

THE OBSERVER

East Valley Astronomy Club

From the Desk of the President

by Steven Aggas

Hi everyone! There are several items I'd like to mention, the first of which is this coming meeting there will be a club member-in-attendance vote on the disposition of a 6" EVAC telescope as a door prize for the All Arizona Star Party. A notice was sent out by email, and it will be in the newsletter too, so please look for it even if it's a notice on page 5.

The All Arizona Star Party is scheduled for October 28 and 29, 2011, the Friday and Saturday after the New Moon. The location is the same as last year at the 'Antennae Site'. It's located a couple of miles south of I-10 at the Hovatter Road exit #53, about 90 miles west of Phoenix. Complete directions and maps are on the EVAC web site.

The next item is nominations! Nomi-

nations for next year's officers and board members occur at the October meeting with elections during the November meeting. There are several positions available. We'll have the complete list to show at the upcoming meeting and in this newsletter. I encourage everyone to consider helping the club by participating.

At our upcoming General Assembly meeting in October we will have, essentially, a double-header! Please join us October 21st to hear Dr. Rogier Windhorst speak on the James Webb Space Telescope, and, Dr. Steven Desch speaking on the Pluto and Charon dwarf planetary system! Both professors are from ASU and I'm looking forward to both.

The Backyard Astronomer

October Skies by Bill Dellenges

A glance at the night sky in October reveals a surprising fact – the Northern Cross is still overhead, slightly west of the meridian. This never fails to amaze me, along with the observation that while it rises in the east lying on its side, it sets in the west upright! I haven't quite figured that one out yet.

Your telescope's mirror coating is no doubt considerably worn down from the mass of photons from summer's deep sky objects. Before recoating it, let's peruse the fall skies' goodies that fill the eastern half of the firmament.

In this quadrant of the sky, its treasures are faint, faint, faint. Their photons will do little further harm to what's left of your mirror's reflective surface. There are two very nice globular clusters nearing the meridian,

M15 in Pegasus and M2 in Aquarius. At first glance both appear to be similar. But globulars are like fingerprints – no two are alike. Both are about the same distance away, but M15 is slightly larger, fainter, and more "powdery" looking. M2 is more condensed with brighter stars. My observing notes show I preferred M2 overall and noted both objects looked best at 200x which helped render a darker background sky.

I have pointed out in this column before that the fall and spring skies are noticeably less impressive than the summer and winter skies. Do you remember why? Of course you do! In the fall we are looking away from the plane of the Milky Way towards the South Galactic

UPCOMING EVENTS:

Deep Sky Observing Night - October 1

Public Star Party - October 14

General Meeting - October 21

Local Star Party - October 22

All-Arizona Star Party - October 28-29

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 Pole, thus we see fewer and generally fainter stars. To see where the SGP is, look on chart 18 of Sky Atlas 2000, just below NGC253 in Sculptor. If there is any doubt about this section of sky containing faint stars, just try to identify Capricornus, Aquarius, Pisces, and Cetus! By the way, note these are the so-called "Watery" constellations because 2000 years ago the Winter Solstice resided in this region which led the ancients to create constellations associated with water (i.e. rain). Or so it's said.

Actually, there are two somewhat bright stars in the fall sky. Everyone knows the "Great Square" of Pegasus (right?). If you follow a line through



NGC 7293: The Helix Nebula

Credit: NASA, WIYN, NOAO, ESA, Hubble Helix Nebula Team, M. Meixner (STScI), & T. A. Rector (NRAO)



*The Andromeda Galaxy
Photo courtesy of Adam Evans*

the Square's eastern side south, you will be taken to Deneb Kaitos (aka Diphda) or Beta Ceti, a magnitude 2.0 star. The western stars take you south to Fomalhaut, Alpha Piscis Austrini, a magnitude 1.2 star.

The brightest "star" in the sky this month is the planet Jupiter, blazing away at magnitude 3.0, low in the east. It reached opposition September 21st and will stare down on us through February next year.

An interesting and challenging ghost to track down is NGC 7293, the Helix Nebula in Aquarius, the nearest and largest planetary nebula. It's located in southern Aquarius, kind of in "no man's land." Being 0.25 degrees in size, half the size of our moon, it has extremely low surface brightness making it difficult to find. You might be looking at it and not even know it! Don't expect the typical 1" arc minute planetary like M57. This thing is huge and is really a better photographic object than a visual one. If you know the outline of Aquarius' stars, it will be easy to locate. The object is best seen in RFT's or giant

binoculars.

A sky sparse with stars allows one to peer into deep space, so fall and spring are a galaxy aficionado's happy hunting grounds. Here, mighty M31, the Andromeda Galaxy in Andromeda reigns supreme over all others. Earth's nearest major galactic neighbor is two million light years away but still visible to the naked eye. It spans about 3 degrees (5 in a dark sky). As you enjoy panning around this beast, think of how many alien stargazers residing within its hundreds of billions of stars may be looking back at you!

Cassiopeia is rising in the northeast and is loaded with deep sky objects because the Milky Way cuts through it. M52, M103, and NGC 457 are always nice to look at but my personal favorite is overlooked NGC 7789. It's one of those rare powdery open clusters showing a sea of dainty stars of nearly equal magnitude.

My name is Bill and I'm a double staraholic. To conclude this month's article, I suggest you to take a little time to observe three double stars, popular and easy to find. Perhaps you've never looked at them before? Like globulars, everyone is different. I call them the Gamma Trio. Gamma Delphini, Gamma Arietis, and Gamma Andromedae. I'll forgo their data (separation, position angle, etc) and let you be surprised in discovering their individual character. Enjoy!



NGC 7789: Galactic Star Cluster

Credit: B.J. Mochejska and J. Kaluzny (Warsaw University Observatory), KPNO

Dark Flow

by Henry De Jonge IV

Introduction

We are all now familiar with the terms dark energy and dark matter but there is a new dark term that has been around since 2008 called “dark flow”. In this article we will briefly examine this “dark flow” concept.

In 2008 the WMAP survey data on the cosmic microwave background, (CMB) was analyzed by Sasha Kashlinsky at the Goddard Space Flight Center. The CMB is the background reference frame for our universe and was emitted 380,000 after the Big Bang. He and his team detected the velocities of galaxy clusters with respect to the CMB frame by the kinematic Sunyaev-Zel’dovich effect, (the SZ effect first described in 1972). They found that the velocity of this galactic cluster bulk flow is much greater than would be expected from any usual gravitational anomalies in the current cosmological models.

The SZ effect contributes to the anisotropy, (one of many such causes) of the CMB due to the scattering of this radiation by non relativistic electrons in the intergalactic space within galaxy clusters along the line of sight. This scattering changes the shape of the CMB photon energy distribution and the effective temperature. It is also independent of redshift. Basically the hot x-ray emitting gas within clusters scatters the CMB photons in a particular manner that is dependent upon the cluster movement. This gives rise to a slight temperature difference in the CMB which is related to the clusters motion. The SZ effect is so weak, (not detectable in a single cluster with any great accuracy) that it can only be analyzed by looking at a great number or large statistical sample of clusters. Thus by analyzing these temperature differences in the CMB they can calculate how this relates to current cosmological models and the motion of clusters.

They detected that the observed clusters of galaxies are moving together towards a common point independent of the “normal” expansion of the universe. These clusters are moving along a line in the direction between the constellations Centaurus and Vela. This is also in the general direction of the Great Attractor, however this gravitational motion is thought to be from the known great mass of the Norma Cluster. The dark flow was detected even further away than this.

He suggested the existence of the “dark flow” which is about a 700km/sec bulk flow, (600-1000 km/sec) of all matter out to a redshift of approximately 0.1 (or about 400 Mpc, the last 5 billion years). The magnitude and direction of this flow were found to be consistent with the peculiar velocity of the Local Group wrt the CMB frame. This velocity coherence is not predicted by the standard cosmological models and would be a major observational challenge if proven to be valid. It also has implications for our general place in the universe as it also indicates that we are moving along with this flow.

His analysis measured the SZ signals of a sample of about 700 x-ray selected galaxy clusters over a 3 year data collection period. These temperature maps were filtered to remove

any other causes of known anisotropy to show this bulk flow. His analysis showed that temperature fluctuations are shifted in a particular direction not aligned with the general expansion of the universe.

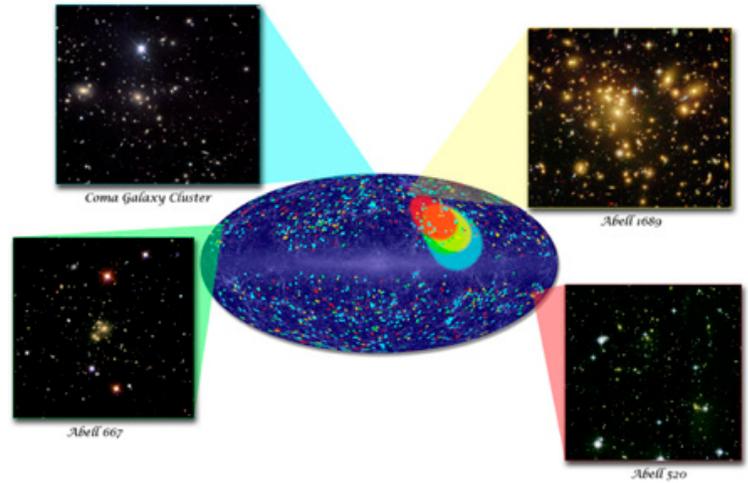


Figure 1. The colored dots are clusters of galaxies within specific distance ranges, the red dots indicating greater distance. The colored ovals show the direction of the dark flow motion for each of the 4 clusters of which individual slices are shown. The motion trend for all the slices was determined to be in general the same.

Explanations

This idea of independent motion of a major portion of our universe is not accounted for in the normal cosmological models, nor is it accounted for by any known distribution of matter or dark matter, thus the dilemma. What may account for this peculiar motion are non standard cosmological theories in which something outside our universe is influencing and pulling on the clusters. There may also be something unknown within our universe that could account for such an effect.

One such non standard theory is eternal inflation in which the universe is made up of separate bubble universes, (space time pockets) that arose via quantum mechanical fluctuations, (quantum foam) similar to the model of a single inflationary epoch but repeated endlessly. Some of these other bubbles may be close neighbors and exert a gravitational influence on our universe. These “outer” parts of space time would have originated at different times and rates from our known universe and several types of inflationary models may be used to account for this.

Another non standard theory are the string theory brane models of our universe in which our universe is on a separate brane, (like a sheet) and there are other branes about. Again gravity is the one force that can move between branes. The big bang was caused by the branes actually making contact.

In both of these theories the only force that is able to move about freely and interact with these separate universes is gravity, (which also ties into why it is so weak in our universe since it is spread out so much). Thus an

Continued on page 4

Dark Flow

Continued from page 3

outside gravitational influence may be the cause of this dark flow and show proof of alternate theories regarding the origin of our universe.

However other questions persist. Did whatever is pulling at these clusters exist before our universe was even formed? What if our universe is not "locally" homogeneous? Of course local is a relative term and we could be talking of millions or billions of Mpc in volume. What if a peculiar section or property of space time is causing this? Dark flow opens up many ideas.

Additional support and data

In 2010 Kashlinsky's team finished measuring over 1000 galaxy clusters out to 800 Mpc, (redshift of 0.2) and came up again with the same conclusion. Thus they looked out at a much further distance and



Figure 2. The Coma Galaxy Cluster, (Abell 1656) which is part of the dark flow is about 300Mly distant.

at almost double the number of clusters to arrive at the same result. They claimed that this proved it was not a statistical anomaly. They determined that it is the same flow at 100 Mly as 2.5Bly and points in the same general direction, (common axis) with the same velocity. It is as if the entire mass of the universe within this volume is moving towards a particular direction which is not random. Interestingly the exact motion of all these clusters could theoretically be in either direction-away from Earth or towards Earth, the anomalies just indicate a mass motion along a common axis and the specific direction cannot be determined with the same confidence factor.

In another statistical strong point, it appears from the new data that the brightest clusters in x-rays, (which have the greatest amount of hot gas) also show the greatest SZ effect which would be expected.

This reinforces the use of the SZ effect for such analysis and means that the measured effect is not caused by other systemic effects or anisotropies.

Currently there are further studies ongoing to refine the

existing data measurements. There are other studies using galaxies as tracers of density and/or velocity, (although at smaller scales) and these seem to support the idea of a dark flow to date.

Counter points

The idea of a dark flow is not universally accepted. Several papers have come out criticizing the idea and statistical significance of the correlation. One of the main criticisms is that the uncertainty of the measurements is dominated by the primary CMB anisotropy which is from the early universe, (the original quantum fluctuations).

Other factors that are debated is that the modeling of the SZ effect at large angles takes into account assumptions on the shape of the galaxy cluster and the clumpiness of the electron distribution, thus it is usually more accurate at very small angle correlations. These factors and models are not all agreed upon as yet.

Recently another study used over 550 SN1a explosions scattered in the universe to test this idea and found that the SN do not appear to be moving in sync. The SN close to us within about 680Mly are heading towards the Great Attractor but outside this distance they seem to be varied in direction. Observations and studies will continue to gather and process information

Conclusions

We see that the debate regarding the existence of dark flow is ongoing. In my opinion more data, (especially that from the Planck satellite with its finer resolution, wider frequency coverage, and better S/N ratios) and observations will eventually tell the story as currently we have far too little evidence, (multiple support observations) for making a valid conclusion-also our current mix of cosmological theories, (or ideas) allows for

more than one explanation. It would also be of interest to determine if the dark flow is present at even further distances. It is not known if this bulk flow extends all the way out to our current cosmological horizon. We need to improve on our methods for measuring motion and distance when it comes to far away objects such as clusters. The models used in the original calculations can also be improved

with advanced algorithms. Other independent methods of determining any bulk flow should also be devised, studied, and correlated. There is much more to learn and discover. "Dark flow" remains to be understood.

Edge of the universe

The "dark flow" of wayward galaxy clusters that appear to be pulled in one direction could give us our first hint of something beyond the cosmic horizon, which normally marks the limit of the observable universe

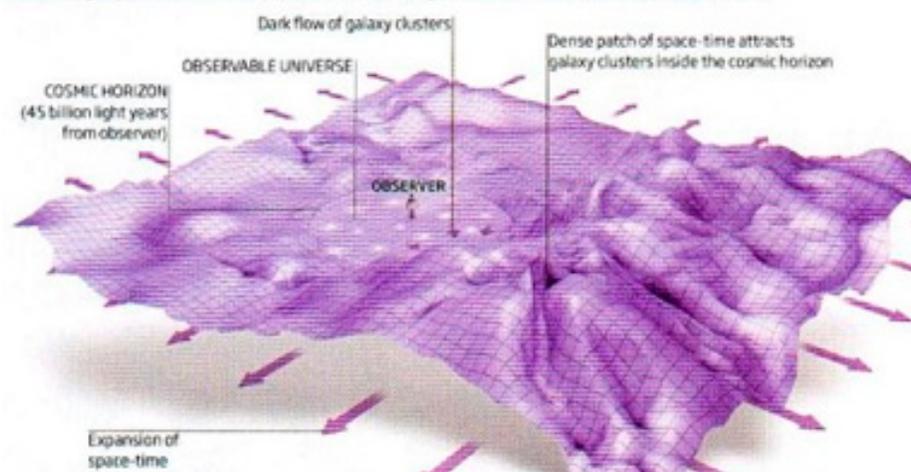


Figure 3. Here we see an overview of the dark flow.

October Guest Speakers: Steve Desch and Rogier Windhorst

Steve Desch is a professor of astrophysics in Arizona State University's School of Earth and Space Exploration. He specializes in developing models of star and planet formation and protoplanetary disk evolution, by using meteoritic data in particular.

He received the Nier Prize of the Meteoritical Society in 2003, for his modeling of the formation of the meteoritic inclusions known as chondrules. He also models planetary processes, including cryovolcanism on small icy bodies.

He has lived in Phoenix, Arizona, with his wife and three children for 8 years.

Dr. Desch's talk is entitled Cryovolcanism on Charon.



We are also pleased to have Dr. Rogier Windhorst speak on the James Webb Space Telescope.

Rogier Windhorst's research is in astronomy, cosmology, galaxy formation and evolution, the cosmic dark ages and the epoch of First Light, and astronomical instrumentation.

Since the early 1990's, his group at ASU has contributed significantly to unraveling the formation and evolution of distant galaxies with the Hubble Space Telescope, and the role that supermassive black holes and Active Galactic Nuclei have played in the process of galaxy assembly. He is one of the world's six Interdisciplinary Scientists for NASA's 6.5 meter James Webb Space Telescope (JWST) to be launched in 2014.



Notice: Call for Member Vote at October Meeting

As usually happens each year at All Arizona Star Party, we host a raffle of door prizes using items we have garnered from local vendors. The Board of Directors of EVAC have agreed to let one telescope, an Orion 6 inch telescope, be raffled off, but, this decision requires an EVAC Member vote for the disposition of EVAC assets. The 6" scope, though in the donor program, has not been used because it requires a new Dob base and no member has asked to refurbish and use the telescope. The previous owner had left the base outside for some time and it's quite dilapidated. There are, however, several members in EVAC who will take the time to build a new base for this telescope because of the possibility to use it as a door prize.

The vote will occur at the next EVAC General Assembly meeting October 21st.

☾ **FIRST QUARTER MOON ON OCTOBER 3 AT 20:15**

● **FULL MOON ON OCTOBER 11 AT 19:07**

☾ **LAST QUARTER MOON ON OCTOBER 19 AT 20:31**

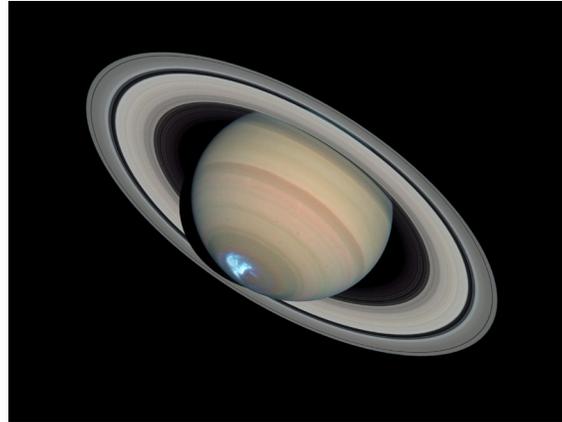
○ **NEW MOON ON OCTOBER 26 AT 12:56**

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Upcoming Meetings

October 21
 November 18
December 16
 January 20
 February 17
 March 16

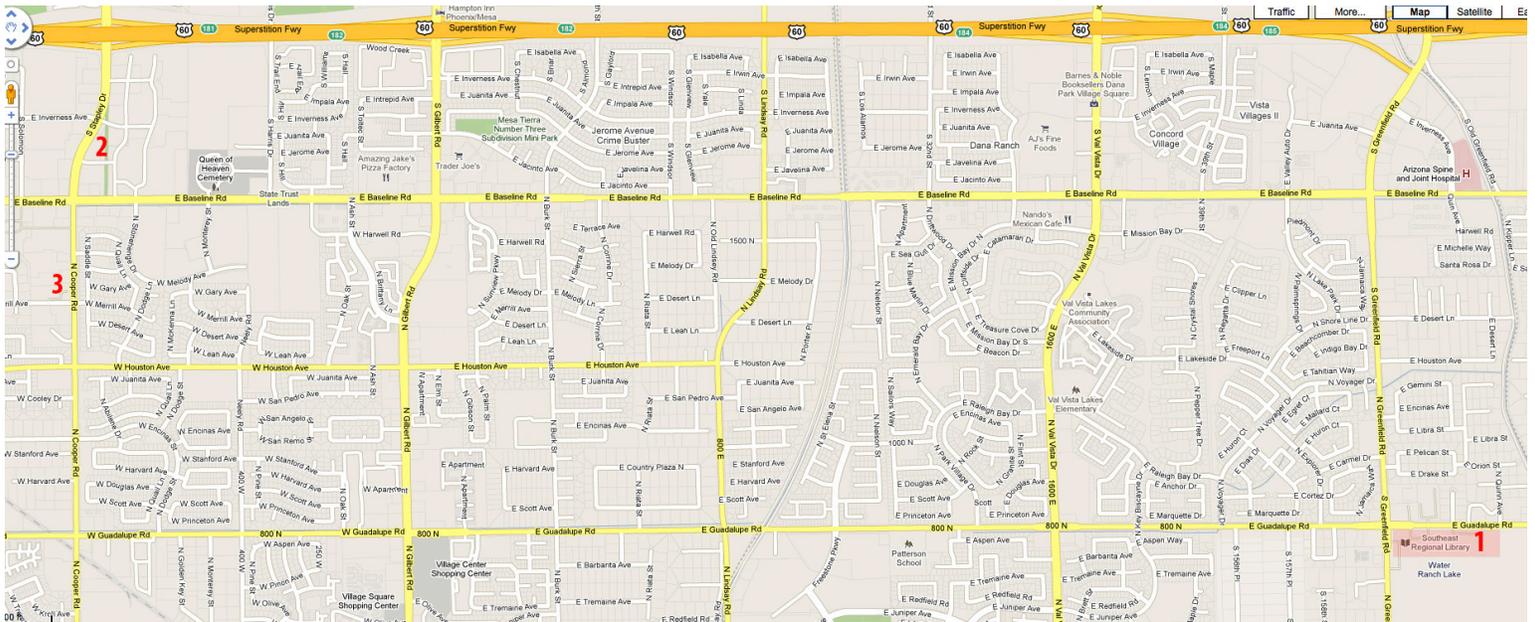
The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

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!



2 Old Country Buffet
 1855 S. Stapley Drive
 Mesa, Az. 85204

1 Southeast Regional Library
 775 N. Greenfield Road
 Gilbert, Az. 85234



3 Denny's
 1368 N. Cooper
 Gilbert, Az. 85233



OCTOBER 2011

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					

October 1 - Deep Sky Observing Night. Head out to your favorite dark sky site and observe!

October 6 - Playa del Ray Elementary School Star Party

October 7 - Power Ranch HOA Star Party

October 14 - Public Star Party & SkyWatch at

Riparian Preserve

October 21 - General Meeting at SE Library

October 22 - Local Star Party at Boyce Thompson

October 22 - Cub Scout Pack 446 Star Party

October 28-29 - All-Arizona Star Party

NOVEMBER 2011

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			

November 4 - Charlotte Patterson Elementary School Star Party

November 10 - Webster Elementary School Star Party

November 11 - Public Star Party & SkyWatch at Riparian Preserve

November 18 - General Meeting at SE Library

November 19 - Local Star Party at Boyce Thompson Arboretum

November 26 - Deep Sky Observing Night. Head out to your favorite dark sky site and observe!

East Valley Astronomy Club -- 2011 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 according to the month you are joining the club):

- | | |
|---|---|
| <input type="checkbox"/> \$30.00 Individual January through March | <input type="checkbox"/> \$22.50 Individual April through June |
| <input type="checkbox"/> \$35.00 Family January through March | <input type="checkbox"/> \$26.25 Family April through June |
| <input type="checkbox"/> \$15.00 Individual July through September | <input type="checkbox"/> \$37.50 Individual October through December |
| <input type="checkbox"/> \$17.50 Family July through September | <input type="checkbox"/> \$43.75 Family October through December |
- Includes dues for the following year*

Renewal (current members only):

- \$30.00 Individual**
 \$35.00 Family

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
 Payment was remitted separately using my financial institution's online 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? (choose one option):

- Electronic delivery (PDF) *Included with membership*
 US Mail **Please add \$10 to the total payment**

Areas of Interest (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> General Observing | <input type="checkbox"/> Cosmology |
| <input type="checkbox"/> Lunar Observing | <input type="checkbox"/> Telescope Making |
| <input type="checkbox"/> Planetary Observing | <input type="checkbox"/> Astrophotography |
| <input type="checkbox"/> Deep Sky Observing | <input type="checkbox"/> Other |

Please describe your astronomy equipment:

Would you be interested in attending a beginner's workshop? Yes No

How did you discover East Valley Astronomy Club?

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

All members are required to have a liability release form (waiver) on file. Please complete one and forward to the Treasurer with your membership application or renewal.

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 print name here

Date

Please sign name here

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

Dark Clues to the Universe

by Dr. Marc Rayman

Urban astronomers are always wishing for darker skies. But that complaint is due to light from Earth. What about the light coming from the night sky itself? When you think about it, why is the sky dark at all?

Of course, space appears dark at night because that is when our side of Earth faces away from the Sun. But what about all those other suns? Our own Milky Way galaxy contains over 200 billion stars, and

the entire universe probably contains over 100 billion galaxies. You might suppose that that many stars would light up the night like daytime!

Until the 20th century, astronomers didn't think it was even possible to count all the stars in the universe. They thought the universe was infinite and unchanging.

Besides being very hard to imagine, the trouble with an infinite universe is that no matter where you look in the night sky, you should see a star.

Stars should overlap each other in the sky like tree trunks in the middle of a very thick forest. But, if this were the case, the sky would be blazing with light. This problem greatly troubled astronomers and became known as "Olbers' Paradox" after the 19th century astronomer Heinrich Olbers who wrote about it, although he was not the first to raise this astronomical mystery.

To try to explain the paradox, some 19th century scientists thought that dust clouds between the stars must be absorbing a lot of the starlight so it wouldn't shine through to us. But later scientists realized that the dust itself would

absorb so much energy from the starlight that eventually it would glow as hot and bright as the stars themselves.

Astronomers now realize that the universe is not infinite. A finite universe—that is, a universe of limited size—even one with trillions of stars, just wouldn't have enough stars to light up all of space.

Although the idea of a finite universe explains why Earth's sky is dark at night, other factors work to make it even darker.

The universe is expanding. As a result, the light that leaves a distant galaxy today will have much farther to travel to our eyes than the light that left it a million years ago or even one year ago. That means the amount of light energy reaching us from distant stars dwindles all the time. And the farther away the star, the less bright it will look to us.

Also, because space is expanding, the wavelengths of

the light passing through it are expanding. Thus, the farther the light has traveled, the more red-shifted (and lower in energy) it becomes, perhaps red-shifting right out of the visible range. So, even darker skies prevail.

The universe, both finite in size and finite in age, is full of wonderful sights. See some bright, beautiful images of faraway galaxies against the blackness of space at the Space Place image galleries. Visit <http://spaceplace.nasa.gov/search/?q=gallery>.

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



This Hubble Space Telescope image of Galaxy NGC 4414 was used to help calculate the expansion rate of the universe. The galaxy is about 60 million light-years away. Credit: NASA and The Hubble Heritage Team (STScI/AURA)

If It's Clear...

by *Fulton Wright, Jr.*

Prescott Astronomy Club

OCTOBER 2011

Celestial events (from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find information) customized for Prescott, Arizona. Remember, the Moon is 1/2 degree or 30 arcminutes in diameter. All times are Mountain Standard Time.

All month you can follow Comet C/2009 P1 (Garradd). See Astronomy Magazine, October 2011, P. 42. (There is also some info on 2 other comets in the article.)

On Saturday, October 1, from about 2:00 AM to 5:30 AM, you can see Mars moving through the Beehive Cluster (M 44). Use a small (3 inch) telescope for the best view.

On Monday, October 3, the Moon is at first quarter phase and sets at 11:32 PM.

On Saturday, October 8, it is International Observe the Moon Night. (See www.observe-themoon.org for details.) As of this writing (early September) there aren't any group activities planned in Arizona, but if you look at the Moon, you will know that lots of other people are doing it, also. While you are at it, keep an eye out for the Draconid meteors. The best show is predicted for Europe, and the almost full Moon won't help, but there might be a real outburst. See Sky & Telescope magazine, October 2011, p. 53 for details.

On Sunday, October 9, between 10:42 PM and 2:16 AM (Monday) you can see an entire passage of Ganymede in front of Jupiter. Ganymede's large shadow will be on the planet until 12:41 AM. Both the shadow and the satellite will graze the southern part of Jupiter.

On Tuesday, October 11, 5:38 PM (23 minutes before sunset) the full Moon rises, spoiling any chance of seeing faint fuzzes tonight. However, from 10:01 to 12:37 AM (Wednesday), you can watch an entire passage of Io in front of Jupiter.

On Friday, October 14, starting about 8:00 PM, you can see the Moon near the Pleiades star cluster.

On Wednesday, October 19, the Moon is at last quarter phase and rises at 11:46 PM.

On Monday, October 24, from 9:26 PM to 12:03 AM (Tuesday), you can watch an entire passage of Europa in front of Jupiter.

On Wednesday, October 26, it is new Moon and you have all night to hunt for faint fuzzies.

On Thursday, October 27, about 6:00 PM (only 15 minutes after sunset), you might be able to see 3 solar system objects in a vertical line near each other. This will be an observing challenge. You will need a very low western horizon and very clear air. With binoculars look low, low above the west-south-west horizon. Venus, on top, will be the easiest to spot. Below it and much dimmer will be Mercury. Below that and really faint, will be the thin crescent Moon. Good luck. After that, you can see an entire passage of Io in front of Jupiter plus an eclipse of Ganymede. Here is the schedule:

8:19 PM Io's shadow falls on Jupiter.

8:22 PM Io moves in front of Jupiter.

8:37 PM Ganymede moves into Jupiter's shadow.

10:30 PM Io's shadow leaves Jupiter.

10:30 PM Io moves from in front of Jupiter.

10:35 PM Ganymede emerges from Jupiter's shadow

Notice that, because Jupiter is at opposition, the transit and shadow events happen at nearly the same time. The close timing of Ganymede's eclipses is a coincidence.

Do you like getting involved with the general public and sharing both your knowledge and love of astronomy?

Would you like to learn the operations of an amateur observatory?

Like to become more familiar with a Paramount ME mount, a 16" Meade SCT and The Sky X?

Then please volunteer to join the staff at Gilbert Rotary Centennial Observatory

**To avail yourself of this wonderfully rewarding opportunity, please contact the observatory manager, Martin Thompson
grco@eastvalleyastronomy.org**



2012 Club Officer Elections

Any club is only as good as its members... and the East Valley Astronomy Club has some pretty fantastic members.

The club's bylaws require us to elect officers in November for the following year. We are primarily looking for members who are interested in filling the positions being vacated because of term limits, but any member may throw his or her hat in the ring for any elected position.

The election process, fully articulated in the EVAC Constitution & Bylaws (available online), is quite simple:

Officers and Board Members shall serve a period of one (1) year and/or until their successors are elected. No member shall be eligible for more than two (2) consecutive terms in the same office.

Nominations for Officer or Board positions shall be opened at the October general meeting and shall be publicized in the club newsletter and on the club website prior to the November general meeting. Nominations will be closed with the start of elections at the November general meeting.

Any member may nominate another member-in-good-

standing for office, provided prior consent of the nominee has been given. The Secretary and/or Treasurer shall validate qualification of the nominees.

Officers and Board Members shall be elected by a simple majority of the General Assembly present at the November general meeting. Voting will be done by secret ballot. Single nominees for office may be affirmed to the position by a majority yes vote taken by a show of hands. All ballots, if any, shall be saved until the installation of officers at the January general meeting, and a committee of volunteers will do the ballot counting. In the case of a tie, a special run-off election at the December general meeting shall determine the election.

If you want to contribute to the operation of EVAC, please contact Steven Aggas, EVAC president, to let him know which position is of interest. Steven will then present his slate of volunteers at the next meeting. If more than one person is interested in any position there will be a vote.

Is this the year you give back to the club?

2012 East Valley Astronomy Club Slate

Executive Officers

	<u>Current</u>	<u>2012</u>
President:	Steven Aggas	Open
Vice President:	Steven Aggas (Acting VP)	Open
Treasurer:	Silvio Jaconelli (Term-Limited)	Open
Secretary:	Claude Haynes	Open

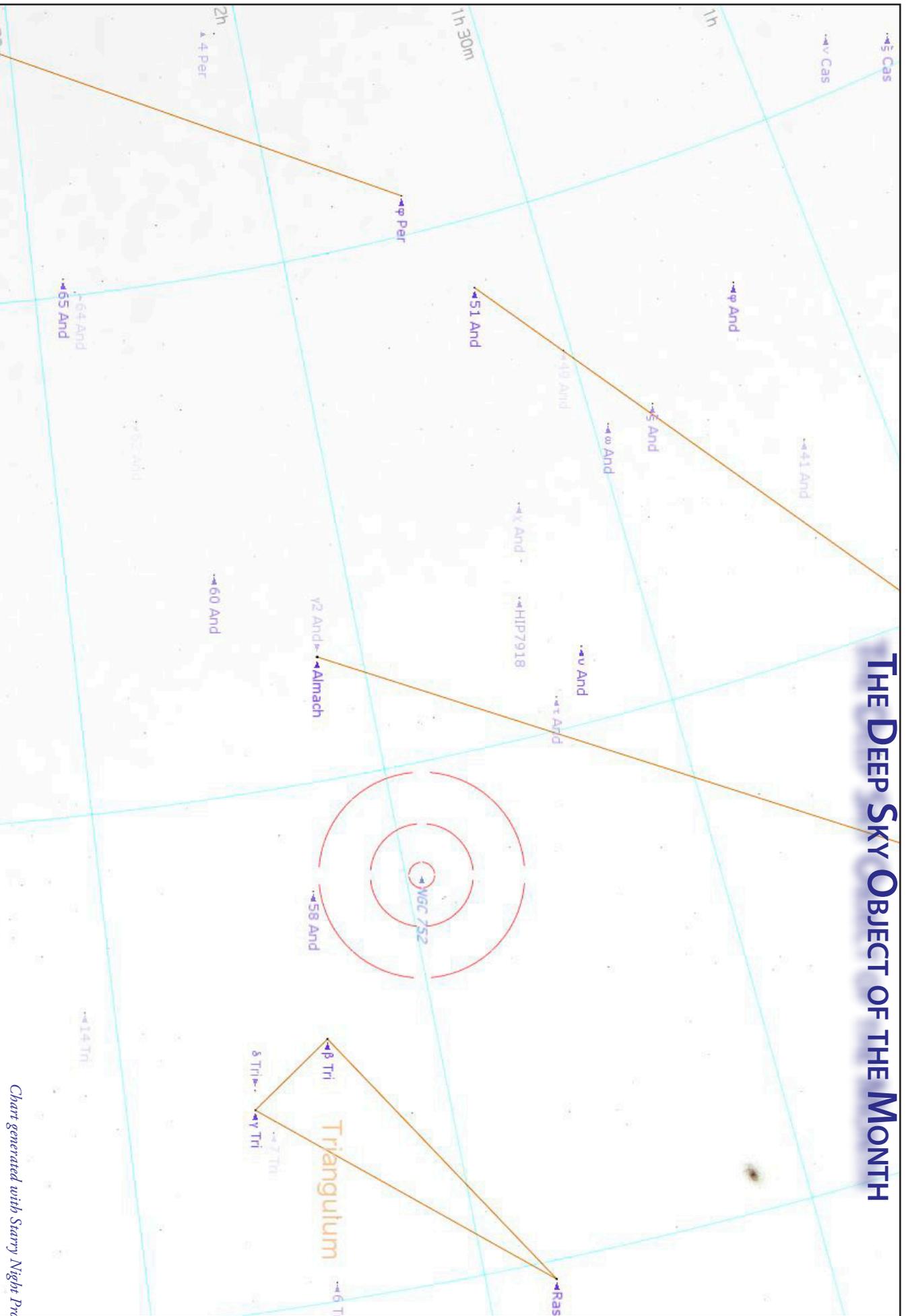
Board of Directors

<u>Current</u>	<u>2012</u>
Marty Pieczonka	Marty Pieczonka
Dave Coshow	Dave Coshow
Brad Geisler	Brad Geisler
Ray Heinle (Term-Limited)	David Hatch
Ed Thomas	Open

Administrative Officers

	<u>Current</u>	<u>2012</u>
Events Coordinator:	Lynn Young	Lynn Young
Property Director:	David Hatch	David Hatch
Membership:	Les Wagner	Les Wagner
Newsletter Editor:	Peter Argenziano	Peter Argenziano
Webmaster:	Marty Pieczonka	Marty Pieczonka
Observatory Manager:	Martin Thompson	Martin Thompson

THE DEEP SKY OBJECT OF THE MONTH



NGC 752 (Collinder 23) Open Cluster in Andromeda

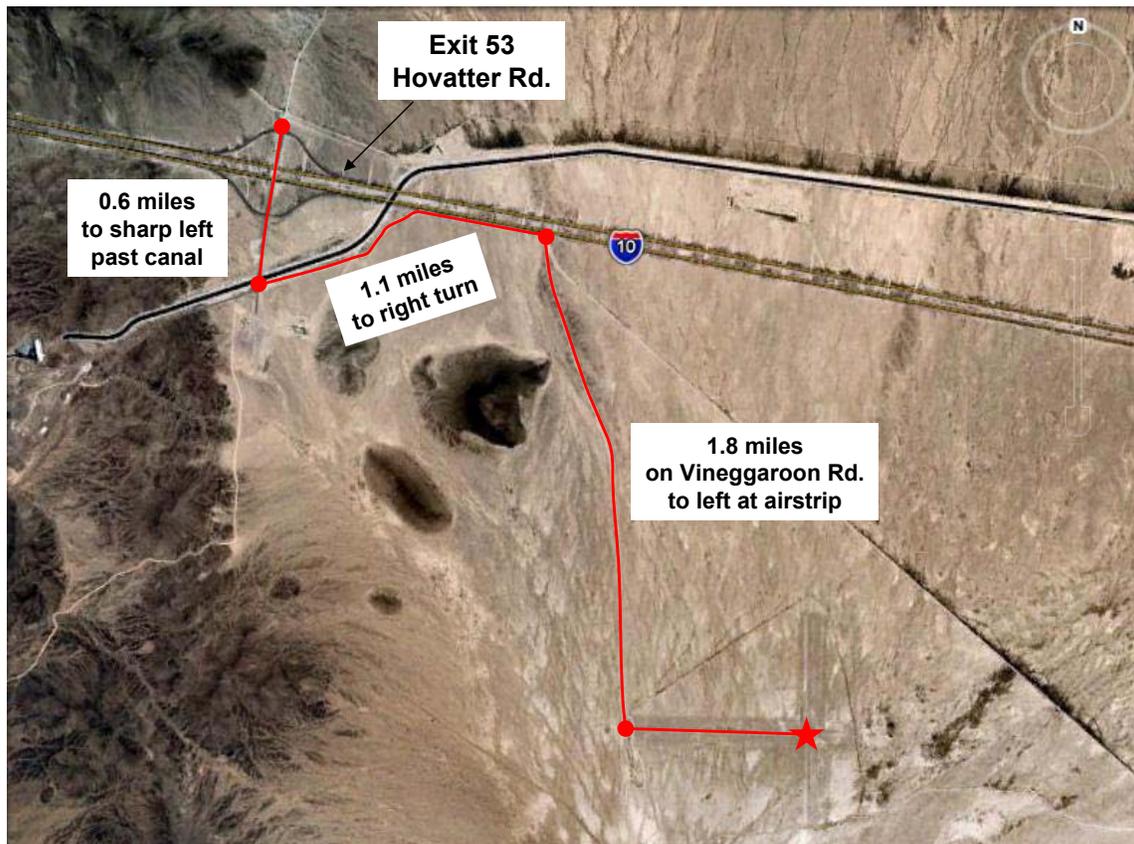
RA: 01h 57m 41.0s Dec: +37° 47' 06" Size: 75' Magnitude: 6.60

2011 All-Arizona Star Party

It's that time of year again... time to head out to the desert for some observing! This year the event will again be held on BLM land, at the *Antennae Site*, used regularly by the Saguaro Astronomy Club (SAC). The site is a couple of miles south of I-10 at the Hovatter Road exit (#53). It is about 90 miles west of Phoenix. Complete directions and maps are on the web site.

http://www.evaconline.org/aasp_2011.htm

2011 All-Arizona Star Party Hovatter Road Airstrip Site



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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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The East Valley Astronomy Club is a 501(c)(3) nonprofit charitable organization.

www.evaconline.org

East Valley Astronomy Club
PO Box 2202
Mesa, Az. 85214-2202

President: Steven Aggas

Vice President: Steven Aggas (acting)

Secretary: Claude Haynes

Treasurer: Silvio Jaconelli

Board of Directors: Marty Pieczonka, Dave Coshow, Ray Heinle, Ed Thomas & Brad Geisler

Events Coordinator: Lynn Young

Property Director: David Hatch

Refreshments: Mort Hanlon

Observing Program Coordinator: Marty Pieczonka

AL Representative: David Douglass

Membership: Les Wagner

Newsletter Editor: Peter Argenziano

Webmaster: Marty Pieczonka

SkyWatch Coordinator: Claude Haynes

Observatory Manager: Martin Thompson