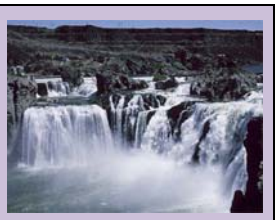
Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society

April 2012



www.mvastro.org

In this Issue

Membership Meeting

Saturday, April 14th 2012
7:00 p.m. at the
Herrett Center for Arts and
Science CSI Main Campus

Elected Board

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Membership Message

April brings better weather for stargazing and thus more activity's for the club. While we as of yet don't have any firm dates for club star parties, we do have a least two events scheduled for April.

Following our club meeting, the club will assist with the public star party at the Centennial Observatory. Due to the change from standard time to daylight saving time this past month, the observatory will not open to the public until 8:45 p.m.

On Saturday the 28th will be International Astronomy Day and we will be providing visitors with the opportunity to view the Sun through a variety of solar telescopes. Following the day time observing there will be a star party at the Centennial Observatory. If you are interested in assisting with this event, contact Chris Anderson. Please see page 5 for more information.

Coming in May we will be planning to co-host the Partial Solar Eclipse - For the first time in a decade, Idaho will be in the moon's shadow. More in the May newsletter.

In June there will be another partial lunar eclipse - The moon will skirt part-way through the Earth's dark (umbral) shadow during this pre-dawn eclipse.

Later in the early evening will be the transit of Venus on the Sun. This is truly an once-in-a-lifetime event that you don't want to miss. Again more in the upcoming newsletters.

We continue to take dues for membership for 2012. Contact the club treasurer, Jim Tubbs for more information and see the last page for benefit details.

David Olsen, VP/Editor

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

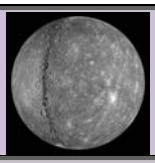
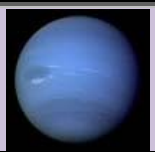
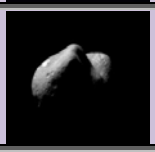
Our star parties are free and you don't have to bring your own telescope. Telescopes are also set up outside on the stargazer's deck. Star Parties are held year round, so please dress accordingly as the Observatory is not heated, nor air conditioned.

Wishing you dark skies and clear nights! MVAS Board

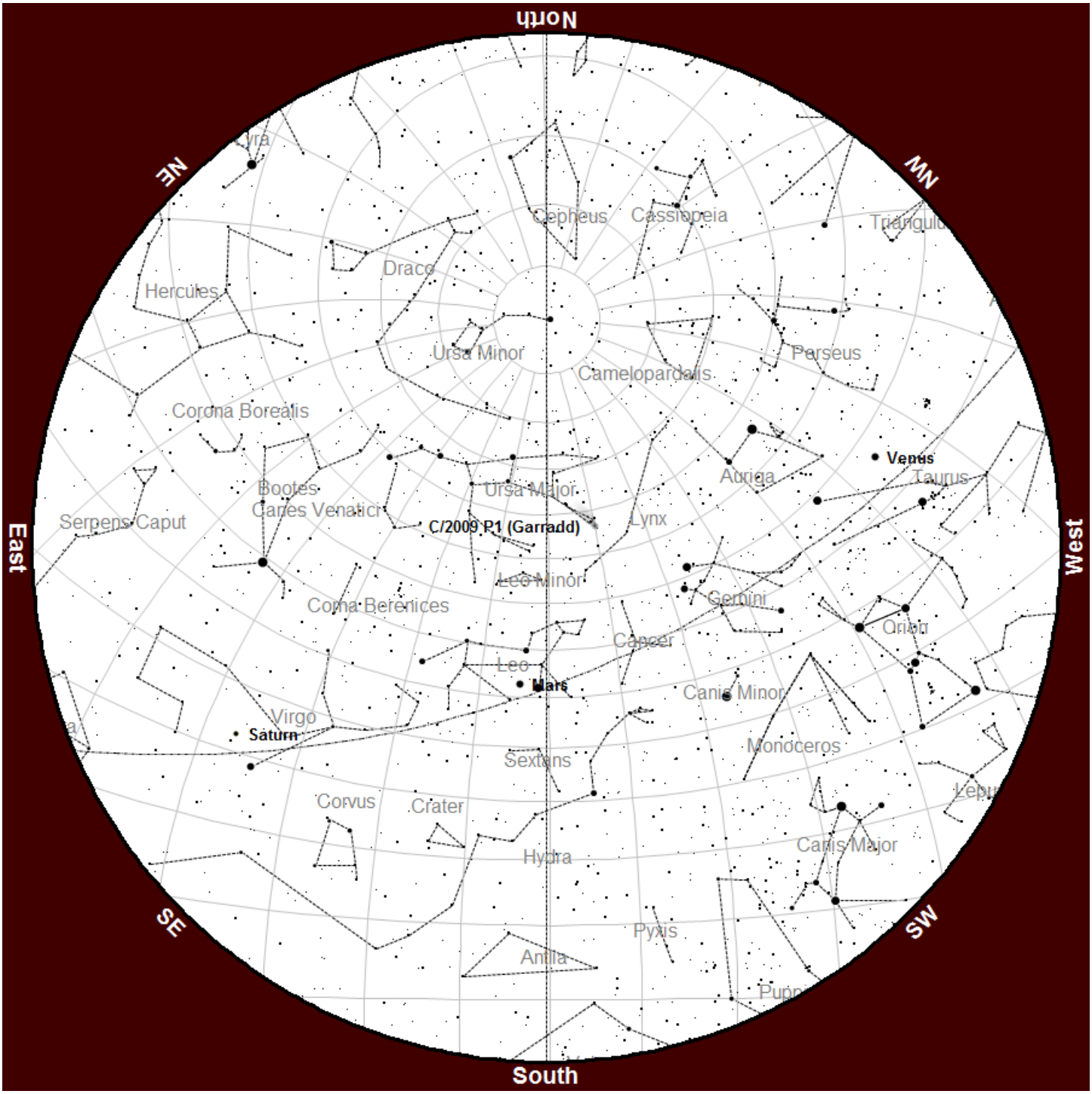
Calendar for April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1  April Fool's Day	2	3	4	5	6  Full Moon (Pink Moon Algonquin)	7  Moon at Perigee
8  Easter	9	10  Moon at Greatest S. Declination - 21.8°	11	12  Yuri's Night	13	14 Membership Meeting at the Herrett Center 7:00 pm Monthly free star party at 8:45p at the Centennial Observatory
15	16	17	18	19	20	21  New Moon
22  Earth Day  Moon at Apogee	23	24	25  Moon at Greatest N. Declination + 21.8°	26	27	28  International Astronomy Day at The Herrett Center and Centennial Observatory
29	30					

Solar System

	**Mercury** reaches its greatest elongation on the 18th, when it lies 27° west of the Sun. Early risers may catch a brief view of the planet in the pre-dawn sky, about 30 minutes before sunrise and only 5° degrees above the eastern horizon. Binoculars could prove useful for spotting it against the bright twilight.http://www.reddit.com/r/starparty - date-month
	**Venus** outshines all the other stars and planets in the night sky and is in good view in the west as darkness begins to fall. It begins the month only 1° below the Pleiades star cluster and slowly moves eastward with each passing day. By April 30, the planet sits just 3° south of second-magnitude Beta Tauri, also known as Elnath, El Nath, or Alnath.
	**Mars** By mid-evening, as Venus and Jupiter set in the west, Mars stands two-thirds of the way from the southeastern horizon to the zenith. Mars spends the month floating 5° or less from Regulus (Alpha Leonis), a slightly dimmer star with which it contrasts beautifully. Through a telescope, the Red Planet's disk will appear no bigger than 12" across, still rather small even at high magnifications.
	**Jupiter** If you have a clear, flat horizon, look for Jupiter lying low in the west after sunset. This is your last chance to spot the planet during the current apparition. By the end of the month, Jupiter will disappear into the evening twilight and then slip behind the Sun at conjunction on May 13. Afterwards, in mid-June, Jupiter will emerge from the dawn twilight and be visible in the morning sky before sunrise.
	**Saturn** rises at the end of evening twilight as April begins. It shines high in the southeast, among the stars of Virgo and close to brilliant Spica, by midnight. The ringed planet reaches opposition and peak visibility on the 15th, rising then around sunset. Opposition is about when a superior planet attains its maximum apparent size and brightness.
	**Uranus** will be only a marginal target if visible at all. Toward the end of the month it will be very low on the eastern horizon just before sunrise. It went behind the Sun late last month.
	**Neptune** Distant Neptune can be found among the background stars of Aquarius, low in the east before dawn's first light. The planet glows dimly at magnitude +7.9, much too faint to be viewed with the unaided eye, lying at a mean distance from the Sun of 2.8 billion miles.
	**Pluto** The dwarf planet Pluto lies in northern Sagittarius and is highest above the southern horizon just before dawn. Search for it under a dark, moonless sky. Pluto glows at magnitude +14, and as a result, it is a challenge to spot. An 8-inch telescope on a perfect night brings Pluto to the edge of visibility. For a direct view, however, you will want to use at least a 10-inch scope.
	**6 Hebe** The main-belt asteroid 6 Hebe lies within 1.5° of Algieba (Gamma Leonis), and tracks westwards until mid-month. Soon after this, it completes its retrograde loop and starts heading eastward. Glowing at about 10th-magnitude, Hebe looks like an ordinary field star and is highest above the southern horizon around 10 P.M. local daylight time.
	**C/2009 P1 Garradd** has been observable in northern skies for over a year now. Despite the fact that it is currently receding from both the Sun and Earth, it still glows around 7th-magnitude and remains a nice sight throughout binoculars and small telescopes. In early April, Garradd slides through the background stars of the constellation Ursa Major, but by mid-month it passes the border into neighboring Lynx.
	**Lyrid meteors** This year, astronomers predict that the Lyrid shower will climb to a sharp peak in the predawn hours of April 22. However, activity begins on April 16 and continues until about the 25th. **Eta Aquarids** first appear around April 19, and some can be seen until May 28. The shower's peak occurs around May 5, when up to 20 or 30 meteors can be seen each hour from a dark-sky site. Throughout April, the shower's radiant is found in western Aquarius.

Planisphere for April



This Planisphere should be used as a guide for the month of April. April, mid-month, end of evening twilight (10:00 PM)

Planisphere is provided as a courtesy from
Chris Anderson, Coordinator
Centennial Observatory
Herrett Center for Arts & Science
College of Southern Idaho

Club Announcements

Do you have the urging to get away and experience something completely different? Are you in search of a new camping spot? Well then you are in luck on Saturday the 14th (yes the same date as the club meeting) Great Basin National Park in Baker, NV (outside of Ely, NV) will be hosting its Spring Star Party. Enjoy a night of learning and observing the amazing spring constellations and see such highlights as you have never seen them before. All astronomy programs will start with a ranger talk at the Lehman Caves Visitor Center followed by ranger led telescope viewing.
Thanks to an almost complete lack of civilization in these parts, the night skies of Great Basin National Park are among the darkest in the country.

On a clear, moonless night in Great Basin National Park, thousands of stars, five of our solar system's eight planets, star clusters, meteors, man-made satellites, the Andromeda Galaxy, and the Milky Way can be seen with the naked eye. The area boasts some of the darkest night skies left in the United States. Low humidity and minimal light pollution, combined with high elevation, create a unique window to the universe.

Thanks to an almost complete lack of civilization in the region, the night skies of Great Basin National Park are among the darkest in the country. It's estimated that two-thirds of Americans cannot see the Milky Way from their backyards and as light pollution continues to worsen, for some, the chances to observe the cosmos as nature intended might be running out.

For more information about Great Basin visit http://www.nps.gov/grba/index.htm or contact the park at Baker, NV by phone (775) 234-7331

International Astronomy Day Events

Rick Allen Room:
10:00 AM – 5:00 PM – Astronomy make-and-take, water bottle rocket construction, coloring pages, etc. Admission: $1 per person.

Outside:
10:15: AM – 5:00+ PM – Water bottle rocket launches. Scale model of the Solar System on the North entry to the Herrett Center. Free admission.

Planetarium shows:
2:00 PM – Lifestyles of the Stars/Live Sky Tour in the planetarium. Adults: $4.50, seniors: $3.50, students: $2.50.
4:00 PM – The Search for Life in the Universe in the planetarium. Adults: $4.50, seniors: $3.50, students: $2.50.
7:00 PM – Lifestyles of the Stars/Live Sky Tour in the planetarium. Adults: $4.50, seniors: $3.50, students: $2.50.
8:15 PM – Pink Floyd: Dark Side of the Moon in the planetarium. All ages: $4.50

Observatory
10:00 AM – 5:00 PM – Solar viewing: Free admission.
8:45 PM – 12:00 AM – Star party in the observatory: Free admission.

Call for Volunteers. Folks as always, the more volunteers we have at the International Astronomy Day, the greater the success. If you would like to volunteer please contact Chris Anderson at the Herrett Center 208-732-6663 or via e-mail at canderson@csi.edu

BRINGING ASTRONOMY TO THE PEOPLE
ASTRONOMY DAY

The Planet in the Machine

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The “butterfly effect” is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real “butterfly effect” is driven by, for example, global winds and ocean currents, polar ice (melting *and* freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

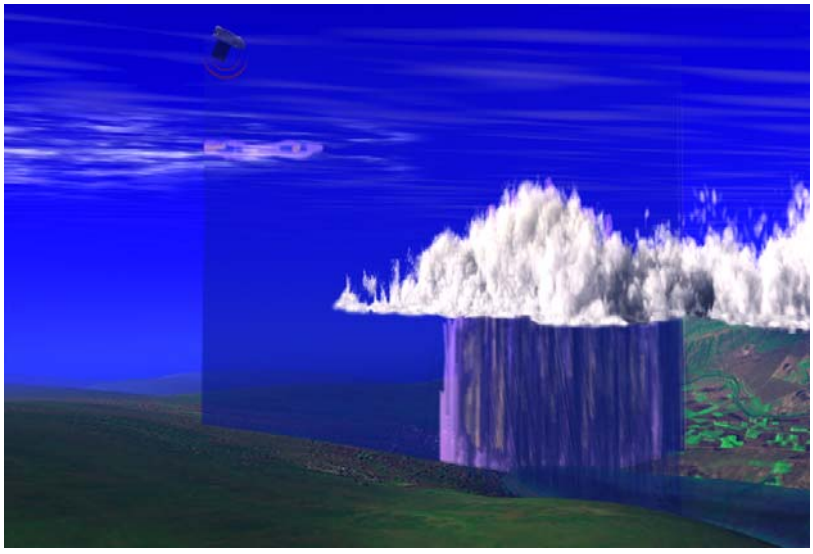
And then there’s the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth’s carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA’s Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth’s land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration. Image Caption: CloudSat is one of the Earth-observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat’s unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun’s energy in the atmosphere. See animation of this data simulation at www.nasa.gov/mission_pages/calipso/multimedia/cloud_calip_mm.html



Do You Know – Trivia Time

Yuri's Night

April 12, 2012, marks the 51st anniversary of human spaceflight. Today, space travel feels as common as the latest celebrity scandal—interesting, but not captivating. But in 1961, the race to the stars was a worldwide phenomenon, a technological achievement once unimaginable. Science-fiction was becoming reality. As a significant date of the 20th Century, April 12, 1961, ranks with Lindbergh's trans-Atlantic flight, V-J Day, Elvis on Ed Sullivan, the moon landing, Hank Aaron's 715th home run, or the fall of the Berlin Wall. The Space Race was more than just a race to the moon. It was the symbol of world dominance, showcased in the stars, more political than technological. When Yuri Gagarin flew in April of 1961, he "beat" American Alan Shepard by less than a month. Gagarin became a worldwide celebrity, a hero of the Soviet Union. So valuable was his image of Communist superiority, the Russians grounded him from future spaceflights. (The Americans did the same with John Glenn after his historic orbital flight in February of 1962; Glenn didn't return to orbit until 1998 aboard Space Shuttle Discovery) The early years of the Space Race coincided with the iciest years of the Cold War. As the two superpowers were building up to their nuclear standoff in October of 1962, their respective space programs continued to make history. Throughout the decade, the Americans and Russians traded "firsts": The first woman in space, the first spacewalk, the first orbital rendezvous, the first satellite around the moon, the first manned voyage to the moon, and finally the moon landing. In 1975, in a symbol of detente, the Americans and Russians completed a joint spaceflight – the Apollo-Soyuz Test Project. Cooperation in space took another step in the mid-1990s with the Shuttle-Mir Program and later the assembly of the International Space Station.

In the 1960s, astronauts and cosmonauts were heroes, celebrities, national and international icons. They wrote songs about John Glenn. The National League Houston Colt .45s became the Houston Astros. Rocket launches were the original must-see TV. Today, it is difficult to imagine the impact of the Space Race. It was one of the defining stories of the 1960s, along with Civil Rights Movement, the Vietnam War, and the assassinations of John F. Kennedy, Dr. Martin Luther King Jr., and Robert F. Kennedy. Today, the Space Race is one of the most underappreciated times in our history. One of the main goals of Yuri's Night is to bring awareness of space exploration to people of all ages. Not only is it a look back to one of the greatest achievements of the 20th Century, it is a look to the future: Continued multinational cooperation on the International Space Station; the retirement of the U.S. Space Shuttle and the introduction of the next generation of space technology; and, perhaps, a mission to Mars.

"Circling the Earth in my orbital spaceship I marveled at the beauty of our planet. People of the world, let us safeguard and enhance this beauty — not destroy it!" *Yuri Gagarin, 1st person in space*

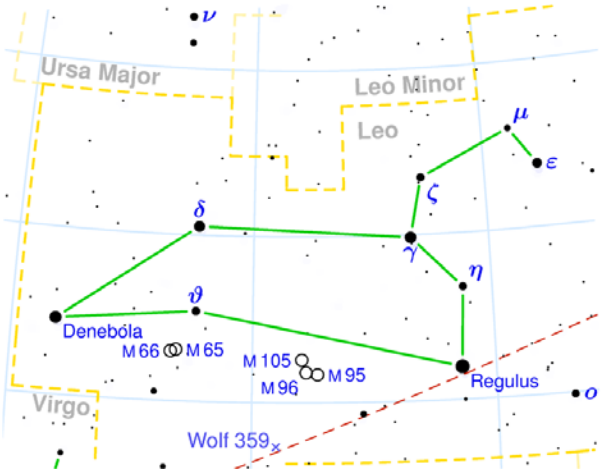
Launch of Vostock-1 carrying Cosmonaut Yuri Gagarin into space. Credit: starchild.gsfc.nasa.gov

Regulus, the Lions Heart

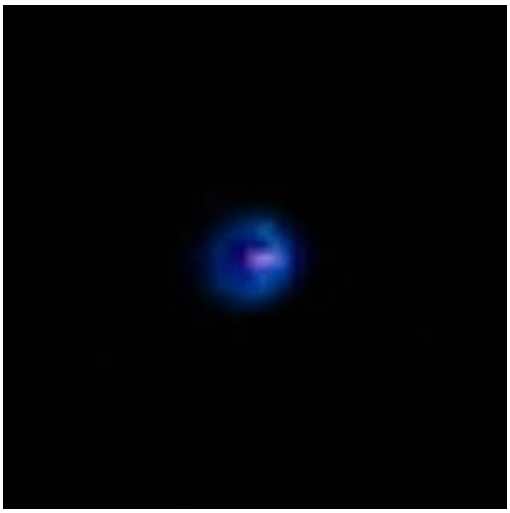
Regulus is the brightest star in the constellation Leo the Lion. It is a bluish star, well placed in the evening sky from about January to June. Regulus can be found marking the bottom of a large backwards question mark star pattern within Leo, also known as The Sickle. The Sickle – with Regulus at its heart – outlines the constellation Leo the Lion's head and forequarters. In our western skylore, Regulus is said to be the Lion's Heart.

Located along the ecliptic – or pathway of the sun, moon and planets – Regulus can be seen from around the globe. Bright planets sometimes pass near it, and every month the moon passes no more than about 5 degrees away. Sometimes the moon occults (passes in front of) this star as seen from our earthly vantage point.

Of all stars visible from Earth, Regulus is either the 21st or 22nd brightest, depending on how you want to consider it. Strictly speaking, there are 21 stars brighter than Regulus, making it the 22nd brightest. However, the 21st brightest star, Alpha Centauri B, is just barely brighter than Regulus and appears so close to Alpha Centauri A (Rigel Kentaurus) that it cannot be distinguished separately. Since the human eye cannot actually see Alpha Centauri B as a separate star, perhaps the title of 21st brightest really does belong to Regulus.



Regulus is located at the lower right on this map of the constellation.



Regulus photographed with digital camera via Wikimedia Commons

Regulus rises about an hour after sunset in early February. It is opposite the sun on or near February 18, and Regulus rises on that date at about sunset and is up all night long, reaching its highest point due south at local midnight. By early April, Regulus is well up in the southeast an hour after sunset. By early June, it's high in the southwest an hour after sunset. And by early July, Regulus is low to the west an hour after sunset. Although best seen in the evening in northern hemisphere in late winter and into summer, Regulus can be found at some time of night throughout the year except for about a month on either side of August 22, when the sun is located in Regulus' direction in space.

Regulus is about 77 light-years away. If – by some impossible magic – Regulus were to replace our sun, Earth would be doomed. First, Earth's atmosphere would be stripped away, and shortly thereafter the oceans would begin to boil. With our protective natural shields gone, the surface of the Earth would bake under a star four times as wide and 140 times as bright as our world is accustomed to, not to mention the vastly increased bombardment of ultraviolet rays, X-rays and gamma rays. Taking all of the star's radiation into account, Regulus pumps out nearly 350-times as much energy as our sun.

Regulus rotates, or spins, rapidly. Our sun takes about a month to spin around once on its axis, but Regulus completes a single rotation in only 15.9 hours. This rapid rotation rate causes Regulus's equatorial regions to bulge, making the star not round like our sun but *oblate*, like a squashed orange. As a result, the north and south poles of Regulus have a *higher surface gravity*, and thus higher temperature and brightness, than the equatorial regions of Regulus.

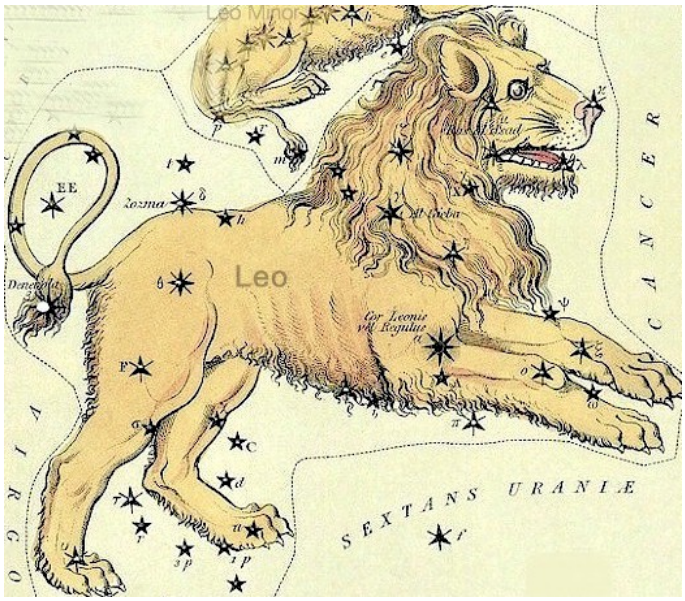
The polar regions of Regulus are several thousand degrees hotter than this star's equator, and the poles of this star shine more brightly than the equator.

If Regulus rotated slightly more rapidly (16% faster), the star would probably fly apart. Regulus is not the only star known to spin so fast that it has an oblate shape. The stars Altair and Achernar are also fast spinners with flattened shapes.

What's more, Regulus is a double star with a telescopically visible companion orbiting at about 100 times as far from Regulus as Pluto is from the sun. In fact, the companion itself is double, each component slightly smaller than our star and separated by about 95 astronomical units, or more than twice as far as Pluto from the sun. In addition, a very small star – likely a white dwarf – circles Regulus at about the same distance as Mercury from the sun. So this is not one solitary star as the eye believes, but at least four.

Overall, Regulus is a very hot star of spectral type B7V, meaning that it is much hotter than our sun, with a surface temperature that averages about 12,000K (roughly 21,000 degrees F). Very hot stars like this use up their nuclear fuel at a phenomenal rate, far faster than smaller stars like our sun. Thus the sun has an expected lifetime of about 10 billion years; it is about halfway through its life now. Meanwhile, hotter Regulus is likely only a few hundred million years old, but it is rapidly approaching its own death throes.

The name Regulus is from the diminutive form of the Latin rex, and means Little King. Astronomers know Regulus as Alpha Leonis, but in times past it has been known simply as Rex, as well as by kingly names in other languages. It's not clear how Regulus went from being a king – thought to rule celestial affairs – to being a 'little' king. Perhaps the thought was that Leo itself represented the King of Beasts, and there was room for one full king only.

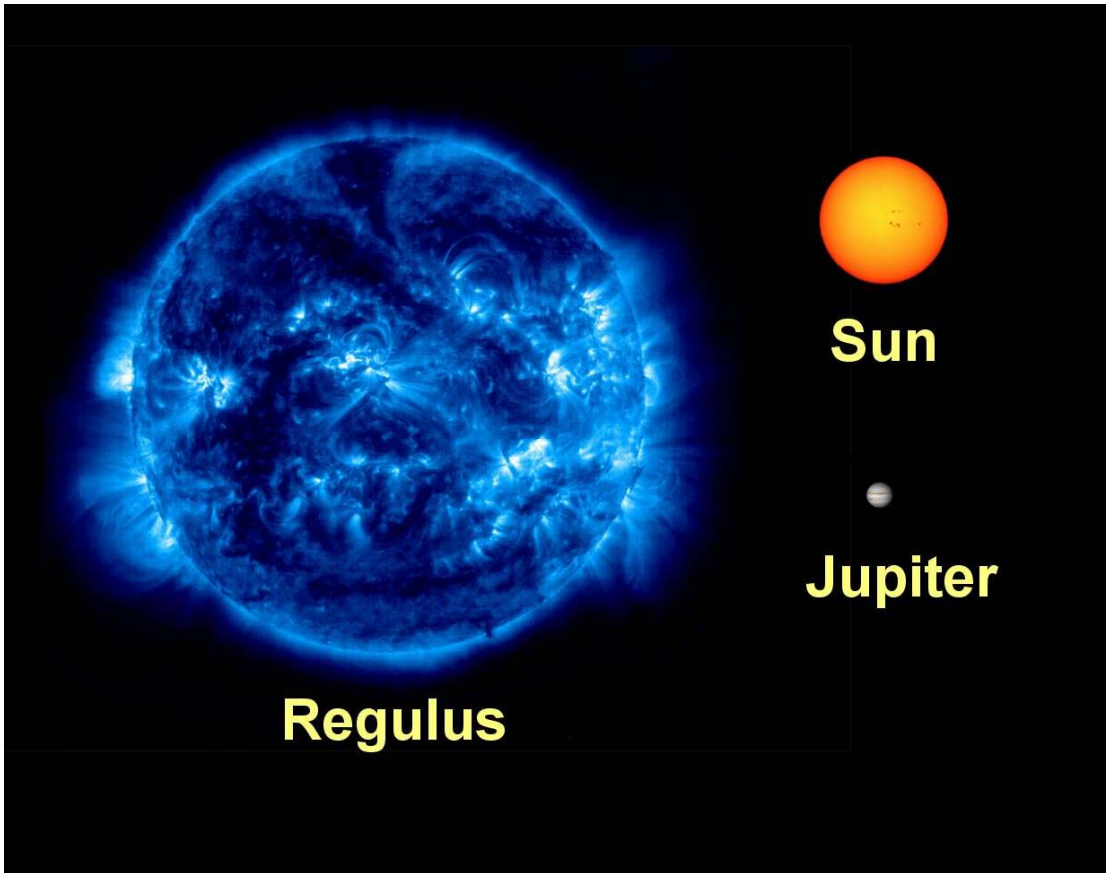


The constellation Leo, with the star Regulus at its heart, as depicted on a set of constellation cards published in London c.1825. Image courtesy of Wikimedia Commons.

Regulus has also been called Cor Leonis, which means Heart of the Lion, the same name given to Richard the Lionhearted (although more frequently in French). The constellation Leo the Lion, of which Regulus is the most prominent member, is quite easy to visualize. As mentioned previously, Regulus dots the backwards question mark of stars that outlines the Lion's head and mane. An easily identifiable triangle depicts the Lion's hindquarters and tail. There is a great deal of mythology associated with Leo, perhaps the most common tale being that Leo was the Nemean Lion of the Hercules story. It is said that even in South America, some Peruvian Indians knew these stars as the Mountain Lion, whereas in China it was sometimes seen as a horse, and at other times as part of a dragon. Christians in the Middle Ages sometimes referred to it as one of Daniel's Lions.

Regulus' position is RA: 10h 08m 23s, dec: +11° 58′ 02″.

Regulus and Leo I dwarf galaxy. Image Credit: Russell Croman, NASA APOD



Regulus is a much larger star than our sun. Image Credit: Andrew Fazekas, the Night Sky Guy.

Centennial Observatory and Faulkner Planetarium Events

Centennial Observatory Event Schedule

Event	Place	Date	Time	Admission
Monthly Free Star Party	Centennial Observatory	Saturday, April 14th, 2012	8:45 pm to midnight	FREE
International Astronomy Day Solar Viewing	Centennial Observatory	Saturday, April 28th, 2012	10:00 am to 5:00 pm	FREE
International Astronomy Day Star Party	Centennial Observatory	Friday, April 23rd, 2012	8:45 pm to midnight	FREE

Planetarium Show Schedule

April 1st – 28th, 2012

Day	Time	Show
Tuesday	7:00	Lifestyles of the Stars/Live Sky Tour
Friday	7:00	Lifestyles of the Stars/Live Sky Tour
	8:15	U2
Saturday	2:00	Lifestyles of the Stars/Live Sky Tour
	4:00	The Search for Life in the Universe
	7:00	Lifestyles of the Stars/Live Sky Tour
	8:15	Pink Floyd: Dark Side of the Moon

A star party is a gathering of amateur astronomers for the purpose of observing the sky.

Observing the night sky is always an exciting journey, but having others there to share the experience with makes it even better. Meet fellow astronomers by attending a local star party. Star parties may be planned around a specific celestial event or just on a clear night, either way, observing together gives everyone an opportunity to share knowledge, meet new people, and gain experience on stargazing that otherwise may not have been possible.

Be Safe, Get Out There, and Explore Your Universe!

"Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon. Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA circa 1980.

Membership Information

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.

In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy.

Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

Annual Membership dues will be
$20.00 for individuals, families,
$10.00 for students.

Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com or home telephone: 736-1989 or mail directly to the treasurer at his home address. 550 Sparks Twin Falls, ID 83301

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.

M-51 viewed in this newsletter was imaged with the Shotwell Camera and the Herrett Telescope at the Centennial Observatory by club members Rick Widmer & Ken Thomason. Unless otherwise stated all photos appear in the public domain and are courtesy of NASA.

Magic Valley Astronomical Society
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http://www.mvastro.org

Facebook: http://www.facebook.com/pages/Magic-Valley-Astronomical-Society/123862814352394

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

Membership Benefits

Sky and Telescope group rates. Subscriptions to this excellent periodical are available through the MVAS at a reduced price of $32.95.

Astronomy Magazine group rates. Subscriptions to this excellent periodical are available through the MVAS at a reduced price of $34.00

Receive 10% discounts on other selected Astronomy Publications.

For periodical info. and subscriptions Contact Jim Tubbs, Treasurer

Lending Library: Contact, the current board for information.

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