



# East Valley Astronomy Club

October 1998

[www.goodnet.com/~rkerwin/evac/evac.html](http://www.goodnet.com/~rkerwin/evac/evac.html)

Scottsdale, Arizona

## A Voice From Down-Under

Malcolm McKellar, EVAC  
mountainblue@tnq.com.au

Dear EVAC members:

For some time I have been intending to write regarding the quality of the Club, its activities, and its Newsletter, and when I finally sat down and read the June Newsletter and your very interesting "June Solstice" article, I chastised myself into allocating the time to do so.

As you may be aware, I was a participating member when I lived in Scottsdale in the early 90's, but since '93 I have lived in Far North Queensland in Australia, at a place called Port Douglas which is a long way from most places. Being very tropical, it is not the best place for astronomy (though the nights are certainly dark), however I have struggled on heartened regularly by the arrival and contents of your wonderful Newsletter.

Firstly, let me convey my best regards to those who may recall me personally - Bob Kearney, Bob Kerwin, Tom Polakis, Don Wrigley, Sam Herchak (boy, how the membership list has changed!), and let me congratulate the Officers (past and present) on what, from this distance, looks like an outstandingly successful club. It is not until you do not have the support and comradeship of a club like EVAC and its members that you really appreciate what an outstanding facility EVAC is to the community and just what a truly great job the Officers and members are doing with it.

Also let me say how much I enjoy the Newsletter. Apart from making me feel not a little envious about your enjoyable activities, Guest Speakers, and member interaction, the quality and interest level of your articles is 10 out of 10! Though I have been rude enough not to acknowledge Sam's kind mention in his February '97 (!) EVAC Occultation Predictions article,

please let him know that I will write soon with my position details for a '99 Occultation Prediction.

Aaron, your June Solstice article was fascinating, and prompts me to attach herewith a copy of a letter to Astronomy magazine regarding the location of the Sun in the sky. Perhaps you can shed some light on the conundrum? Also, what would your diagram look like for me at 16 degrees South latitude?

Thanks for keeping me as a member, and for your records please note my changed Phone and Fax numbers below.

Best regards to all,

Malcolm McKellar  
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Australia.

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Email: mountainblue@tnq.com.au

### EVAC & Other Events: 1998

	Mtng	Local	DS	Other
Jan	14	17	24	
Feb	11	21	28	
Mar	11	21*	28*	21: EVAC Cookout* 28: Messier Marathon*
Apr	8	18	25*	19-26: Texas Star Party 25: Sentinel Star Gaze*
May	13	16	23	2: Astronomy Day 22-25: Riverside TMC
June	10	20	27	13-20: Grand Canyon SP 19-20: Verde Valley AF 27-28: Universe '98 24-25: Stellafane
July	8	18	25	
Aug	12	15	22	
Sep	9	12	19	11-13: Astrofest 18-19: N AZ Star Party
Oct	14	10	17*	16-18: Starry Nights Fest 17: All-AZ Star Party*
Nov	18	14	21	
Dec	9	12	19	

Ask Astro  
P.O. Box 1612  
Waukesha WI 53187  
USA

Dear Sir,

My 80 year old Dad and I have a conundrum which we have been trying to resolve for some months. Hopefully you can help.

The Question: Specifically: How can Stonehenge (in England) at 57° N latitude experience a Sunrise from a North-Easterly direction?

More Generally: How can anyone situated North of the line of the Tropic of Cancer, experience a Sunrise, traverse or Sunset other than to the South of them? The same applies, in reverse, to those living South of the Tropic of Capricorn.

Do not the lines of the Tropics delineate the northern and southern boundaries of the Sun's apparent traverse over the face of the earth as we precess in our annual circuit around the Sun?

If so, how can the Sun ever appear to rise, traverse or set outside these "physical" boundaries? And if it can, then what is the real meaning of the lines of the Tropics?

Stonehenge, amongst many other similar ancient monuments, was apparently designed

with a North-easterly alignment to the northern Mid-Summer sunrise, and photographs show the Sun rising along this alignment at that time of year.

What are we missing here?

Looking forward to better understanding and peace of mind,

Sincerely,  
Malcolm R. McKellar

*Editor's Reply:* Thank you Malcolm for your kind comments about my work on the newsletter. It is nice to know that there is some appreciation for my monthly efforts!

An attempt at explanation follows:

The sun's path across the celestial sphere is named the ecliptic. All or parts of the ecliptic are visible from anywhere on earth, hence the sun can be seen at various times from the entire globe. The height of the sun from any location is a function of that location's latitude and the time of year.

The tropics of Cancer and Capricorn are the latitudes on earth where the sun passes directly overhead at the June solstice and the December solstice respectively. The two Tropics lie north and south of the equator by a latitude value of 23.5°.

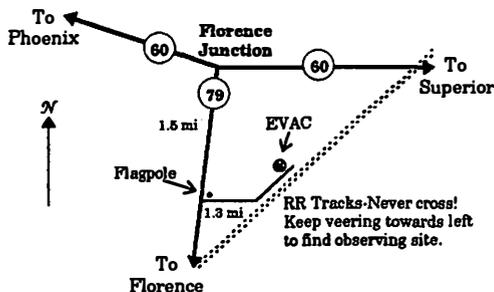
## EVAC Star Parties

### 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.

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

How To Get There: Take US 60 east to Florence Junction. At Florence Junction, turn right (south) on SR 79. After 1.5 miles, you will see a tall steel flagpole and a dirt road to the left. Turn left onto the dirt road and continue for another 1.3 miles. Drive with caution as the road is rough in some areas. To the left there will be a large open area.

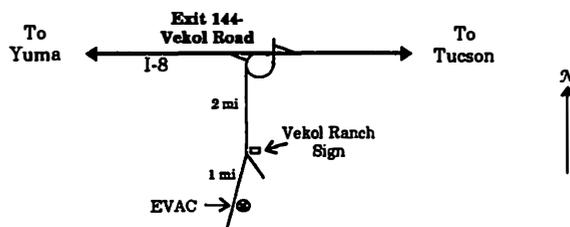


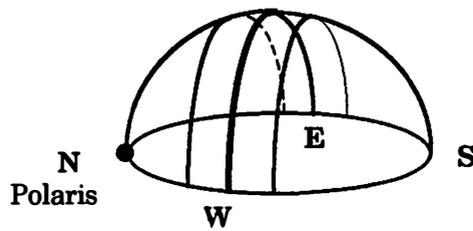
### Deep Sky Star Party: Vekol Road Site

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"

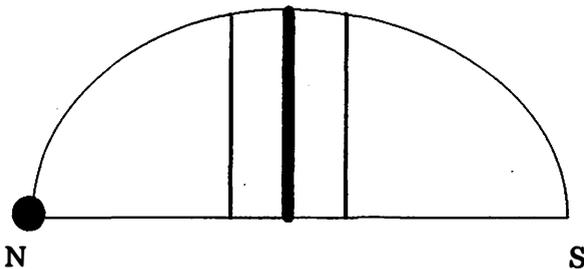
How To Get There: Take I-10 south and exit onto Maricopa Road. Continue through the town of Maricopa to SR 84, about 25 miles from I-10. Turn right on SR 84, after about 5 miles the road merges with I-8. Continue west and exit I-8 at Vekol Road, Exit 144. Turn left and cross the highway overpass. Before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



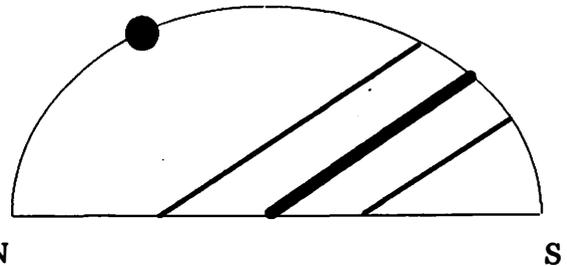


**Figure 1:** Sky at the equator, the celestial equator (bold) arches directly overhead from east to west for an observer positioned in the center, Polaris lies directly on the north horizon. The two tropics extend  $23.5^\circ$  in either direction along the horizon.

For any location south of the Arctic Circle and north of the Antarctic Circle, the ecliptic intercepts the east and west horizon in a cyclical manner throughout a 24 hour period and a year. These intercept points are where the sun appears to rise and set on any day. At the equator, these intercept points range anywhere from zero to  $23.5^\circ$  north and south from the east and west points of the horizon (see Figure 1.). For example, on the June solstice, the sun would appear to rise  $23.5^\circ$  north of the direct east position of the horizon (if you consider the north point to be zero, and the east point to be  $90^\circ$  in azimuth, then the sun would rise at  $66.5^\circ$ ). You would consider this direction to be "northeast". On the December solstice, the sun would rise  $23.5^\circ$  south of the due east point, or at an azimuth of  $113.5^\circ$ . You would consider this direction to be "southwest".



**Figure 2:** A cross section through the celestial meridian (north/south line) of Figure 1. The bold line is the celestial equator, the two tropics lie on each side, and Polaris is represented as a black spot. The lines can be considered the trajectory taken by the sun as it rises from the horizon to the zenith. The sun rises along the equator at the equinoxes and along either of the tropics at a solstice.



**Figure 3:** A cross section of the celestial sphere for an observer at  $57^\circ$  north, the latitude of Stonehenge. Here the celestial equator is tilted  $57^\circ$  from the vertical (zenith) and Polaris lies at a height of  $57^\circ$  above the north point of the horizon. For observers north of the equator, the horizontal range of the sunrise and sunset positions extend greater than  $23.5^\circ$ .

The extremes of sunrise and sunset become greater as we travel into the midlatitudes. Here the azimuthal positions of sunrise and sunset, with respect to the due east and west points of the horizon, can greatly exceed  $23.5^\circ$ . Figure 3 displays the trajectory of the rising sun from the latitude of Stonehenge. Compare this to Figure 2 which displays the trajectory of the rising sun from the equator. At the equator, the sun rises in a manner directly perpendicular to the horizon. At other latitudes the sun's trajectory is tilted by an angle equal to  $90^\circ$  minus one's latitude. At Stonehenge, the sun rises at a very shallow angle with respect to the horizon creating a lengthy "northeast" excursion for the sun (the sun can rise by a value of  $47^\circ$  due north or south of the east point of the horizon in June and December respectively). One can readily see that latitudinal tilt of the celestial equator influences the amount of these horizon shifts.

Eventually, if one traveled to the Arctic Circle, the June solstice sun would not set below the horizon. It would "rise", or just touch the north point of the horizon, swing around the sky, attaining its greatest height due south, and swing back around to the north touching the horizon but not setting. Alternately, the December solstice sun would not rise except for a few moments when it would appear directly south on the horizon at "noon".

If one traveled a bit north of the Arctic Circle they would enter the realm of the "Midnight Sun". Instead of setting, the sun, near the June solstice, would swing around and pass above the north point on the horizon. Alternately, near the December solstice, the sun would never rise at all, there would just appear a twilight glow to the south at "noon".

Finally, at the North Pole, the June solstice sun would circle around the horizon, never setting, at an even height or altitude. At the September equinox the sun would pass below the horizon not to reappear until the

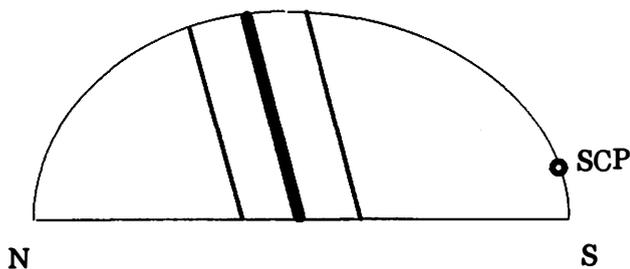
March equinox. Of course, in the days after the sun had "set", one could observe the sun's twilight glow slow circling the entire horizon.

This gloomy scenario reminds me of some lines from Poe:

"I have reached these lands but newly  
From an ultimate, dim Thule  
From a wild, weird clime that lieth sublime  
Out of space, out of time..."

We can consider the celestial sphere of the "fixed stars", the constellations, to be a sphere of infinite radius inside the center of which exists the earth. Since the radius is essentially infinite, any lengthy excursions in latitude north or south on the earth will not change the relative locations of the ecliptic or celestial equator. Due to its proximity to earth, the only celestial body that does appear to shift with changes in latitude is the moon.

The entire celestial sphere does shift as one changes in latitude, and this shift would be very striking to one knowledgeable of the constellations, but the distances in degrees between star and "landmarks" such as the ecliptic and celestial equator remain constant (although even these values change slowly over the millennia due to precession and the proper motion of stars).



**Figure 4:** Latitude 16° S—The celestial equator is tilted 16° to the north of vertical, and the south celestial pole is visible 16° above the south point of the horizon. In November, between the September equinox and the December solstice, the sun passes directly through the zenith at noon.

Figure 4 represents your new location at latitude 16° S in Australia. Here the sun's trajectory shifts toward the north. Interestingly, this location lies within the Tropics, hence the sun can pass directly overhead at some time during the year. In contrast, Phoenix, Arizona lies a bit north of the Tropic of Cancer, and the sun can only get within 9° of the zenith at noon on the summer solstice. Using some planetarium software, I

## EVAC on the Internet

### EVAC Homepage

[www.goodnet.com/~rkerwin/evac/evac.html](http://www.goodnet.com/~rkerwin/evac/evac.html)

### 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](mailto:psiaz.com). For example, you would send the request for AZ-Observing to [AZ-Observing-request@psiaz.com](mailto:AZ-Observing-request@psiaz.com).

estimate that the sun should pass through the zenith from your location around November 5.

I hope that this somewhat lengthy explanation will prove helpful—unfortunately I am not nearly as succinct as the Ask Astro editors!

## 1998 Northern Arizona Star Party

M. Aaron McNeely, Editor  
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Sponsored by the Prescott Astronomy Club, the inaugural Northern Arizona Star Party was held on September 17-18 in Chino Valley, about 15 miles north of Prescott. I attended the star party and had a very pleasant experience.

The drive from Phoenix went well, and I arrived on Friday afternoon. The star party was located on ranch land approximately 3-4 miles outside of the rural community of Chino Valley. The entire setting was rimmed with low mountains and was very pretty, it reminded me of Montana to a great degree. The site was set up as a large ring, observers located their telescopes in the center, while those reluctant to leave their vehicles surrounded the perimeter. This setting seemed convenient for all. The only drawbacks were the Prescott light dome to the south and some mercury vapor lamps and Route 89A far to the southeast.

The Friday evening sky was somewhat hazy—although one observer who came from Michigan was awestruck,

a testament to how wonderfully spoiled Arizona observers are. Saturday evening was clearer, I was able to locate the Triangulum galaxy M33 with my naked eye, and I experienced some deeply satisfying views of many celestial objects with my 8-inch reflector.

During the afternoon on Saturday, the NASP sponsored speakers and gatherings at a local high school. The presenters consisted of Padraig Houlahan, who spoke about "Observing Satellites Visually", Wil Milan, who presented an "Astrophotography Round Table", Bryan Bates, who spoke about "Archaeoastronomy", and Paul Comba, whose topic was "Hunting Asteroids". I particularly enjoyed Mr. Comba's talk and found him to be a very engaging speaker. The session culminated with some door prizes and a major presentation by Dan Britt of the University of Arizona concerning the "Imager for Mars Pathfinder." Mr. Britt displayed some terrific 3-D slides taken by Pathfinder.

EVAC was represented at the star party by Sam Herchak and Anne Beeby, Joe Goss, and Paul Dickson. Glen Nishimoto and a contingent of Tucson amateurs attended as well as SAC's jovial Steve Coe. (These are all of the people that I personally observed/interacted with, there are probably others that could be included).

PAC members who ran the show were Marilyn Unruh, Gary Frey, and Fulton Wright, Jr. I think that they did a terrific job at organizing this event.

In summary, the inaugural Northern Arizona Star Party was a success and I will certainly try to attend again next year.

## Confusing the Outer Solar System

Joe Orman, EVAC  
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A recent brochure for the Lowell Observatory referred to "enigmatic objects of the outer solar system including Pluto and Chiron." When someone asked me what Chiron was, I immediately said "It's the moon of Pluto." Wrong! I was getting two similarly-named objects confused. A little research set me straight.

Charon, discovered in 1978, is the moon of the planet Pluto. Relative to the planet it orbits, it is the largest satellite in the solar system. At 1220 km diameter, Charon is fully half the size of Pluto (2300 km diameter)! Charon and Pluto are separated by only 19,500 km. Although Pluto develops an atmosphere near perihelion, the surface of Charon is water ice

which remains frozen at that distance from the sun. Charon was named after the mythological boatman who ferried the souls of the dead across the River Styx to Hades. NASA has on its drawing board the first mission to explore the Pluto-Charon system, the Pluto-Kuiper Express. This unmanned spacecraft will not be launched for several years, and will take 7-10 more years to travel to Pluto.

Chiron, discovered in 1977, is an unusual object whose highly-elliptical, 50-year orbit around the sun brings it within the orbit of Saturn and as far out as the orbit of Uranus. It exhibits properties of both a comet (it has a coma) and an asteroid (it is as big as a large asteroid—some 200 km in diameter—much larger than the biggest known comet), so it has been designated as one of a class of objects known as Centaurs. These half-comet/half-asteroid objects were named after the mythical half-man/half-horse; Chiron is named after the wisest of the Centaurs. Several objects in this class have been discovered; they may be objects that have escaped from the Kuiper belt, the vast disk of cometary bodies beyond the orbit of Neptune. Chiron is designated alternately as Comet 95P/Chiron or minor planet (2060) Chiron.

## Backyard Astronomy

### Using Colored Filters

Bill Dellinges, EVAC  
stargzr@prodigy.net

I thought I'd share an unusual observing tip with you. We all know that using color filters on the planets greatly enhances their appearance. In fact, I might go as far to say ANY color filter will make a planet look better than no filter. I almost never observe the planets without them. By reducing glare and increasing contrast, planets take on a new, crisp appearance. I will not lecture here which filters work best on what planet as this information can be found in many books like Dickinson's Backyard Astronomers guide, Norton's Star Atlas, etc., even Orion Telescope's catalog. (Though I do like blue for Jupiter and Venus, and yellow or orange for Jupiter and Saturn).

Consider using light density filters on small scopes and medium density filters on larger ones to insure enough light gets through to your eye.

Now for the tip:

I have noticed in recent years a curious thing while observing planets (with or without filters). If I move my eye down slightly to where I'm starting to cut off the light from the planet, because the top of the eyepiece is beginning to eclipse the view, the planet's image begins

to take on a sharper appearance! Probably what's happening is that a simple reduction in light getting to your eye is cutting down glare just as the filter did. Perhaps something else is going on too that I'm not aware of, but there's one thing for sure—it works (for me, anyway). I have tried this trick by moving my eye to various points around the eye lens of the eyepiece and it seems to work anywhere though I find I prefer some point between 3 o'clock and 6 o'clock; you may find another position to your liking. You may also wish to experiment with how much light to cut off by using the eyepiece edge so as to get the sharpest image.

Anyway, if you currently don't have filters, you might want to employ this "technique" until you acquire a set. I recommend starting with a set that includes red, green, yellow, orange, and blue (then watch those cloud bands on Jupiter jump out at you!). I think once you see how much better the planets look through filters, you'll never go back to unfiltered planetary observation.

## Hubble: Eyes in Space

(Now showing at the Arizona Science Center's Dorrance Planetarium)

The Arizona Science Center's Dorrance Planetarium would like to introduce you to a new view of the universe—through the electronic eyes of the Hubble Space Telescope.

Imagine waking up to a world a hundred times sharper than you've ever seen before. Every familiar sight becomes a new source of wonder, a new discovery! For astronomers, such a day dawned less than a decade ago when the refurbished Hubble Space Telescope turned its electronic eyes to the sky.

"Hubble: Eyes in Space" focuses on some of the central astronomical missions of the space telescope: understanding the life cycle of stars, searching for black holes in the centers of other galaxies, and measuring the scale of our universe. The show originally developed as a collaboration between the Space Telescope Science Institute and Pittsburgh's Buhl Planetarium. The Arizona Science Center has revised and updated the show to feature new discoveries and to provide special Arizona connections.

Hubble imagery will fill the planetarium's 60-foot dome, and special effects will illustrate the science behind the imagery—from protoplanetary discs and dying stars to supermassive black holes and the expanding universe.

You too can see the universe a little more clearly in the Dorrance Planetarium's newest presentation, "Hubble:

Eyes in Space." Join in the exploration of a universe just beginning to open before us!

The Arizona Science Center is located at 600 East Washington Street in downtown Phoenix. Call (602)716-2000 for showtimes and additional information.

## EVAC Meeting Highlights

September 9, 1998

Donald J. Wrigley, Secretary  
donwrig@juno.com

President Sheri Cahn called the meeting to order at 7:40 PM, with approximately 75 people in attendance, 16 of whom were guests or new members. Sheri announced the following upcoming events:

September 12—Local Star Party  
September 19—Deep Sky Star Party  
October 10—Local Star Party  
October 14—Meeting

New Business:

Northern Arizona Star Party—September 18-19  
All-Arizona Star Party—October 17  
Arizona Science Center telescope exhibition—  
September 12  
St. Francis School Star Party—Lost Dutchman  
Park—October 9  
Adopt-A-Highway—October 31  
Veteran's Day—November EVAC meeting changed  
to November 18  
Elections—November EVAC meeting  
SCC Star Party—When school reconvenes, date to  
be determined

Due to the lengthy agenda, Sheri requested that all Show and Tell participants limit their presentations to ten minutes.

Show and Tell: Laurice Dee presented the second half of her slide show on the Galileo project, offering many different views of Jupiter and the four Galilean satellites.

Main Speaker: This month's guest speaker was Dr. Paul Scowen from Arizona State University who discussed star formation in the Eagle and Lagoon Nebulae. Further examination of these regions, since their historic photographs taken by the Hubble telescope

were published, has shed new light on the processes occurring within these giant clouds of glowing gas. Dr. Scowen described how ultra compact HII regions (called so because the high temperature in these regions causes the hydrogen molecules to become stripped of their electrons or doubly ionized) exist within giant molecular clouds until they erode their way to the surface and expel HII gas from the cloud. The temperature of the expelled gas is 10,000 K, compared to a temperature of 100 K in the cold cloud. For comparison, water freezes at 273 K and the surface of the sun is 6000 K. Close-up views of star cluster 30 Doratus in the Tarantula Nebula, a giant extragalactic HII region, shows extremely high UV emission near the center of the cluster. In the future Paul hopes to use the knowledge gained from the Hubble photos of the Eagle Nebula and 30 Doratus to more correctly assess the relative abundances of elements in the galaxy.

### October Guest Speaker

Our guest speaker for October will be astronomer, Steven R. Kates, also known as "Dr. Sky" of television and radio fame.

### Board of Directors Meeting

September 2, 1998

Meeting called to order at 7:40 PM by club president Sheri Cahn. In attendance were Joseph Siler, Sheri Cahn, Bernie Sanden, Robert Kerwin, Enrico Alvarez, Joe Goss, Tom Polakis, Kathy Woodford, Dave Richardson, and Don Wrigley.

The following items were addressed:

1.) Arizona Science Center—Sheri was contacted by them and asked if the club could provide 6 to 10 members with their telescopes to set up outdoors at the Science Center on Saturday, September 12th between the hours of 10:00 AM and 3:00 PM for public display and to answer any questions about their equipment and how it is used. Nearly all the board members volunteered.

2.) All-Arizona Star Party—Sheri announced that everything is all set for the weekend of October 17th and that site owner Ray Farnsworth is eagerly awaiting our arrival.

3.) Elections and Nominating committee—It was agreed that all board members would serve on the nominating committee and that all club members would be contacted by telephone and asked to serve on next year's board of directors. The difficulty of filling the

officers' positions was discussed and it was decided (M.S.P.) that starting next year the four main officers (President, Vice President, Secretary, and treasurer) and the Newsletter Editor will be granted a waiver on their dues for the year in which they serve.

4.) Treasurer's report—Treasurer Kathy Woodford reports a current balance of \$4854.18.

5.) New Business—Tom Polakis will host a club Christmas party at his home this year. Details will follow. The adopt a highway clean-up day is set for Saturday October 31st. Costumes are optional.

## **EVAC Adopt-A-Highway**

Sam Herchak, EVAC  
76627.3322@compuserve.com

It's time to get out and enjoy the fall weather, and what better way than by picking up trash! The Club has its semiannual cleanup of the EVAC Mile scheduled for Saturday, October 31st at 8:00 AM. Our task is to pick up trash from the shoulder of the highway to the right-of-way fence (State crews are responsible for the median dividing the highway). Here is what else you should know:

Participants must be at least 12 years old and work in groups facing oncoming traffic. Dress appropriately; long pants, sturdy shoes/boots, long sleeves and/or sunblock, hat, and heavy GLOVES. Safety vests to be worn will be provided. Please bring some water too, as you'll work up a sweat.

Pick up bags and other litter with caution—it could contain hazardous material, be hiding a snake, etc. A stick with a nail or hook is recommended to use instead of your hands, while a large bucket cuts down trips to the trash bags. Few large objects are found out there, but if lifting one, keep your back as straight as possible, the object close to your body, and let your legs and arms do the work.

Don't let anything surprise you—our fellow citizens dispose of everything imaginable along our roadsides. If anything looks odd or is really heavy, LEAVE IT ALONE! Note its location and we'll notify the State about it afterwards. When a trash bag becomes full, place it on the very edge of the pavement, not in the pullout lane.

As with any government program, there are a few requirements to complete before starting. One is a briefing from the cleanup coordinator. The second is to sign the usual waiver for the State saying participants

# October 1998

All Times MST

The diversity of nature is so great, and the treasures of the heavens so rich, precisely in order that the human mind shall never be lacking in fresh nourishment.

—Johannes Kepler

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Tomorrow: SAC Mtng	2  First Quarter 5:06 am	3 Moon near Jupiter
4	5  Harvest Moon 2:13 pm	6	7 Mars near Regulus	8 Giacobinid Meteors	9	10 EVAC Local Star Party
11 Neptune stationary	12  Last Quarter 5:13 am	13	14 EVAC Mtng 7:30 pm at SCC	15	16 Moon near Mars	17 All-Arizona Star Party
18 Uranus stationary	19	20  New Moon 4:11 am	21	22	23 Saturn at Opposition	24
25 Daylight Saving Time Ends	26	27	28  First Quarter 4:48 pm	29	30 Venus at superior conjunction	31 Halloween Adopt-A- Highway

won't sue if something happens. The forms are kept on file so one signature covers you for all future cleanups.

Look for the sign up sheet at the October EVAC meeting. With 8 volunteers, we can finish by noon. Meet at Florence Junction (intersection of Highway 60 and 89) on the north side in the far west corner of the parking lot (closest to the radio tower). Lunch afterwards at Village Inn will be provided by the Club. So come out, get some exercise, and get to know each other. Who knows, you might even find a Halloween costume out there!

Silvio Jaconelli is the coordinator for this cleanup. Contact him at 926-8529 if you can help or have questions. Thank you.

## Help Wanted: EVAC Star Party Line

Robert Kerwin, EVAC  
rkerwin@goodnet.com

For the past three years or so, I have been answering the EVAC star party line. The purpose of the star party line is simply to answer the question, "Is anyone going

to the star party tonight?" Although a night under the star-filled sky of the Arizona desert can be a wonderful experience, newcomers to astronomy may be a little apprehensive about being alone at a site. Having a few fellow astronomers around can help ease the fears and allow you to concentrate on observing.

How does the star party line work? Club members call in and let me know if they are going to the star party. When others call me, based on previous calls I can give

### Lunar Almanac: 1998

	FQ	Full	LQ	New
Jan	5	12	20	27
Feb	3	11	19	26
Mar	5	12	21	27
Apr	3	11	19	26
May	3	11	18	25
June	1	9	17	23
July	1	9	16	23
	31			
	Full	LQ	New	FQ
Aug	7	14	21	30
Sep	6	12	20	28
Oct	5	12	20	28
Nov	3	10	18	26
Dec	3	10	18	26

# Heavenly Details

courtesy of  
**The Old Farmer's Almanac 1998**  
www.almanac.com

October 1998  
The Tenth Month

(all times EST)

The **Moon** stands near **Jupiter** on the 3rd, **Saturn** on the 7th, and **Mars** on the 16th. **Saturn** is now at its brightest since 1989 and its highest since 1979. It reaches an excellent **opposition** (when it is the closest and the most brilliant of the year) on the 23rd. The current favorable conditions are due to the fact that its rings are less edgewise, its distance to **Earth** is "just" 771 million miles, and it is occupying a more northerly perch on the zodiac, in the constellation **Pisces**. **Daylight Saving Time** ends at 2:00 a.m. on the 25th.

**Full Moon:** 5th day, 16th hour, 12th minute  
**Last Quarter:** 12th day, 7th hour, 11th minute  
**New Moon:** 20th day, 6th hour, 9th minute  
**First Quarter:** 28th day, 6th hour, 46th minute

*Maybe we're moonstruck, but we humans seem never to tire of watching the amazing spectacle of the sky. For your interest and edification, The Old Farmer's Almanac provides the dates and locations of solar and lunar eclipses for the year, as well as the days of the full moon for seven years. Check it out at www.almanac.com, then go outside and look UP!*

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them an idea if there will be other observers at the site. I also answer general questions such as what time to arrive and give directions to the site. I try to stay away from discussions of the weather—I am not a meteorologist. However, if the evening's forecast is obvious (definitely clear or cloudy), I will give people a go/no-go.

Although the star party line is a good idea, I do not feel that the current implementation has been effective. Therefore, I have decided to turn the star party line over to someone who can hopefully make it successful. I will continue to answer the star party line until someone volunteers to take the reins or until the end of the year, whichever occurs first. After that time, I will politely refer callers to the new person, or (if no one has volunteered) inform them that the star party line has been discontinued.

Are you interested in doing this important job? Do you have some good ideas on how to improve the star party line? If so, please consider volunteering! It takes little time and gives you an opportunity to meet some friendly folks. If you are interested, please call Robert Kerwin at 837-3971.

## If It's Clear...

October 1998

Fulton Wright, Jr.  
Prescott Astronomy Club  
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Shamelessly stolen information from *Sky & Telescope* magazine, *Astronomy* magazine, and anywhere else I can find data.

On Tuesday, October 6, at 10 PM you can see two Jupiter's satellite events in close succession. With a medium (6 inch) telescope look 50 degrees above the south horizon for Jupiter. At 10:03 PM Io disappears behind Jupiter. At 10:04 PM Europa's shadow leaves the face of Jupiter.

On Thursday, October 8, after dusk, you have a small chance of seeing a flashy meteor shower. With your unaided eye look 50 degrees above the northwest horizon, toward Draco's head, for the radiant of the Giacobinids. The number of meteors you will see (they could be anywhere in the sky) is VERY uncertain, but you have a tiny chance (10%?) of seeing lots (thousands) for a short period of time (an hour).

On Thursday, October 8, after 11 PM, you can see the Moon's northeast edge well. With a small (3 inch) telescope look 15 degrees above the east horizon for the Moon. Libration tips the "upper right" limb toward us for a good view of features near that edge. Tomorrow should also be good.

On Tuesday-Wednesday, October 13-14, during most of the night, you can see seven of Jupiter's satellite events. With a medium sized (6 inch) telescope, look about 40 degrees above the south horizon late Tuesday for Jupiter. Here is the schedule of events:

8:01 PM: Ganymede's shadow leaves Jupiter  
8:37 PM: Europa moves in front of Jupiter  
9:59 PM: Europa's shadow falls on Jupiter  
11:16 PM: Europa emerges from in front of Jupiter  
11:48 PM: Io disappears behind Jupiter  
12:39 AM: Europa's shadow leaves Jupiter  
2:44 AM: Io appears from behind Jupiter

On Tuesday-Wednesday, October 20-21, during most of the night, you can see seven of Jupiter's satellite events. With a medium sized (6 inch) telescope, look about 40 degrees above the south horizon late Tuesday for Jupiter. Here is the schedule of events:

- 8:37 PM: Ganymede emerges from in front of Jupiter
- 8:52 PM: Ganymede's shadow falls on Jupiter
- 10:55 PM: Europa moves in front of Jupiter
- 12:02 AM: Ganymede's shadow leaves Jupiter
- 12:35 AM: Europa's shadow falls on Jupiter
- 1:34 AM: Europa emerges from in front of Jupiter
- 1:34 AM: Io goes behind Jupiter

Four times this month you can see a complete transit of Io (including shadow) in front of Jupiter.

Wednesday, October 7:	7:13 PM to 10:01 PM
Wednesday, October 14:	8:58 PM to 11:57 PM
Wednesday, October 21:	10:45 PM to 1:52 AM
Friday, October 30:	7:01 PM to 10:17 PM

## Order Your 1999 Astronomy Calendar

Kathy Woodford, EVAC Treasurer  
ariz.kat@juno.com

It's here--the Astronomy 1999 Calendar is hot off the press and ready to fill orders for our club members. The cover price of each calendar is \$12.95, but if we order at least 10 or more as a club, we can sell them to you at only \$6.50. No shipping or handling charges will be added.

In addition to the calendars, the 1999 Explore the Universe Annual is now in stock. This year's newly expanded skyguide is filled with maps, photos, diagrams and star gazing facts to help amateur astronomers follow sky events. You'll receive a 20% discount off of the \$5.95 cover price making it only \$4.75. You must order this early as stock is usually limited.

Kalmbach Publishing Co. also has great books at discount prices. There will be copies of the list on the available books showing the 35% discounted price. Prices are low and the time is right for the perfect gift.

The treasurer, Kathy Woodford, will be at the October 14 meeting early to take orders. If you cannot attend the meeting be sure to email, phone, or mail to me your order on the annual book and/or calendar. Payment can be made upon time of order or delivery of items.

The new subscription rate for the Astronomy Magazine is now \$29.00--a savings of over \$10 off the regular subscription rate. As of this date we can only accept the amount of \$29 for renewals. (So far, Sky & Telescope Magazine is still renewing at \$27.00).

## All-Arizona Star Party

October 16-17

Mark on your calendars the All-Arizona Star Party for October 16-17 to be held at the Arizona City site—see map on next page.

The site is on private land and should only be used during an approved club star party. The site is dark; the glow from Phoenix is placed to the north, fainter glows from surrounding communities can be seen to the east. Drive time from the East Valley is typically 1.5 hours or less.

Take I10 south from Phoenix to Exit 200, Sunland Gin Road. Turn right (south) after exiting the freeway. After about 15 miles, the pavement ends and about one mile further, the road turns sharply to the west. After another four miles, the road will turn south just after the "Silverbell Estates" signs. Three miles past the signs, the road will veer off to the west. Continue on the main road for another two miles, where it passes through a gate. Take an immediate left after the gate and continue for about 1/4 mile. Take the next right onto a road that leads into an abandoned field.

## In Astronomical History

October

- Oct. 2, 1897: Robert E. Peary returns to New York with the "Anhighito", a 34-ton meteorite retrieved from Cape York, Greenland.
- Oct. 5, 1858: Comet Donati passes across Arcturus, nucleus passed 20 minutes of arc from star.
- Oct. 9, 1992: Meteorite strikes and penetrates trunk of 1980 Chevy Malibu owned by Michelle Knapp of Peekskill, New York.
- Oct. 13, 1884: Greenwich, England selected to become the "Prime Meridian", the world's zero position for longitude.
- Oct. 16, 1982: Comet Halley photographically recovered by G. Edward Danielson and David Jewett.

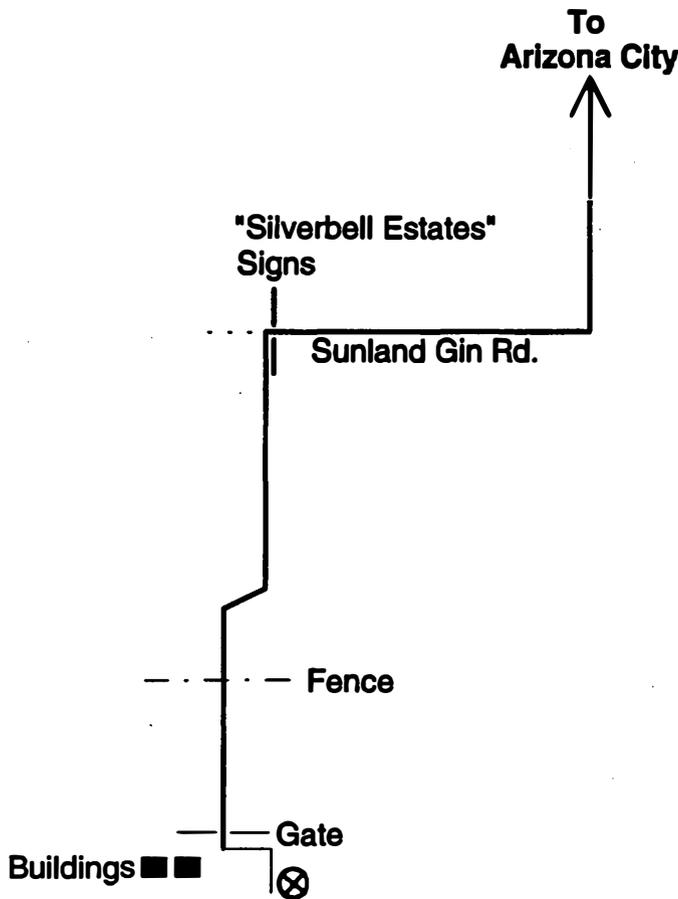
# Arizona City Site

## General Information

The Arizona City site is used for EVAC's All-Arizona Star Party in October as well as for SAC's Messier Marathon in March. The site is on private land and should only be used during an approved club star party where the club has obtained permission from the owner. The site is dark; the glow from Phoenix is placed to the north, fainter glows from surrounding communities can be seen to the east. Drive time from the east Valley is typically 1½ hours or less.

## How To Get There

Take I-10 south from Phoenix to Exit 200, Sunland Gin Road. Turn right (south) after exiting the freeway. After about 15 miles, the pavement ends and about one mile further, the road turns sharply to the west. After another four miles, the road will turn south just after the "Silverbell Estates" signs. Three miles past the signs, the road will veer off to the west. Continue on the main road for another five miles, where it passes through a gate. Take an immediate left after the gate and continue for about ¼ mile. Take the next right onto a road that leads into an abandoned field.



Don't Forget: All-Arizona Star Party—Oct. 17th!

- 1999 Astronomy Calendar
  - If It's Clear...
  - Heavenly Details
  - EVAC Star Party Lane
  - EVAC Adopt-A-Highway
  - Dr. Scowen Speaks
  - Hubble Planetarium Show
  - Backyard Astronomy
  - Chiron or Charon?
  - 1998 N-AZ Star Party
  - A Voice From Down-Under
- Contents:

Valued member since 1/17/92  
Next EVAC Meeting — Oct. 14th 7:30 pm



East Valley Astronomy Club  
M. Aaron McNeely, Editor  
4402 North 36th Street, #22  
Phoenix, AZ 85018

## East Valley Astronomy Club—1998

Scottsdale, Arizona

EVAC Homepage—<http://www.goodnet.com/~rkerwin/evac/evac.html>

### EVAC Officers

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Sheri Cahn  
602/841-7034

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602/857-3438

**SECRETARY**  
Don Wrigley  
602/982-2428

**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](mailto: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 M. Aaron McNeely, 4402 North 36th Street, #22, Phoenix, AZ 85018, 602/954-3971. Email—[amcneely@primenet.com](mailto:amcneely@primenet.com). Contributions may be edited for length or clarity.

**ADDRESS CHANGES:** Contact Bill Smith, 1663 South Sycamore, Mesa, AZ 85202, 602/831-1520. Email—[bsmithaz@aol.com](mailto: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 Don Wrigley, 423 West 5th Avenue, Apache Junction, AZ, 602/982-2428. Email—[donwrig@juno.com](mailto:donwrig@juno.com)

**EVAC PARTY LINE:** Let other members know in advance if you plan to attend a scheduled observing session. Contact Robert Kerwin, 602/837-3971. Email—[p24493@email.mot.com](mailto:p24493@email.mot.com)

