



The Monthly Newsletter of the Magic Valley Astronomical Society

August Highlights Largest Star Discovered So Far

Aug. 4th Summer Solar Session #10 1:30-3:30 pm Stargazer's Deck Centennial Observatory, Herrett Center.

Aug. 7th Pomerelle Ski Area Star Party at the Lodge near Albion, ID Schedule in article to the right. Schedule:

- Water bottle rockets/ solar observing 3pm.
 - Dinner 6pm-7pm
 - Sky talk: 7:30-8:30pm
 - 8:30pm-12 am Chair lift rides to the telescopes
- Cost: \$8 (12 & over) \$5 (7-12) and under 7 free with parent. Visit our website for more information.

Aug. 11th Summer Solar Session #11 1:30-3:30 pm Stargazer's Deck Centennial Observatory, Herrett Center.

Aug. 14th Monthly Meeting and Star Party 7:00 pm at the Herrett Center. Jim Tubbs will be our speaker.

Aug. 18th Summer Solar Session #12 1:30-3:30 pm Stargazer's Deck Centennial Observatory, Herrett Center.

Aug 25th Summer Solar Session #13 1:30-3:30 pm Stargazer's Deck Centennial Observatory, Herrett Center.



Astronomers at the University of Sheffield, led by Professor of Astrophysics Paul Crowther, announced in the July 21, 2010, issue of *Monthly Notices of the Royal Astronomical Society* ("The R136 star cluster hosts several stars whose individual masses greatly exceed the accepted 150 Msun stellar mass limit") that they have used the European Southern Observatory's Very Large Telescope to find the most massive star in the universe currently known.

The star R136a1 is part of a cluster of stars known as RMC 136a (or R136). The star cluster is part of the Tarantula Nebula, which lies 165,000 light-years away in the Large Magellanic Cloud galaxy. The current mass of R136a1 is believed to be 265 times that of the sun. Not only is it the "weightiest" star known, it is also the brightest, shining about 10

million times more brightly than the sun.

If R136a1 is now 265 solar masses, that means it was even larger at its birth. The star was likely as much as 320 times the mass of the sun. "Unlike humans," explains Paul Crowther, "these stars are born heavy and lose weight as they age. Being a little over a million years old, the most extreme star R136a1 is already 'middle-aged' and has undergone an intense weight loss program, shedding a fifth of its initial mass over that time, or more than fifty solar masses." The star is losing mass through enormous outflows of wind and radiation.

The largest star currently known lies within the Tarantula Nebula. The zoomed-in image shows the cluster in the lower right of the final image.

In the image of just the cluster, R136a1 is at center. ESO/P Crowther



MVAS Mission

The Magic Valley Astronomical Society 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. The society serves as a source of astronomical phenomena, history and lore by providing educational and observing opportunities and information for its members and the general public and promotes viewing of celestial objects with special events for adults and children in south central Idaho.

Welcome to the Magic Valley Astronomical Society

Welcome to the society and hello. We hope you have a good time, enjoy the hobby, & bring good skies with you.

We hold indoor meetings each month at the Herrett Center for Arts & Science College of Southern Idaho campus in Twin Falls, ID, USA . Our meetings start at 7:00pm on the second Saturday of the month. There will

always be a very interesting program, class or presentation at these meetings, as well as good fellowship. There is always something new to learn.

Following our meetings we have a star party (weather permitting) at the Centennial Observatory, also at the Herrett Center.

Our star parties are free and you don't have to bring your own telescope. Telescopes are also set up outside on the stargazer's deck. Star Parties are held year round, so please dress accordingly as the Observatory is not heated, nor air conditioned.

Wishing you dark skies and clear nights!

MVAS Board

August Observing Highlights



Mercury will be a fair telescope target early this month. It will be visible the beginning of the month very low on the horizon just after sunset. It will only be around 6° above the horizon a half hour after sunset.



Venus will be low in the evening sky at dusk all month. It will be shining very brightly at magnitude -4.3 early in the month. It will not be as high in the sky as in previous months but it will still be very bright and hard to miss.



Mars will be visible very low in the south west sky as it grows dark. Mars will shine at magnitude 1.5 at midmonth. While still relatively bright, through a backyard telescope Mars will be too small to see any detail.



Jupiter will be high in the southern sky in Pisces this month. At a magnitude of -2.8 it will be the best planetary target this month. The best time to observe it would be around midnight when it will be very high in the southern sky.



Saturn will be low in the southwest sky to the southwest as it grows dark. It will be a bit too low to see much detail through a telescope and will be in the same area as Mars and Venus. Saturn will peak around magnitude 1.1 .



Uranus will be in the southern sky near Jupiter. The two planets start the month around 3° apart. Uranus will be west of Jupiter and should still be a good binocular target. Uranus will be shining at magnitude 5.8 . This makes it a possible naked eye target from dark skies.



Neptune will be at opposition August 20th. It will be at its brightest and closest to earth for the year. It will be close to straight south around midnight in eastern Capricornus-Aquarius border. You will need dark skies and a pair of binoculars or a telescope to spot it.



Moon Phases for August

3 **Last Quarter Moon** at 4:59 UT.
 10 **New Moon** at 3:08 UT.
 16 **First Quarter Moon** at 18:14 UT
 24 **Full Moon** at 17:05 UT.

Sky Calendar—August 2010

7 **Mercury at greatest elongation**, 27° east from Sun (evening sky) at 1h UT. Mag. $+0.1$.

8 **Venus, Mars and Saturn** within 4.8° diameter circle (47° from Sun, evening sky)

8 **Venus 2.7° SSW of Saturn** (evening sky) at 11h UT. Mags. -4.2 and $+1.1$.

10 **Moon at perigee** (closest to Earth) at 18h UT (357,857 km; 33.9°).

12 **Moon near Mercury** (27° from Sun, evening sky) at 0h UT. Mag. $+0.6$.

13 **Moon near Saturn** (evening sky) at 2h UT. Mag. $+1.1$.

13 **Moon near Venus** (evening sky) at 8h UT. Mag. -4.3 .

13 **Moon near Mars** (evening sky) at 14h UT. Mag. $+1.5$.

14 **Moon near Spica** (evening sky) at 16h UT.

18 **Moon near Antares** (evening sky) at 0h UT.

19 **Venus 1.9° SW of Mars** at 5h UT. Mags. -4.3 and $+1.5$.

20 **Venus at greatest elongation**, 46° east from Sun (evening sky) at 4h UT. Mag. -4.3 .

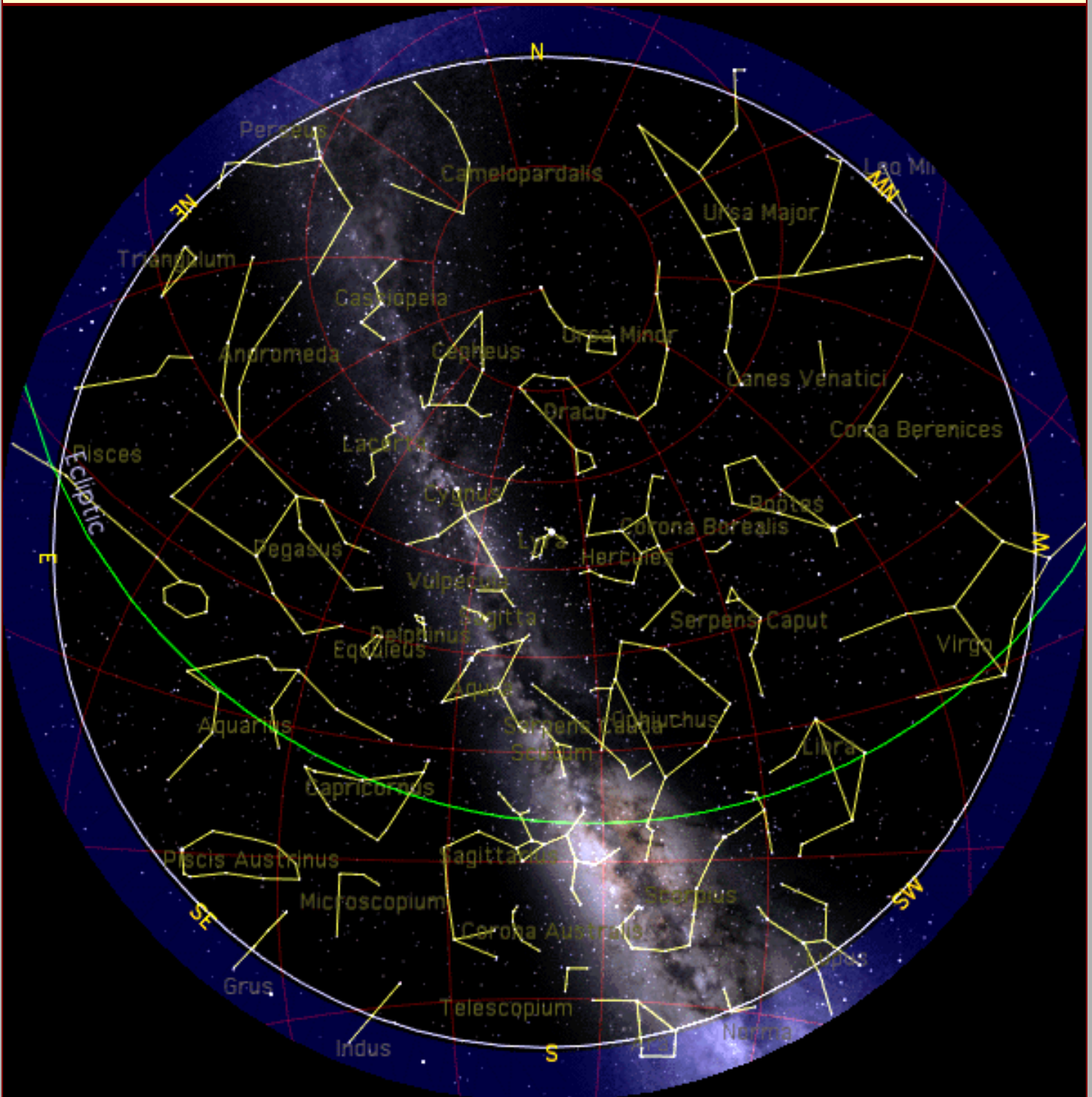
August Meteor Shower

The Perseid meteor shower is the best meteor shower of the summer, and this year it occurs soon after a new moon, providing nice, dark skies. Late in the evening on August 12 until the early morning hours of August 13 is the best time to view the meteors. The constellation of Perseus rises in the northeast before midnight. Sky watchers in North America should observe in the pre-dawn hours of 13 August. Image-Raining Perseids



NASA
 APOD
 07/08/12

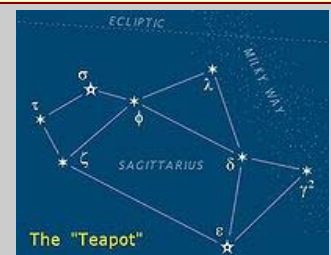
Planisphere for July Late Evening



Did you Know?

Sagittarius is the feature for this month's Looking through the eyepiece feature. Sagittarius lies in between Scorpius and Capricornus as is most easily recognized by the asterism of a teapot. What appears to be a cloud of steam is actually the Milky Way. It is densest here as this is the region that

lies toward the Galactic Center. Easily seen in the Planisphere above Sagittarius was originally identified by the Babylonians who identified Sagittarius as the god Pabilsaĝ, a centaur-like creature with wings, two heads, one panther head and one human head, aiming a bow.



Looking Through the Eyepiece - Sagittarius Deep Sky

Sagittarius probably contains the most amazing collections of deep sky wonders in all of the night sky. Sagittarius is due east of Scorpius and its brightest stars look like a teapot (asterism). The Milky Way appears to be steam boiling from the spout of the teapot.

Ok, let's start things off with a beautiful Diffuse Nebula with a Star Cluster, M8, which is known as the Lagoon Nebula. By sighting from the base star of the teapot's spout up through the two stars at the edge of the spout, you're pointed right in that direction. Also, at magnitude 6, this object is naked eye visible. It is easily visible in binoculars or a small telescope. Lagoon-top right photo.

Lagoon Nebula Observation Data:

Right Ascension: $18^{\text{h}} 03^{\text{m}} 37^{\text{s}}$
Declination: $24^{\circ} 23' 12''$

Next is the Trifid Nebula, M20. The name means 'divided into three lobes'. The object is an unusual combination of an open cluster of stars, an emission nebula (the lower, red portion), a reflection nebula (the upper, blue portion) and a dark nebula (the apparent 'gaps' within the emission nebula that cause the trifid appearance). Viewed through a small telescope, the Trifid Nebula is a bright and colorful object, and is a perennial favorite of amateur astronomers Trifid-Second photo on the right.

Trifid Nebula Observation Data:

Right Ascension- $18^{\text{h}} 02^{\text{m}} 23^{\text{s}}$
Declination: $-23^{\circ} 01' 48''$

Moving slightly up we come to M21, this is a relatively young cluster of a mere 4.6 million years of age. It is tightly packed but contains about 57 stars. A few blue giant stars have been identified in the cluster, but Messier 21 is composed mainly of small dim stars. With a magnitude of 6.5, M21 is not visible to the naked eye; however, with the smallest binoculars it can be easily spotted on a dark night. M21 Third row photo on the left.

M21 Observation data:

Right Ascension: $18^{\text{h}} 04.6^{\text{m}}$
Declination: $-22^{\circ} 30'$

Now returning to our starting point and moving slightly left we should come to

M28, a globular cluster. 18 RR Lyrae type variable stars have been observed in this cluster. In 1986 M28 became the first cluster where a millisecond pulsar was observed at the Lovell Telescope. M28 is easily overshadowed by its neighbor to the east. M22 which is coming up later. M28 Third row right photo.

M28 Observation Data:

Right Ascension: $18^{\text{h}} 24^{\text{m}} 32.89^{\text{s}}$
Declination: $24^{\circ} 52' 11.4''$

Now we will move up and to the right and find M23. M23 is an open cluster of some 150 identified members, the brightest of which is mag. 9.2 M23 can be found with a modestly sized telescope, but is difficult for binoculars. M23, Fourth row photo.

M23 Observation Data:

Right Ascension: $17^{\text{h}} 56.8^{\text{m}}$
Declination $-19^{\circ} 01'$

Now moving easy we encounter a true gem of wonder M24, the Sagittarius Star Cloud. The stars, clusters and other objects comprising M24 are part of the Sagittarius or Sagittarius-Carina arms of the Milky Way galaxy. Messier described M24 as a "large nebulosity containing many stars" and gave its dimensions as being some 1.5° across, a description that fits the star cloud rather well. Some sources, improperly, identify M24 as the faint cluster NGC 6603. M24 fills a space of significant volume to a depth of 10,000 to 16,000 light-years. This is the most dense concentration of individual stars visible using binoculars, with around 1,000 stars visible within a single field of view.

Sagittarius Star Cloud (M24) Observation Data:

Right ascension $18^{\text{h}} 17^{\text{m}}$
Declination $-18^{\circ} 29'$

Often times easily overlooked and lying in-between M23 and M17 is the Open Cluster M18. Not "a knock your socks off" object compared to M17 and M24, nevertheless, you'll find it easily enough with binoculars. Small telescopes highlight more.

M18 Observation Data:

Right Ascension: $18^{\text{h}} 19.9^{\text{m}}$
Declination: $17^{\circ} 08'$



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Looking Through the Eyepiece - Sagittarius Deep Sky

Next we'll visit a beautiful Emission Nebula with a Star Cluster, M17. Also known as the Omega Nebula, Horse-shoe Nebula and the Swan Nebula; this is well within reach of binoculars and small telescopes. This object is further north than our previous object, and therefore easier to view. In a 4-6" telescope, the nebula is clearly visible. In larger apertures of 12+" better detail is visible. An open cluster of 35 stars lies embedded in the nebulosity and causes the gases of the nebula due to radiation from these hot, young stars. Swan: Top photo on right.

Swan Nebula Observation Data:

Right Ascension: $18^{\text{h}} 20^{\text{m}} 26^{\text{s}}$
Declination: $16^{\circ} 10' 36''$

Stepping outside of Sagittarius for a moment and while were here go just northwest to M16, the Eagle Nebula, famous for the Hubble Image-Pillars of Creation. Eagle: Second photo on right.

Observation Data: M16-Eagle Nebula

Right ascension $18^{\text{h}} 18^{\text{m}} 48^{\text{s}}$
Declination $-13^{\circ} 49'$

Recovering from our divergence, we come to another nice open star cluster, M25. Again this is not a dramatic cluster, but the spatial dimension of this cluster is about 19 light years across. A Delta Cephei type variable star designated *U Sagittarii* is a member of this cluster.

M25 Observation Data.

Right ascension $18^{\text{h}} 31.6^{\text{m}}$
Declination $-19^{\circ} 15'$

Next up is a Elliptical Star Cluster, M22. M22 is one of the nearer globular clusters to Earth at a distance of about 10,600 light-years away. It spans 32' on the sky which translates to a spatial diameter of 99 ± 9 light-years. 32 variable stars have been recorded in M22. Despite its relative proximity to us, this metal-poor cluster's light is limited by dust extinction, giving it an apparent magnitude of 5.5 making it the brightest globular cluster in the northern hemisphere. Third photo on right.

M22 Observation Data:

Right ascension $18^{\text{h}} 36^{\text{m}} 24.21^{\text{s}}$
Declination $-23^{\circ} 54' 12.2''$

Dropping south we come to M70. M70 is at a distance of about 29,300 light years away from Earth and close to the Galactic Center. It is roughly the same size and luminosity as its neighbor in space, M69. Only two variable stars are known within this cluster. Fourth Photo on the right.

M70 Observation Data:

Right ascension $18^{\text{h}} 43^{\text{m}} 12.64^{\text{s}}$
Declination $-32^{\circ} 17' 30.8''$

Moving east we find M69. M69 is at a distance of about 29,700 light-years away from Earth and has a spatial radius of 42 light-years. It is a close neighbor of globular cluster M70, with 1,800 light-years separating the two objects. It's one of the most metal-rich globular clusters known. Fifth photo on right

M69 Observation Data.

Right ascension $18^{\text{h}} 31^{\text{m}} 23.23^{\text{s}}$
Declination $-32^{\circ} 20' 52.7''$

Traveling back past M70 and due west we come to M55. From our northern location M55 is the most southerly of all of the Messier objects. M55 is a quite large globular cluster (about 19', roughly 2/3 of the Moon's apparent diameter) but has such a loose appearance, that the current views of M55 has a star cluster impression even in 7x50 binoculars, where most globulars look like round nebulae: This one appeared very grainy. It doesn't change much in a telescope, either. M55 has only very few known variable stars, 5 or 6. Sixth photo on right.

M55 Observation Data:

Right ascension $19^{\text{h}} 39^{\text{m}} 59.40^{\text{s}}$
Declination $-30^{\circ} 57' 43.5''$

Moving back toward the Galactic Center and just northwest of M70. Previously thought to be at a distance from Earth of about 50,000 light-years, it was discovered in 1994 that M54 was most likely not part of the Milky Way, but actually part of the Sagittarius Dwarf Elliptical Galaxy, making it the first extragalactic globular cluster ever discovered, even if it wasn't recognized as such for nearly two and a quarter centuries. Modern estimates now place M54 at a distance of some



87,000 light-years, (making this the farthest Messier object.) translating into a true radius of 150 light-years across. It shines with the luminosity of roughly 850,000 times that of the Sun and has an absolute magnitude of -10.0. Continued on the last page.

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Image of the Centennial Observatory on the front page is courtesy of Chris Anderson, Observatory Manager. The Centennial Observatory is located at the Herrett Center for Arts and Science, College of Southern Idaho, Twin Falls, ID, USA. Shoshone Falls is a major attraction to the Magic Valley and a prominent landmark on the Snake River. Falls image is used under "public domain;" unknown photographer. M-51 on the front page was imaged with the Shotwell Camera and the Herrett Telescope at the Centennial Observatory by club members Rick Widmer & Ken Thomason. Star Party image is a open source photo photographer unknown.

Membership Information

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. Please contact a board member for details.

Looking Through the Eyepiece - Sagittarius Deep Sky

M54 is easily found on the sky, being close to the star ζ Sagittarii. It is however, not resolvable into individual stars even with larger amateur telescopes.

In July of 2009, a team of astronomers reported that they had found evidence of an intermediate-mass black hole in the core of M54. Photo seven on previous page.

Traveling further out and almost into the Constellation Boundary of Capricornus lies M75. M75 is at a distance of about 67,500 light years away from Earth and its apparent size on the sky translates to a true radius of some 67 light years. It is classified as class I, meaning it is one of the more densely concentrated globular clusters known. The absolute magnitude of M75 is about -8.5 or some 180,000 more luminous than the Sun. M75 NASA/STScI



M75 Observation Data:
Right ascension $20^{\text{h}} 06^{\text{m}} 04.75^{\text{s}}$
Declination $-21^{\circ} 55' 16.2''$

Northeast of M75 Lies Barnard's Galaxy or NGC 6822. Barnard's Galaxy is a barred irregular galaxy approximately 1.6 million light-years away and is easily observed in a 6-inch telescope.

Photo of Barnard's Galaxy ESO La Silla Observ.



Barnard's Galaxy Observation Data:
Right ascension $19^{\text{h}} 44^{\text{m}} 56.6^{\text{s}}$
Declination $-14^{\circ} 47' 21''$

Finally our sky tour of Sagittarius Deep Sky comes to an end. We return back to our point of origin, yes we have left out some, okay a lot of objects. This tour was meant for light pollution around Twin Falls-Burley areas. It is also for amateurs who use binoculars and small telescopes. Sagittarius contains many star clusters and nebula. With 16 stars in this constellation known to have planets, Sagittarius has more planetary host stars than any other constellation.

Article inspired by the Salt Lake City Astronomy club. Current information from Wikimedia sources and WikiSky.

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: Currently we have no books to lend.

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

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