Snake River Skies

The Newsletter of the Magic Valley Astronomical Society
June 2014

Membership Meeting
Astronomy Day
Saturday June 14th 2014
7:00pm at the
Herrett Center for Arts & Science
College of Southern Idaho
Public Star Party follows the
General Mtg. at Centennial Obs.

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Magic Valley Astronomical Society
is a member of the
Astronomical League

Message from the President – Robert Mayer

Colleagues,

It has been a busy month of May, and it will be a busy month of June. We started off the month with a great Astronomy Day at the Herrett Center at the College of Southern Idaho. Later that day, Mark Daily, chair of the College of Southern Idaho Physical Science department taught us just how a hot plate and a laser can be used to teach us about adaptive optics and opened our eyes into how lasers are being used to deal with the distortion our atmosphere does to the light we see. At the end of the month we attempted to catch a new meteor shower, the Camelopardalis, but as did the many of the country learned as we did, we are sad to say that very little manifested. Still, the evening wasn't wasted as we took advantage of the dark skies of the Jerome Gun Club to look up other objects. Just after this newsletter went to press, we were preparing for the first ever Hagerman Fossil Beds National Monument Star Party.

This month has the potential to be just as busy. Yes, the regular Wednesday solar sessions at the Centennial Observatory are picking up, but perhaps the highlight of the month is the Idaho Falls' Astronomical Society's star party at the Craters of the Moon National Monument, set for June 27-28. While this is the IFAS' star party, four of us went last year and were warmly welcomed. I think IFAS would love to have more of us down there, so feel free to take advantage of the dark skies of the desert landscape. That's just one of the few activities going around astronomy and southern Idaho, so let's keep in touch via MVAS E-mails

Clear Views,

Rob Mayer

In this Issue

June Overview

The length of the day stops getting longer by the 21st of the month. Our day in Idaho lasts13 hours and 17 minutes on the first and is only 21 minutes longer on the 30th.

A thin crescent moon is visible on the night of the 1st. In binoculars, you should be able to see Earthshine. A second opportunity to observe Earthshine occurs in the morning starting the 22nd as the moon approaches Venus

Venus remains very low in the east. You'll need to look an hour before sunrise (around 5:00 AM) to see it.

Mars is located in the southwest after dark and appears as a yellow-orange star. The moon makes a close passage to the planet on the 7th.

This is your last month to observe Jupiter in the evening. Look for the bright planet low in the west-northwest. The moon appears close to Jupiter on the 1st.

June is Saturn's month. The pale yellow-white planet appears in the southern sky after darkness sets. The moon passes close to Saturn and the wide double star Zubenelgenubi on the 9th.

Giovanni Cassini (1625-1712), Charles Messier (1730-1817), and George Ellery Hale (1868-1938) were born this month.

Mercury is in the northwest, Mars is in the southwest, Jupiter is in the west, and Saturn is in the south in the evening sky. At midnight, Mars and Saturn lie in the southwest. Venus and Uranus can be found in the east and Neptune in the southeast at dawn.

Brightness, apparent size, illumination, distance from the Earth in astronomical units, and location data for the planets and Pluto on June 1: Mercury (magnitude +1.9, 9.5", 25% illuminated, 0.71 a.u., Gemini), Venus (magnitude -4.1, 13.9", 77% illuminated, 1.20 a.u., Aires), Mars (magnitude -0.5, 11.8", 91% illuminated, 0.79 a.u., Virgo), Jupiter (magnitude -1.9, 32.9", 100% illuminated, 5.99 a.u., Gemini), Saturn (magnitude +0.2, 18.5", 100% illuminated, 8.97 a.u., Libra), Uranus on June 16th (magnitude +5.9, 3.5", 100% illuminated, 20.37 a.u., Pisces), Neptune on June 16th (magnitude +7.9, 2.3", 100% illuminated, 29.66 a.u., Aquarius) and Pluto on June 16th (magnitude +14.1, 0.1", 100% illuminated, 31.70 a.u., Sagittarius).

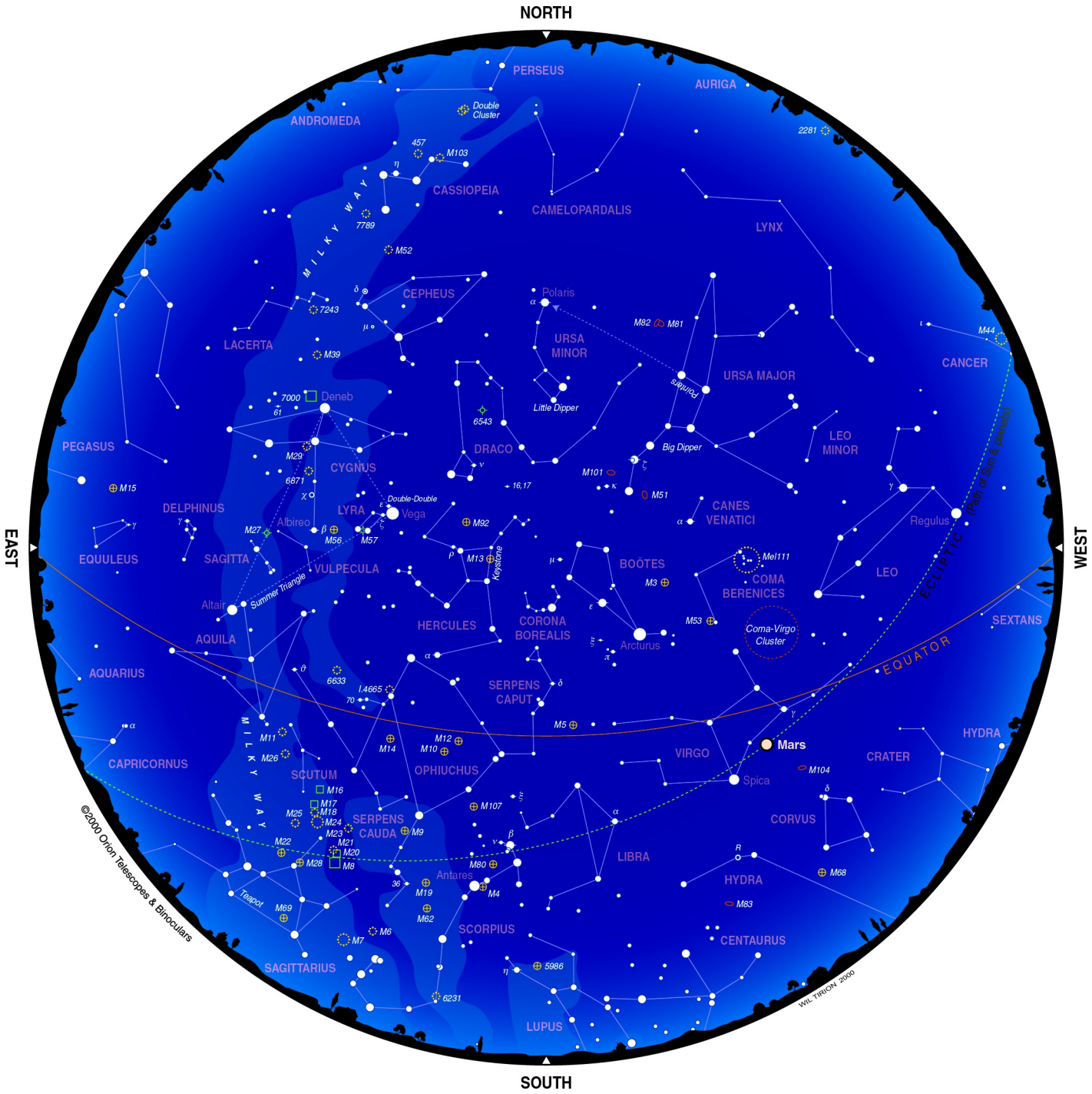
June marks the end of productive telescopic observing of the planet with small and medium apertures.

Calendar

June 2014

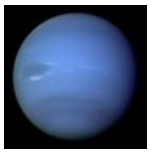
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2  Moon is at apogee subtending 29'30"	3  Triple Galilean satellite transit at noon	4	5  First Quarter Moon 47% Visible	6	7
8	9	10	11	12	13  Full Moon 100% Visible Greatest southern declination -19.1°	14 Flag Day General Membership Mtg at 19:00 Herrett Center College of Southern Idaho Earliest Sunrise of the year.
15  Father's Day	16  Moon is at perigee, subtending 33'00"	17  Earliest morning twilight of the year	18	19  Last Quarter Moon 57% Visible	20  Summer Solstice Begins at 04:51-hrs. Fri.	21
22	23	24	25	26  Moon greatest northern declination of +19.1°	27  New Moon 1% Visible	28
29	30					

Planisphere



Be Safe – Get Out There – Explore Your Universe!

Solar System

	Mercury is less than one half of a degree south of the bright open cluster M35 on June 2nd. It is at the descending node on June 5th. On June 6th, Mercury begins retrograde motion. It is stationary on June 7th and is at aphelion on June 15th. The speedy planet is at inferior conjunction on June 19th and is lost in the glare of the Sun for the remainder of June.
	Venus continues to shrink in apparent size (13.9 to 12.0 arc seconds) but grow in illumination (77 to 85%) this month. It rises about two hours before sunrise. Venus departs Aries and enters Taurus on June 18th. The brightest planet is located a bit more than two degrees south of the waning crescent Moon on the morning of June 24th. During the last week of June, Venus passes between the Pleiades and the Hyades.
	Mars shrinks in apparent size (11.8 to 9.5 arc seconds) and decreases in brightness (-0.5 to 0.0 magnitude), as it continues to recede from the Earth. At sunset, it is already to the west of the meridian. Mars is less than two degrees north of the Moon for western hemisphere observers on the night of June 7th. It is at the descending node on June 11th, as it passes south of the ecliptic. June marks the end of productive telescopic observing of the planet with small and medium apertures.
	The gas giant Jupiter disappears into the glare of evening twilight by the end of June. A 95-minute-long triple Galilean satellite shadow transit takes place on June 3rd but occurs during the daytime from the western hemisphere. On June 21st, Jupiter passes 6 degrees south of Pollux.
	Saturn shines at magnitude 0.3 and spans 18.3 arc seconds as it retrogrades in Libra. Its rings subtend 42 arc seconds and are inclined by 21 degrees. Saturn is occulted by the Moon in some parts of the southern hemisphere on June 10th. The peculiar satellite Iapetus shines at tenth-magnitude this month. It lies 2.3 arc minutes south of the planet on June 12th and 8.8 arc minutes west of the planet on June 30th.
	Uranus can be found two to three degrees south-southwest of the fourth-magnitude star Delta Piscium. The sixth-magnitude stars 73 and 80 Piscium lie to the east of Uranus.
	Neptune is located between two seventh magnitude stars, approximately two degrees northeast of the fifth-magnitude star Sigma Aquarii. The distant planet begins retrograde motion on June 10th.
	Pluto lies in northern Sagittarius, about one half of a degree north of the fifth-magnitude star Xi1 Sagittarii. A finder chart is available on pages 50 and 51 of the June issue of Sky & Telescope
	Comet C/2012 X1 (LINEAR) and Comet C/2012 K1 (PanSTARRS) are at 8th magnitude and will remain that bright until July. PanSTARRS moves through Leo Minor and will continue above the head of Leo in July. After reaching perihelion on the other side of the Sun on August 27th it may be 6th magnitude when closest to and below Earth in November southern hemisphere skies. LINEAR, south of the ecliptic in southern Aquarius, will move into Pisces Austrinus in June as an early morning apparition. It will be nearest to Earth on June 27th in Pisces Austrinus and not visible from northern latitudes. Comet C/2013 UQ4 (Catalina) is in western Pisces and may reach 7th or 8th magnitude prior to and after passing perihelion on July 5th. It rises in the wee hours well after midnight on the 1st and closer to midnight on the 30th. It was discovered on October 23, 2013 and initially designated as an asteroid. It exhibited cometary activity in May, 2014 and was redefined as a dark comet. Dark comets are comets which have lost their sizzle, they can occasionally make comebacks and develop tails like normal comets. Astronomers predict that it will be 1.08 A.U. from the Sun at perihelion and within 0.31 A.U. from Earth on July 10th. They determined that it is probably a long period comet which is coming into the inner solar system on a 500 year counter clockwise orbit originating in the Oort or Kuiper Belt.

Idaho Skies
June 2014 / Vol. 8 No. 6

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 nearsys@gmail.com

This month look for the star Alkaid, the star at the end of the Big Dipper's handle. Astronomers refer to Alkaid as Eta Ursae Majoris and in Arabic the name means "the leader". Its name is a reference to the star representing the lead daughter (the three stars of the handle are sisters) at a funeral bier. If you know someone who is 104 years old this year, then Alkaid is his or her birthday star. The light of Alkaid you see tonight left in 1910.

Alkaid is a hot star. It's about four times hotter then the sun and 700 times brighter. It's hotter and brighter because it has a mass six times greater than our sun's. The star's greater mass is crushing its core with a force greater than the sun's force. That extra compression heats up the core and increases its rate of fusion. On the down side, the star will burn out far sooner than our sun.

The Big Dipper is not a constellation (a pattern of stars officially recognized by professional astronomers). It's an asterism or popular pattern of stars. The Big Dipper is actually part of a much larger constellation called Ursa Major, the Big Bear. The dipper portion of Ursa Major represents just the bear's body and a very long tail. The rest of Ursa Major is fainter and is not as well known. However, in dark skies you can make out three legs, head, and snout of the bear.

June 1 – 7

Jupiter is approaching the western horizon and will no longer be visible in the evenings by the beginning of July. Therefore, if you want to observe Jupiter before it reappears in the morning, you only have three weeks (and each week is more difficult than the last). Jupiter appears to the right of the four day old moon on the 1st.

On the 2nd, the moon appears 9 degrees below the Beehive star cluster. This means with your binoculars, you'll need to scan two binocular fields of view above the moon to observe this bright star cluster.

The moon is just below the constellation of Leo the lion on the night of the 4th. The bright star to the moon's upper right is Leo's brightest star Regulus, which represents the lion's heart.

The moon is also first quarter on the 4th. This gives you a second reason to go outside and star gaze. Use binoculars or a spotting scope and scan the straight edge of the moon for craters and mountains. While craters are most plentiful in the south, lunar seas and mountains are more plentiful in the north.

Mars is the bright orange star to the moon's left on the evening of the 7th. Unfortunately, you'll need a pretty descent telescope to see any Martian surface features.

June 8 – 14

Venus is the Morning Star this month and is not visible until 4:30 AM in the east-northeast. Being perpetually could-enshrouded, Earth bound telescopes are unable to observe any surface features of this planet. Past observations by radio telescopes and visiting spacecraft indicated that the planet's surface temperature was hot, but not to what the planet's surface was like. Our view of Venus as a planet began to change when the Soviet Union launched Venera 9 on June 8, 1975. Images returned by the Venera 9 lander showed a flat rocky surface made from basalt, or lava rock. Because of Venus' atmospheric pressure (90 times greater than Earth's at sea level) and air temperature (over 900 degrees F), the lander only transmitted data for 53 minutes.

The moon passes very close to Spica on the 8th. Spica is the brightest star in Virgo and appears to the moon's right. Virgo is a large constellation, but unfortunately, it's made up of dim stars.

The moon leads you to Saturn on the 9th. Saturn appears as the creamy white star to the moon's left. Point a small telescope at Saturn and you'll be able to observe its rings. The telescope needs a magnification of at 25 power in order to see the rings. You'll see a second star even closer to the moon. This is Zubenelgenubi, a star you can split into two through binoculars.

The moon stands guard over Scorpius the Scorpion on the 12th. The heart of the scorpion is the red-giant star Antares and it's located just below the moon.
Look a bit farther left of Antares and you'll find a close pair of stars forming a horizontal line. This star pair represents the scorpion's stinger and they are located near a wonderful star cluster. To find it, look through binoculars and place the stinger stars on the right side. You'll see this attractive star cluster on the left. The star cluster is called M-7 or Ptolemy's cluster.

The moon rises in the east just after midnight on the 14th. Wait until 2:00 or 3:00 AM and you can use your binoculars to find all kinds of star clusters and nebula near the moon. You'll need to scan the sky just past the moon's right side.

June 15 – 21

The first Russian woman was launched into space on June 16, 1963 and the first American woman on June 18, 1983. The Russian launch was a political stunt to upstage the Americans and the cosmonaut, Valentina Tereshkova was merely a passenger onboard her Vostok 5 spacecraft. American Sally Ride actually worked onboard the Space Shuttle during her flight. Since Sally Ride's mission, American women have played a larger role in space missions than has their European or Russia equivalents.

The sun reaches its farthest point north of the equator on the 21st at 4:51 AM. At that moment, summer begins in the northern hemisphere and winter in the southern hemisphere. The night is its shortest for the year. The hottest temperature won't occur for another month because it takes time for the sun to warm up the Earth's surface and atmosphere.

If you happen to be visiting the Grand Canyon between the 21st and 28th, then be sure to check out all the telescopes. There's a star party on the south rim and it's opened to the public.

June 22 – 31

Have you ever wanted to find the constellation of Aries the Ram? Well, at 4:00 AM on the 22nd the constellation is located just above the moon. The Ram is a small 3-star constellation with a squat triangular shape. The triangle has a base several times wider than the moon and it points nearly straight up. Aries represents the ram with the Golden Fleece in Greek mythology.

Pluto's first moon was discovered 36 years ago on the 22nd. For 48 years after Pluto's initial discovery, the outermost world remained an enigma to astronomers. However, that changed when astronomer Jim Christy discovered that Pluto had a satellite.

The new satellite was named Charon, after the ferryman of the dead. Because of the gravitational interaction between Pluto and Charon and a fortunate set of eclipses, we now know that Pluto has a diameter of 1,400 miles and consists of a large rocky core and thinner coating of ice. Since then, four other satellites have been found orbiting this distant world. All five satellites appear to be predominately made of ice and most likely formed as the result of a collision between Pluto and another icy body.

The moon makes a call on Venus, the Morning Star on the 24th. At 5:00 AM, look very low in the east for this attractive pair. Their distance apart is a scant two degrees, so they will fit well together in your binoculars.

Earth received an interplanetary wake up call 106 years ago on the 30th. June 30, 1908 started out as just another day for the Tungus people in Siberia. At 7:14 AM, they saw the sky split in two as a great meteor, glowing brighter than the sun, fell from the sky. This meteor didn't go out with the whimper like most meteors, the tremendous heat of its reentry vaporized the space rock and it exploded some 5 miles above the ground. The 50 foot diameter meteoroid or comet exploded with the force of a 10 to 15 megaton nuclear bomb. People over one hundred miles away where knocked off their feet and their windows were shattered.

No crater or meteorite fragments have ever been found at Tunguska. The destruction of the meteor was complete. Events like Tunguska occur naturally and point to the need for a program to regularly scan the skies for approaching extraterrestrial threats.

This Month's Sources

Astronomical Events for 2014, http://www.universetoday.com/107259/101-astronomical-events-for-2014/
Night Sky Explorer
Space Calendar, http://www.jpl.nasa.gov/calendar/
Sky Watch 2014, Sky Publishing Media
Alkaid, http:en.m.wikipedia.org/wiki/Eta_Ursae_Majoris

Deep Sky

Forty binary and multiple stars for June: Struve 1812, Kappa Bootis, Otto Struve 279, Iota Bootis, Struve 1825, Struve 1835, Pi Bootis, Epsilon Bootis, Struve 1889, 39 Bootis, Xi Bootis, Struve 1910, Delta Bootis, Mu Bootis (Bootes); Struve 1803 (Canes Venatici); Struve 1932, Struve 1964, Zeta Coronae Borealis, Struve 1973, Otto Struve 302 (Corona Borealis); Struve 1927, Struve 1984, Struve 2054, Eta Draconis, 17-16 Draconis, 17 Draconis (Draco); 54 Hydrae (Hydra); Struve 1919, 5 Serpentis, 6 Serpentis, Struve 1950, Delta Serpentis, Otto Struve 300, Beta Serpentis, Struve 1985 (Serpens Caput); Struve 1831 (Ursa Major); Pi-1 Ursae Minoris (Ursa Minor); Struve 1802, Struve 1833, Phi Virginis (Virgo)

Notable carbon star for June: V Corona Borealis

Fifty deep-sky objects for June: NGC 5466, NGC 5676, NGC 5689 (Bootes); M102 (NGC 5866), NGC 5678, NGC 5879, NGC 5905, NGC 5907, NGC 5908, NGC 5949, NGC 5963, NGC 5965, NGC 5982, NGC 5985, NGC 6015 (Draco); NGC 5694 (Hydra); NGC 5728, NGC 5791, NGC 5796, NGC 5812, NGC 5861, NGC 5878, NGC 5897 (Libra); M5, NGC 5921, NGC 5957, NGC 5962, NGC 5970, NGC 5984 (Serpens Caput); M101, NGC 5473, NGC 5474, NGC 5485, NGC 5585, NGC 5631 (Ursa Major); NGC 5566, NGC 5634, NGC 5701, NGC 5713, NGC 5746, NGC 5750, NGC 5775, NGC 5806, NGC 5813, NGC 5831, NGC 5838, NGC 5846, NGC 5850, NGC 5854, NGC 5864 (Virgo)

Top ten deep-sky objects for June: M5, M101, M102, NGC 5566, NGC 5585, NGC 5689, NGC 5746, NGC 5813, NGC 5838, NGC 5907

Top five deep-sky binocular objects for June: M5, M101, M102, NGC 5466, NGC 5907

Challenge deep-sky object for June: Abell 2065 (pictured below)

The objects listed above are located between 14:00 and 16:00 hours of right ascension.

The weather for our first annual Hagerman Fossil Beds star party did not look very promising. We were all looking forward to this star party co-hosted by the Hagerman Fossil Beds National Monument, the Magic Valley Astronomical Society and the College of Southern Idaho's Centennial Observatory. After Chris Anderson's presentation at the visitor's center the wind was still blowing at 25 knots and the sky was covered with large patches of ominous clouds.

At least ten members showed up at the observing site but a few decided to leave before dark. The wind died down a little between 9 and 9:30 PM but the ugly, dark cloud cover persisted. Two guests showed up early so we decided to set up Jim Hoggatt's 10" Dobsonian just to show them how a telescope works, even if we couldn't look at the sky. Just as we put the tube on the rocker box a thin line of clear sky appeared in the West. After we got the Telrad mounted the clear area had increased and the Moon dropped out of the clouds. By the time everyone had ogled Mare Crisium, Jupiter was out in its full glory.

As the clearing continued more guests showed up and we looked at Mars and Saturn. Chris decided to set up the JMI and Paul put out is 8" SCT. As more guests arrived the sky cleared completely and we had free reign to show anything we wanted. The evening was a total success. We had over 20 visitors including several HFB employees. All guests were very impressed with sights of the planets, globular clusters and galaxies. Those who stayed late were treated to views of the Veil Nebula through OIII filters, the Owl Nebula, many objects in Sagittarius and M11, the Wild Duck cluster.

The staff at the visitor's center was very impressed with our knowledge of the sky and the hardware we use to explore it. Everyone hopes that to continue this great event in the future.

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 only to current members of the **Boise Astronomical Society**, **Magic Valley Astronomical Society**, **Idaho Falls Astronomical Society, Palouse Astronomical Society** and registered attendees of the 2014 Idaho Star Party.

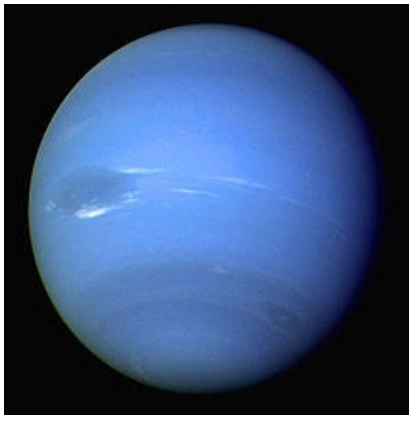
You may obtain **Meade OTA Drawing** tickets from the **Boise Astronomical Society** between now and Saturday, September 20, 2014. Donations for tickets are $1.00 each or 6 for $5.00. Tickets may be obtained at **Boise Astronomical Society** meetings or at the **Idaho Star Party** at Bruneau Dunes State Park, September 19-20, 2014. You may obtain tickets by mail by sending your request with donation (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 31, 2014. The winning ticket will be drawn on Saturday afternoon, September 20, 2014, at the **Idaho Star Party**. You do not have to be present to win.

Do You Know / Trivia

Big Blue Giant: Twenty-five years ago this month, the Voyager 2 spacecraft was close enough (117 million km, or 73 million mi) to Neptune to begin regularly monitoring activity in Neptune's atmosphere. This observatory phase was significant because it marked the beginning of Voyager 2's final planetary port of call after a twelve-year voyage through the outer solar system. As it approached Neptune, Voyager 2 returned increasingly higher resolution images of Neptune's Great Dark Spot and a smaller white feature known as Scooter, shown here from only 7 million km (4.4 million mi) away. Launched in 1977, Voyager 2 visited Jupiter in 1979, Saturn in 1981, and Uranus in 1986. Voyager 2 and its sibling, Voyager 1, are now near the edge of interstellar space and are still in contact with Earth.



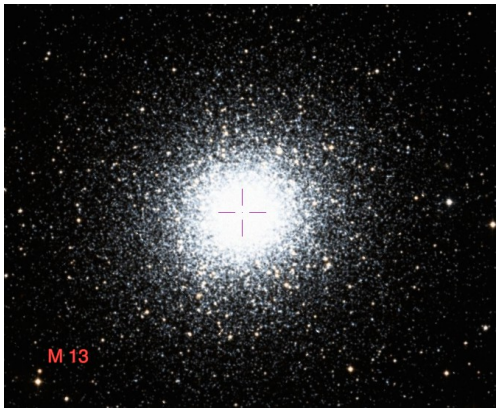
Looking Through the Eyepiece

Messier 13 and Friends by Steve Bell

The constellation Hercules rides high on June evenings and one of everyone's favorite targets sits of one side of the constellation's keystone, globular cluster M 13. There are two other globular clusters and a bright planetary in the immediate vicinity, as well as a galaxy that may be seen in passing while observing M 13, NGC 6207.
The other two globular clusters are an additional Messier, M92, and a fairly nice NGC, 6229. The planetary is NGC 6210, bright and accessible to smaller apertures.

OBJECT	TYPE	RA	DEC	MAG	SIZE
M13	Globular	16 41 41	+36 27 35	7.0	16.6
NGC6207	Galaxy	16 43 06	+36 50 00	11.6	3.0
M92	Globular	17 17 07	+43 08 11	7.5	11.2
NGC6229	Globular	16 47 00	+47 32 00	9.4	4.5
NGC6210	P Neb	16 44 30	+23 49 00	9.0	0.2

Messier 13:

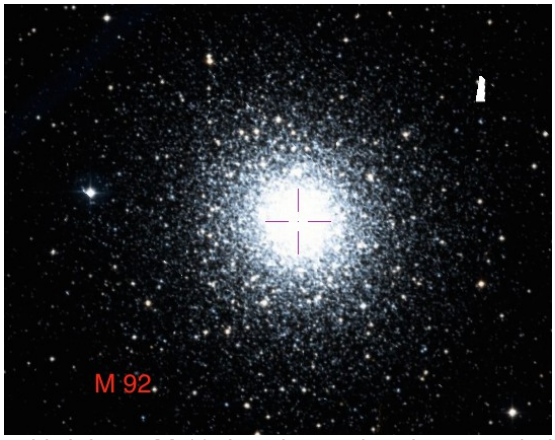


M 13 is the brightest of the northern hemisphere globular clusters, lying about 23000 light years away and containing at least several hundred thousand stars. Brighter that 6th magnitude, it is theoretically visible to the naked eye with very good (and young) vision under very dark transparent skies.

Visible in almost any instrument, including binoculars, it produces a fine view in a telescope. Through an 8" SCT under good suburban sky conditions, M 13 occupied about 1/5 field of view at 156X with strings of stars radiating outward. The outer halo was completely resolved with outer stars resolved across the face and had a broad, bright core.

NGC 6207: If you are observing M 13 with an 8" aperture or so (maybe smaller), move the center of field about a half degree (27') NNE and you should see a much dimmer, 3:1 oval oriented NNE-SSW. This is the spiral galaxy NGC 6207. This type Sc spiral, while appearing as a camp follower chasing M13, actually is some 53 million light years from the Milky Way. At magnitude 11.6, you will overlook it if you're not careful.

Through a 10” f/5.5 Newtonian at 102X, this galaxy appeared oval, 3:1 NE-SW with a bright stellar core with an abrupt transition in brightness from the halo to the core. It was less than 1/20 of the field of view.



Messier 92: M 92 is almost as large and bright as M 13, but due to the close proximity of its famous neighbor, it is often passed over. It is about 27000 light years from the sun.

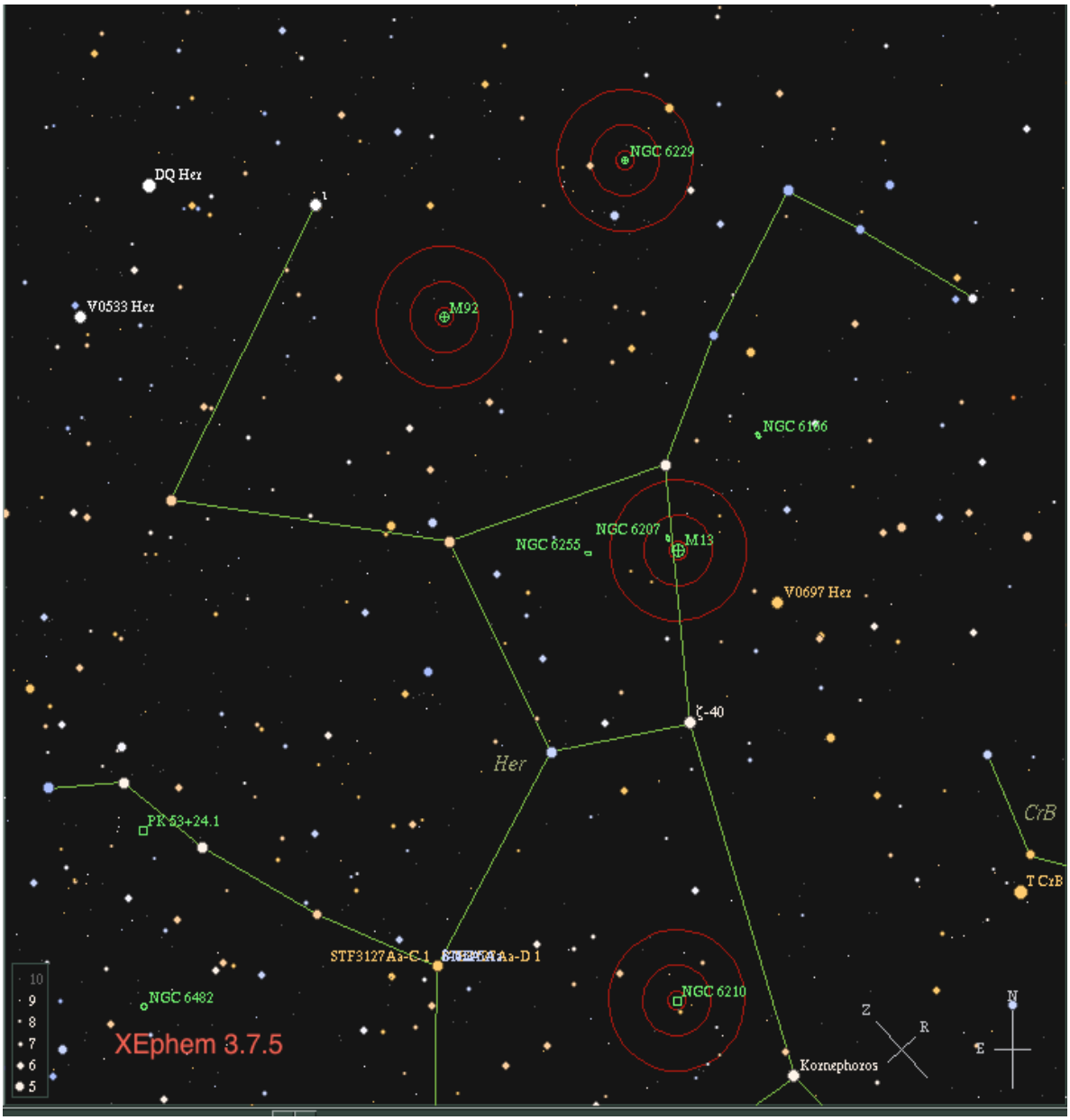
Through an 8” SCT at 147X, M 92 appeared circular and about 1/9 field of view. The outer area was resolved and appeared granular across the face. It had a broad, bright and highly concentrated core with an abrupt brightness transition from outer area to core.

NGC 6229: The smallest and dimmest of Hercules’ three globular clusters, NGC 6229 is nonetheless a worthy target. This mag 11 globular cluster is about one-fourth the size of M 13. It is also three times farther away at 99000 light years. Through an 8” SCT at 156X NGC 6229 appeared much dimmer and smaller than M92, around 1/20 FOV. It was very grainy with averted vision, but not resolved. It was highly concentrated toward the core.

NGC 6210: This diminutive planetary nebula (as most PN are) is still larger than many at 18”x12” and fairly bright at mag 9, or so, and a surface brightness of 5.9, so it is fairly visible. Its central star is mag 12.5, so its visibility will depend on aperture, magnification and sky quality. The best estimate for its distance is around 6200 light years, but there is a large uncertainty in this value.

Finder Chart for M 13 and Friends:

Through an 8” SCT at magnifications up to 194X, this PN appeared green and was readily visible without a filter, but with no detail seen. A UHC-class filter did not provide any surface detail. The central star was not seen. Object images were extracted with *Aladin*.



The Hottest Planet in the Solar System

By Dr. Ethan Siegel

When you think about the four rocky planets in our Solar System—Mercury, Venus, Earth and Mars—you probably think about them in that exact order: sorted by their distance from the Sun. It wouldn't surprise you all that much to learn that the surface of Mercury reaches daytime temperatures of up to 800 °F (430 °C), while the surface of Mars never gets hotter than 70 °F (20 °C) during summer at the equator. On both of these worlds, however, temperatures plummet rapidly during the night; Mercury reaches lows of -280 °F (-173 °C) while Mars, despite having a day comparable to Earth's in length, will have a summer's night at the equator freeze to temperatures of -100 °F (-73 °C).

Those temperature extremes from day-to-night don't happen so severely here on Earth, thanks to our atmosphere that's some 140 times thicker than that of Mars. Our average surface temperature is 57 °F (14 °C), and day-to-night temperature swings are only tens of degrees. But if our world were completely airless, like Mercury, we'd have day-to-night temperature swings that were *hundreds* of degrees. Additionally, our average surface temperature would be significantly colder, at around 0 °F (-18 °C), as our atmosphere functions like a blanket: trapping a portion of the heat radiated by our planet and making the entire atmosphere more uniform in temperature.

But it's the *second* planet from the Sun -- Venus -- that puts the rest of the rocky planets' atmospheres to shame. With an atmosphere **93 times as thick as Earth's**, made up almost entirely of carbon dioxide, Venus is the ultimate planetary greenhouse, letting sunlight in but hanging onto that heat with incredible effectiveness. Despite being nearly twice as far away from the Sun as Mercury, and hence only receiving 29% the sunlight-per-unit-area, the surface of Venus is a toasty 864 °F (462 °C), with *no difference* between day-and-night temperatures! Even though Venus takes hundreds of Earth days to rotate, its winds circumnavigate the entire planet every four days (with speeds of 220 mph / 360 kph), making day-and-night temperature differences irrelevant.

Catch the hottest planet in our Solar System all spring-and-summer long in the pre-dawn skies, as it waxes towards its full phase, moving away from the Earth and towards the opposite side of the Sun, which it will finally slip behind in November. A little atmospheric greenhouse effect seems to be exactly what we need here on Earth, but as much as Venus? No thanks!

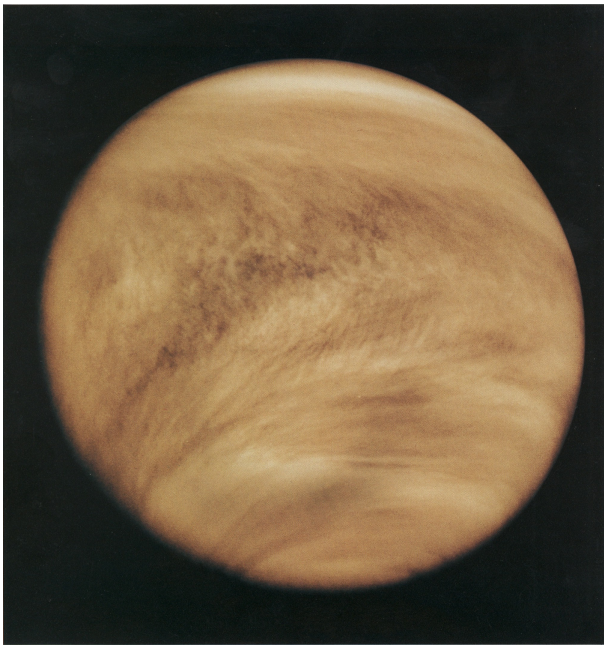


Image credit: NASA's Pioneer Venus Orbiter image of Venus's upper-atmosphere clouds as seen in the ultraviolet, 1979.

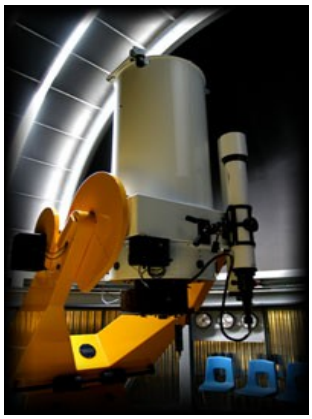
Observatories & Planetarium

Bruneau Dunes Observatory – Bruneau, ID

You're invited to star gaze at the Bruneau Dunes Observatory! See the night sky as you've never seen it before. Observatory tours and solar viewing (through a specially adapted telescope) begin one hour before sunset, and are free of cost. Following that, visitors can view short orientation program and then have the chance to survey the heavens through the observatory's collection of telescopes. There is a viewing fee of $3 per person (children 5 and under are free of cost) for this. The observatory is open to the public from early May through mid-October on Friday and Saturday nights only, weather permitting. For presentation times, call 208-366-7919, or check the kiosk when you arrive at the park.

Centennial Observatory – Herrett Center – Twin Falls, ID

The observatory features one of the world's largest fully wheelchair-accessible public telescopes. The main instrument is the Norman Herrett telescope, a 24" Ritchey-Chretien reflector on a computer-controlled fork mount, manufactured by DFM Engineering of Longmont, Colorado, USA.



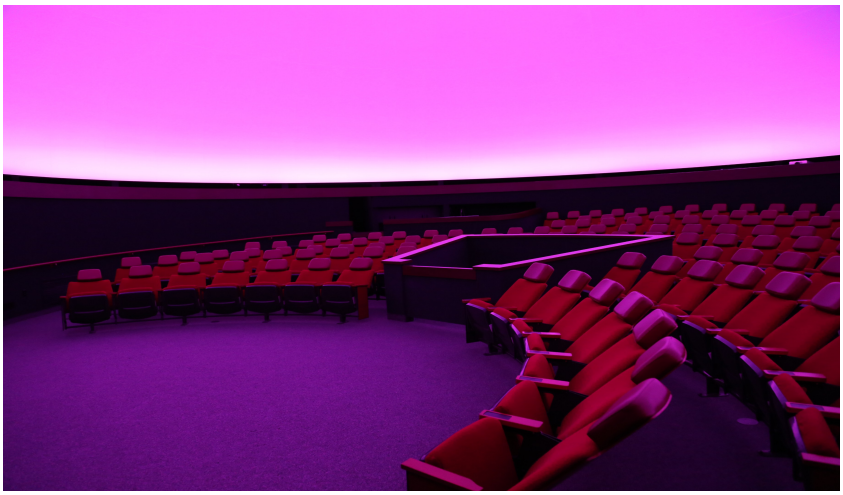
herrett.csi.edu/observatory

Event	Place	Date	Time	Admission
Summer Solar Session #2	Centennial Observatory	Wednesday, June 4th, 2014	1:30 to 3:30 PM	FREE
Summer Solar Session #3	Centennial Observatory	Wednesday, June 11th, 2014	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, June 14th, 2014	9:30 PM to midnight	FREE
Summer Solar Session #4	Centennial Observatory	Wednesday, June 18th, 2014	1:30 to 3:30 PM	FREE
Summer Solar Session #5	Centennial Observatory	Wednesday, June 25th, 2014	1:30 to 3:30 PM	FREE

Earl & Hazel Faulkner Planetarium – Herrett Center – Twin Falls, ID

Opened in November 1995, the Faulkner Planetarium is the largest planetarium theater in Idaho, seating 144 under a 50' dome. It features a state-of-the-art **Digistar 5** full-dome projection system, 10,200 Watt Dolby 5.1 surround audio, and programmable LED dome lighting.

Due to a formatting issue with OpenOffice, I was unable to attach the show schedule for June. Please visit the Herrett Center's website for current show schedule. http://herrett.csi.edu/astronomy/planetarium/index.asp or call 208.732.6655 for current information. Don't forget the observatory line at 208.732.MOON



"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.

About the Magic Valley Astronomical Society

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

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

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.
M-51 (On this page) 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.

Membership Benefits:
Sky and Telescope group rates. Subscriptions to this excellent periodical are available at a reduced price of $32.95.
Astronomy Magazine group rates. Subscriptions to this excellent periodical are available 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 Telescopes: The society currently has three telescopes for loan and would gladly accept others. Contact President Robert Mayer, for more information.