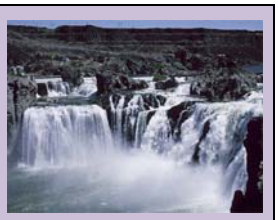
Snake River Skies

The Monthly Newsletter of the
Magic Valley Astronomical Society
March 2013



www.mvastro.org

Membership Meeting

Saturday, March 9th at the Herrett Center
Show and Tell
7:00 pm

Board of Directors

Robert Mayer, President
mayerrbrt@gmail.com
208-312-1203

Jim Hoggatt, Vice President
jhog@cableone.net
208-420-7690

Gary Leavitt, Secretary
leavittg@cableone.net
208-731-7476

Jim Tubbs, Treasurer / ALCOR
jtubbs015@msn.com
208-404-2999

David Olsen, Newsletter Ed
editor@mvastro.org

Rick Widmer, Webmaster
rick@developersdesk.com

President's Message

Colleagues,

Before I get started on the items this month, we need to send out a big thank you to Richard Beaver. The Boise State University astronomy professor gave us great insights into the NASA program. I know my glances into astronomy news now have a slightly different nuance when I see an article on NASA.

Meanwhile, for the March MVAS meeting, we're doing something new. Having seen what the Houston Astronomical Society does, we're going to make this meeting a show-and-tell meeting: Members of the club will get up and talk for a few minutes about what they've been doing lately in astronomy. While I have had a few spots reserved, please feel free to contact me if you'd like to take five minutes – or more.

As for the club-only star party, two or three ideas are in the works. First, there have been discussions about trying to pull in Comet PANSTARRS around the weekend of March 8. After Chris Anderson's attempts at the Centennial Observatory to land asteroid 2012 D14 last month, this idea's still floating out there. That's also a good weekend for a club-only star party, but we don't want to have any conflicts with Chris' regular astronomy talk or the Show-and-Tell meeting, so please check out either the Facebook page or the club e-mailing list for further developments.

On March 23rd, we're helping out with Earth Hour over at the Centennial Observatory at the Herrett Center - College of Southern Idaho. Contact Chris Anderson for more information.

Lastly, a look at the calendar says the weekend of April 5th would be great for a Messier Marathon. We've used the Jerome Gun Club in the past, but keep in touch for future details.

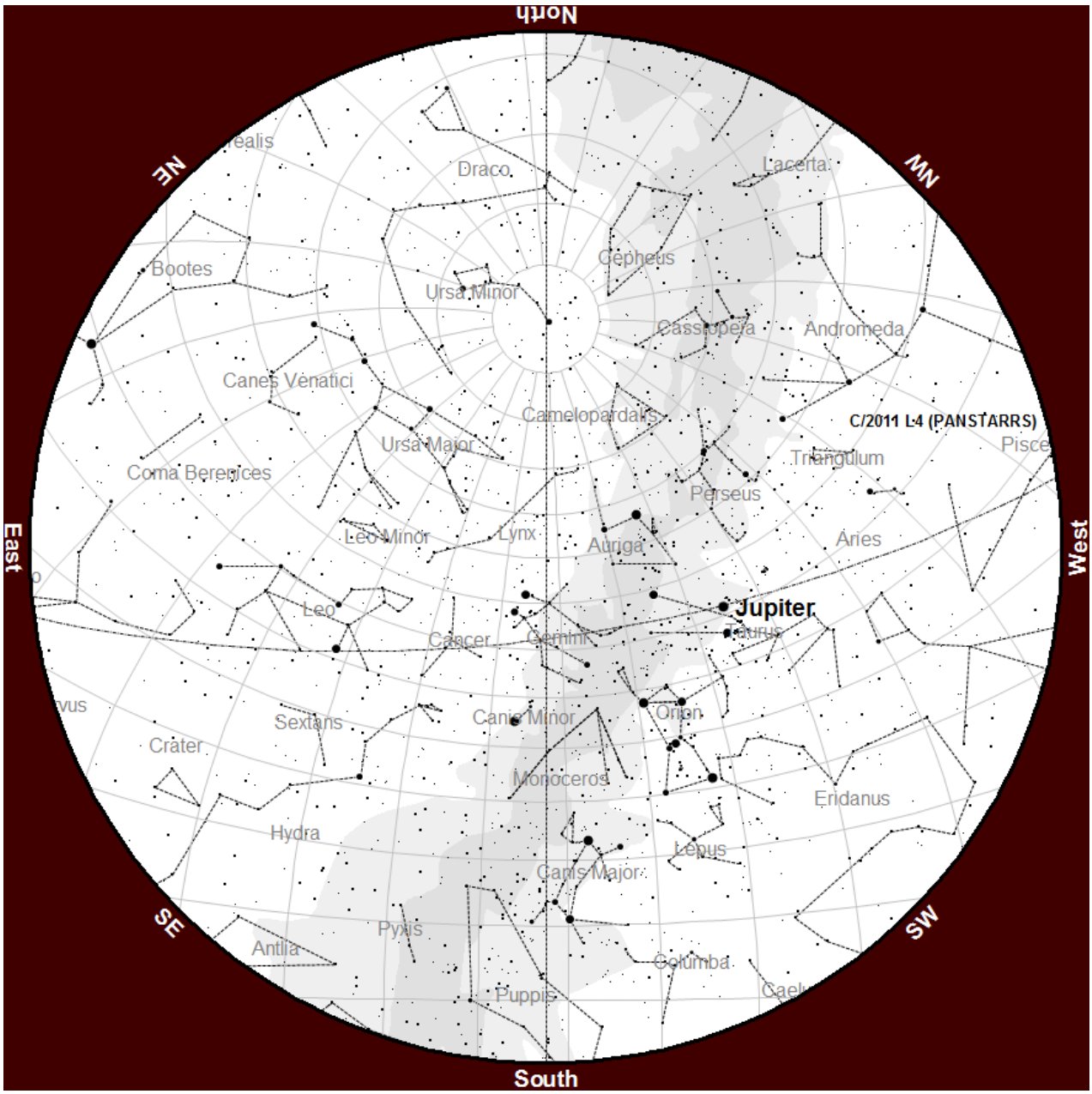
Best Wishes,
Robert Mayer, President

In this Issue

Calendar for March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 Last Quarter Moon at 14:53 	5 Moon Greatest S. Elongation -20.4° 	6	7	8 Double Shadow Transit on Jupiter (On Saturday) 	9 Membership Meeting at the Herrett Center "Show and Tell" 7:00pm Stargazing following the Mtg. Cent. Obs.
10 Daylight Saving Time Begins at 2:00 am 	11 New Moon at 13:51 	12	13	14	15	16 Double Shadow Transit on Jupiter 
17 St. Patrick's Day 	18 Moon Greatest N. Elongation +20.3° 	19 First Quarter Moon at 11:27 	20 Spring Equinox at 5:02 am 	21	22	23 Double Shadow Transit on Jupiter 
24	25	26	27 Full Moon at 3:28 Crow Moon (Algonquin Nat.) 	28	29	30
31 Easter 						

Planisphere for March

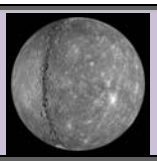
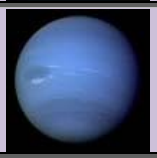


Planisphere should be used as a guide for the month of March, mid-month, end of astronomical twilight (9:15 PM) Planisphere is provided as a courtesy from Chris Anderson, Coordinator, Centennial Observatory, Herrett Center for Arts & Science - College of Southern Idaho, Twin Falls, ID

Deep Sky Highlight

NGC 7635, also called the **Bubble Nebula**, is an H II region emission nebula in the constellation Cassiopeia. It lies close to the direction of the open cluster Messier 52 and is close by to this months feature “King Cepheus.” The "bubble" is created by the stellar wind from a massive hot, 8.7 magnitude young central star, the 15 ± 5 M_g SAO 20575 (BD+60 2522). The nebula is near a giant molecular cloud which contains the expansion of the bubble nebula while itself being excited by the hot central star, causing it to glow. It was discovered in 1787 by William Herschel. The star SAO 20575 or BD+602522 is thought to have a mass of 10-40 Solar masses With an 8 or 10-inch (250 mm) telescope, the nebula is visible as an extremely faint and large shell around the star. The nearby 7th magnitude star on the west hinders observation, but one can view the nebula using averted vision.

Solar System Highlights

	**Mercury** reaches its greatest elongation on the 31st, when it lies 27.8° west of the Sun. Early risers may catch a brief view of the planet in the pre-dawn sky, about 30 minutes before sunrise and only 5° above the eastern horizon. Binoculars could prove useful for spotting it against the bright twilight.
	**Venus** Lost in the Solar Glare it will return to view in early May, low above the western horizon just after sunset.
	**Mars** The steady orange beacon very low in the west in the early evening is our planetary neighbor, Mars. You will want to spy the "Red Planet" early this month because it drops out of sight by March 20, as it heads to conjunction with the Sun in mid-April.
	**Jupiter**, the gas giant still stands high in the southwest after sundown, remains visible well after midnight and looks stunning through a telescope, or binoculars. It shines at magnitude -2.2 and resides in Taurus, close to Aldebaran, the brightest star in the constellation and one of the brightest in the nighttime sky.
	**Saturn** Retrograding in western Libra, Saturn rises in the east around 11 P.M. local time and by the beginning of dawn it is fairly high in the south. A small telescope will reveal Saturn's system of rings which span 38", surrounding a disk about 18" in diameter. The rings are tilted 20° to our line of sight, the widest open they have been in seven years.
	**Uranus** lies on the border between Cetus and Pisces and is low in the evening sky, just 10° above the western horizon by the onset of twilight. Some observers may be able to spot the planet with binoculars, although at magnitude +5.9 it will be a difficult object and will require very transparent skies. A good telescope and a power of 100X or more are needed to make the planet's tiny disk.
	**Neptune** Seek out Neptune just before dawn, in western Aquarius, 5° northeast of the 4th-magnitude star Iota Aquarii. The distant world lies 2.8 billion miles from Earth and glows dimly at magnitude +8. A 4-inch diameter telescope is probably the minimum required to see the planet and resolve its disk, only 2.4" across.
	**Pluto** lies in northern Sagittarius and stands 20° high in the southeast shortly before dawn. The dwarf planet glows dimly at magnitude +14, which means you will need an 8-inch telescope to have a decent chance of spotting this glimmer of light.
	**Asteroid** 14 Irene slices through Coma Berenices this month and appears at its best in the late evening. To find this 105- mile-wide space rock, start with the 6th-magnitude star 34 Virginis. The star lies a little closer to Epsilon Virginis than the halfway point to Denebola (Beta Leonis).
	**Comets** C/2011 L4 PanSTARRS will pass closest to the Earth on March 5, at a distance of 1.09 Astronomical Units, slightly farther from us than our distance from the Sun. Starting around March 8, it will emerge from the Sun's glare, low above the western horizon after sunset for Northern Hemisphere viewers. PanSTARRS will pass closest to the Earth on March 5, at a distance of 1.09 Astronomical Units, slightly farther from us than our distance from the Sun.
	**Meteors** The Virginids are a vast complex of a dozen or so radiants that become active in late January and persist until mid-April, without reaching a definite peak. Meteors from this stream appear at a slow speed. Throughout March, the radiant is located in central Virgo, moving a little to the southeast with each passing day. It rises around 8 P.M. local daylight time and is well placed for observing after midnight.

Idaho Skies for March

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 Capella, the Lucida of Auriga the Charioteer. The star is located high in the northwest on March evenings which makes it the brightest star overhead. The name Capella comes from the Latin for little she-goat. This name comes from the fact that Auriga is depicted holding young goats. The goats are represented by the three stars forming a narrow triangle located very close to and just south of the star Capella. Capella is the eleventh brightest star in all of the heavens and the third brightest in the northern hemisphere. If you were born in 1971 then Capella is your birthday star this year because the light of Capella you see tonight left the star 42 years ago.

Capella is a binary star with a primary yellow star 82 times brighter than our sun and a companion star 12 times larger than our sun. Capella's slightly smaller companion star orbits approximately 65 million miles away from the primary. The pair, Capella Aa and Capella Ab, is orbited by a pair of red dwarf stars in a very distant orbit. The two bright stars in Capella are nearing the end of their lives. They are finishing the last of their fusible supply of hydrogen and will soon expand into red giant stars.

March 1 – 7

If you're out late on the 1st and early on the 2nd, be sure to look for Saturn above the moon. The distance between these two bodies will be less than five degrees; therefore, both will fit within the field of view of your binoculars.

The moon is last quarter on the 4th, which for Idaho, won't rise until 2 AM. Last quarter is a good time to observe the moon through your binoculars or small telescope. Lunar seas, or Maria cover more of the moon's surface in last quarter than in first quarter. The largest is the Ocean of Storms (Oceanus Procellarum in Latin) and it occupies nearly the entire northwest quadrant of the moon.

March 8 – 14

Daylight saving time begins early on Sunday the 10th. Be sure to set your clocks ahead one hour before going to bed on Saturday the 9th. Sorry about the lost of one hour of sleep.

The moon is new on the 11th at 1:51 PM. If you have a very clear and flat western horizon, then try looking for the young crescent moon on the evening of the 12th. You'll need binoculars and must search low in the west. The moon will set by 8:00 PM and the sky probably won't get dark enough to begin searching until 7:30 PM.

March 15 – 21

Beware of the Ides of March, it is here on the 15th. The term comes from the old Roman calendar, which the Romans initially based on the lunar month and set by the phases of the moon. In the old Roman calendar, the first day of the month was called Kalendae, which is where we get the word calendar. Kalendae occurred at the new moon originally, but was moved to the first day of the month after the lunar calendar was replaced with fixed months in a solar year. Nonae marked the day of the first quarter moon, or around the 7th of the month. Finally, Idus or Ides was the day of the full moon or the 15th of the month. The Roman did not give names to the other days of the month, but referred to them as being so many days before the next month's Kalendae.

A nice grouping between Jupiter, the moon, and two star clusters, the Pleiades and the Hyades is visible on the night of the 17th. Jupiter will be the bright star above the moon while it and the moon are nearly immersed in the Hyades. The Seven Sisters will observe this jumble from a safe distance to the west.

The 17th marks the 55th anniversary of the launch of Vanguard 1. Vanguard was the original satellite project of the United States. It was a joint Navy and civilian project designed to launch the world's first satellite into Earth's orbit in support of the International Geophysical Year (IGY). The Soviet Union also announced they would launch a satellite in support of IGY, but the west did not take their announcement seriously. After the launch of Explorer 1, a joint Army and JPL launch, the first Vanguard became the fourth satellite in orbit and the second for the United States.

Vanguard 1 was just a grapefruit of a satellite, some six inches in diameter and three pounds in weight. It did however accomplish something that no previous satellite did; it operated a radio transmitter from solar power. This was the first use of solar cells in space, which are common place in satellites today.

As a result, its radio continued to transmit data for seven years, as opposed to only days that batteries typically operated radios. By tracking its radio signal, we were able to determine that the Earth's shape is neither perfectly spherical nor squashed sphere; it's actually closer to pear-shaped.

After it gets dark on the 19th, go outside with your binoculars. You'll need a good twenty minutes to let your eyes adapter to the dark before scanning the skies. However, it you look approximately one binocular field of view above the moon, you will see a cluster of stars. This is M-35, an open cluster in Gemini. The cluster is 2,800 light years away and spans 11 light years across. It was discovered by Philippe Loys de Cheseax in 1745.

Now turn your binoculars towards the moon and scan its terminator. The terminator is the boundary between day and night and forms a nearly straight line on the moon when it is first quarter. When the moon's terminator faces directly towards Earth like it will on the 19th, shadows cast by the rising sun extend their greatest apparent distance across the moon. The long apparent length of the shadows accentuates terrain features on the moon. The result is that small changes in elevation are easier to detect.

Spring begins again, yeah! The Vernal Equinox occurs at 5:02 AM on the 20th. At the equinox, the sun stands directly over Earth's equator (from our perspective).

March 22 – 31

Our planet's natural satellite is very close to the Beehive star cluster on the night of the 22nd. The separation is so small that both are visible together in a pair of binoculars. Except for the fact that the moon will be a waxing gibbous (and drown out some of the fainter stars), the view should be attractive.

The distance between Jupiter and Aldebaran is 65 light years; however, on the 24th they appear near each other in our sky. The separation will be five degrees, or about the span of your thumb when viewed from your outstretched hand. You'll look like a hitchhiker to the heavens.

Leo the Lion sits on top of the moon all night of the 24th. Leo's brightest star is Regulus and it is almost directly above the moon. Leo's mane appears as a backwards question mark and is also directly above the moon. The base of the question mark is Regulus. The second brightest star of Leo is Denebola and it marks the location of Leo's tail. This star is located east of the moon.

The moon is full on the 27th. In March, the full moon is called the Sap moon because farmer would tap apple trees during March. The moon is between Spica and Saturn late on the 28th. You'll need to go outside at 11:00 PM or later to see them. Saturn is brighter than Spica and will not twinkle like Spica will twinkle. Saturn and Spica are unfortunately too far from the moon to be seen together with the moon in binoculars.

If you're up and about at 3:00 AM or later on the 31st, look for the moon above the heart of the scorpion. Antares and the moon will nearly fit within your binocular's field of view at the same time.

This Month's Sources

This column is a compilation of other peoples' notes. I would like to say thank you to the following sources of knowledge this month.
A dictionary of modern star names, Sky and Telescope
Capella (star), http://en.wikipedia.org/wiki/Capella_(star)
Observer's Handbook 2013, The Royal Astronomical Society of Canada
Oceanus_Procellarum, http://en.wikipedia.org/wiki/Oceanus_Procellarum
Project Vanguard, http://en.wikipedia.org/wiki/Project_Vanguard
Roman Calendar, http://en.wikipedia.org/wiki/Roman_calendar
Space Calendar, http://www.jpl.nasa.gov/calendar/

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

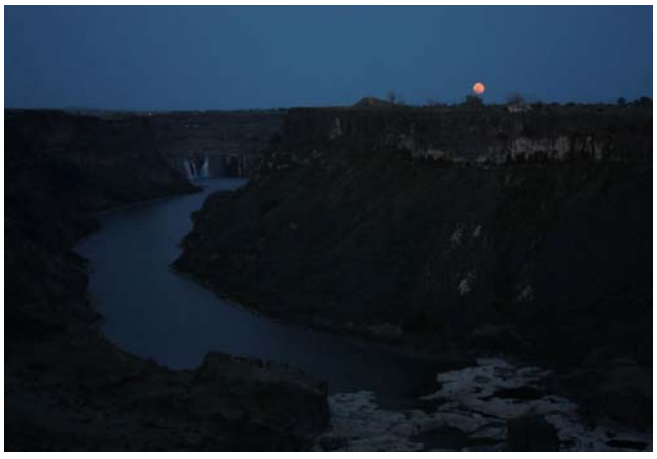
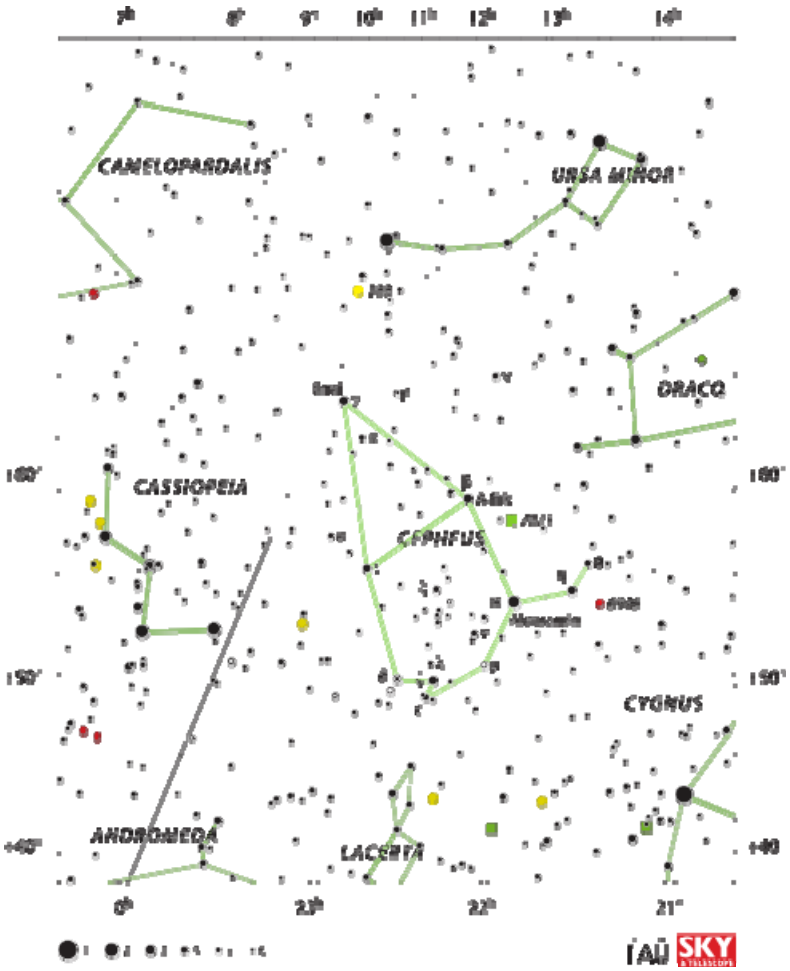


Image: Idaho Skies; the Full Moon rises above the Snake River Canyon – Twin Falls, Idaho, USA
Pillar Falls (foreground) and Shoshone Falls (back)

Deep Sky Highlight

Cepheus lies in the northern hemisphere. It was named after the mythical King Cepheus of Aethiopia, husband of Cassiopeia and father of Andromeda, both represented by neighboring constellations. Cepheus was catalogued by the Greek astronomer Ptolemy in the 2nd century. The constellation is home to Garnet Star, the famous red supergiant, and several well-known objects: the Wizard Nebula, the Iris Nebula, and the Fireworks Galaxy.

FACTS, LOCATION & MAP



Cepheus Constellation Map, by IAU and Sky & Telescope magazine.

Cepheus is the 27th largest constellation in the night sky, occupying an area of 588 square degrees.
It is located in the fourth quadrant of the northern hemisphere (NQ4) and can be seen at latitudes between +90° and -10°.
Right Ascension: 22h Declination +70°.

The neighboring constellations are Camelopardalis, Cassiopeia, Cygnus, Draco, Lacerta, and Ursa Minor.
Cepheus has one star with known planets and contains no Messier objects.

The brightest star in the constellation is Alderamin, Alpha Cephei.

There are no meteor showers associated with Cepheus.

Cepheus belongs to the Perseus family of constellations, along with Andromeda, Auriga, Cassiopeia, Cetus, Lacerta, Pegasus, Perseus, and Triangulum.

MYTH

The constellation represents Cepheus, the king of Ethiopia and Cassiopeia's husband in Greek mythology. Zeus placed him in the sky after his tragic death because he was descended from one of Zeus' loves, the nymph Io. Cepheus ruled not the modern-day Ethiopia, but the stretch of land between the southeastern Mediterranean and the Red Sea, the area that contains parts of the modern-day Egypt, Israel and Jordan.

Cepheus' wife Cassiopeia was a very vain woman. Once, she boasted that she was more beautiful than the Nereids (sea nymphs, one of them the wife of the sea god Poseidon), which angered the nymphs and Poseidon, who then sent a sea monster, represented by the constellation Cetus, to ravage Cepheus' land.

Cepheus turned to an oracle for advice on how to prevent utter disaster and the oracle told him that the only way to appease Poseidon was to sacrifice his daughter Andromeda to the monster. Desperate, Cepheus and Cassiopeia did this, leaving their daughter chained to the rock for Cetus to find. Luckily, the hero Perseus found the princess first, rescued her and killed the monster. Later, he claimed Andromeda for his bride.

Perseus and Andromeda were celebrating their wedding when Phineus, Cepheus' brother, turned up, claiming that she had been promised to him first. Phineus and his followers asked that Andromeda be turned over to them, but Cepheus refused them and there was a fight. Perseus tried to fight off all his opponents, but he was sorely outnumbered and had to use the head of Medusa to turn his enemies into stone. Unfortunately, the king and queen did not look away from the Gorgon's head in time and were turned to stone, too.

MAJOR STARS

Alderamin – α Cephei (Alpha Cephei) - Right Ascension: 21h 56m 39.144s Dec: +63° 37′ 32.01″
Alpha Cephei is the brightest star in the constellation. It is a white class A star, currently evolving from a main sequence star into a subgiant. It is approximately 49 light years distant. Its traditional name, Alderamin, is derived from the Arabic phrase *aḍ-ḍirāʿ al-yamīn*, which means "the right arm." The star has an apparent magnitude of 2.5141. It rotates at a very high speed, at least 246 km/s, and completes one revolution within 12 hours or less. Alderamin never sets below the horizon when observed from Europe, northern Asia, Canada and most North American cities. It can be seen by the naked eye.


Alpha Cephei

Alfirk – β Cephei (Beta Cephei) - Right Ascension: 21^h 28^m 39.5971^s Declination: +70° 33′ 38.578″
Beta Cephei is a triple star with an apparent visual magnitude that varies from 3.15 to 3.21 within a period of 0.1904844 days. It is approximately 690 light years distant. The star's traditional name, Alfirk, derives from the Arabic *al-firqah*, which means "the flock." Alfirk serves as the prototype for a class of stars known as the Beta Cephei variable stars. These stars are main sequence stars with masses ranging between 7 and 20 solar masses. They show variations in brightness as a result of pulsations of their surfaces. The stars typically change in brightness by 0.01 to 0.3 magnitudes with periods of 0.1 to 0.6 days. The brightest component in the Beta Cephei system, Alfirk A, is a blue giant classified as a B2IIIev class star. The –ev suffix stands for "Spectral emission that exhibits variability." The star is a slow rotator and takes about 51 days to complete a single revolution, at a rotational speed of 28 km/s.

δ Cephei (Delta Cephei) - Right Ascension: 22^h 29^m 10.26502^s Declination: +58° 24′ 54.7139″

Delta Cephei is a double star with an apparent visual magnitude varying between 3.48 and 4.37. It lies approximately 891 light years from the solar system. Delta Cephei serves as the prototype of a class of stars known as the Cepheid variable stars, or simply Cepheids. The only star belonging to this class that is closer to the solar system is Polaris in the

constellation Canis Minor. Delta Cephei's variations in luminosity and spectral type result from the pulsation of the star. The star's spectral type varies from F5 to G3 over a period of 5.36634 days (5 days, 8 hours, 47 minutes and 32 seconds). The brighter component of the binary is classified as a yellow-white F-class supergiant. The companion is believed to be a B-class star and is located 41 arc seconds away. It has an apparent magnitude of 7.5. Cepheids typically form with masses 3-30 times that of the Sun, then pass through the main sequence stage as B-class stars and, once they have burnt up the hydrogen in their core, their helium core loses stability and begins to contract and expand at regular intervals and they undergo stages of nuclear burning. Cepheids are dying high-mass stars that are luminous enough to be seen with the naked eye and easily found in the neighboring galaxies. Since their luminosities are directly tied to their pulsation periods, astronomers only need to measure the stars' visual magnitude to determine their distance and the distances of the galaxies where the stars are located. The Delta Cephei system has a mean apparent magnitude of 4.07.

Alrai – γ Cephei (Gamma Cephei) - Right ascension: $23^h\ 39^m\ 20.85^s$ Declination: +77° 37′ 56.2″

Gamma Cephei is another binary star in Cepheus. It has an apparent magnitude of 3.22 and is approximately 45 light years distant. The star's traditional names are Alrai, Er Rai and Errai, derived from the Arabic *ar-rāʿī*, which means "the shepherd." Beta Ophiuchi is also sometimes referred to as Alrai, but its more common name is Cebalrai, "the shepherd's dog." Gamma Cephei is classified as an orange subgiant (spectral type K1III-IV) and is believed to be 6.6 billion years old. It can be seen by the naked eye. The companion has about 0.409 solar masses and is thought to be an M4 class red dwarf. The first confirmed extrasolar planet was discovered in the orbit of the brighter component in the system in 1989. Later, the discovery was retracted due to insufficient evidence, but measurements in 2002 once again pointed to a likely existence of the planet. Due to the precession of the equinoxes, Gamma Cephei will replace Polaris, Alpha Canis Minoris, as the northern pole star around the year 3,000 AD.

ζ Cephei (Zeta Cephei) - Right Ascension: $22^h\ 10^m\ 51.2^s$ Declination: +58° 12′ 05.0″

Zeta Cephei is an orange subgiant belonging to the spectral type K1 IV. It has an apparent magnitude of 3.39 and is approximately 730 light years distant. The star marks the left shoulder of Cepheus. It is eight times more massive than the Sun, about 3,600 times more luminous, and it has a surface temperature of 4,310 kelvins. It is a suspected binary as well as a suspected variable star.

η Cephei (Eta Cephei) - Right Ascension: $20^h\ 45^m\ 17.37555^s$ Declination: +61° 50′ 19.6167″

Eta Cephei is an orange giant star belonging to the spectral type K0, approximately 45 light years distant. The star is notable for its high proper motion. It is sometimes known by its traditional name Al Kidr.

Garnet Star – μ Cephei (Mu Cephei) - Right Ascension: $21^h\ 43^m\ 30.4609^s$ Dec: +58° 46′ 48.166″

Mu Cephei is a red supergiant, approximately 2,400 light years distant. The star is too far away for its distance to be certain, though. It belongs to the spectral class M2Ia. Mu Cephei has an apparent magnitude of 4.08 and it is one of the most luminous stars known. Sometimes it is called Herschel's Garnet Star, after the astronomer William Herschel who discovered the planet Uranus in 1781. He described Mu Cephei as "a very fine deep garnet color, such as the periodical star o Ceti." Mu Cephei is a class M bright supergiant and one of the largest stars ever observed in the entire galaxy. It has a radius 1,650 times that of the Sun, or 7.7 Astronomical Units. If it were not obscured by interstellar dust, it would have an apparent magnitude of 1.97. Mu Cephei is a prototype for a class of stars known as the Mu Cephei variables. The star's apparent magnitude varies between magnitude 3.62 and 5 in a period of 2 to 2.5 years, without a recognizable pattern. The star has begun to fuse helium into carbon and it is approaching its final stages of life. It is unstable and expected to explode as a supernova in the relatively near future, which might translate into several millions of years.


Mu Cephei, IC 1396 and IC1396A - Elephant's Trunk nebula

VV Cephei (HD 208816) - Right Ascension: 21h 56m 39.144s Declination: +63° 37′ 32.01″

VV Cephei is an eclipsing binary star, almost as large as the Garnet Star. Its radius spans between 7.5 and 8.8 Astronomical Units. The star is approximately 2,400 light years distant. It has an apparent magnitude of 4.91. VV Cephei consists of a red hypergiant and a blue companion star. The hypergiant, VV Cephei A, is the third largest star known. It has a solar radius between 1,600 and 1,900.

V381 Cephei - Right Ascension: 21^h 19^m 15.6880^s Declination: +58° 37′ 24.607”

V381 Cephei is a red supergiant with an apparent magnitude of 5.66, approximately 3,663 light years distant. It is a pulsating variable star. It belongs to the spectral class M1Ibpe+ and has about 9 or 10 solar masses.

Kruger 60 - Right Ascension: 22^h 27^m 59.4677^s Declination: +57° 41′ 45.150″
Kruger 60 is a binary star composed of two red dwarfs that orbit each other with a period of 44.6 years. The star system is only 13.15 light years (4.03 parsecs) distant. The stars have apparent magnitudes of 9.59 and 11.40. In about 88,600 years, Kruger 60 will make its closest approach to the solar system and come within 1.95 parsecs.

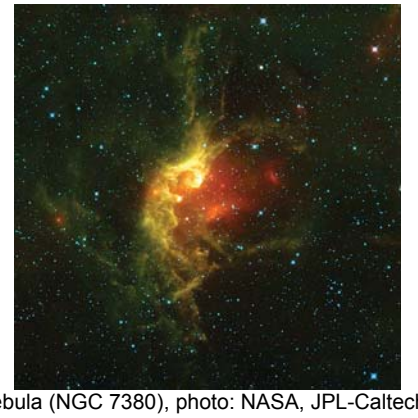
DEEP SKY OBJECTS

Fireworks Galaxy (NGC 6946, Caldwell 12) Right Ascension: 20^h 34^m 52.3^s Dec: +60° 09′ 14″
The Fireworks Galaxy is an intermediate spiral galaxy in Cepheus. It has an apparent magnitude of 9.6 and is approximately 22 million light years distant. It lies on the border between Cepheus and Cygnus. The galaxy was discovered by William Herschel in September 1798. Nine supernovae have been observed in it over the last century: SN 1917A, SN 1939C, SN 1948B, SN 1968D, SN 1969P, SN 1980K, SN 2002hh, SN 2004et, and SN 2008s. NGC 6946

Fireworks Galaxy NGC 6946 and Open Cluster NGC 6939 © 2009/July/13 Harel Boren, Negev Desert, Israel*

The Wizard Nebula – NGC 7380 Right Ascension: 22^h 47.0^m Declination: 58° 06′

NGC 7380 is an open star cluster also known as the Wizard Nebula. It was discovered by Caroline Herschel in 1787. The cluster is embedded in a nebula which is about 110 light years in size. The cluster is located with the Milky Way Galaxy and is approximately 7,000 light years distant from the solar system. The stars in it are less than five million years old, which makes NGC 7380 a young open cluster.



The Wizard Nebula (NGC 7380), photo: NASA, JPL-Caltech, WISE Team

NGC 7538 Right Ascension: 23^h 13^m 45.7^s Declination: +61° 28′ 21″
NGC 7538 is an emission or reflection nebula, approximately 9,100 light years distant. The nebula contains the biggest protostar (a large mass formed when gas inside a giant molecular cloud contracts) discovered to date. The protostar, located in the Perseus Spiral Arm of the Milky Way Galaxy, is 300 times the size of the solar system. The Bubble Nebula (NGC 7635) is located nearby (though in Cassiopeia) Right Ascension: 23^h 20^m 48.3^s Declination: +61° 12′ 06″


NGC 7538


Widefield image of NGC 7635 and M52

NGC 188 (Caldwell 1) Right Ascension: 00^h 48^m 26^s Declination: +85° 15.3”
NGC 188 is an open star cluster, approximately 5,400 light years distant. It was discovered by the English astronomer Sir John Frederick William Herschel in 1825. It is one of the oldest known open clusters. It lies about five degrees away from the North Celestial Pole.

The Iris Nebula (NGC 7023, Caldwell 4)
The Iris Nebula (NGC 7023) is a reflection nebula with an apparent magnitude of 6.8. It is approximately 1,300 light years distant. The object is really a star cluster embedded inside a nebula. The Iris Nebula is lit by the star SAO 19158 and it lies close to two relatively bright stars, T Cephei, which is a Mira type variable, and Beta Cephei, which has an apparent magnitude of 3.23.


The Iris Nebula (NGC 7023) © 18 May 2009 Hewholooks

NGC 7129
NGC 7129 is an open cluster star-forming region located in a reflection nebula that has the shape of a rosebud. The cluster contains more than 130 young stars, believed to be less than a million years old. It is approximately 3,300 light years distant and has an apparent magnitude of 11.5.

NGC 7142
NGC 7142 is another open cluster in Cepheus. It has an apparent visual magnitude of 9.3 and is approximately 6,200 light years distant. The cluster lies in the vicinity of the nebula NGC 7129 and is believed to be obscured by an interstellar cloud. The cluster is thought to be one of the oldest open clusters known, even if its age is difficult to determine because it is unknown just how obscured it is by interstellar reddening. Curiously, for an old cluster, NGC 7142 contains an uncommonly high number of young blue stars.

Tackling the Really BIG Questions By Diane K. Fisher

How does NASA get its ideas for new astronomy and astrophysics missions? It starts with a Decadal Survey by the National Research Council, sponsored by NASA, the National Science Foundation, and the Department of Energy. The last one, *New Worlds, New Horizons in Astronomy and Astrophysics* was completed in 2010. It defines the highest-priority research activities in the next decade for astronomy and astrophysics that will "set the nation firmly on the path to answering profound questions about the cosmos." It defines space- and ground-based research activities in the large, midsize, and small budget categories.

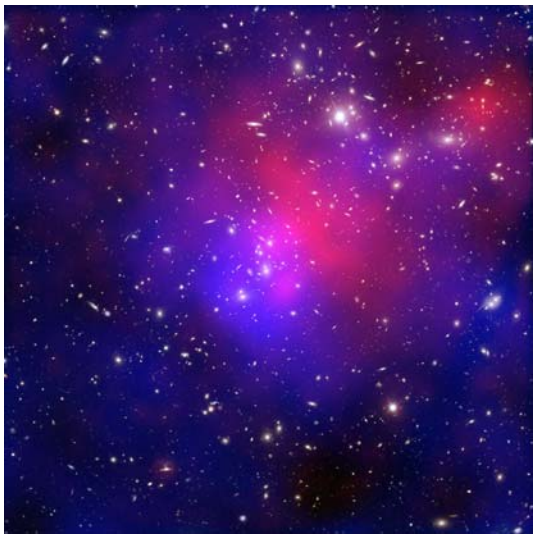
The recommended activities are meant to advance three science objectives:

1. Deepening understanding of how the first stars, galaxies, and black holes formed,
2. Locating the closest habitable Earth-like planets beyond the solar system for detailed study, and
3. Using astronomical measurements to unravel the mysteries of gravity and probe fundamental physics.

For the 2012-2021 period, the highest-priority large mission recommended is the Wide-field Infrared Survey Telescope (WFIRST). It would orbit the second Lagrange point and perform wide-field imaging and slitless spectroscopic surveys of the near-infrared sky for the community. It would settle essential questions in both exoplanet and dark energy research and would advance topics ranging from galaxy evolution to the study of objects within the galaxy and within the solar system.

Naturally, NASA's strategic response to the recommendations in the decadal survey must take budget constraints and uncertainties into account. The goal is to begin building this mission in 2017, after the launch of the James Webb Space Telescope. But this timeframe is not assured. Alternatively, a different, less ambitious mission that also address the Decadal Survey science objectives for WFIRST would remain a high priority. The Astrophysics Division is also doing studies of moderate-sized missions, including: gravitational wave mission concepts that would advance some or all of the science objectives of the Laser Interferometer Space Antenna (LISA), but at lower cost; X-ray mission concepts to advance the science objectives of the International X-ray Observatory (IXO), but at lower cost; and mission concept studies of probe-class missions to advance the science of a planet characterization and imaging mission.

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



Clusters of galaxies collide in this composite image of "Pandora's Cluster – ABell 2744 – In the constellation Sculptor." Data (in red) from NASA's Chandra X-ray Observatory show gas with temperatures of millions of degrees. Blue maps the total mass concentration (mostly dark matter) based on data from the Hubble Space Telescope (HST), the European Southern Observatory's Very Large Telescope (VLT), and the Japanese Subaru telescope. Optical data from HST and VLT also show the constituent galaxies of the clusters. Such images begin to reveal the relationship between concentration of dark matter and the overall structure of the universe.

Centennial Observatory and Faulkner Planetarium Events

Event	Place	Date	Time	Admission
Bimonthly Astronomy Talk: "Introducing Leo, the Lion"	Rick Allen Room	Friday, March 8th, 2013	6:30 to 7:30 PM	$2.50 adults $1.50 students (incl. CSI) Free - children 6 & under
Astronomy Talk Night Telescope Viewing	Centennial Observatory	Friday, March 8th, 2013	7:30 to 9:30 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, March 9th, 2013	7:30 PM to midnight	FREE
Earth Hour Telescope Viewing	Centennial Observatory	Saturday, March 23rd, 2013	8:30 to 9:30 PM	FREE

Faulkner Planetarium Schedule
February 17th through March 23rd, 2013

Day	Time	Faulkner Planetarium Show Schedule Beginning 2/17 – 3/23
Tuesday	7:00	Two Small Pieces of Glass/Live Sky Tour
Friday	7:00	Two Small Pieces of Glass /Live Sky Tour
	8:15	Led Zeppelin: Maximum Volume 1
Saturday	2:00	The Dinosaur Chronicles
	4:00	How To Build A Planet
	7:00	Two Small Pieces of Glass /Live Sky Tour
	8:15	Pink Floyd: Dark Side of the Moon

Bruneau Dunes Observatory

The Observatory is currently closed.

Trivia Time

Gemini 3 was the first manned mission in NASA's Gemini program, the second American manned space program. On March 23, 1965, the spacecraft, nicknamed ***Molly Brown***, performed the seventh manned US spaceflight, and the 17th manned spaceflight overall (including X-15 flights over 100 kilometers). It was also the final manned flight controlled from Cape Canaveral, Florida before mission control functions were shifted to the Manned Spacecraft Center in Houston, TX. On this mission there were several firsts: First U.S. Mission with two men on board. Testing of new maneuverable spacecraft - The Gemini Capsule and the first Corned Beef Sandwich in space by Astronaut John W. Young (his first mission), the sandwich was smuggled aboard. Even though astronaut Young was reprimanded he went on five more missions including Apollo-16 (Walked on the Moon) and STS-1, the first Space Shuttle flight. If he had shared that sandwich with Astronaut Gus Grissom, he probably wouldn't have been reprimanded. Pass the mustard.

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

Snake River Skies is the Newsletter of the Magic Valley Astronomical Society and is published electronically once a month.

"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.