air out your head by strolling through the gardens, sculptures, and art displays. And by all means, pop into their lovely Tea Room for lunch. The food and ambiance are exceptional – ask for a table outside for an especially pleasant experience. By the way, one may dine at the Tea Room without having to pay to enter the park.



Observatory at Cat Mountain Lodge

Though I'd been to Tucson many times, I had never visited the home office of the International Dark-Sky Association. I took this opportunity to do so and had *Continued on page 3 The Observer*

The Backyard Astronomer

Continued from page 2 a nice chat with several staff members (Surprise #3, they had moved one office away from their published address).

Next stop, Stellar Vision (stellarvisiontucson.com). I pulled up to where they had been on Alvernon on my last visit. Whoa. No Stellar Vision (Surprise #4). Checking a phone book, I discovered they had moved a few blocks south to an industrial area. Shop owner Frank Lopez told he moved four years ago due to a lease issue. Four years? My, how time flies. Frank's store always had more telescopes in it than any place I'd ever seen and here they were – at least a hundred; it must have been a monumental task moving all those telescopes. Incidentally, Frank offers observatory construction and built the observatory at Cat Mountain Lodge.

Our four surprise odyssey to the Old Pueblo complete, we set sail for the Valley of the Furnace with our only material booty, a Kitt Peak t-shirt.



Stellar Vision



The author at the IDA office

Kitt Peak National Observatory (KPNO), part of the National Optical Astronomy Observatory (NOAO), supports the most diverse collection of astronomical observatories on Earth for nighttime optical and infrared astronomy and daytime study of the Sun. Sharing the mountaintop site with the National Solar Observatory, KPNO, founded in 1958, operates three major night-time telescopes and hosts the facilities of consortia which operate 22 optical telescopes and two radio telescopes. Kitt Peak is located 56 miles southwest of Tucson, AZ, in the Schuk Toak District on the Tohono O'odham Nation and has a Visitor Center open daily to the public.

2012 All Arizona Messier Marathon Saturday, March 24

Hovatter Airstrip

Site Coordinates: 33° 34′ 50″ N

113° 35′ 53″ W

Elevation: 1.378'

As in years past, there will be an extra night of observing prior to the marathon, on Friday. Remember, Friday is NOT the marathon. It has been set aside for more time to observe from your personal observing list. It will also provide more time for socializing on Saturday.

The moon is new on March 22 at 07:37.

On Friday (March 23) the sun will set at 19:14, the moon at 20:08, and astronomical twilight at 20:12 On Saturday (March 24) there will be the customary sunset meeting at 18:15 at the intersection of the two runways. Sunset is at 18:52, with astronomical twilight at 20:13. The moon sets at 21:03.

On Sunday morning (March 25) astronomical twilight is 05:07 with the sun rising at 06:27, followed by the moon at 07:56.

Registration in advance is not required. The event is free and open to all, but we will need either your support (or your club's) to purchase the plaques, which in the past have cost around \$10 each. There is no charge for the certificates.

2012 All Arizona Messier Marathon Coordinators AJ Crayon <acrayon@cox.net> Rick Tejera <saguaroastro@cox.net> Saguaro Astronomy Club

Complete details: http://www.saguaroastro.org/content/ messier.htm

2010 All-Arizona Star Party Hovatter Road Airstrip Site



March Guest Speaker: Dolores Hill

Dolores Hill is a senior research specialist at the University of Arizona's Lunar and Planetary Laboratory (LPL). She analyzes and classifies meteorites, supports LPL meteorite research activities, and provides hands-on meteorite opportunities for school groups and special public events.

Using LPL's electron microprobe and gamma ray spectrometer laboratory, she has analyzed a variety of meteorites from all over the world since 1981, including Lunar and Martian meteorites.

Dolores is a member of the Education and Public Outreach Team for the NASA OSIRIS-REx asteroid sample return mission to Potentially Hazardous Asteroid (101955) 1999 RQ36.

She is the coordinator of Target Asteroids! a new citizen

science project of the OSIRIS-REx mission.

Dolores' talk is entitled *Meteorites: Key to Understanding the Solar System*.

This talk will highlight the most common types of meteorites, where they are found, and how to identify them. In addition, she will illustrate the overall diversity of meteorites, their parent bodies, and what secrets they reveal about the Solar System.

As time allows, she hopes to give a brief introduction to the exciting new Target Asteroids! project. This citizen science project of the OSIRIS-REx asteroid sample return mission is a fantastic opportunity to contribute important observations that will benefit current and future space missions.

From the Desk of the President

Continued from page 1 pm that evening. If you are a current or former GRCO volunteer or might be interested in becoming one, this is a meeting you might want to attend. We will be discussing how EVAC will be going forward with GRCO operations, including public outreach nights (Friday and Saturday), and Citizen Scientist activities.

We will also be discussing training issues, and any other areas that attendees may want to discuss (GRCO related). If time does not permit covering all questions and answers (6:15 - 7:15), a follow up meeting will be scheduled.

The EVAC outreach program has been busy, as usual. Lynn Young and his band of helpers have been doing an excellent job. It has been my pleasure to work with them at several of the recent events. If you have not taken part in any of these outreach events, you really should consider giving it a try. School outreach will be slowing down now, but come next school year, Lynn will again need all the help he can get. Lets see, how do I normally close one of these From The Desk articles. Oh Yeah, Lets all keep "Looking Up"... Now, where did I put all that spare time...

FIRST QUARTER MOON ON FEBRUARY 29 AT 18:22
FULL MOON ON MARCH 8 AT 02:41
LAST QUARTER MOON ON MARCH 14 AT 18:25
New Moon on March 22 AT 07:38
FIRST QUARTER MOON ON MARCH 30 AT 12:41

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ENTURES IN ASTRONOMY & NATURE

Upcoming Meetings

March 16 April 20 May 18 June 15 July 20 August 17 The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our meetings are held on the third Friday of each month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Road; on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30 pm.

All are welcome to attend the pre-meeting dinner at 5:30 pm. We meet at Old Country Buffet, located at 1855 S. Stapley Drive in Mesa. The restaurant is in the plaza on the northeast corner of Stapley and Baseline Roads, just south of US60.

Likewise, all are invited to meet for coffee and more astro talk after the meeting at Denny's on Cooper (Stapley), between Baseline and Guadalupe Roads.

Visitors are always welcome!



March 2012						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

March 1 - Sousa Elementary School Star Party

March 6 - Whittier Elementary School Star Party

March 9 - Public Star Party & SkyWatch at

Riparian Preserve

- March 15 School Solar Event at GRCO
- March 16 General Meeting at SE Library
- March 17 Local Star Party at Boyce Thompson

March 24 - All-Arizona Messier Marathon & Deep
Sky Observing Night
March 24 - Feathered Friends Event at GRCO
March 29 - Centennial Elementary School Star
Party
March 31 - Earth Hour at Wild Horse Pass Resort

APRIL 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

April 13 - Public Star Party & SkyWatch **April 14** - Local Star Party at Boyce Thompson

East Valley Astronomy Club - 2012 Membership Form

Please complete this form and return it to the club Treasurer at the next meeting or mail it to EVAC, PO Box 2202, Mesa, Az, 85214-2202. Please include a check or money order made payable to EVAC for the appropriate amount.

IMPORTANT: All memberships expire on December 31 of each year.

Select one of the following:			
New Member Renewal	□ Change of Address		
New Member Dues (dues are prorated, select accord \$30.00 Individual January through March	ing to the month you are joining the club): \$22.50 Individual April through June		
\$35.00 Family January through March	Sec. 25 Family April through June		
 \$15.00 Individual July through September \$17.50 Family July through September Renewal (current members only): \$30.00 Individual \$35.00 Family 	 \$37.50 Individual October through December \$43.75 Family October through December Includes dues for the following year 		
Name Badges: \$10.00 Each (including postage) Quantity: Name to imprint:	Total amount enclosed: Please make check or money order payable to EVAC		
□ Payment was remitted separately using PayPal □ Pa on	yment was remitted separately using my financial institution's line bill payment feature		
Name:	Phone:		
Address:	Email:		
City, State, Zip:	Publish email address on website URL:		
How would you like to receive your monthly newsletter Electronic delivery (PDF) Included with membershi	er? (choose one option): p US Mail Please add \$10 to the total payment		
Areas of Interest (check all that apply): □ General Observing □ Cosmology	Please describe your astronomy equipment:		
Lunar Observing Telescope Making Planetary Observing Astrophotography			
Deep Sky Observing Other			
Would you be interested in attending a beginner's workshop	$2^{\circ} \square Y_{es} \square N_{o}$		
How did you discover East Valley Astronomy Club? PO Box 2202 All members Mesa, AZ 85214-2202 complete one	are required to have a liability release form (waiver) on file. Plea and forward to the Treasurer with your membership application		

Liability Release Form

In consideration of attending any publicized Star Party hosted by the East Valley Astronomy Club (hereinafter referred to as "EVAC") I hereby affirm that I and my family agree to hold EVAC harmless from any claims, liabilities, losses, demands, causes of action, suits and expenses (including attorney fees), which may directly or indirectly be connected to EVAC and/or my presence on the premises of any EVAC Star Party and related areas.

I further agree to indemnify any party indicated above should such party suffer any claims, liabilities, losses, demands, causes of action, suits and expenses (including attorney fees), caused directly or indirectly by my negligent or intentional acts, or failure to act, or if such acts or failures to act are directly or indirectly caused by any person in my family or associates while participating in an EVAC Star Party.

My signature upon this form also indicates agreement and acceptance on behalf of all minor children (under 18 years of age) under my care in attendance.

EVAC only recognizes those who are members or invitees and who also have a signed Liability Release Form on file as participants at an EVAC Star Party.

Please	nrint	name	here
Flease	μιμι	name	nere

Date

Please sign name here

PO Box 2202 Mesa, AZ 85214-2202 www.eastvalleyastronomy.org



The Hidden Power of Sea Salt, Revealed

Last year, when NASA launched the Aquarius/SAC-D satellite carrying the first sensor for measuring sea salt from space, scientists expected the measurements to have unparalleled sensitivity. Yet the fine details it's revealing about ocean saltiness are surprising even the Aquarius team.

"We have just four months of data, but we're already seeing very rich detail in surface salinity patterns," says principal

investigator Gary Lagerloef of Earth & Space Research in Seattle. "We're finding that Aquarius can monitor even small scale changes such as specific river outflow and its influence on the ocean."



areas are getting more rainfall and therefore lower salinity. We don't know why. We just know something fundamental is going on in the water cycle." With Aquarius's comprehensive look at global salinity,

Using one of the most sensitive

Aquarius produced this map of global ocean salinity. It is a composite of the first two and a half weeks of data. Yellow and scientists will red represent areas of higher salinity, with blues and purples indicating areas of lower salinity.

climate variability.

microwave radiometers ever built, Aquarius can sense as little as 0.2 parts salt to 1,000 parts water. That's about like a dash of salt in a gallon jug of water.

"You wouldn't even taste it," says Lagerloef. "Yet Aquarius can detect that amount from 408 miles above the Earth. And it's working even better than expected."

Salinity is critical because it changes the density of surface seawater, and density controls the ocean currents that move heat around our planet. A good example is the Gulf Stream, which carries heat to higher latitudes and moderates the climate.

"When variations in density divert ocean currents, weather patterns like temperature and rainfall are affected. In turn, precipitation and evaporation, and fresh water from river outflow and melt ice determine salinity. It's an intricately connected cycle."

The atmosphere is the ocean's partner. The freshwater exchange between the atmosphere and the ocean dominates the global water cycle. Seventy-eight percent of global rainfall occurs over the ocean, and 85 percent of global evaporation is from the ocean. An accurate picture to put it all together. Aquarius has collected as many sea surface salinity measurements in the first few months as the entire 125-year historical record from ships and buoys.

of the ocean's salinity will help scientists better understand

the profound ocean/atmosphere coupling that determines

"Ocean salinity has been changing," says Lagerloef.

"Decades of data from ships and buoys tell us so. Some

more fresh water is being lost through evaporation. Other

ocean regions are seeing an increase in salinity, which means

"By this time next year, we'll have met two of our goals: a new global map of annual average salinity and a better understanding of the seasonal cycles that determine climate." Stay tuned for the salty results. Read more about the Aquarius mission at aquarius.nasa.gov.

Other NASA oceanography missions are Jason-1 (studying ocean surface topography), Jason-2 (follow-on to Jason-1), Jason-3 (follow-on to Jason-2, planned for launch in 2014), and Seawinds on the QuikSCAT satellite (measures wind speeds over the entire ocean). The GRACE mission (Gravity Recovery and Climate Experiment), among its other gravitational field studies, monitors fresh water supplies underground. All these missions, including Aquarius, are sponsors of a fun and educational ocean game for kids called "Go with the Flow" at spaceplace.nasa.gov/ocean-currents.

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

If It's Clear... by Fulton Wright, Jr. Prescott Astronomy Club

March 2012

Celestial events (from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find information) customized for Prescott, Arizona. Remember, the Moon is ½ degree or 30 arcminutes in diameter. All times are Mountain Standard Time.

Oh, no, not comet C2009 P1 (Gerradd) again! Yep. Heeeeeee's back. Between March 9 and 27, when the Moon won't be a problem, you can catch the comet passing just north of the Big Dipper in the early evening. See Sky & Telescope, March 2012, p.60 for more information.

On Friday, March 2, at 8:38 PM, you can see the Moon occult a double star, 15 Geminorum (HD 45352) (magnitude 6.5). Use a large (12 inch) telescope to make the stars as bright as possible.

On Saturday, March 3, Mercury is at greatest eastern elongation. This will be the best chance of seeing the planet in the evening sky for the year. Sunset is at 6:28 PM. Civil twilight ends at 6:53 PM. Nautical twilight ends at 7:23 PM. Mercury sets at 7:55 PM.

Also on Saturday, March 3, Mars is at opposition. Although this will be the best time to view the planet for the next couple of years, it won't be great. Mars will appear only 14 arc-seconds in diameter. At least it will be fairly high in the sky (65 degrees above the horizon) when it transits at 12:46 AM (March 4). For the month before and after this opposition you have a reasonable chance of seeing some markings on the planet with your highest resolution telescope.

On Monday, March 5, at 7:25 PM as darkness is falling, Algol (Beta Persei) will be at its minimum brightness (magnitude 3.4). As the night progresses it will rise to magnitude 2.1.

On Wednesday, March 7, at 6:10 PM (21 minutes before sunset) the full Moon rises, spoiling any chance of seeing faint fuzzies for the night. This is a good night for seeing bright objects, however. In addition to the Moon, you might be able to catch Mercury before it sets (7:56 PM), Venus and Jupiter in the west, Mars in the east near the Moon, and, if you wait for it to rise at 9:37 PM, Saturn. Not only that, but the winter hexagon (Rigel, Aldebaran, Capella, Pollux, Procyon, and Sirius) along with Castor and Betelgeuse are prominent in the south. Regulus is near Mars and Spica is near Saturn.

On Saturday, March 10, 9:18 PM, the asteroid 57 Mnemosyne (magnitude 12.5) passes in front of the star HD 245465 (magnitude 9.6). You might want to travel to a site north of Phoenix to be in the path of the occultation. See http://asteroidoccultation.com for detailed info. And, after about 10 PM, you can see a nice triangle formed by the Moon, Saturn, and Spica, just above the eastern horizon.

On Sunday, March 11, at 2:00 AM, thumb your nose at amateur astronomers outside of Arizona as they go on daylight savings time and have to wait an additional hour to start observing.

On Monday, March 12, in the early evening, Jupiter and Venus will be near each other in the western sky. They are also close the next night.

On Wednesday, March 14, the Moon is at last quarter phase and rises at at 1:57 AM (March 15).

On Friday. March 16, Mars is in the vicinity of the trio of galaxies M95, 96 and 105. It will be passing through the area for a few days.

On Tuesday, March 20, spring begins.

On Thursday, March 22, it is new Moon and you have all night to hunt for faint fuzzies. At 7:41 PM as darkness is falling, lo moves from in front of Jupiter. Both lo's and Ganymede's shadows are on the planet. lo's shadow leaves at 8:29 PM, Ganymede's at 9:14 PM (half an hour before Jupiter sets).

On Sunday and Monday, March 25 and 26, in the early evening, the thin, crescent Moon will be passing by Jupiter and Venus.

On Tuesday, March 27, in the evening, Venus is at greatest eastern elongation, which means it looks first quarter phase (half lit). Over the next couple of months Venus will show an increasingly slender crescent phase as it grows in angular size.

On Wednesday, March 28, at 4:23 AM, the asteroid 823 Sisigambis (magnitude 13.5) moves in front of the star HD 107161 (magnitude 6.8). This event will happen very low in the southwest. See http://asteroidoccultation.com for detailed info.

On Thursday, March 29, at 8:18 PM, Io's shadow falls on Jupiter. (Io is already in front of the planet.) Six minutes later Ganymede moves in front of the planet.

On Friday, March 30, the Moon is at first quarter phase and sets at 2:01 AM (March 31).

Changes are underway at the GRCO. We are recruiting new site and operations managers. We are recruiting new and former GRCO volunteer operators. Being a GRCO volunteer operator is not an every weekend commitment. When we have enough volunteers on the roster, it usually turns out to be about one evening every couple of months. Of course, if you want more time there, you are welcome to do so.

The March EVAC meeting starts at 7:30 pm on March 16th. We will hold a special GRCO Q&A at 6:15 pm that evening. If you are a current or former GRCO volunteer or might be interested in becoming one, this is a meeting you might want to attend. We will be discussing how EVAC will be going forward with GRCO operations, including public outreach nights (Fri and Sat), and Citizen Scientist activities. We will also be discussing training issues, and any other areas that attendees may want to discuss (GRCO related). If time does not permit covering all questions and answers (6:15-7:15), a follow up meeting will be scheduled.

Currently, our roster list is down to about 14 people. That is not enough to get to the one night every two month schedule. Eighteen months ago, the roster was over 40 people. Many volunteers have dropped out. This meeting, and following activities will attempt to address the concerns of current and past volunteers, and attempt to re-build to corp by bringing back former volunteer operators, as well as recruiting new ones.

> David M. Douglass, President East Valley Astronomy Club (EVAC) david@az-douglass.net Cell (602) 908-9092



NGC 3242 (Ghost of Jupiter) Planetary Nebula in Hydra

RA: 10h 25m 22.2s Dec: -18° 42' 28.9" Size: 0.7' x 0.6' Magnitude: 7.30



As one of the many benefits to becoming an East Valley Astronomy Club member, we have the following telescopes available for monthly check-out to current EVAC members:

> 8 inch Orion manual Dobsonian 8 inch Orion Intelliscope Dobsonian 60mm Tasco Alt-Azimuth Refractor

For more information, or to check out one of these scopes, please talk to:

David Hatch EVAC Properties Director 480.433.4217





The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month. Printed copies are available at the monthly meeting. Mailed copies are available to members for a slight surcharge to offset printing and mailing expenses.

Please send your contributions, tips, suggestions and comments to the Editor at: news@evaconline.org Contributions may be edited. The views and opinions expressed in this newsletter do not necessarily represent those of the East Valley Astronomy Club, the publisher or editor.

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