Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society

October Highlights

Oct. 9th-**Membership Business Meeting Monthly Star Party** we will be voting for officers. Our guest speaker this month is Mr. Robert Mayer, CSI Faculty and Club Member, who will present "They Must Go Out Together': The Ever-Changing Perspectives Regarding the Relationship between Astronomy and the Humanities"

Robert Mayer has been employed full-time as a member of the faculty of the English Department at the College of Southern Idaho since 2002, and has been involved with the Magic Valley Astronomical Society since 2008. One of his interests is studying how the use of astronomy can improve teaching college students writing, literature, and humanities. On Saturday, Oct. 9, Mayer will demonstrate that while Tennyson, Whitman, Twain, Van Gogh and others connected astronomy to the arts in the past, today's scientists and humanities teachers have even better opportunities in reaching world where popular culture has tried to marginalize the two disciplines.

Oct. 16th **International Fall Astronomy Day**

End-of-the-Year-Report

Elections

This month we will have the business meeting. Last year, the board elected to not hold the November meeting. This was mainly do to low attendance and participation with the observatory.

With a rise in membership attendance we will again have a November meeting, but until then, or a new board decides to change we will have the business meeting this month. That said, we now open the month with nominations for officers to succeed the current board if you so desire. To nominate a member for the board please notify one of the current board members. If there are no nominations and no objections the current board will remain and serve no doubt an unprecedented fourth term. Some of the current members have served longer (Sec. Rick Widmer) so the rest of us have no complaints. We will take nominations up until the board meeting, which proceeds the general meeting.

To be on the board you must be a current dues paying member.

During the general meeting the elections will be held.

Treasurer's report:

Total cash on hand $820

A portion of that (estimated between $200-250) is earmarked for dues to The Astronomical League. Estimate difference is due to the fact that dues are based on total number of paid members.

Upcoming Dues in December: Bob Elschalger, Jay & Deb Hartwell, Jim Tubbs

With a new director at the Herrett Center plans for installing the telescope piers have been delayed. The current thought is having Terry Wofford build them and install them in the future when time allows and final director approval takes place.

Continued on page 6.

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 7:00 pm 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.

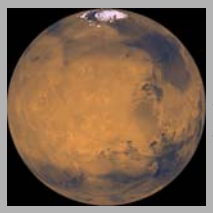
Wishing you dark skies and clear nights!

MVAS Board

October Observing Highlights

Mercury will be in the low on the eastern horizon predawn sky early in the month. It will be a good telescope target. It will be at magnitude -1.1 so it should be visible through the glare. Look for it in the very beginning of the month because it quickly disappears a week later.

Venus will sink into the evening glare this month. In the first week of the month it may be visible very low on the horizon just around sunset. If it is seen then the disk will appear very large but only 11% lit.

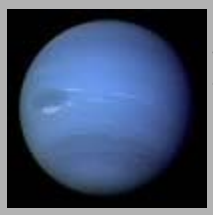


Mars will be barely visible very low in the south west sky as it grows dark. Mars will shine at magnitude 1.5. While still relatively bright, you will likely need binoculars to pick it out of the evening glare.

Jupiter reached opposition late last month around the 20th. This was when it was at its closest to Earth and thus at its biggest and brightest. This month it will still be very big and bright. It will be a must see target.

Saturn went behind the Sun late last month. It will be slowly rising in the eastern predawn sky this month. By the end of the month it will shine at magnitude 0.9 and rise about two hours before sunrise. Don't expect great views this month.

Uranus reached opposition last month around the 20th. It will still be near its biggest and brightest. It will be in the southern sky in Pisces very near Jupiter. The two planets will be between 1.4º and 3.2º apart all month.



Neptune will be close to straight south when it gets dark. This will be a good time to look for it. It will be in eastern Capricornus Aquarius border. You will need dark skies and a pair of binoculars or a telescope to spot it.

Moon Phases for October

1 Last Quarter
6 Moon at Perigee
7 New Moon
14 First Quarter
18 Moon at Apogee
22 Full Moon
30 Last Quarter

Sky Calendar—October 2010

Events by Day

1 **Saturn at conjunction** with the Sun at 1h UT. The ringed planet passes into the morning sky.
3 **Moon near Beehive cluster M44**
4 **Moon near Regulus** at 21h UT.
9 **Moon near Venus** (28° from Sun, evening sky)
10 **Moon near Mars** (31° from Sun, evening sky)
11 **Moon near Antares** (evening sky) at 17h UT.
17 **Mercury at superior conjunction** with the Sun The planet passes into the evening sky.
20 **Moon near Jupiter** at 4h UT. Mag. -2.8.
21 **Orionid meteor shower peaks**. Arises from the debris field of Comet Halley. Active from October 2 to November 7. Produces very fast (66 km/sec), generally faint meteors (20 per hour).
25 **Moon near the Pleiades** at 12h UT.
26 **Moon near Aldebaran** at 6h UT.
29 **Venus at inferior conjunction** with the Sun. The planet passes into the morning sky.
29 **Moon near Pollux** (morning sky) at 12h UT.
30 **Moon near Beehive cluster M44** at 14h UT.

Comet Hartley in October

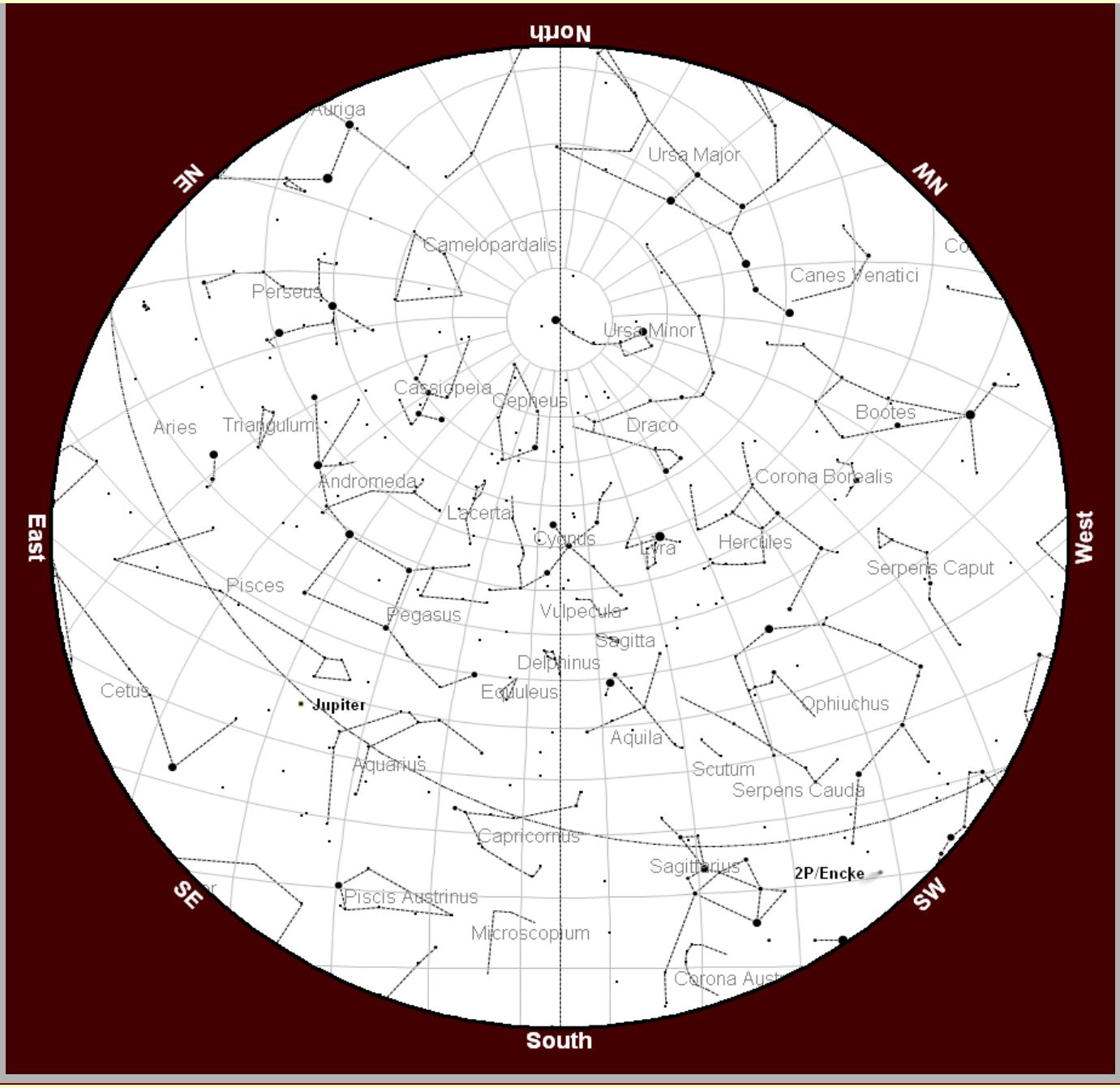
Comet 103P/Hartley should be visible this month. Astronomers are predicting it to peak around magnitude 5. This makes it an easy binocular target and a possible naked eye target from dark skies. It will be high in the northeast sky near Cassiopeia-Perseus-Auriga. October 9th would be a good night to look for it.

The Hunter's Moon

This October the full moon is called the Hunter's Moon, Blood Moon or Sanguine Moon and it occurs on October 22 at 7:37p.m. MDT. This will spoil the Orionid meteors, which peak the night before. On October 24 and 25, you will find the waning moon near the Pleiades star cluster.

Image: Harvest Moon rising over Georgian Bay, Lake Huron, Ontario, Canada © 25 Oct. 2007, Steve Irvine Astrophotography, All Rights Reserved used with permission.

Planisphere for October



Did You Know?

The flag code of the United States (Title 4 Chapter 1) has the instructions when to display the US flag and when to fly the flag at half-staffed.

Currently there are two exceptions to flying the flag at half-staff. Their locations are considered so remote that access to properly display these flags at half-staff is almost impossible.

These two locations are: 1. McMurdo Station on Antarctica. 2. The surface of the Moon, which were placed by the Apollo astronauts.

Until a Lunar Reconnaissance Orbiter picture confirms the remains of the flag on the moon, the first of which was placed 41-years ago by Apollo 11, it must be assumed the flags (other than those decaled on the descent module) have deteriorated beyond actual recognition due to the harsh conditions.

Image: Apollo 11 astronaut Edwin E. (Buzz) Aldrin, Jr. salutes the Flag on the surface of the Moon, 20 July 1969. The astronauts footprints are clearly visible in the lunar regolith. The Lunar Module is on the left. Source: NASA

Looking Through the Eyepiece - Coma Berenices

Coma Berenices is one of the few constellations to owe its name to an historical figure, in this case Queen Berenice II of Egypt, wife of Ptolemy III Euergetes (*fl.* 246 BC–221 BC), the king under whom Alexandria became an important cultural center.

In 243 BC, Ptolemy, in the Third Syrian War, undertook a dangerous expedition against the Seleucids who had murdered his sister. His newlywed bride, Berenice, swore to the goddess Aphrodite to sacrifice her long, blonde hair, of which she was extremely proud, if her husband returned safely. He did, and she had her hair cut and placed it in the goddess' temple. By the next morning the hair had disappeared. To appease the furious king and queen (and save the lives of the temple priests), the court astronomer, Conon, announced that the offering had so pleased the goddess, that she had placed it in the sky. He indicated a cluster of stars that have since been called Berenice's Hair.

Although Coma Berenices is not a large constellation, it contains eight Messier objects. The constellation is rich in galaxies, containing the northern part of the Virgo cluster. There are also several globular clusters to be seen. These objects can be seen with minimal obscuration from dust because the constellation is not in the direction of the galactic plane. However, because of this fact, there are few open clusters (except for the Coma Cluster, which dominates the northern part of the constellation; featured in the May Newsletter), diffuse nebulae, or planetary nebulae.

We begin with M53 is a globular cluster that was discovered by Bode in 1775 and independently by Charles Messier in February 1777. Its brightness is 7.7^{m}, making it visible in binoculars. It is around 65,000 light years away and its total luminosity is around 200,000 times that of the Sun. Only 1° away is NGC 5053, a globular cluster that is sparser and has a less dense nucleus of stars. Its total luminosity is around 16,000 suns, which is one of the lowest luminosities of any globular cluster. It was discovered by Sir William Herschel in 1784. It is around magnitude 9.9 m. NGC 4147 is a somewhat dimmer (magnitude 10.2m) globular cluster with a much smaller apparent size.

M53 Coordinates:
Right Ascension 13h 12m 55.3s
Declination +18° 10′ 09″

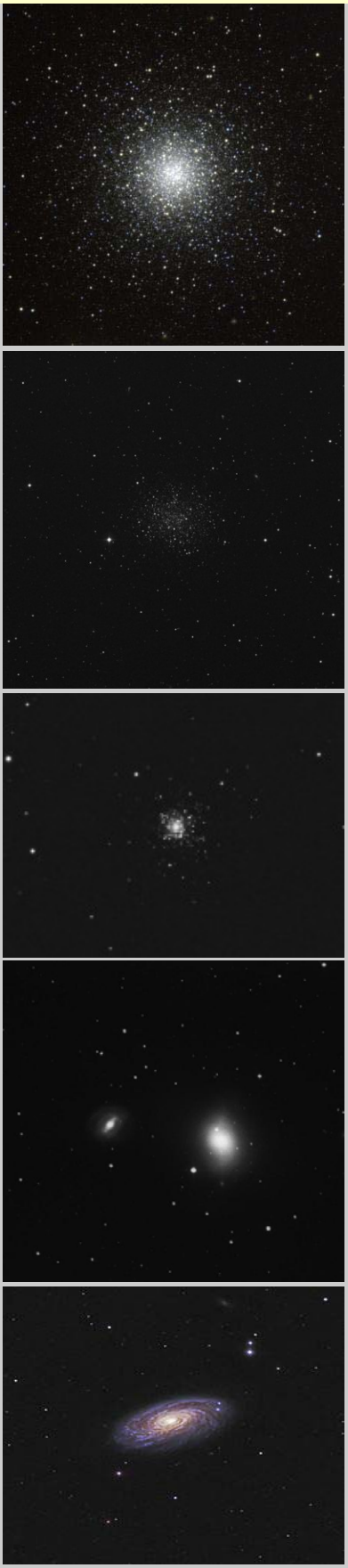
Coma Berenices contains the northern portion of the Virgo cluster (also known as the Coma-Virgo cluster), which is around 60 million light years away. Featured objects here are:

M85 a lenticular galaxy that is the northernmost outlier of the Virgo cluster. It is one of the brighter members of the cluster.

M85 Coordinates:
Right ascension 12^{h} 25^{m} 24.0^{s}
Declination +18° 11′ 28″

M88 is a multi-arm spiral galaxy, seen about 30° from edge-on. M85 is interacting with the nearby spiral galaxy NGC 4394 This galaxy may be on a highly elliptical orbit that is carrying it toward the cluster center, which is occupied by the giant elliptical galaxy M87 NGC 4501 is currently 0.3–0.48 million parsecs from the center and will come closest to the core in about 200–300 million years. The motion of this galaxy through the intergalactic medium of the Virgo cluster is creating a ram pressure that is stripping away the outer region of neutral hydrogen. This stripping has already been detected along the western, leading edge of the galaxy. This galaxy is inclined to the line of sight by 64°. The arm structure of the spirals is very regular and can be followed down to the galactic core.

M88 Coordinates:
Right ascension 12^{h} 31^{m} 59.2^{s}
Declination +14° 25′ 14″.



Images: Top-Bottom: 1. M53 & 2. NGC 5053 STScI Digitized Sky Survey. 3. NGC 4147 in Coma Berenices © 22 Apr 2007 by Ole Neilson, All Rights Reserved, used with permission of the Astrophotographer. 4. M85 and 5. M88 NASA / STScI / ESA / ESO.

Looking Through the Eyepiece - Coma Berenices

M91 (NGC 4548) is a barred spiral galaxy and is the faintest object in Messier's catalog. It is a nice barred spiral galaxy, and a member of the Virgo Cluster. Like a number of other cluster members, it is situated in the southern part of constellation Coma Berenices. Coordinates:
Right ascension $12^h\ 35^m\ 26.4^s$
Declination +14° 29′ 47″

M98 (NGC 4192) is a bright, elongated spiral that is seen nearly edge-on. It has a small nucleus and faint but vast spiral arms. M98 is one of the faintest objects in Messier's catalog. It is a beautiful spiral galaxy seen edge-on, and a member of the Virgo Cluster of Galaxies, situated in the southern part of constellation Coma Berenices. Coordinates:
Right ascension $12^h\ 13^m\ 48.3^s$
Declination +14° 54′ 01″

M99 (NGC 4254), about 1.5° southeast of M98, is a bright, round spiral seen face-on. R.H. Allen called it the "Pinwheel nebula", although this name is more often applied to the Triangulum Galaxy.

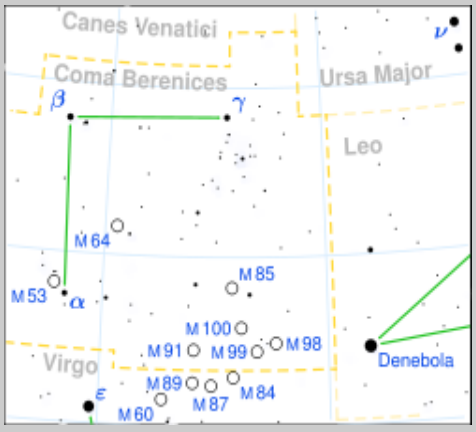
The galaxy has a normal looking arm and an extended arm that is less tightly wound. A bridge of neutral hydrogen gas links NGC 4254 with VIRGOHI21. The gravity from the dark galaxy VIRGOHI21 appears to have distorted M99 and drawn out the gas bridge, as the two galaxy-sized objects have a close encounter, before they go their separate ways. It is expected that the drawn out arm will relax to match the normal arm once the encounter is over. Three supernovae have been observed in this galaxy. M99 was one of the first galaxies in which a spiral pattern was first seen. The spiral pattern was first identified by Lord Rosse in the spring of 1846 Coordinates:
Right ascension $12^h\ 18^m\ 49.6^s$
Declination +14° 24′ 59″

M100 (NGC 4321) is a 9.4^m spiral galaxy seen face-on. At 7 arcminutes across, it has the largest apparent size of any galaxy in the Virgo cluster. It is located about 56 million light-years away. Its diameter is over 120,000 light years, making it among the largest spiral galaxies in the Virgo cluster. Photographs reveal a brilliant core, two prominent spiral arms and an array of secondary ones, as well as several dust lanes.

M64 is known as the Black Eye Galaxy because of its prominent dark dust lane in front of the galaxy's bright nucleus. It is relatively nearby, at around 17 million light years away from Earth. Recent studies have revealed that the interstellar gas in the outer regions of the galaxy rotates in the opposite direction from that in the inner regions, leading astronomers to believe that at least one satellite galaxy had collided with it less than a billion years ago. Coordinates:
Right ascension $12^h\ 56^m\ 43.7^s$
Declination +21° 40′ 58″

Coma Berenices contains the North Galactic Pole, coordinates:
Right Ascension $12^h\ 51^m\ 25^s$
Declination +27° 07′ 48″

This is a point in the constellation where we look perpendicular to and above the Galactic Plane, the nearest bright star to the North Galactic Pole is Arcturus, in the neighboring constellation Boötes. The north galactic pole has the following approximate equatorial coordinates:



Images: Top to Bottom M91, M98 through Wikimedia Commons from amateur photographers. M99 is courtesy of HeWhoLooks Creative Commons license applied. M100 and M64 STScI/NASA/ESA Star Chart source Wikimedia Commons

End of the Year Report

Vice President's / Editors Message

2010 was another good year for the astronomy club. We have a few new members and lost a few members though our overall numbers have stayed the same.

Several events that we co-hosted with the Centennial Observatory were a great success. If you missed one this year there are always other events to attend you can find them online through the club website by this link. Our local star parties were well attended.

http://www.mvastro.org/events.php

The board would like to extend thanks to the club members that assisted at the Centennial Observatory and Herrett Center for the Partial Lunar Eclipse while Chris Anderson was in Egypt.

In July, the annual City of Rocks / Castle Rocks Star Party (first image, Castle Rock) was held over the weekend of July 16th and 17th. We received permission to hold the event for two-days and this proved very successful. We had over 100 in attendance on both nights; the weather however did not cooperate. We were clouded out on Friday night.

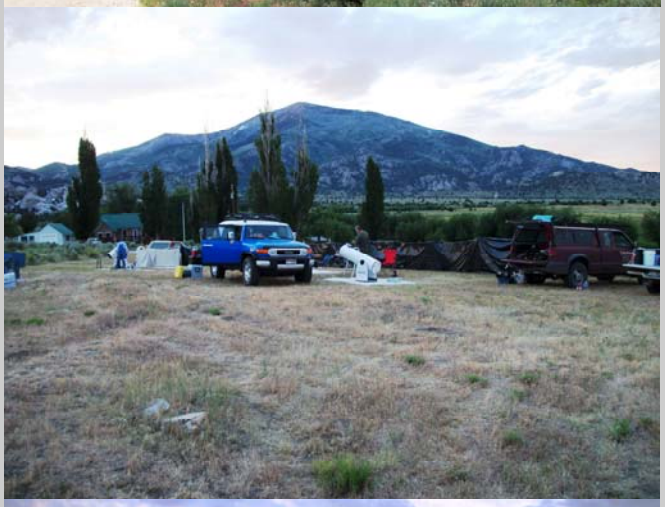
The members including most of the board (we missed you Rick) camped in the campground (Smokey Mountain) so we would not have to drive (even though some did) and then repeated the process the second night. The sky conditions were pristine on Saturday night and according to Chris Anderson some of the clearest and sharpest views he had seen so far at Castle Rocks. Some people came back on Saturday night and we had 32 in attendance including the park supervisor and some members of his family. In the second photo on the right above Club members and non-club members are setting up their telescopes at the observing site at the Ranch House, Castle Rocks S.P. near Almo, ID. The mountains to the north and northwest of the observing site and effectively blocks most of the glow from the Magic Valley (Burley) and makes this site a great dark sky location and well worth the drive. The tarps you see are for blocking light from approaching vehicles and were put up by Terry Wofford.

In the third image, associate member Jay Nagele is setting up his EQ telescope. This is a view of the southeast which clearly shows the clouds that would eventually leave us clouded out for Friday night. The tarps on the ground are set up by Terry Wofford to protect telescopes from the dust.

With the sunset evening temperatures cool off enough to encourage the use of jackets, long pants and a head covering. The valley floor here is about 5700' in elevation and helps to contribute to the great viewing conditions that have left members and non-members impressed enough they keep talking about the visit for some time.

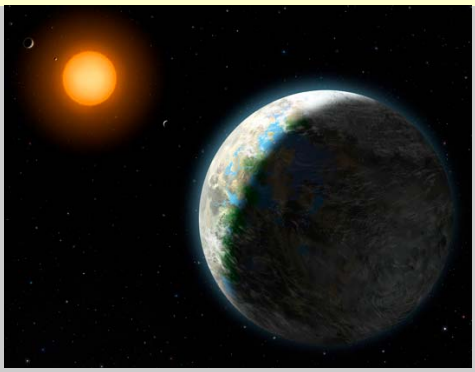
If we continue to visit here over two nights in the future, the club may well consider registration to help offset park entrance and camping fees. For those of you who do not want to camp there is a small motel in Almo as well as an actual steakhouse. There are plenty of daytime activities including hiking, rock climbing, horse trails, etc.

We hope you join us in the future.



Please see the back page for the conclusion.

First Potentially Habitable Exoplanet Found



A team of planet hunters from the University of California (UC) Santa Cruz, and the Carnegie Institution of Washington has announced the discovery of a planet with three times the mass of Earth orbiting a nearby star at a distance that places it squarely in the middle of the star's "habitable zone."

This discovery was the result of more than a decade of observations using the W. M. Keck Observatory in Hawaii, one of the world's largest optical telescopes. The research, sponsored by NASA and the National Science Foundation, placed the planet in an area where liquid water could exist on the planet's surface. If confirmed, this would be the most Earth-like exoplanet yet discovered and the first strong case for a potentially habitable one.

To astronomers, a "potentially habitable" planet is one that could sustain life, not necessarily one where humans would thrive. Habitability depends on many factors, but having liquid water and atmospheres are among the most important.

The new findings are based on 11 years of observations of the nearby red dwarf star Gliese 581 using the HIRES spectrometer on the Keck I Telescope. The spectrometer allows precise measurements of a star's radial velocity (its motion along the line of sight from Earth), which can reveal the presence of planets. The gravitational tug of an orbiting planet causes periodic changes in the radial velocity of the host star. Multiple planets induce complex wobbles in the star's motion, and astronomers use sophisticated analyses to detect planets and determine their orbits and masses.

"Keck's long-term observations of the wobble of nearby stars enabled the detection of this multi-planetary system," said Mario R. Perez, Keck program scientist at NASA Headquarters in Washington. "Keck is once again proving itself an amazing tool for scientific research."

Steven Vogt, professor of astronomy and astrophysics at UC Santa Cruz, and Paul Butler of the Carnegie Institution lead the Lick-Carnegie Exoplanet Survey. The team's new findings are reported in a paper published in the Astrophysical Journal and posted online at http://arxiv.org.

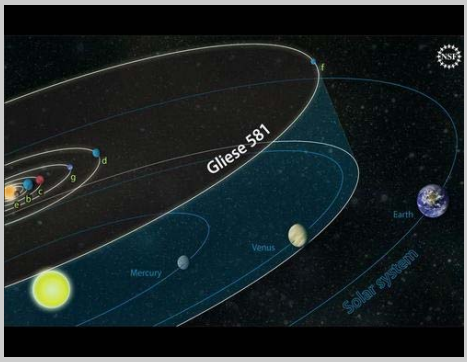
"Our findings offer a very compelling case for a potentially habitable planet," said Vogt. "The fact that we were able to detect this planet so quickly and so nearby tells us that planets like this must be really common."

The paper reports the discovery of two new planets around Gliese 581. This brings the total number of known planets around this star to six, the most yet discovered in a planetary system outside of our own.

Like our solar system, the planets around Gliese 581 have nearly-circular orbits. The new planet designated Gliese 581g has a mass three to four times that of Earth and orbits its star in just under 37 days. Its mass indicates that it is probably a rocky planet with a definite surface and enough gravity to hold on to an atmosphere.

Gliese 581, located 20.3 light years away from Earth in the constellation Libra, has two previously detected planets that lie at the edges of the habitable zone, one on the hot side (planet c) and one on the cold side (planet d). While some astronomers still think planet d may be habitable if it has a thick atmosphere with a strong greenhouse effect to warm it up, others are skeptical.
The newly-discovered planet g, however, lies right in the middle of the habitable zone. The planet is tidally locked to the star, meaning that one side is always facing the star and basking in perpetual daylight, while the side facing away from the star is in perpetual darkness. One effect of this is to stabilize the planet's surface climates, according to Vogt. The most habitable zone on the planet's surface would be the line between shadow and light, which is known as the terminator.

NASA news article.



Images: Upper left: This may well be the first new "Earth." Artists rendering of Gliese 581 g Credit: Lynette Cook Above: What the habitable zone looks like. Carnegie Institute Image. Below This artist's representation shows Gliese 581 e (foreground), which is only about twice the mass of our Earth. Other planets in the system are 16 (planet b, nearest to the star), 5 (planet c, center), and 7 Earth-masses (planet d, with the bluish color). Credit: ESO

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

Images on the front page: 1. Centennial Observatory 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.
2. 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.
3. 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.

End of the Year Report—Conclusion

Above: The Centennial Observatory's manager Chris Anderson and non-club member Robert Wilkinson are setting up for stargazing in the "bowl" at the top of chairlift B. Located near Albion, ID up Howell canyon road and near Mt. Harrison at 8762', Pomerelle Mountain is now is in its third year and offers some good sky conditions, though not as pristine as Castle Rocks S.P. / City of Rocks N.R. to the south.
Right: A region of Sagittarius inside M24 known as Barnard 92 and 93 now a favorite target of Chris Anderson's who literally stumbled upon it last year at Castle Rocks S.P. / City of Rocks N.R. star party. B92 and B93 represent a blank area in the Milky Way as was previously thought to two black holes. Definitely a WOW target and one that should not be missed.
If you did not attend the star parties at either Castle Rocks S.P. or Pomerelle there is always next year.

Images: Castle Rock, Ranch House Observing site and the Pomerelle Mountain set-up are courtesy of President Terry Wofford. © 2010.07.16 and 2010.08.07 Terry Wofford-all rights reserved. Used with permission. B92 & B93 by Anthony Ayiomamitis. Creative Commons licensed applied.

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.

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

Elected Board

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terrywofford@hotmail.com

David Olsen, VP / Newsletter Ed.
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Jim Tubbs, Treasurer
jtubbs015@msn.com

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