

Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society September 2013



www.mvastro.org

Membership Meeting

Saturday, September 14th

Herrett Center Join us at 7:00 pm

Colleagues,









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Well, we've survived the smoky skies, but summer is close to over. As is usual with this time of year, many try to take one last shot at the summer skies. For example, there's the Idaho Star Party Sept. 6-8, and the Craters of the Moon Star Party the following weekend. MVAS really hadn't planned anything, but the City of Rocks has asked for four volunteers to come down Sept. 14 to help it celebrate its 25th anniversary, and we're on the way. And that's adding to what we've had this summer:

The regular City of Rocks star party in early August was a success. We're aware of one service group that's planning to come back next year just for us.

Jon Mills' photo essay on the night sky was recently featured in Idaho Magazine, and he gave MVAS some publicity in the process.

The constellation Delphinus provided us with a nova; Jim Tubbs has provided us with some early data.

Gary Leavitt landed the binocular Messier Award from the Astronomical League.

Even with August passing, there's still plenty to do. For example, Comet ISON is starting to come into view in the mornings. The race is on!

While four of our society will be down in southern Cassia County, we'll still hold the regular meeting at 7 p.m., Sept. 14. We'll have more details about the meeting over the e-mail server, but if you're not headed out, we look forward to seeing you there.

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Calendar for September



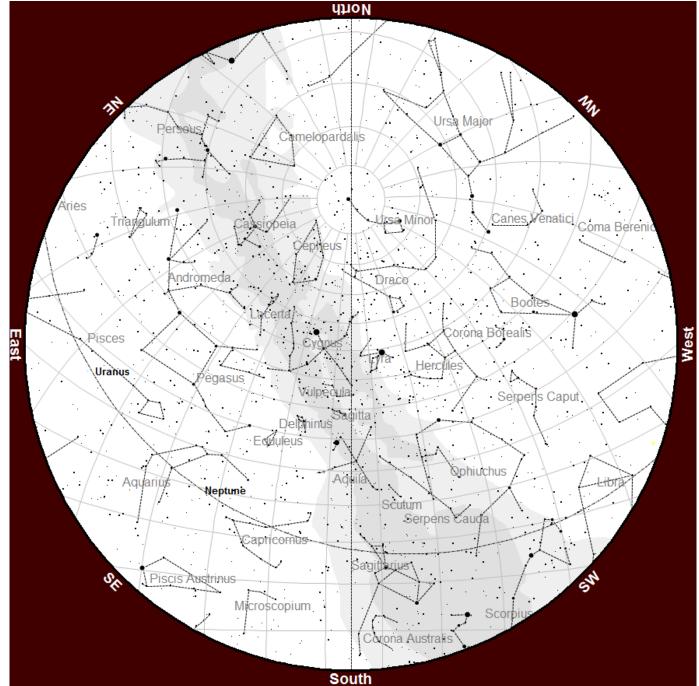
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Labor Day	3	4	New Moon 1% Visible	Idaho Star Party Astronomy Talk	7 Idaho Star Party
					4 0 -	
8	9	10	11	First Quarter Moon 48% Visible Greatest S. Declination -19.7°	Craters of the Moon Star Party	City of Rocks 25 th Anniversary Star Party
15	16	17	18	Full Moon 100% Visible	20	21
Autumnal Equinox at 14:44 MST	23	24	25	Moon at Greatest N. Declination +19.7%	27 Last Quarter Moon 48% Visible	28 Double Shadow Transit on Jupiter
29	30					

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Planisphere for September





Planisphere should be used as a guide for the month of September, mid-month, end of astronomical twilight (21:30) Planisphere is provided as a courtesy from Chris Anderson, Coordinator, Centennial Observatory, Herrett Center for Arts & Science - College of Southern Idaho, Twin Falls, ID

Be Safe, Get Out There, and Explore Your Universe!



Solar System Highlights





Mercury In early September, Mercury re-emerges in the western evening sky after spending the last month in the glow of dawn. The tiny planet remains in view all month, barely above the horizon half an hour after sunset and far lower right of brilliant Venus. Perhaps the best night to search for Mercury is September 24, when it lies just 1° above 1st-magnitude Spica (Alpha Virginis).



Venus becomes visible soon after sunset, about 10° high in the southwest for skywatchers at midnorthern latitudes. At magnitude -4.1 near the border between Virgo and Libra. The planet is still rather small in a telescope this month (16 arcseconds across), but you should be able to detect the gibbous phase if the atmosphere is calm and you observe as early in the twilight



Mars The golden orange world comes up in the east around 4 A.M. local daylight time and glows at a modest magnitude +1.6, with a disk only 4 arcseconds wide. On September 8 and 9 Mars passes in front of M44, the beautiful Beehive Star Cluster, and then continues away with direct (eastward) motion among the stars of Cancer and Leo. Mars is this month's "Do you know column."



Jupiter rises in the east around 2 A.M. local daylight time in mid-September. You will have no problem identifying the gas giant, which gleams at magnitude –2.1 and easily outshines every other point of light in the morning sky.



Saturn is slowly leaving our skies after many months of impressive display. During September, you can see it easily rather low in the southwest as early as 30 to 40 minutes after sunset.



Uranus reaches opposition early next month and is just bright enough to glimpse with the naked eye when it can be viewed high up in truly dark skies (try this in early September, before the Moon brightens the midnight sky). The 5.7-magnitude planet lies in southern Pisces and appears 3.6 arcseconds across at its distance of almost exactly 19 astronomical units from Earth.



Neptune reached opposition on the night of August 26-27, so it still resides highest in the south around midnight. Binoculars will help show the 8th-magnitude planet, which lies in the sparsely populated constellation Aquarius, 2° due west of Sigma Aquarii. A good medium-size telescope at moderately high power should reveal the tiny (2.5 arcseconds) disk of Neptune.



Pluto wanders far from the ecliptic, where the major planets reside. It lies in northwestern Sagittarius following a number of years in Ophiuchus and Serpens. Look for it due southeast of the conspicuous open star cluster M25 at the following distances: 1° 40′ (9/1); 1° 38′ (9/15); and 1° 41′ (9/30). Pluto glows at magnitude +14, it is a challenge to spot. An 8″ telescope on a perfect night brings Pluto to the edge of visibility. For a direct view, however, you will want to use at least a 10-inch scope.



Asteroid 324 Bamberga has a diameter of around 140 miles and was discovered in 1892 by Austrian astronomer Johann Palisa. It is the largest main-belt asteroid discovered so late and numbered so high, and holds the distinction of being the highest-numbered asteroid that is visible with binoculars.



Comet At the start of September, predawn views of C/2012 S1 ISON will improve a pattern that will hold throughout the following months. During that time, the comet will slowly brighten and move day by day against the backdrop of the constellation Cancer the Crab. Comet ISON should be visible in small telescopes by September, and dedicated sky watchers will surely try to pick it up.



Meteor showers come and go throughout the year, but September traditionally ranks low on most meteor observers' calendars.



Idaho Skies for September



Idaho Skies is a column for beginning amateur astronomers and those interested in astronomy. Suggestions about the column are gladly accepted by the columnist at streetastro@gmail.com. Check the Idaho Skies Twitter page for notices and images at www.twitter.com/IdahoSkies.

This month look for the star Deneb, the brightest star of the constellation of Cygnus the Swan. The word Deneb is Arabic for tail, referring to the fact that the star represents the swan's tail. Deneb is the 19th brightest star in the sky. It, along with the stars Vega and Altair form the Summer Triangle. The Summer Triangle is an asterism and not a constellation. The Summer Triangle passes directly overhead at 9:00 PM in early September.

Deneb is somewhere between 1,600 and 2,600 light years away. This makes Deneb the most distant star visible without a telescope. The reason that we can see it from so far away is that it is a massive star. It has 20 times the mass of the Sun and a diameter 200 times greater than our Sun's diameter. If Deneb were to replace our Sun, it would fill the orbit of Earth. Deneb's large mass makes it 250,000 times brighter than the Sun. Deneb has a surface temperature of 16,000 degrees Fahrenheit, or white hot. For Earth to maintain a mild climate while in orbit around Deneb, Earth would have to orbit Deneb at a distance ten times greater than the distance between Pluto and the Sun. The supergiant Deneb is so hot that it is blowing material off of its surface at a rate a thousand times faster than the Sun. This large mass loss is not sufficient, however, to reduce Deneb's mass down to safe levels before its too late. Within a few million years, Deneb will end its life in a supernova explosion.

Deneb appears directly overhead at 9:30 PM in early September and at 8:30 PM by the end of the month. Look for Deneb as the faintest and most northeast member of the Summer Triangle.

September 1 – 7

Because the moon is approaching its new phase and because the sun's yearly travel is so steep in the morning, the Zodiacal Light is most visible on mornings from the 3rd to the 17th. The Zodiacal Light is sunlight that is reflecting off of cometary dust orbiting the sun. The reflected sunlight creates what looks like the light of dawn. However, this light appears several hours earlier than dawn and it stretches vertically upwards. In order to see the Zodiacal Light, you must observe it from in a dark location. It is quite visible in the dark skies of the Craters of the Moon. Look east some time between 4:00 and 5:00 AM. The Zodiacal Light will appear as a pillar of faint light that is vertical, but tilted towards the south.

The moon is new on the 5th. Don't expect to see it again until the evening of the 7th, and with difficulty. The young moon is difficult to see in September because its path across the evening sky is very shallow. Still, it's worth looking for the moon several nights beginning on the 7th. Over the next two evenings, the moon will travel along a line formed by Venus, Spica, and Saturn.

September 8 - 14

Mars is traveling through the Beehive star cluster. The Beehive is normally visible to the unaided eye in dark skies and it makes an excellent binocular target. On the mornings of the 8th and 9th, point your binoculars at orange Mars and you will see that an aura of star dust surrounds the planet. Any time between 5:00 and 5:30 AM is a good time to make this observation. However, don't mistake Jupiter for Mars. Jupiter is the brightest star 1/3rd of the way above the eastern horizon. Mars is decidedly fainter and orange-yellow. It's to the lower left of Jupiter and only half as high above the horizon.

We're in for another treat on the evening of the 8th. Look in the low west-southwest by around 8:30. Spica, Venus, the moon, and Saturn will form a line. Venus and the moon will be close enough together that both can be seen together in binoculars. This is one of those astronomical events that you should attempt to record with a digital camera. You'll have to experiment with the camera's shutter speed to get the best exposure. It's critical that you attach the camera to a tripod for steadiness during the exposure.

Twenty-five years ago on the 9th, the Soviet Union launched the spacecraft Venera 11 towards Venus. The Soviet Venera program was much more successful than their Mars program. The Venera series were Venus fly-bys, orbiters, and landers. Venera 11 spent three and a half months traversing the abyss between Earth and Venus. When it arrived on

Christmas day 1978, the spacecraft split into two parts. The fly-by portion collected data on interplanetary space and on the region around Venus. The Lander half plunged into the Venusian atmosphere and survived for 110 minutes on its hellish surface. Unfortunately, unlike the previous two Veneras. Venera 11 failed to return images of the surface.

French astronomer Charles Messier was a comet hunter. In all, he discovered 12 of these dirty snowballs. In the course of hunting them down however, he found that he was wasting time on nebula, star clusters, and galaxies that appeared comet-like in his four-inch refracting telescope. To mitigate their impact on future comet-hunting astronomers, Messier began cataloging these objects. His first entry on September 12, 1758 was Crab Nebula. He published his first catalog of 45 non-comet objects in 1774 and his final catalog of 103 objects in 1781. Messier collaborated with Pierre Mechain in discovering and confirming the discoveries of these objects.

The moon is first quarter on the 12th. That night, the moon will be located in the constellation of Ophiuchus, which is not a sign of the Zodiac. Since the creation of the Zodiac over 2,000 years ago, precession of the equinoxes has shifted the constellations that the sun, moon, and planets travel through over the course of the year. Tonight will be a great time (weather permitting) to observe lunar craters and mountains through a telescope or pair of binoculars.

September 15 – 21

Five days after the launch of Venera 11, the Soviet Union launched Venera 12 (on 14 September 1978). Venera 12 landed four days earlier than Venera 11 and like its twin, failed to transmit images of the Venusian surface.

From the 15th to 20th, Venus and Saturn pass each other in the heavens. Their closest approach occurs on the evening of the 19th. Look for this duo starting at 8:00 PM in the low southwest. By 9:00 PM, they will approach too closely to the horizon for you to see.

The moon is full on the 19th. People usually call the full moon in September the Harvest Moon. This name is reserved for full moons in September that occur nearest the start of autumn and autumn begins in another three days.

There is very little difference between the time of moon rise for several nights around the full moon in September and October. Since the moon rises 30 minutes after sunset around this time, there's never a time of total darkness for many days. This natural light over the course of day and night is very convenient for farmers out harvesting their fields. That is the reason that we name the full moon around the first day of fall the Harvest Moon. The name can trace it roots back over 300 years. So shine on Harvest Moon.

Technically, people never named the full moons for the month they appeared. Instead, we named each full moon according to its sequence of order. If a season had more than three full moons, which occurs every two or three years, then that full moon was given the name Blue Moon.

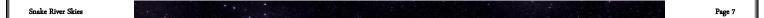
September 22 - 31

The Autumnal Equinox occurs on the 22nd at 2:44 PM. At that moment, the sun stands directly above Earth's equator. This doesn't imply that the sun is drifting north and south across the sky. Instead, Earth's inclination makes the sun appear to drift north and south over the course of the year. At the moment of equinox, sunlight illuminates half of Earth from its North Pole to its South Pole. At any other time of the year, one of the Poles is in total darkness. Because Earth is evenly illuminated at the equinox, daylight lasts the same length of time all across Earth. If it wasn't for refraction by the atmosphere, the day and night would both last 12 hours long. Enjoy your first day of autumn.

The moon is last quarter on the 26th. This is a nice phase to observe because of its different nature compared to the first quarter moon. The last quarter is covered in more extensive maria. However, you'll have to wait until after midnight tonight in order to see the moon.

Jupiter and the moon are within a binocular field of view of each other on the morning of the 28th. You'll need to go outside after 3:00 AM to see them. Jupiter will be the bright star to the upper left of the moon. The two stars farther to the left are Castor and Pollux, the Gemini Twins.

Dark Skies and Bright Stars, Your Interstellar Guide Dr. Paul Verhage, PhD





Club Announcements



*The Magic Valley Astronomical Society will be hosting a Star Party at the request of the State Parks Dept. at City of Rocks during their 25th Anniversary Celebration. Contact Vice-President Jim Hoggatt for further information.

Win this Telescope!



Meade 8" f/10 Schmidt-Cassegrain OTA with UHTC coatings brand new in the box. (No tripod or mount)

Accessories included: Mounting saddle, visual back, 1.250" prism diagonal, 26mm Meade Super Plossl eyepiece, red dot finder and front OTA cover. (OTA = Optical Tube Assembly)

How to Enter

The Meade OTA Drawing is open <u>only</u> to current members of the Boise Astronomical Society, Magic Valley Astronomical Society, Idaho Falls Astronomical Society and the Palouse Astronomical Society.

You may obtain Meade OTA Drawing tickets from the Boise Astronomical Society between now and Saturday, September 7, 2013. Donations for tickets are \$1.00 each or 6 for \$5.00. Tickets may be obtained at Boise Astronomical Society meetings or at the Idaho Star Party at Bruneau Dunes State Park, September 6-7, 2013. You may obtain tickets by mail by sending your request with donation (cash or check), along with a self-addressed stamped return envelope to: Boise Astronomical Society, P. O. Box 7002, Boise, ID 83707. Ticket orders by mail must be received by August 30, 2013.

The winning ticket will be drawn on Saturday afternoon, September 7, 2013, at the Idaho Star Party. You do not have to be present to win. The winner is responsible for shipping charges if required. Results will be announced on boiseastro.org.



Great Basin Astronomy Festival National Park

in

Baker, NV

September 5th - 7th

WITH SPECIAL GUEST

AWARD WINNING NIGHT SKY PHOTOGRAPHER
WALLY PACHOLKA

AND

SCREENING OF THE CITY DARK
AN AWARD-WINNING DOCUMENTARY
PLUS

WHAT AM I SEEING? - ASTRONOMY 101 PRESENTATIONS

KIDS PROGRAMS DAILY AND NIGHTLY!

RANGER TALENT SHOW!

DARK RANGER PRESENTATIONS

...AND

STARGAZING WITH HUGE TELESCOPES!

PHOTO COURTESY OF WALLY PACHOLKA



Bruneau Dunes Observatory



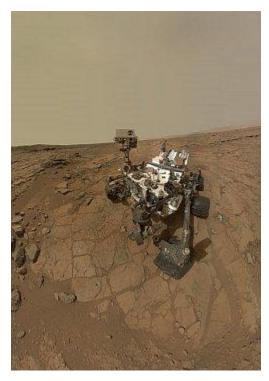
You're invited to star gaze at the Bruneau Dunes Observatory. See the night sky as you've never seen it before. Visitors watch a short orientation program and then have the chance to survey the heavens through the observatory's collection of telescopes. The observatory is now open on Friday and Saturday nights only, weather permitting. BAS Volunteers are always welcome. Solar viewing (through a specially adapted telescope) begins one hour before sunset. After the sun sets there is an audio visual orientation presentation followed by sky viewing until 11:30 pm. For presentation times, call 208-366-7919, or check the kiosk when you arrive at the park. The cost for the program is \$3 per person. Children under 6 are admitted free. If you would like to volunteer at the observatory this year contact the club president, or vice-president. Our new improvements to the telescope, which allows us to have a go-to scope that is working well come down and see for yourself and please put in some volunteer hours for the club.



Did You Know



Beginning with Mariner 4, which passed by Mars in 1965 and sent back 22 pictures of the surface, the Red Planet has been a target for many spacecraft, with flyby, orbiter, lander and rover missions. Currently, there are five missions operational on Mars. Mars Odyssey, launched in 2001, orbits around the planet and still sends data (for almost 12 years now). ESA's Mars Express orbiter is successfully performing scientific measurements since early 2004 and NASA's Opportunity rover remains active since the same year. The \$ 720 million Mars Reconnaissance Orbiter conducts reconnaissance from orbit and will transfer more data back to Earth than all previous Mars missions combined. Finally, the car-sized robotic rover Curiosity is exploring 96 mile-wide Gale Crater and is right now studying if Mars could ever have supported life, in an attempt to prepare for future human exploration. Curiosity has sent hundreds of gigabytes of data back to Earth, and has obtained the first ever sample of the interior of a rock from another planet.



A self-portrait of NASA's rover Curiosity, which includes a panoramic view of the Yellowknife Bay region of Gale Crater. NASA/JPL-Caltech/MSSS



Deep Sky Highlight Nova Del 2013



August 14, 2013 a new star was seen in the constellation Delphinus. This new star, first designated PNV J20233073+2046041, was later confirmed to be a Type II Fe nova, and was re-designated Nova Del 2013. The nova was first seen by Koichi Itagaki (Teppo-cho, Yamagata, Japan), and reported by S. Nakano (Sumoto, Japan). When discovered, it was already at a 6.8 mag.

Nova Del 2013 quickly garnered a great deal of attention, becoming the first nova in decades to reach naked eye status. Even at the original 6.8 mag, it was a good binocular target. Several factors have combined to make Nova Del 2013 one of the most significant novae to date.

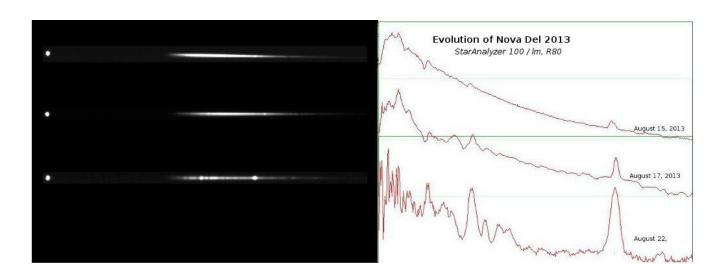
Typically, most novae have an apparent magnitude of < 8. Most of those I have imaged have been from 8-12 mag. Also, a great number of the more recent novae have been located through Sagittarius. The dense star field that becomes visible when photography dim stars add additional challenges to photometric measurement, and make slit-based spectroscopy almost a requirement. Also, this nova, being located in the Constellation Delphinus, is ideally suited as an excellent target for nearly all the Northern hemisphere, and perhaps about 1/3 of the Southern hemisphere. And finally, it rises at just the right time to provide hours of dark observation at a fairly high declination.

Slit-based spectroscopy has the advantage of presenting only the target to the ccd, as anything on either side of the slit is blocked. Also, the slit serves to reduce the target to more of a pinpoint object, thereby helping to increase the resolution. However, the downside is a great deal of loss of light. For example, my transmission grating (StarAnalyzer 100) is etched with 100 lines/mm. As the light from the nova enters the transmission grating, the light is spread out across its wavelength. The image of the star passes through the grating at 90 degrees, and so appears as normal on the CCD.

The spectrum exits the grating at an angle that increases as the wavelength decreases. At the same time, there is loss of brightness, as what was a single star is now spread out over the length of the spectrum. With my grating, I can expect a loss of up to 5 mag. Thus, a 12 magnitude star will give me a spectrum on my CCD as dim as 17 mag. As the lines/mm are increased, the effect is greatly multiplied. A star which may require a 30 second exposure with a 100 line/mm slitless spectroscope may require a 3 hour exposure with a 2400 lines/mm and slit.

So no wonder Nova Del 2013 has created so much excitement. It is so bright that high resolution spectroscopy became much easier to do, and allowed sufficient light to obtain excellent measurements. Even very low resolution devices such as the StarAnalyzer 100 have produced amazing results not normally seen for such a device.

Unfortunately, my attempts to get the best possible readings have been greatly hampered by skies that have been dirtied with the smoke of wildfires. Even then, the nova has been so bright that my exposures are typically around .5 seconds or less. Spectra of past novae have required at least 30 seconds, and even then the spectrum was faint and noisy.



Snake River Skies

Because of weather conditions, I have only been able to obtain three nights worth of observations, not including the original non-filtered image. The illustration, "Evolution of Nova Del 2013 demonstrates the changes over a 7 day period. One day after discovery, the H emission lines are noticeable, with the expanding shell quite hot. As the shell further expanded and cooled, the H emission lines became more pronounced, and from about 8-16 through 8-19 exhibited very pronounced P Cygni profiles. (Such profiles are not visible on my images.) The 3rd image shows extremely strong H emissions as well as that of other metals (Na I, Ca II, Mg II, Fe II) from 3800-4800 Angstroms.

The brightness of this nova has allowed us to measure stages of evolution never before seen. One aspect that will become significant in the coming days was the confirmation of gamma rays. There is some thought that gamma rays could become a "standard candle" for determining distance. This nova will provide a great deal of information in determining if this is indeed the case. As it stands, we do not yet know just how far Nova Del 2013 is from earth. Even more exciting, this nova may provide clues as to the mechanism which accelerates cosmic rays, something which has been elusive ever since their discovery.

It is quite possible Nova Del 2013 will remain a relatively bright target for perhaps a month or two as it appears to be a "slow nova". It is currently fading at ~.25 magnitude per day. A similar slow nova was HR Delphini, 1967. That nova continued to be a naked eye object for nearly a year.

Some links for further reading.

http://www.aavso.org/nova-del-2013

http://www.aavso.org/whats-store-nova-del-2013

The following links may require subscribing to the specific yahoo groups. It is well worth subscribing, as many of those contributing to the groups are also the ones writing the books on how spectroscopy is done.

http://tech.groups.yahoo.com/group/astronomical_spectroscopy/message/8272

http://tech.groups.yahoo.com/group/astronomical_spectroscopy/message/8241 This link contains a very good discussion by Steve Shore of what is going on. It's a bit technical in areas but is absolutely worth wading through.

http://www.astrosurf.com/aras/novae/Nova2013Del.html bit of information from Steve Shore (University of Pisa). Anything and everything about Nova Del 2013, including quite a

Jim Tubbs, Treasurer Magic Valley Astronomical Society

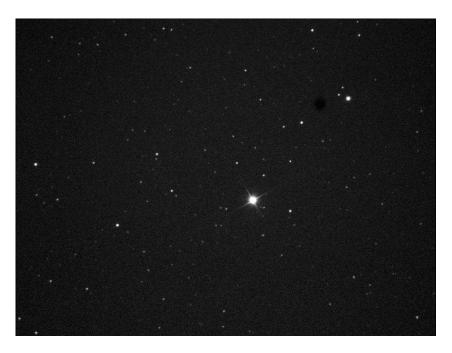


Image of Nova Del 2013 taken with the Meade Deep Sky Imager (DSI III Pro) with a clear filter. Images © 2013.08 by Jim Tubbs



Size Does Matter, But So Does Dark Energy Dr. Ethan Siegel



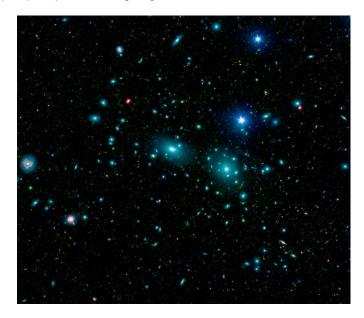
Here in our own galactic backyard, the Milky Way contains some 200-400 billion stars, and that's not even the biggest galaxy in our own local group. Andromeda (M31) is even bigger and more massive than we are, made up of around a *trillion* stars! When you throw in the Triangulum Galaxy (M33), the Large and Small Magellanic Clouds, and the dozens of dwarf galaxies and hundreds of globular clusters gravitationally bound to us and our nearest neighbors, our local group sure does seem impressive.

Yet that's just chicken feed compared to the largest structures in the universe. Giant clusters and superclusters of galaxies, containing thousands of times the mass of our entire local group, can be found omnidirectionally with telescope surveys. Perhaps the two most famous examples are the nearby Virgo Cluster and the somewhat more distant Coma Supercluster, the latter containing more than 3,000 galaxies. There are millions of giant clusters like this in our observable universe, and the gravitational forces at play are absolutely tremendous: there are literally *quadrillions* of times the mass of our Sun in these systems.

The largest superclusters line up along filaments, forming a great cosmic web of structure with huge intergalactic voids in between the galaxy-rich regions. These galaxy filaments span anywhere from hundreds of millions of light-years all the way up to more than a *billion* light years in length. The CfA2 Great Wall, the Sloan Great Wall, and most recently, the Huge-LQG (Large Quasar Group) are the largest known ones, with the Huge-LQG -- a group of at least 73 quasars – apparently stretching nearly 4 billion light years in its longest direction: more than 5% of the observable universe! With more mass than a million Milky Way galaxies in there, this structure is a puzzle for cosmology.

You see, with the normal matter, dark matter, and dark energy in our universe, there's an upper limit to the size of gravitationally bound filaments that should form. The Huge-LQG, if real, is more than *double* the size of that largest predicted structure, and this could cast doubts on the core principle of cosmology: that on the largest scales, the universe is roughly uniform everywhere. But this might not pose a problem at all, thanks to an unlikely culprit: dark energy. Just as the local group is part of the Virgo Supercluster but recedes from it, and the Leo Cluster -- a large member of the Coma Supercluster -- is accelerating away from Coma, it's conceivable that the Huge-LQG isn't a single, bound structure at all, but will eventually be driven apart by dark energy. Either way, we're just a tiny drop in the vast cosmic ocean, on the outskirts of its rich, yet barely fathomable depths.

Learn about the many ways in which NASA strives to uncover the mysteries of the universe: http://science.nasa.gov/astrophysics/. Kids can make their own clusters of galaxies by checking out The Space Place's fun galactic mobile activity: http://spaceplace.nasa.gov/galactic-mobile/



Digital mosaic of infrared light (courtesy of Spitzer) and visible light (SDSS) of the Coma Cluster, the largest member of the Coma Supercluster. Image credit: NASA / JPL-Caltech / Goddard Space Flight Center / Sloan Digital Sky Survey.



Observatory and Planetarium Events



Schedule for Centennial Observatory – Herrett Center herrett.csi.edu

Event	Place	Date	Time	Admission
Bimonthly Astronomy Talk: "The Monster in the Milky Way's Middle"	Rick Allen Room	Friday, September 6 th , 2013	8:00 to 9:00 PM	\$2.50 adults \$1.50 students (incl. CSI) Free - children 6 & under
Astronomy Talk Night Telescope Viewing	Centennial Observatory	Friday, September 6 th , 2013	9:00 to 11:00 PM	\$1.50 per person Free - children 6 & under Free to all with paid astronomy talk or planetarium admission
Monthly Free Star Party	Centennial Observatory	Saturday, September 14 th , 2013	8:45 PM to midnight	FREE
Monthly Free Star Party & International Observe the Moon Night	Centennial Observatory	Saturday, October 12 th , 2013	8:00 PM to midnight	FREE

Last Chance Show Schedule Faulkner Planetarium September 2013

Day/Date	Time	Show	
Tuesday,	7:00	Hubble Vision	
Sept. 3 rd			
Friday,	7:00	Hubble Vision	
Sept. 6 th	8:15	Led Zeppelin: Maximum Volume 1	
Saturday,	2:00	Lifestyles of the Stars/Live Sky Tour	
Sept. 7 th	4:00	Lifestyles of the Stars/Live Sky Tour	
	7:00	Hubble Vision	
	8:15	Led Zeppelin: Maximum Volume 1	
Tuesday,	7:00	The Dinosaur Chronicles	
Sept. 10 th			
Friday,	7:00	The Dinosaur Chronicles	
Sept. 13 th	8:15	U2	
Saturday,	2:00	Light Years from Andromeda	
Sept. 14 th	4:00	Light Years from Andromeda	
	7:00	The Dinosaur Chronicles	
	8:15	U2	
Tuesday,	7:00	The Greatest Wonders of the Universe	
Sept. 17 th			
Friday,	7:00	The Greatest Wonders of the Universe	
Sept. 20 th	8:15	Pink Floyd: Dark Side of the Moon	
Saturday,	2:00	The Cowboy Astronomer	
Sept. 21 st	4:00	The Cowboy Astronomer	
	7:00	The Greatest Wonders of the Universe	
	8:15	Pink Floyd: Dark Side of the Moon	
Note: The Faulkner Planetarium will be closing on Oct 1st - More Details Announced later.			



Membership Information



The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.

In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy.

Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.



Annual Membership dues will be \$20.00 for individuals, families, \$10.00 for students.

Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com or home telephone: 736-1989 or mail directly to the treasurer at his home address. 550 Sparks Twin Falls, ID 83301

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.

M-51 viewed in this newsletter was imaged with the Shotwell Camera and the Herrett Telescope at the Centennial Observatory by club members Rick Widmer & Ken Thomason. Unless otherwise stated all photos appear in the public domain and are courtesy of NASA.

Magic Valley Astronomical Society P.O. Box 445 Kimberly, ID, USA 83341

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"Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon. Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA circa 1980.

Membership Benefits

Sky and Telescope group rates. Subscriptions to this excellent periodical are available through the MVAS at a reduced price of \$32.95.

Astronomy Magazine group rates. Subscriptions to this excellent periodical are available through the MVAS at a reduced price of \$34.00

Receive 10% discounts on other selected Astronomy Publications.

For periodical info. and subscriptions Contact Jim Tubbs, Treasurer

Lending Library: Contact, the current board for information.

Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others. Contact Rick Widmer, Webmaster for more information.