Snake River Skies

The Newsletter of the Magic Valley Astronomical Society
March 2014

Membership Meeting

Saturday March 8th 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,

This month, we have a special treat for our monthly meeting. Jo Dodds, Earth Science teacher at Twin Falls High School, and Ralph Peterson, of North Gem High School in Bancroft, Idaho, will be talking to us about their experiences with SOFIA (Stratospheric Observatory for Infrared Astronomy). The main component of SOFIA is a converted Boeing 747 equipped with a 100-inch telescope, and according to its website, the high atmospheric flights allow for studies in star formation, astrochemistry, and astrophysics. Dodds and Peterson got to attend a flight as part of NASA's outreach program working with high school teachers.

Not only does March mean we get to hear from Dodds and Peterson, but it also means it's time for a Messier Marathon. Right now, the plans are for a Messier Marathon at the Jerome Gun Club, Friday, March 28, with the next day, Saturday, the 29th, as its backup. We'll have more details about the time in through the e-mail.

We look forward to seeing you at both events.

Clear views,

Robert Mayer

Robert Mayer - President

In This Month's Issue

Facts and Knowledge

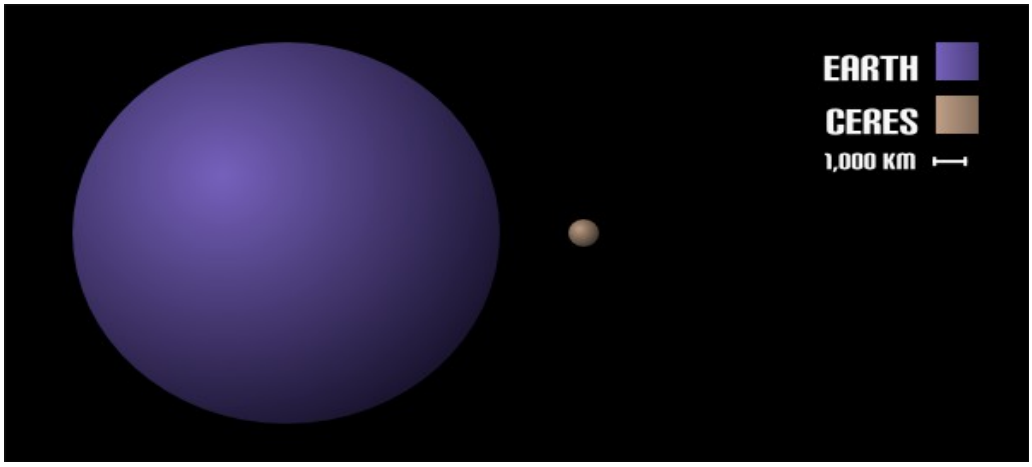
Ceres is the closest dwarf planet to the Sun and is located in the asteroid belt making it the only dwarf planet in the inner solar system. Ceres is the smallest of the bodies current classified as dwarf planets.

Ceres Dwarf Planet Profile

Mass: 943,000,000,000 billion kg (0.00015 x Earth)
Diameter: 950 km
Known Satellites: none
Notable Satellites: none
Orbit Distance: 413,700,000 km (2.77 AU)
Orbit Period: 4.60 years
Surface Temperature: -105°C
Discovery Date: 1st January 1801
Discovered By: Giuseppe Piazzi

Ceres was the first object considered to be an asteroid: Italian astronomer Giuseppe Piazzi discovered and named Ceres in early 1801. Though he classified it as a planet, Ceres is now classified as a dwarf planet which accounts for nearly 1/3 of the asteroid belt's mass.

The first visit to Ceres is due in 2015: NASA's Dawn spacecraft is making its way to Ceres from the asteroid Vesta since September 2012. There is high interest in this mission since Ceres is one possible destination for human colonization given its abundance of ice, water, and minerals.



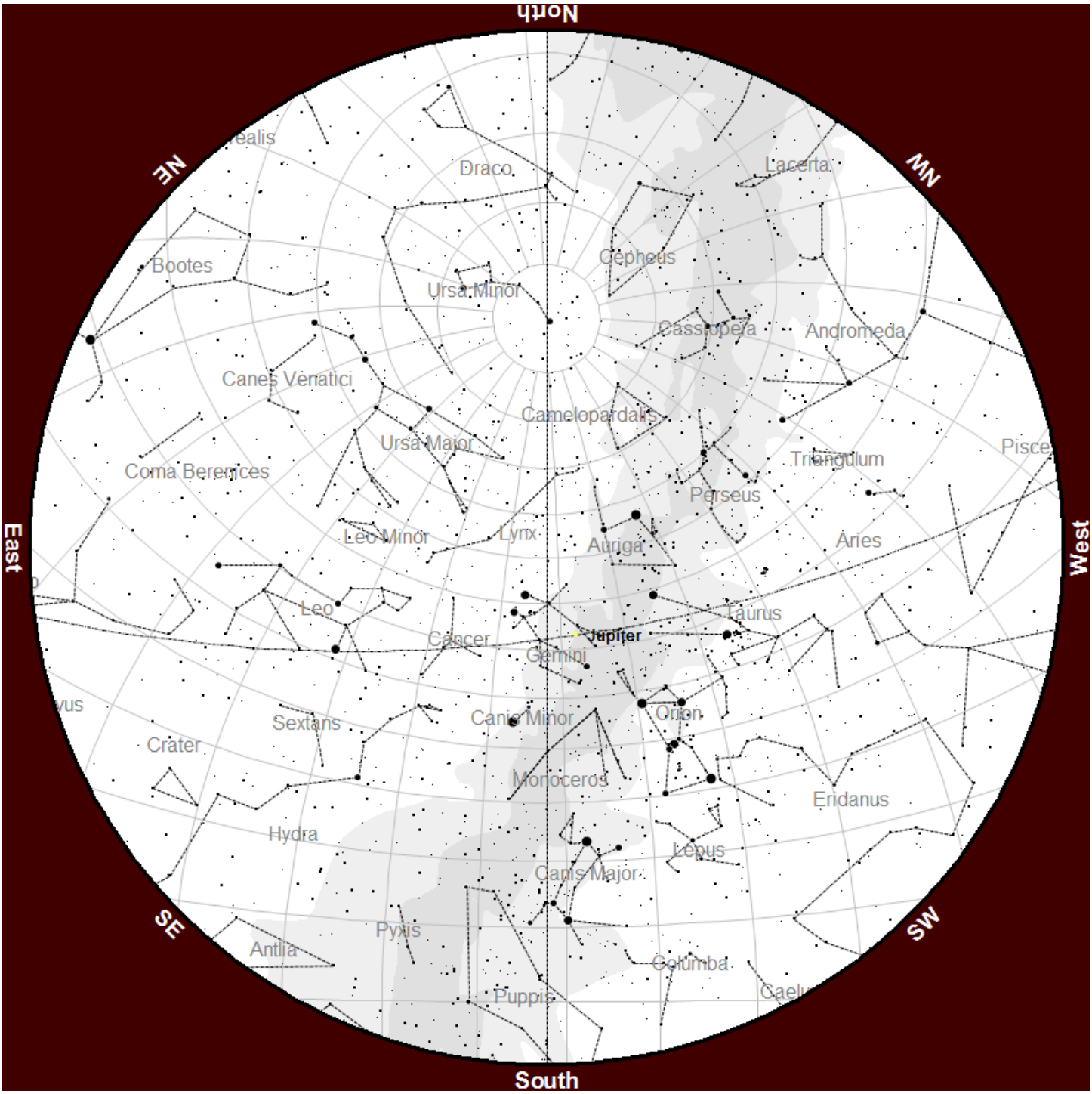
Titan, Saturn's largest satellite, was discovered on March 25, 1655 by the Dutch astronomer Christiaan Huygens. Sir William Herschel discovered Uranus on March 13, 1781. The first photograph of the Moon was taken on March 23, 1840. The rings of Uranus were discovered on March 10, 1977.

Calendar

March 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Club Star Party Dedication Point New Moon 
2	3	4 Mardi Gras 	5 ISP Planning Mtg. at 18:30h at the Discovery Center BAS Board Meeting 19:00h at the Discovery Center	6	7 General Membership Mtg at 19:00 Discovery Center Classroom #2	8  First Quarter Moon Visible: 50% ↑
9  Daylight Saving Time	10	11	12	13	14	15
16  Full Moon Visible: 100%	17 St. Patrick's Day 	18	19	20	21	22 Club Star Party Dedication Point 
 Last Quarter Moon Visible: 46% ↓	24	25	26	27	28 Messier Marathon Weekend 	29 Messier Marathon Weekend 
30  New Moon Visible: 1% ↓	31					

Planisphere



Planisphere should be used as a guide for the month of March, mid-month, end of astronomical twilight (21:15)
Planisphere is provided as a courtesy from Chris Anderson, Coordinator, Centennial Observatory
Herrett Center for Arts & Science - College of Southern Idaho, Twin Falls, ID

Idaho Skies

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 stars Castor and Pollux, the two brightest stars in Gemini the Twins. Since Castor (Alpha Geminorum) is a little fainter than Pollux (Beta Geminorum), Gemini is one of the few constellations in which the brightest star is not its alpha star. Caster is 52 light-years away and Pollux is 34 light-years away. If you were born in 1962 Castor is your birthday star this year and if you were born in 1980 Pollux is your birthday star this year. Castor is an interesting star. Through a good telescope, it's seen as two nearly identical stars with orbital periods of around 400 years. Currently, they are at their closest together with respect to Earth and the gap between them will widen over the coming decades. There's a third much fainter companion to the south of the main pair that's a red dwarf star called Castor C. Using spectroscopes, astronomers can detect the light of companion stars around all three stars. Therefore, Castor is reality three double stars in orbit around each other. Gemini is nearly straight overhead by 8:30 PM at the beginning of March. Use binoculars or a small telescope to look for the galactic cluster M-35 in the right foot of Gemini. The galactic cluster appears as a small sprinkle of stars in binoculars and looks even better through a small telescope.

March Overview

● During March the sun rises earlier and farther north each morning and sets later and farther north each evening. As a result, the sun travels higher across the sky, the days are getting longer, and the nights are getting shorter. At the beginning of the month, the Sun rises at around 8:00 AM and sets around 6:00 PM, making the day 10 hours long. By the end of the month, the Sun rises at about 7:25 AM and sets around 6:30 PM, making the day just over 11 hours long.
● Mars is rapidly approaching opposition. Therefore the planet is rising earlier each day and getting larger and brighter.
● The moon occults the star Lambda Geminorum on the evening of the 10th.
● Venus and the moon have an attractive pairing on the morning of the 27th.
● We have two new moons this month.

Sky Events

March 1 – The dwarf planet Ceres is stationary. 14:00 (2:00 P.M.): Mars is stationary at 15:00
March 2 – 21:00: Saturn is stationary.
March 3 – 6:00: The Moon is 2° north of Uranus.
March 5 – 2:00: Asteroid 4Vesta is stationary.
March 6 – 3:00: Jupiter is stationary.
March 11 - 1:47: The Moon is at apogee, the point in its orbit when it is farthest from Earth.
March 14 – 1:00: Mercury is at greatest western elongation, 27.6° west of the Sun in the morning sky.
March 18 – 21:00: The Moon is 3° south of Mars.
March 20 - 12:57: The Vernal equinox occurs today, when the Sun crosses the celestial equator heading north. This is the beginning of spring in the Northern Hemisphere, and fall in the Southern Hemisphere. 23:00: The Moon is 0.2° south of Saturn.
March 22 – 6:00: Innermost Mercury is 1.2° south of Neptune. 14:00: Venus is at greatest western elongation, 46.6° west of the Sun in the morning sky.
March 27 – 4:00: The Moon is 4° no. of Venus.12;34: Moon is at perigee, the point in its orbit when it is nearest to Earth.

March 1 – 7

The moon was new early on the morning of the 1st, so don't expect to see again until the 2nd low in the west. However, do search fir it. The moon will be a very thin crescent low in the west. Scan the low west using your binoculars only after the sun has set and the skies have begun to darken.

You can observe a very bright first quarter Venus at the beginning of the month. However, you'll need a telescope to see its phase. Look for the Morning Star low in the east-southeast between 5:30 and 6:00 AM. As the month progresses, Venus rises slightly higher above the horizon.

Mars is approaching opposition this April. So the planet grows significantly brighter this month. In fact, we can expect Mars to grow as bright as Sirius, the brightest star. Unlike Sirius, Mars will appear orange-yellow in color rather than white. Mars rises at 10 PM by start of month and by sunset at end of month. Look for it in the east-southeast after dark.

Jupiter is high in the south at the beginning of the month. It's getting slightly smaller and fainter as the month progresses because Earth travels much faster around the sun. Therefore, we're pulling away from Jupiter. You can't miss Jupiter, its brilliant white-yellow in color.

Saturn is visible in the morning skies all during March. It rises after midnight at the beginning of the month and by 10:30 PM at the end of the month. Look for Saturn low in the east-southeast. It will be creamy white in color and won't twinkle like the other stars. Saturn will be the brightest star below orangish Mars.

March 8 – 14

The moon is first quarter on the 8th. This is great lunar phase, as the lunar shadows stretch their greatest extent across the surface. The long apparent length of the lunar shadows means they bring out the smallest changes in lunar elevation. As a result, your binoculars and telescope will show more the moon's craters and mountains if you observe them along the terminators, or boundary between day and night. At first quarter, the terminator forms a straight line down the middle of the lunar disk.

The moon covers up a reasonably bright star on the evening of the 10th. Astronomers call this event an occultation. To observe it, use binoculars or a telescope to scan along the bottom left of the moon shortly before 7:45 PM for the star named Lambda Geminorum. This star will disappear behind the moon shortly after 8:00 PM and then reappear from the moon's right edge by 9:18 PM. The disappearance occurs on the night side of the moon, so the star will wink out before touching the lit portion of the moon. The reappearance occurs in the day lit portion of the moon therefore making it more difficult to observe it actually appearance from behind the moon.

March 15 – 21

The moon is full on the 16th. The full moon is great for observing its lunar seas or maria. However, it's a bad for observing lunar craters. The exception are dark lunar craters which are old craters filled with lava. This occurs in only large and old craters. That's because smaller craters aren't deep enough and young craters were created after the moon's core and mantle had cooled. As a result, when these craters formed, the surface was cracked deep enough for the still existing magma (liquid rock) to well up from the lunar interior and fill the crater depressions. Two dark craters are very prominent on the full moon. Near the top of the moon is a 66 miles diameter crater named Plato. Near the left edge of the moon is a dark crater named Grimaldi and its 105 miles in diameter.

The moon, Mars, and star Spica are almost close enough to be seen together in a pair of binoculars on the morning of the 19th. Mars is the much brighter orange-colored star to the upper right of the moon. Spica, the brightest star of Virgo, is pure white and located a little farther away to the moon's left

Spring begins at 11:57 AM on the 20th. This moment in time is called the Vernal Equinox and it's the moment when the sun stands directly overhead Earth's equator. For the last six months, Earth's southern hemisphere faced directly towards the sun. Now it's the northern hemisphere's chance to enjoy some light and heat from the sun.

Saturn and the moon appear close together on the morning of the 21st. They actually crossed paths at 8:18 PM on the 20th. Unfortunately for Idaho, this occurred while they were above the Atlantic Ocean and below our horizon.

March 22 – 31

Venus reaches its greatest distance from the sun on the morning of the 22nd. However, morning apparitions of Venus occurring during March take place at a time when the planet's orbit is very shallow with respect to our northern horizon. Although Venus will appear 46 degrees away from the sun, it only appears seven degrees above the horizon at 5:30 AM.

The moon reaches the third quarter phase on the 23rd. Third quarter is a half full moon, but this time it's the eastern half that's in sunlight. Like the first quarter moon, this is an excellent phase for moon watching, but you'll need to go outside after midnight. Be sure to focus your attention on the terminator, or boundary between day and night. You may see points of light on the dark portion of the moon. If you do, these are high mountain or crater peaks where sunrise has already occurred.

Four days later on the 27th, the descending moon sails passed Venus. The moon is three days from new, so it will appear as a very thin crescent. The distance between the moon and Venus is three degrees, so the pair will fit nicely within the view of a pair of binoculars. You'll need to go outside at 5:30 AM to see this and look low in the east-southeast.

The second new moon of March occurs on the 30th. If the second full moon of the month is called a Blue Moon, then the second new moon of the month is called the Black Moon (according to some). It will be a few days before the moon becomes visible again in the west after sunset.

Solar System

Mercury, the innermost planet in the solar system, went through inferior conjunction with the Sun in mid-February and now, during March's first two weeks, brightens and climbs into view before sunrise. From March 1st to 18th, observers around 40° north will find Mercury only 5° above the southeastern horizon 30 minutes before sunrise. Look earlier to catch Mercury lower in a darker sky, or later to get a crisper telescopic view.

Venus reaches greatest elongation on March 22, when it lies 47° west of the Sun. At magnitude -4.6, the planet is the brightest point of light in the morning sky, but it is not high above the horizon. Look for it blazing low in the southeast right around the first light of dawn. To get a steady view of Venus in a telescope, try following it until sunrise or even later.

Mars rises around 21:30 (9:30 P.M.) in early March and during twilight by month's end. The best time to look, however, comes around 3:00 (3 A.M.) early in the month and shortly before 2:00 (2 A.M.) daylight time in late March.
The planet is then much higher in the south, nearly halfway from the horizon to the zenith. The orange-gold world is now slowly heading towards opposition, its closest approach to the Earth. In early April, Mars will appear brighter and larger than any time since 2007. The planet's globe already spans 13 arc-seconds at mid-month, wide enough for nice views in 8-inch or larger telescopes.

Jupiter, the giant planet reached opposition and peak visibility in early January, but shows little decline this month. It appears brilliant among the background stars of Gemini, lies nearly overhead during evening twilight, and remains visible well after midnight. A small instrument at about 70x will readily show two dusky belts spanning Jupiter's equatorial region. The planet's disk measures 42 arc-seconds at the start of the month, but by late March, as Jupiter gets farther from us, the disk's angular size shrinks to 38 arc-seconds.

Saturn pokes above the horizon through March roughly two hours behind Mars, and lies a good 30° high in the southwest as dawn begins. The ringed planet resides among the background stars of the constellation Libra and shines at magnitude +0.4, two full magnitudes brighter than any of Libra's stars. Through a telescope, Saturn sports an angular size of 18 arc-seconds, while the rings span 40 arc-seconds and tilt 23° to our line of sight.

Uranus, in the constellation Pisces, will reach conjunction with the Sun on April 2. In early March the planet can still be glimpsed some 15° above the western horizon as evening twilight fades to darkness, but is soon lost to view. At magnitude +5.9 Uranus appears bright enough to spot with binoculars, but only a telescope will reveal its pale bluish or greenish disk, 3.3 arcseconds wide.

Neptune, having passed through conjunction with the Sun on February 23, remains too low in the morning twilight to view

Pluto, the dwarf planet lies in northern Sagittarius and stands 15° high in the southeast shortly before dawn. It glows dimly at magnitude +14, which means you will need at least an 8-inch telescope to have a decent chance of spotting this glimmer of light. The reward for spying Pluto comes not from viewing any detail but from the mere accomplishment of locating this small icy world.

For more on the planets and how to locate them, browse http://www.nakedeyeplanets.com/

Asteroids The dwarf planet/asteroid **1 Ceres** (magnitude 7.8 on March 1st) and asteroid **4 Vesta** (magnitude 6.6 on March 1st) both travel northeastward through the constellation of Virgo this month. Most main-belt asteroids have reasonably circular orbits and revolve around the Sun in roughly the same plane as the planets. As a result, they never stray far from the ecliptic. However, some are highly inclined by 35° in the case of **2 Pallas**, for example. It is likely that this asteroid suffered a big collision during the solar system's early days, which modified a more typical orbit. Despite its large size, 2 Pallas looks like an ordinary field star glowing at 7th magnitude. The asteroid spends March at the border between the constellations Hydra and Sextans, a region that lies highest in the south during late evening. On March 1, Pallas passes just 3° east of Hydra's brightest star, 2nd-magnitude Alphard. The asteroid moves due north from there, and by late March it lies 1° south of 5th-magnitude 2 Hydrae. Asteroid **24 Themis** (magnitude 10.6) reaches opposition on March 13th, asteroid **79 Eurynome** (magnitude 11.4) on March 14th, **48 Doris** (magnitude 11.1) on March 20th, **21 Lutetia** (magnitude 11.0) on March 22nd, and **91 Aegina** (magnitude 12.0) on March 25th.

Comets At the start of March, **C/2013 R1 Lovejoy** is magnitude +8 and moves through the inconspicuous constellation Serpens the Snake, positioned well for mid-northern observers just before dawn. By March 20, the comet shifts into Scutum, where it spends the rest of the month.

Throughout all of March, **C/2012 X1 Linear** should remain around 8th or 9th magnitude, making it an easy target for 6-inch telescopes. The comet cuts through the constellation Aquila the Eagle, which stands highest above the horizon in the predawn sky. The best views will come during the month's first and last weeks, when moonlight will not interfere with observing.

C/2012 K1 (PanSTARRS) glows at tenth magnitude as it treks northwestward through Hercules.

Eclipsing variable star Algol (Beta Persei) is at a minimum, decreasing in magnitude from 2.1 to 3.4, on March 1st, 4th, 7th, 10th, 12th, 15th, 18th, 21st, 24th, 27th, and 30th. For more on Algol, see http://stars.astro.illinois.edu/sow/Algol.html and http://www.solstation.com/stars2/algol3.htm

Astronomical Observing Challenge

Thirty binary and multiple stars for March: Struve 1173, Struve 1181, Struve 1187, Zeta Cancri, 24 Cancri, Phi-2 Cancri, Iota-1 Cancri, Struve 1245, Iota-2 Cancri, 66 Cancri, Struve 1327 (Cancer); Struve 1270, Epsilon Hydrae, 15 Hydrae, 17 Hydrae, Theta Hydrae, 27 Hydrae, Struve 1347, Struve 1357, Struve 1365 (Hydra); 3 Leonis, Struve 1360, 6 Leonis, Omicron Leonis (Leo); Struve 1274, Struve 1282, Struve 1333, 38 Lyncis, Struve 1369 (Lynx); h4046 (Puppis)

Notable carbon star for March: T Cancri (Cancer)

Thirty-five deep-sky objects for March: M44, M67, NGC 2775 (Cancer); Abell 33, M48, NGC 2610, NGC 2642, NGC 2811, NGC 2835, NGC 2855, NGC 2935, NGC 2992, NGC 3052, NGC 3078 (Hydra); NGC 2903, NGC 2916, NGC 2964, NGC 2968, NGC 3020 (Leo); NGC 2859, NGC 3003, NGC 3021 (Leo Minor); NGC 2683 (Lynx); NGC 2567, NGC 2571 (Puppis); M81, M82, NGC 2639, NGC 2654, NGC 2681, NGC 2685, NGC 2742, NGC 2768, NGC 2787, NGC 2841, NGC 2880, NGC 2950, NGC 2976, NGC 2985 (Ursa Major)

Ten binocular deep-sky objects for March: M44, M48, M67, M81, M82, NGC 2571, NGC 2683, NGC 2841, NGC 2903, NGC 2976

Ten deep-sky objects for March: M44, M48, M67, M81, M82, NGC 2654, NGC 2683, NGC 2835, NGC 2841, NGC 2903

The objects listed above are located between 8:00 and 10:00 hours of right ascension.

Challenge deep-sky object for March: Abell 30 (Cancer)

The purpose of the Astronomical Challenge is for readers to get out and observe.

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/

Dark Skies and Bright Stars,
Your Interstellar Guide
Dr. Paul Verhage, PhD
Additional Material by David Olsen, Editor

Club Announcements

Messier Marathon

Almost every amateur astronomer begins to be aware of the Messier Catalog as soon as he or she opens their first book. The novice is sure to find some spectacular object pictured and designated by its "Messier Number" with the universal abbreviation "M". Of the myriads of star clusters and nebulae scattered over the sky only about 100 (perhaps 110 at most) can claim membership to this celebrated list. However, this happens to include most, but not quite all, of the finest of these objects observable from mid-northern latitudes.

There is nothing in the catalog that the owner of so humble an instrument as a three-inch reflector cannot reach under good observing conditions. Many of the objects can be seen with binoculars and some with the naked eye. Thus, the Messier Catalog is a happy hunting ground for any amateur with a taste for deep sky objects.

Even an extremely brief review of the history of Messier's Catalog will explain why it contains so many bright and easy clusters and nebulae.

Charles Messier (1730-1817) was a French astronomer who developed an intense interest in comet hunting. While he had other achievements to his credit, this was his chief occupation during his long observing career. In this, he was so successful that he probably observed half of the comets known in his time. He discovered about twenty. It was to keep track of the star clusters and nebulae which might have otherwise confused him by their comet-like appearance, that he began to catalog and describe them. In commenting on his catalog in later years, he frankly stated that he had compiled it in order to aid other comet hunters. There is a slight touch of irony in the fact that Messier's chief claim to immortality grew out of his efforts to rid himself of a nuisance to what, he felt, was his important life's work. As might be expected, Messier's telescopes were all modest instruments, none of them exceeding the capacity of telescopes amateurs can expect to own today.

Messier did not discover all the objects in his catalog and he never made any such claim. Many of the objects were called to his attention by his contemporaries, notably Pierre Méchain and the fact was always carefully noted. The catalog was published in several stages as additions were made to it, the first 45 entries being printed in 1771. In its classic form, it contained 103 entries. Studies of Messier's papers and correspondence (Dr. Helen Sawyer Hogg and Dr. Owen Gingerich) suggest that another four to six objects should be added to bring the total to 110.

The prospective observer should be warned that if he follows the older editions of the catalog, or many of the older charts, he may find nothing in the position indicated. More recent editions have corrected these errors but there are a few entries about which there is some doubt.

The Messier Program.

The Astronomical League offers special recognition in the form of a Messier Program Certificate for those that have observed most or all of the Messier objects. To qualify you must either be a Member-at-Large or be a member of an astronomical society which is affiliated with the League. To obtain an award you must observe the following rules:

Rule 1:

Visually observe 70 Messier objects and keep a record of your observations. Your notes must include:
a. Date of observation;
b. Time of observation;
c. Seeing conditions;
d. Aperture size of telescope;
e. Power used;
f. A short description of the Messier object.

Rule 2:

Have your notebook or record examined by an officer of your Society or a suitably qualified second party if you are not a member of a society and have this party forward a letter to the effect that you have made the necessary number of observations. This letter should be addressed to:

Scott Kranz
106 N Darrowby Drive
Raymore, MO 64083-9181
(816) 522-8921
E-mail: s.kranz1@comcast.net

Only non-society members need to actually mail their observing log to Mr. Kranz. A Certificate of Membership in the Messier Program will be forwarded to your Society for presentation at a meeting. The letter should specify the address to which the Certificate should be mailed. The certificate will be suitable for framing.

Rule 3:

When you have observed the balance of the Messier Objects, have your notebook or records examined again and a letter forwarded to Mr. Kranz again, indicating that you have completed the observations of the Messier Catalog. You will receive an award pin and a **Honorary** membership certificate signed by the current President of the League. Be sure to indicate the return address.

Note:

Since the purpose of the Messier Program is to familiarize the observer with the nature and location of the objects in the sky, the use of an automated telescope which finds the objects without effort on the part of the observer is not acceptable. "Automated telescope" also includes the use of digital setting circles where a read-out shows the user directions to follow to find an object. This also includes the unacceptable use of smart-phones that use apps to locate objects in the night sky. The use of the setting circles found on the axis of telescope should also be avoided. In short, only finder scopes, Telrads, or Telrad like devices are acceptable.

The reason.....?

The purpose of the "no GOTO" rule is so that you learn the sky and learn how associate a map with the real sky. Learn how to get from here to there without the electronics or the scales. Learn to locate objects without the electronic interface. The knowledge of being able to perform this will always be a benefit in the future.

Also "Messier Marathon" sessions where all the objects are found in one occasion is to be discouraged. An observer cannot truly observe objects in that limited amount of time. Take your time, enjoy yourself, and REALLY see the objects as they were meant to be seen.

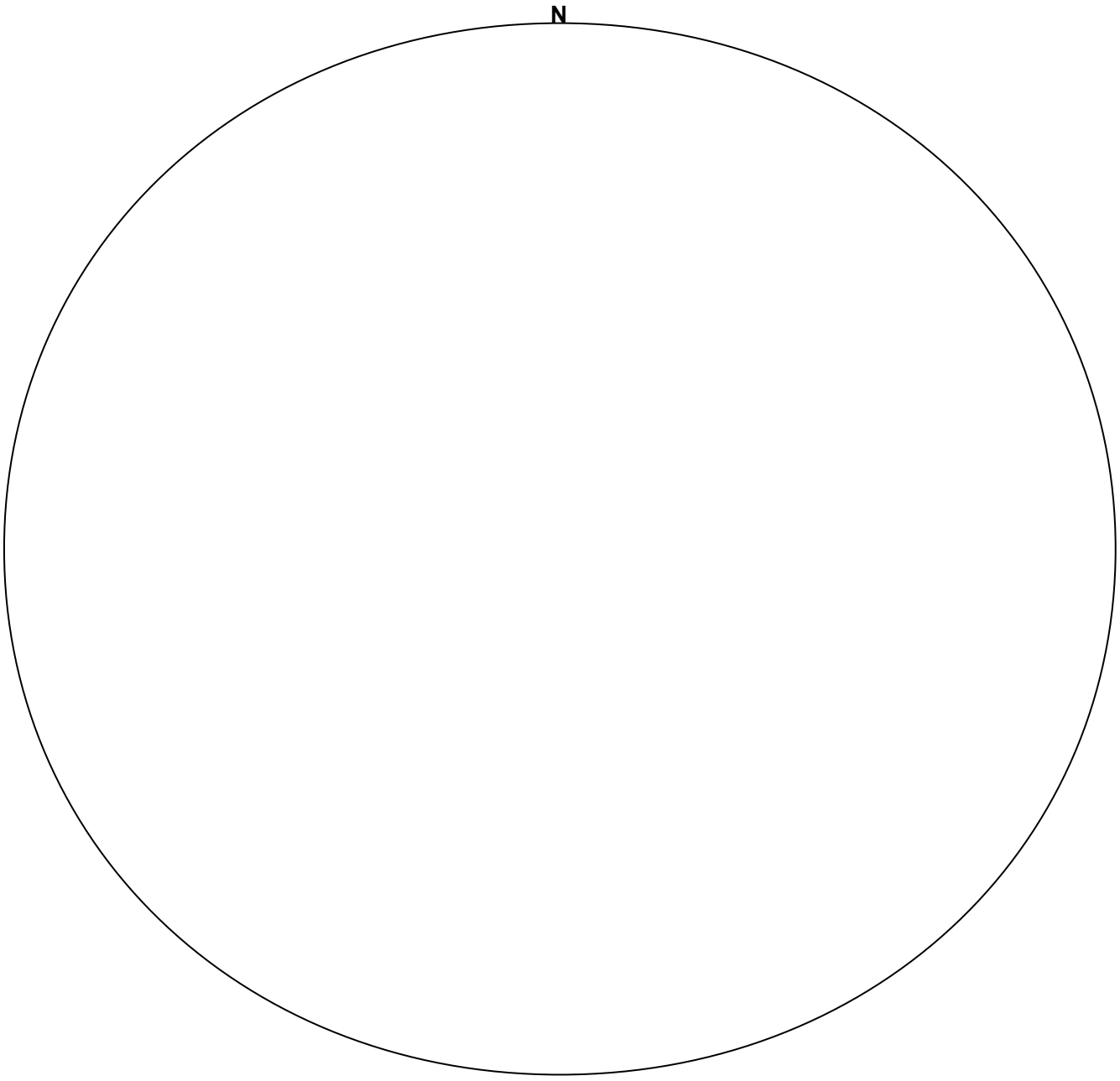
Rule 4:

This program is meant to be completed using a telescope where multiple magnifications (including a higher power) and filters (if available) can be used. Please do not re-use observations from the Binocular Messier Program towards this observing program.

The information provided here is for those who wish to pursue the Messier Marathon Certificate from the Astronomical League.

Observer Name:		**Date:**	
Site Location:		**Time:**	
Instrument		**Conditions (1 – worst, 10 – best)**	
Name:		**Seeing:**	
Aperture:		**Transparency:**	
Focal Length:		**Sky Darkness:**	
Telescope Type:		**Limiting Magnitude:**	
Eyepiece(s):		**⌖ above Horizon:**	
Magnification(s):			
Filter:		**Field Diameter:**	

Object	**Constellation**	**Coordinates**
		RA h m
		Dec



M35's Neighborhood
Article by Steven Bell

Messier 35 is a well-known and beautiful Gemini winter open cluster that is on everyone's cold weather observing list. It is, however, not the only kid on the block in the immediate neighborhood. Starting with NGC 2158, southwest of M35 in this photograph (APOD), there are several other clusters accessible to backyard scopes in the immediate vicinity.

M35 is visible in almost any instrument, including binoculars, and will be the starting point for this exploration. It lies in the western "foot" of the Twins about 1.5 degrees northwest of the naked-eye double star 1 Gem (mags 4.17 and 4.91, 0.3 sec separation). We will proceed roughly clockwise from M35, starting with NGC 2158.

Messier 35 - Through a 102mm f/10 achromat at 41X under suburban sky conditions, this Messier cluster was rich with about 60 stars with no particular concentration, well resolved and filled about 1/3 field of view. Larger aperture and better skies can only improve the image. Use lower magnification. M35 lies about 3000 light years from the sun.

NGC 2158 - NGC 2158 needs considerably more magnification than M35 for good resolution. Through an 8" SCT at 75X, it was an obvious round glow on the edge of M25. At 226X the cluster begins to resolve, but is dimmed significantly. It was well detached from the background with even density (no concentration). NGC 2158 is less than a half degree from M35, to the southwest. It is literally on the edge of M35. NGC 2158 is about 17000 light years from the sun.

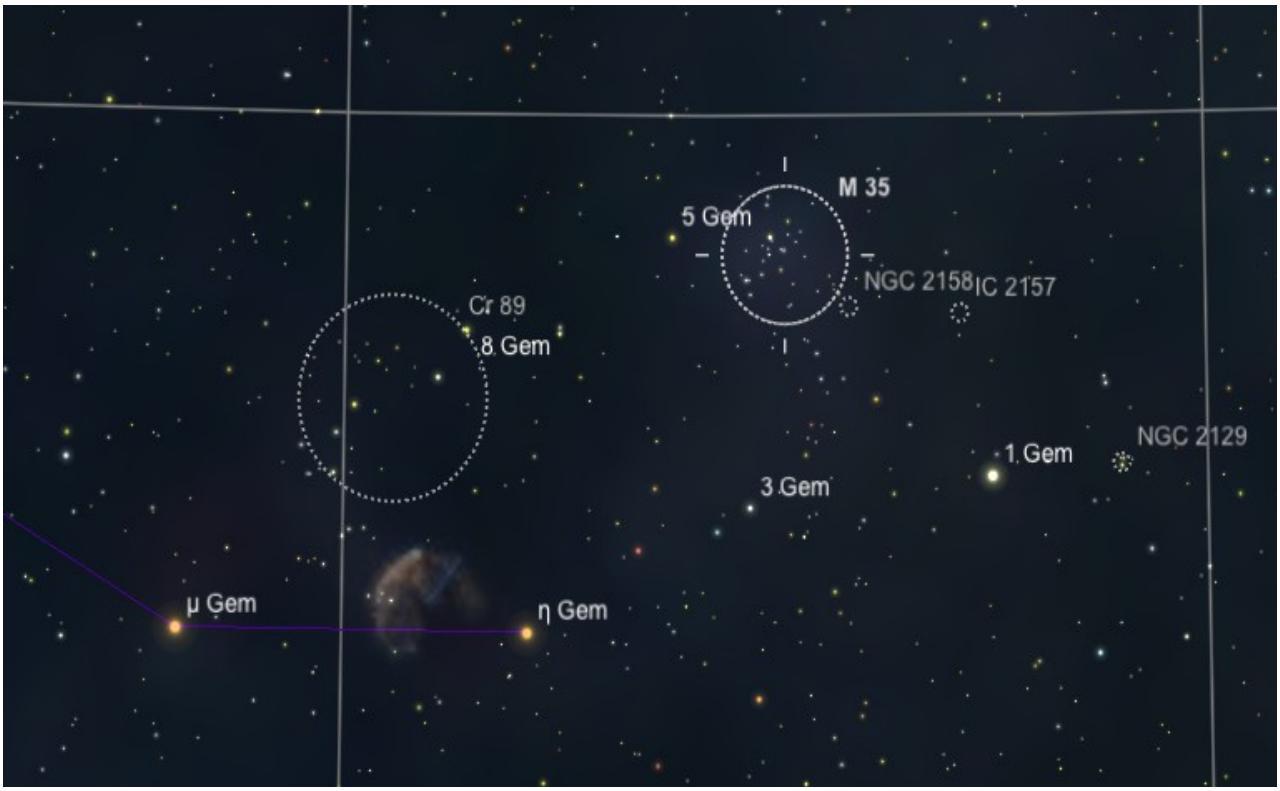
IC 2157 - Lying about 35 minutes almost due west of NGC 2158 is the small, fairly dim cluster IC 2157. It contains about 20 stars, three brighter against the other fainter stars. This cluster will require more aperture. Through a 14" Newtonian it is split by an east-west void, with 10 stars to the south and 8 to the north. It has an irregular shape and occupied about 1/8 field of view at 75X. It is about 6700 light years away.

NGC 2129 - This cluster sits about 1.1 degrees southwest of IC 2157. In a 14" Newtonian at 114X, this cluster appeared bright, with about 30 stars radiating E-W from two bright N-S stars (mag 7.4 and 8.6) in two chains. At 131X it stood out well from the background and occupied about 1/8 degrees field of view. It is some 7200 light years from the sun.

Cr 89 - Lying 2.2 degrees ESE from M25, this large, loose, sprawling cluster is likely more suited to binoculars than a telescope. It is larger than M35. It can be identified from stars 9 and 10 Gem, two roughly mag 6 stars, but it doesn't look greatly different than the background in a telescope. Cr 89 is roughly 2600 light years from the sun.

Object	RA	DEC	Mag	Size
M35	06 09 00	+24 21 00	5.5	28
NGC2158	06 07 30	+24 06 00	8.6	5
IC2157	06 04 48	+24 03 54	8.4	7
NGC2129	06 00 42	+23 19 00	6.7	7
CR89	06 18 00	+23 38 00	5.7	35

M35's Neighborhood



Sky Safari 1.8 for Mac

NASA Space Place

A Two-Toned Wonder from the Saturnian Outskirts

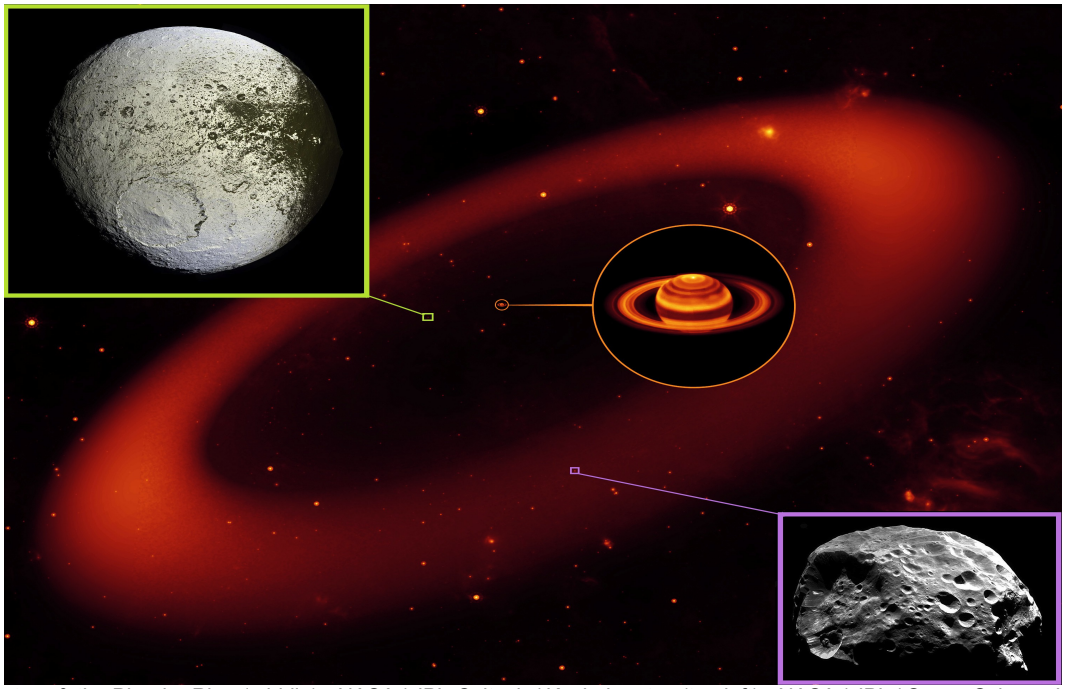
By Dr. Ethan Siegel

Although Saturn has been known as long as humans have been watching the night sky, it's only since the invention of the telescope that we've learned about the rings and moons of this giant, gaseous world. You might know that the largest of Saturn's moons is Titan, the second largest moon in the entire Solar System, discovered by Christiaan Huygens in 1655. It was just 16 years later, in 1671, that Giovanni Cassini (for whom the famed division in Saturn's rings—and the NASA mission now in orbit there—is named) discovered the second of Saturn's moons: Iapetus. Unlike Titan, Iapetus could only be seen when it was on the west side of Saturn, leading Cassini to correctly conclude that not only was Iapetus tidally locked to Saturn, but that its trailing hemisphere was intrinsically brighter than its darker, leading hemisphere. This has very much been confirmed in modern times!

In fact, the darkness of the leading side is comparable to coal, while the rest of Iapetus is as white as thick sea ice. Iapetus is the most distant of all of Saturn's large moons, with an average orbital distance of 3.5 million km, but the culprit of the mysterious dark side is *four times* as distant: Saturn's remote, captured moon, the dark, heavily cratered Phoebe!

Orbiting Saturn in retrograde, or the opposite direction to Saturn's rotation and most of its other Moons, Phoebe most probably originated in the Kuiper Belt, migrating inwards and eventually succumbing to gravitational capture. Due to its orbit, Phoebe is constantly bombarded by micrometeoroid-sized (and larger) objects, responsible for not only its dented and cavity-riddled surface, but also for a huge, diffuse ring of dust grains spanning *quadrillions* of cubic kilometers! The presence of the "Phoebe Ring" was only discovered in 2009, by NASA's infrared-sensitive Spitzer Space Telescope. As the Phoebe Ring's dust grains absorb and re-emit solar radiation, they spiral inwards towards Saturn, where they smash into Iapetus—orbiting in the opposite direction—like bugs on a highway windshield. Was the dark, leading edge of Iapetus due to it being plastered with material from Phoebe? Did those impacts erode the bright surface layer away, revealing a darker substrate?

In reality, the dark particles picked up by Iapetus aren't enough to explain the incredible brightness differences alone, but they absorb and retain *just enough* extra heat from the Sun during Iapetus' day to sublimate the ice around it, which resolidifies preferentially on the trailing side, lightening it even further. So it's not just a thin, dark layer from an alien moon that turns Iapetus dark; it's the fact that surface ice sublimates and can no longer reform atop the leading side that darkens it so severely over time. And that story—only confirmed by observations in the last few years—is the reason for the one-of-a-kind appearance of Saturn's incredible two-toned moon, Iapetus!



Images credit: Saturn & the Phoebe Ring (middle) - NASA / JPL-Caltech / Keck; Iapetus (top left) - NASA / JPL / Space Science Institute / Cassini Imaging Team; Phoebe (bottom right) - NASA / ESA / JPL / Space Science Institute / Cassini Imaging Team.

Learn more about Iapetus here: http://saturn.jpl.nasa.gov/science/moons/iapetus.
Kids can learn more about Saturn's rings at NASA's Space Place: http://spaceplace.nasa.gov/saturn-rings.

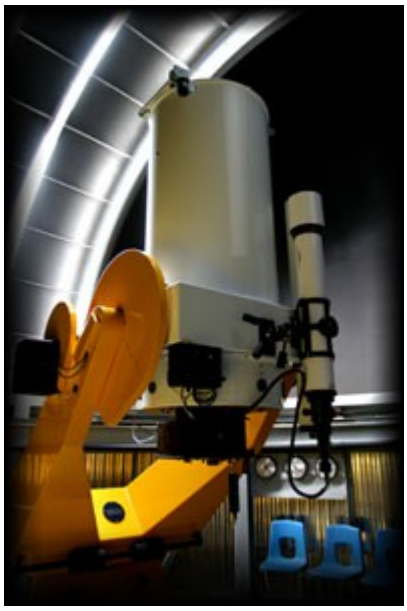
Observatories & Planetariums

Bruneau Dunes Observatory – Bruneau, ID

The observatory is currently closed until April 4th.

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. The observatory features an elevator to take visitors to its second-story location at the south end of the museum. Once there, a wheelchair elevator is available to lift visitors with limited mobility to the observing deck under a six meter (20 foot) motorized dome manufactured by Observa-Dome of Jackson, Mississippi, USA. The ARE-125 an optical "periscope" designed by DFM, allows unprecedented access to the telescope for wheelchair bound or limited mobility visitors. An Apogee Alta E47 + CCD Camera is available for imaging, a generous gift of Dick and Jody Shotwell.

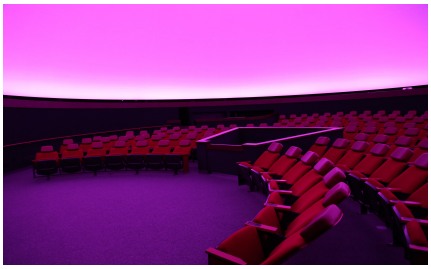


herrett.csi.edu/observatory

Event	Place	Date	Time	Admission
Bimonthly Astronomy Talk: "The Moons of Jupiter"	Faulkner Planetarium	Thursday, March 6th, 2014	7:00 to 8:00 PM	Adults: $2.50 adults Students (incl. CSI): $1.50 (Children 6 & under free)
Astronomy Talk Night Telescope Viewing	Centennial Observatory	Thursday, March 6th, 2014	8:00 to 10:00 PM	$1.50 (Children 6 & under free) Free to all with paid astronomy talk or planetarium admission
Monthly Free Star Party	Centennial Observatory	Saturday, March 8th, 2014	7:30 PM to midnight	FREE
Earth Hour Telescope Viewing	Centennial Observatory	Thursday, March 29th, 2014	8:30 to 9:30 PM	FREE

The 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.



Faulkner Planetarium February Show Schedule
Check our Website for Current Shows and Times herrett.csi.edu/planetarium
March 1st – April 1st

Day	Time	Show
Tuesday	7:00	Astronaut w/Live Sky Tour
	8:00	Violent Universe: Catastrophes of the Cosmos w/Live Sky Tour
Friday	7:00	Perfect Little Planet
	8:00	Sea Monsters: A Prehistoric Adventure
Saturday	1:30	Perfect Little Planet
	02:30:00 AM	Astronaut w/Live Sky Tour
	3:30	Sea Monsters: A Prehistoric Adventure
	4:30	Violent Universe: Catastrophes of the Cosmos w/Live Sky Tour
	7:00	Astronaut w/Live Sky Tour
	8:00	Sea Monsters: A Prehistoric Adventure

"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

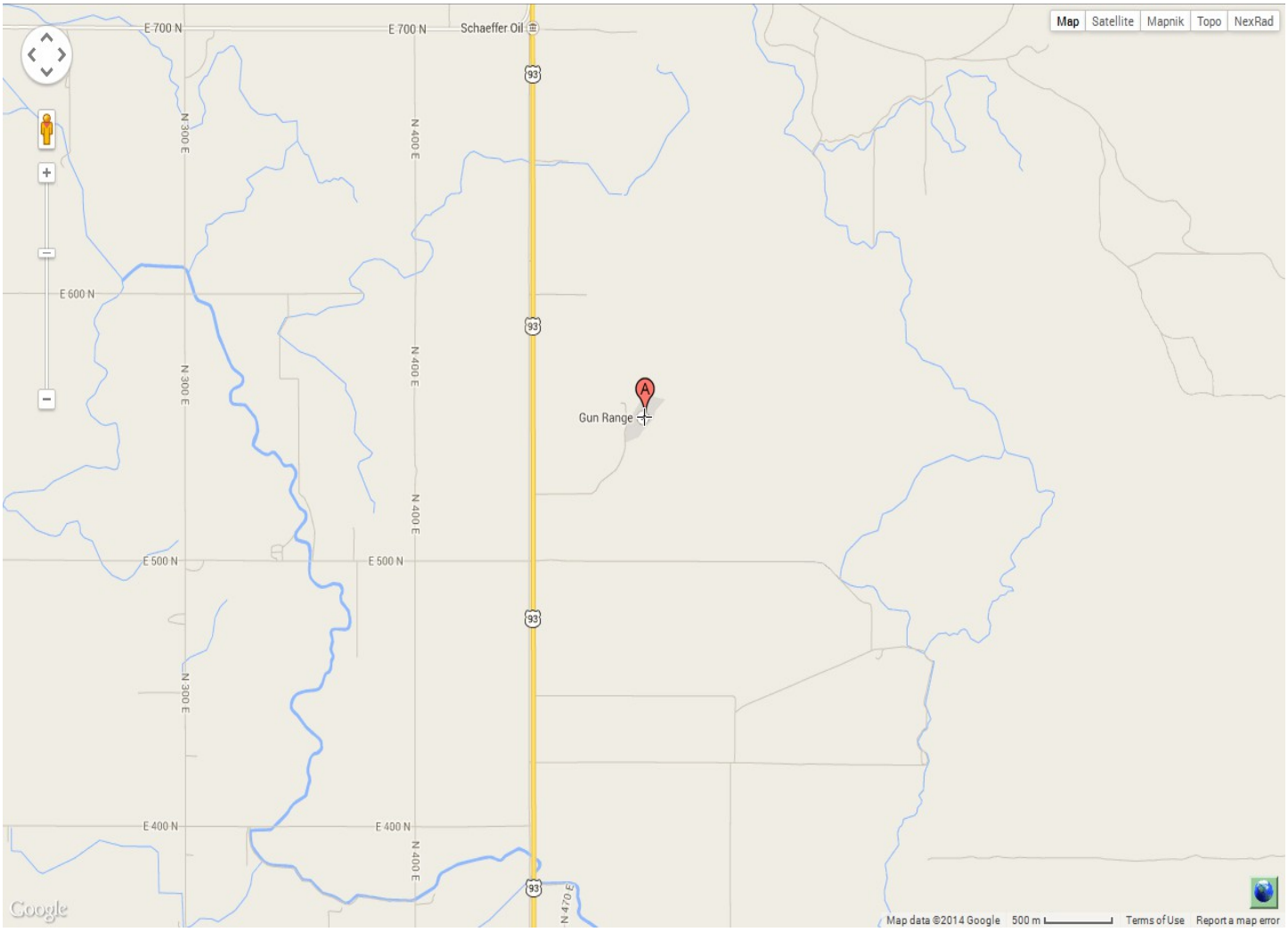
The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.
In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - 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.



Jerome Gun Club
Messier Marathon Location
GPS Coordinates: N 42 48' 15" W 114 25' 26"