



## The Monthly Newsletter of the Magic Valley Astronomical Society

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<p>Club Meeting will be at 19:00 (7:00 pm) at the Herrett Center. This month is our family fun night for 2011.</p> <p>Club Star Party has been scheduled for the Jerome Gun Club the night of Dec. 16th. Weather permitting.</p>	<p>Here is hoping everyone has a joyous holiday season and clear skies to observe the many celestial delights.</p>

### MVAS Memberships

### 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

December Calendar

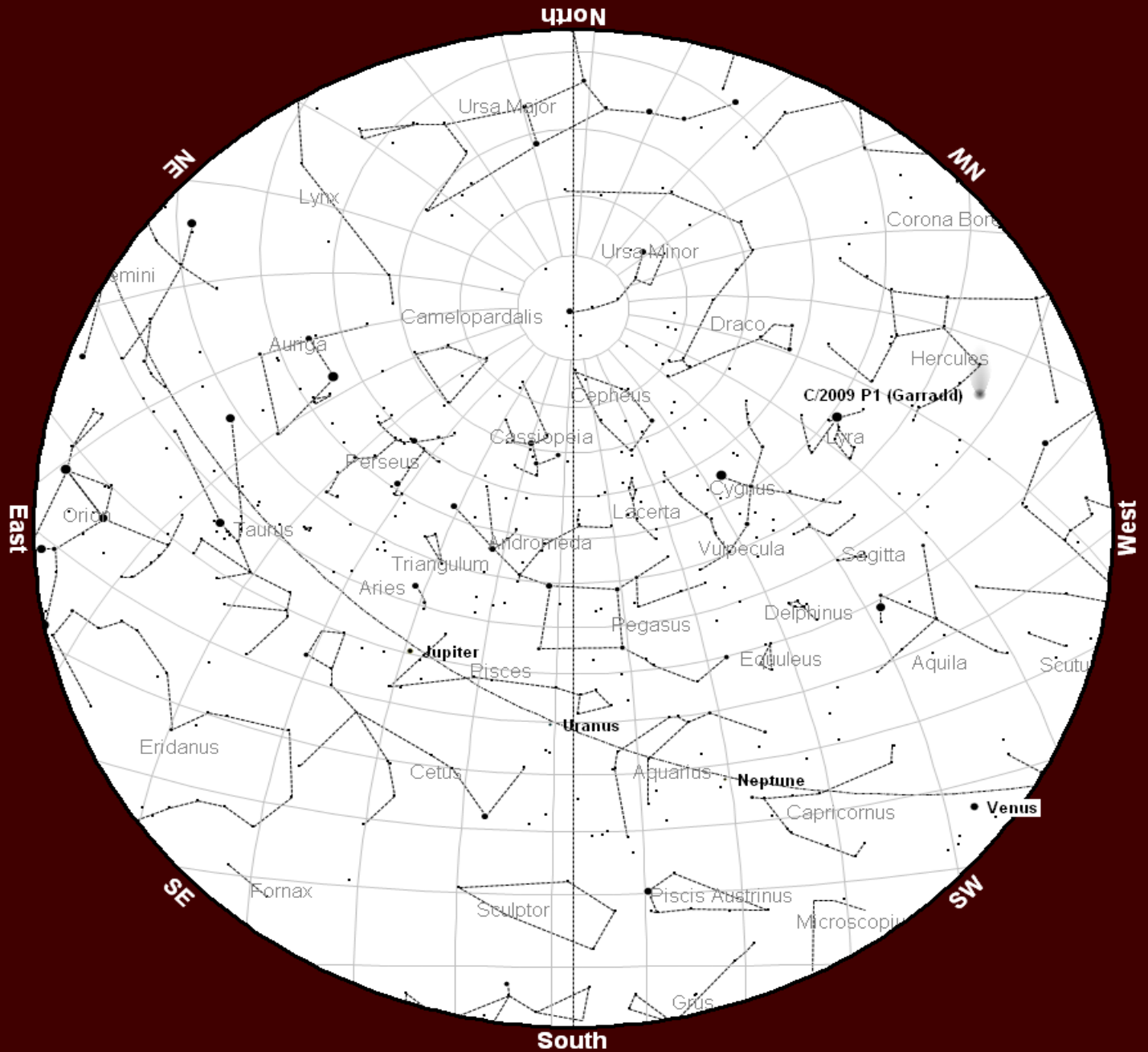
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
					First Quarter Moon 	
4	5	6	7	8	9	10
	Moon at Apogee 					Family Fun Night at 7:00 pm at the Herrett Center 
11	12	13	14	15	16	17
			Geminid Meteors Peak 		Club Star Party at dusk at the Jerome Gun Club 	
18	19	20	21	22	23	24
Last Quarter Moon 			Moon is at Perigee 	Winter solstice occurs at 10:30 MST. 	Ursids Meteors Peak 	New Moon 
25	26	27	28	29	30	31
Christmas 						New Year's Eve 

**Total Lunar Eclipse of December 2011**



Beginning early in the morning hours of December 10th the final eclipse of 2011 can be observed at the Herrett Center. Join the Society and the Centennial Observatory at 4:30 a.m. The moon will begin to darken along one edge after around 5:00 a.m., then a growing dark "bite" will appear after 5:46 a.m. Totality begins at 7:06 a.m.; greatest eclipse is at 7:32 a.m., and totality ends at 7:57 a.m., just minutes before moonset. This date will also offer the best opportunity to view Mars at the Centennial Observatory in 2011.

## Planisphere for December Mid-Month

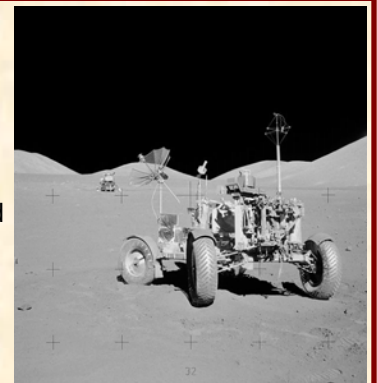


## Did You Know?

**Apollo 17** was the eleventh and final manned mission in the American Apollo space program. Launched at 12:33 a.m. EST on December 7, 1972, with a three-member crew consisting of Commander Eugene Cernan, Command Module Pilot Ronald Evans, and Lunar Module Pilot Harrison Schmitt, Apollo 17 remains the most recent manned Moon landing and the most recent manned flight beyond low Earth orbit.

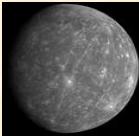
Apollo 17 also broke several records set by previous flights, including the longest manned lunar landing flight; the longest total lunar surface extravehicular activities; the largest lunar sample return, and the longest time in lunar orbit.

Image: Photograph taken by NASA astronaut Gene Cernan of the Apollo 17 Lunar Roving Vehicle at its final resting place in the Taurus-Littrow valley. The Lunar Module can be seen in the background.





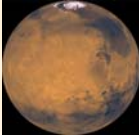
## December Sky Events



**Mercury** will be visible during the second half of the month in the southeast predawn sky. Early in the month it will be too close to the Sun. It will then continue to climb higher in the sky and be easier to see. On the 22nd Mercury will be at its greatest elongation at  $7^\circ$  above the horizon.



**Venus** will be in the southwestern sky just after sunset all month. It will be blazing at magnitude -3.9 and hard to miss. It will be climbing higher in the sky all month. Very early in the month it will set two hours after sunset. By the end of the month it will set three hours after sunset.



**Mars** will be continuing to get higher in the sky while getting larger and brightening. It will be at magnitude 0.2 by the end of the month. Mars rises around midnight so the best time to observe it will be a few hours after midnight when it will be higher in the sky. Mars' color will set it apart from any stars in the area. It will be close to the blue-white star Regulus.



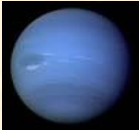
**Jupiter** will be a great target this month. It reached opposition late in October so it is still nearly at its biggest and brightest of the year. It will be bright at magnitude -2.7. Jupiter will be easy to find. Just look generally due south as soon as it gets dark. Jupiter will be large enough to show detail through even a small telescope. With its banded surface and four easily visible moons,



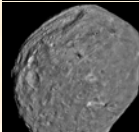
**Saturn** will be in Virgo. This puts it low in the southeast sky just before it starts to get light. It will climb higher as the month goes on. It will be shining brightly at magnitude 0.7. It will sit around  $5^\circ$  from Spica. Saturn's famous rings will be tilted open around  $15^\circ$ . This is as wide as they have been for years.



**Uranus** will be pretty good for observing this month. It will be easy to spot through binoculars and from a dark site it will be possible to spot it with just your (good) set of eyes. The best time to observe Uranus will be just as it gets dark when it will be high in the sky directly to the south. Uranus sits south of Pegasus in Pisces very close to the ecliptic and the celestial equator.



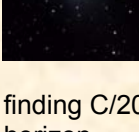
**Neptune** will be in southern Aquarius, around  $1.5^\circ$  northwest of the 4th magnitude star Iota Aquarii. The best time to observe it would be just as the sky gets completely dark. It will be in the southwest, roughly 1/3rd the way up from the horizon above Venus.



**Vesta** - 8th-magnitude Vesta is an easy find in small telescopes. Look for it just after dusk, when Aquarius is highest above the southern horizon.



**29 Amphitrite** - This space rock wends its way through the rather faint constellation Aries the Ram, which is nearly overhead for observers at mid-northern latitudes around 8 P.M. local time. The asteroid glows at magnitude +9.6 - outside the range of binoculars from a suburban backyard, but well within the reach of a 3-inch scope.



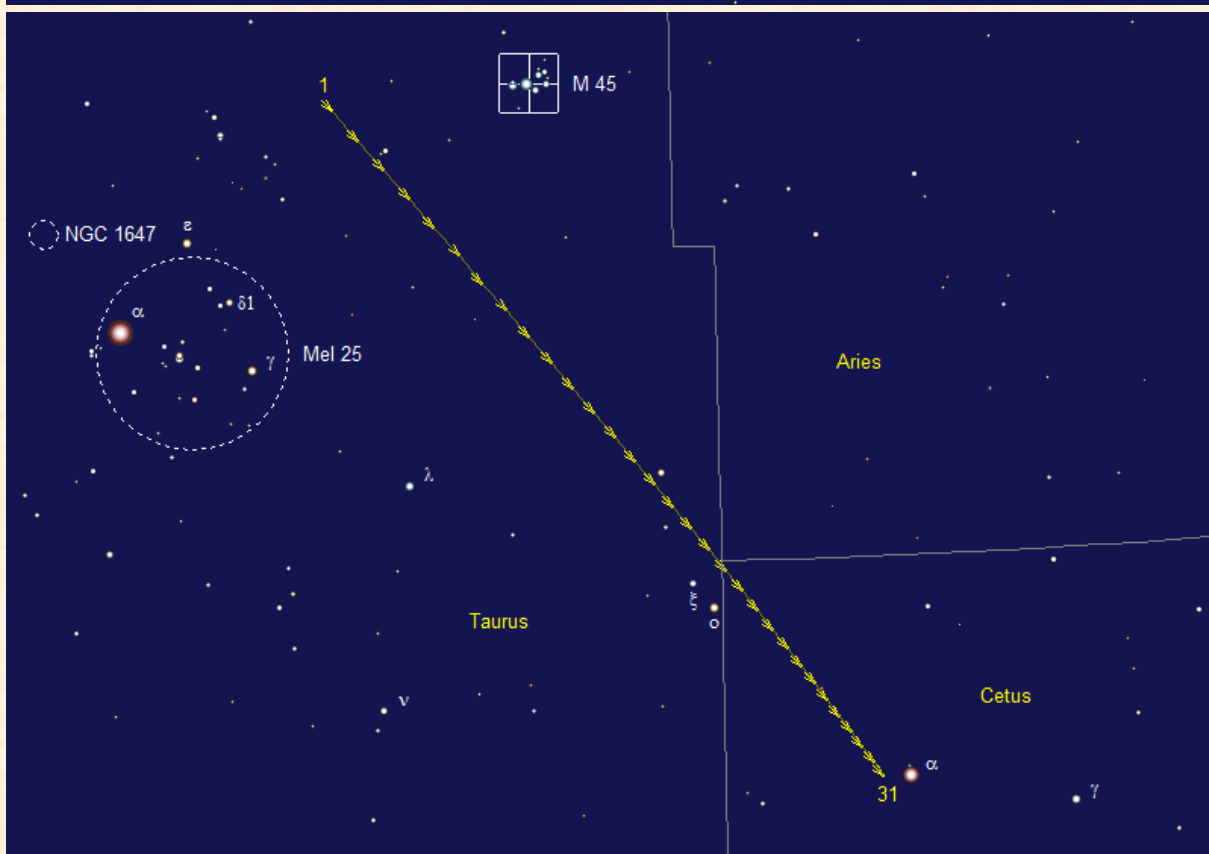
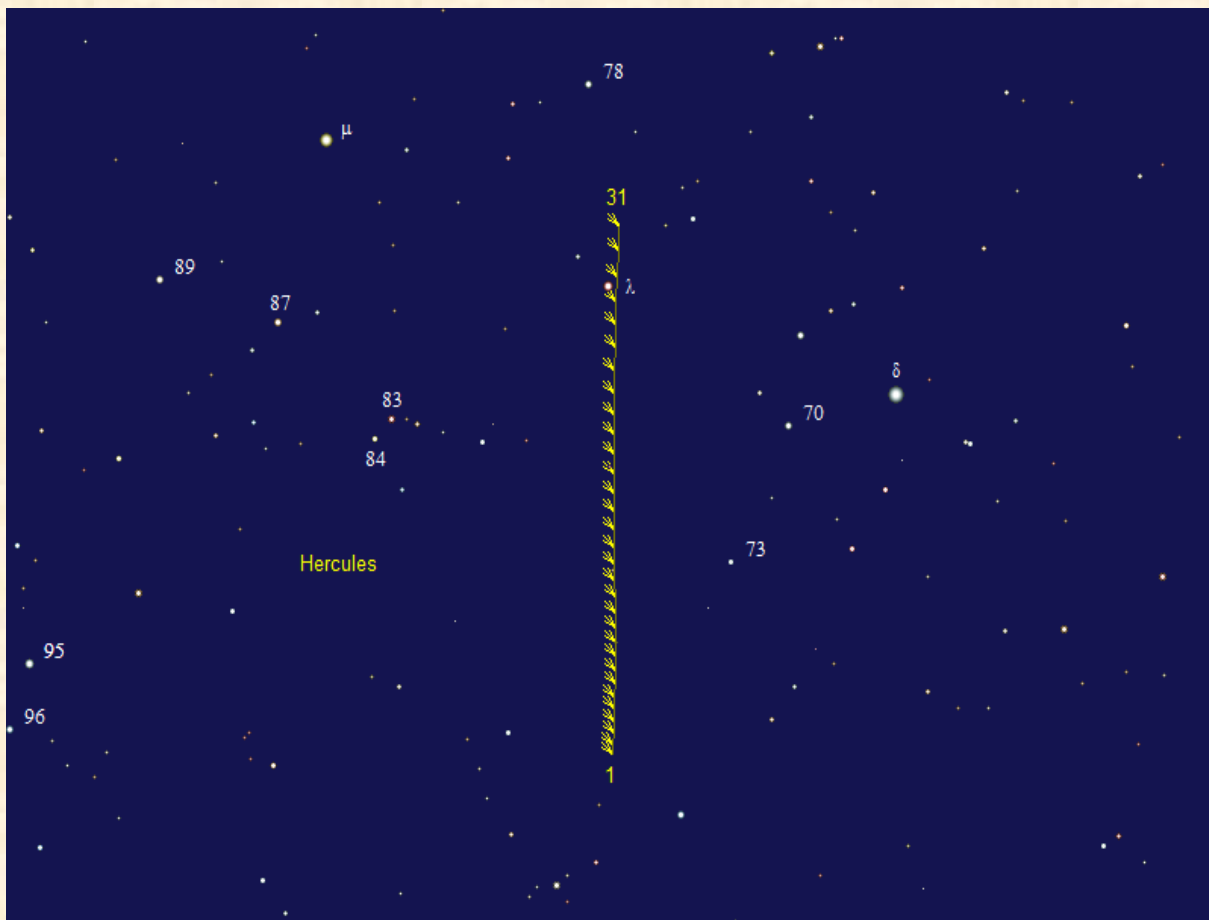
**C/2009 P1 Garradd** - Comet Garradd can be found among the background stars of the constellation Hercules, a few degrees east of Delta Herculis, and according to recent reports, it should glow at 7th magnitude.

This "dirty ice ball" appears as a bright, round fuzz ball roughly 10' across, with little hint of a tail. The key to finding C/2009 P1 Garradd is to start half an hour after sunset from a site that has an unobstructed view of the western horizon.

**C/2010 G2 Hill** - This comet was discovered on April 10, 2010, in the course of the Catalina Sky Survey, and astronomers expect it to glow around 10th magnitude throughout December. Search for it around 10 P.M. local time, when it lies high in the south within the borders of the constellation Taurus.

On the Next page are finder maps for Comets C/2009 P1 Garradd (top) and C/2010 G2 Hill (bottom) Stars shown are at approximately 8th magnitude.

# Comet Finder Maps



## Holiday Planetarium Show Schedule

December 2 <sup>nd</sup>	Friday	<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 3 <sup>rd</sup>	Saturday	Santa Snork Saves the Seasons	1:30 & 2:30
		Season of Light	4:00
		<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 6 <sup>th</sup>	Tuesday	<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 9 <sup>th</sup>	Friday	<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 10 <sup>th</sup>	Saturday	Santa Snork Saves the Seasons	1:30 & 2:30
		Season of Light	4:00
		<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 13 <sup>th</sup>	Tuesday	<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 16 <sup>th</sup>	Friday	<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 17 <sup>th</sup>	Saturday	Santa Snork Saves the Seasons	1:30 & 2:30
		Season of Light	4:00
		<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 20 <sup>th</sup>	Tuesday	<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 21 <sup>st</sup>	Wednesday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
December 22 <sup>nd</sup>	Thursday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
December 23 <sup>rd</sup>	Friday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
		Season of Light	4:00
		<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 24 <sup>th</sup>	Saturday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
December 27 <sup>th</sup>	Tuesday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
		Season of Light	4:00
		<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 28 <sup>th</sup>	Wednesday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
December 29 <sup>th</sup>	Thursday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
December 30 <sup>th</sup>	Friday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30
		Season of Light	4:00
		<b>Santa Snork Saves the Seasons</b>	7:00
		Steamrolling	8:15
December 31 <sup>st</sup>	Saturday	<b>Santa Snork Saves the Seasons</b>	1:30 & 2:30





## Rethinking an Alien World: The Strange Case of 55 Cancri e



Forty light years from Earth, a rocky world named “55 Cancri e” circles perilously close to a stellar inferno. Completing one orbit in only 18 hours, the alien planet is 26 times closer to its parent star than Mercury is to the Sun. If Earth were in the same position, the soil beneath our feet would heat up to about 3200° F. Researchers have long thought that 55 Cancri e must be a wasteland of parched rock.

Now they’re thinking again. New observations by NASA’s Spitzer Space Telescope suggest that 55 Cancri e may be wetter and weirder than anyone imagined. Spitzer recently measured the extraordinarily small amount of light 55 Cancri e blocks when it crosses in front of its star. These transits occur every 18 hours, giving researchers repeated opportunities to gather the data they need to estimate the width, volume and density of the planet. According to the new observations, 55 Cancri e has a mass 7.8 times and a radius just over twice that of Earth. Those properties place 55 Cancri e in the “super-Earth” class of exoplanets, a few dozen of which have been found. Only a handful of known super-Earths, however, cross the face of their stars as viewed from our vantage point in the cosmos, so 55 Cancri e is better understood than most.

When 55 Cancri e was discovered in 2004, initial estimates of its size and mass were consistent with a dense planet of solid rock. Spitzer data suggest otherwise: About a fifth of the planet’s mass must be made of light elements and compounds—including water. Given the intense heat and high pressure these materials likely experience, researchers think the compounds likely exist in a “supercritical” fluid state. A supercritical fluid is a high-pressure, high-temperature state of matter best described as a liquid-like gas, and a marvelous solvent. Water becomes supercritical in some steam turbines—and it tends to dissolve the tips of the turbine blades. Supercritical carbon dioxide is used to remove caffeine from coffee beans, and sometimes to dry-clean clothes. Liquid-fueled rocket propellant is also supercritical when it emerges from the tail of a spaceship.

On 55 Cancri e, this stuff may be literally oozing—or is it steaming?—out of the rocks. With supercritical solvents rising from the planet’s surface, a star of terrifying proportions filling much of the daytime sky, and whole years rushing past in a matter of hours, 55 Cancri e teaches a valuable lesson: Just because a planet is similar in size to Earth does not mean the planet is like Earth. It’s something to *re*-think about.

Get a kid thinking about extrasolar planets by pointing him or her to “Lucy’s Planet Hunt,” a story in rhyme about a girl who wanted nothing more than to look for Earth-like planets when she grew up. Go to <http://spaceplace.nasa.gov/story-lucy>. *Space Place Partners Article November 2011* The original research reported in this story has been accepted for publication in *Astronomy and Astrophysics*. The lead author is Brice-Olivier Demory, a post-doctoral associate in Professor Sara Seager’s group at MIT. *This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.* Caption: Artist’s rendering compares the size Earth with the rocky “superEarth” 55 Cancri e. Its year is only about 18 hours long!



### Magic Valley Astronomical Society

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<http://www.mvastro.org>

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

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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. Chris Anderson also provides the Planispheres usually on page 3. 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.



## 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](mailto: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.

## About the Magic Valley Astronomical Society

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.



A moon just past full as seen from Earth's northern hemisphere. Credit NASA

## 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.

## Elected Board

Terry Wofford, President  
[terrywofford@hotmail.com](mailto:terrywofford@hotmail.com)

David Olsen, VP / Newsletter Ed.  
[editor@mvastro.org](mailto:editor@mvastro.org)

Jim Tubbs, Treasurer / ALCOR Rep.  
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[rick@developersdesk.com](mailto:rick@developersdesk.com)