



The Monthly Newsletter of the Magic Valley Astronomical Society

July Highlights

July 9th - **Annual Picnic and Star Party** for details see the information to the right.

July 22-23 - **Annual Castle Rocks / City of Rocks Star Party** at the Ranch House Castle Rocks S.P. Almo, ID Dark Skies in a remote location of South Central Idaho details on page 6.

July 30th - Joint **Boise Astronomical and Magic Valley Astronomical Societies Star Party** at Carmela Winery.

In this issue:

Club information pg. 1
Calendar is on page 2-3
NASA Space Place pg. 4
News of Neptune on pg. 5
Castle Rocks / City of Rocks Star Party pgs. 6-7
Supernova in M51 pgs. 8-9

Good Food; Good Times and Oh Yes; Observing

Our annual picnic will be held on the 9th of July on the patio (Kinney Court) at the Herrett Center. Food will be served at 7:00 pm. Remember the picnic takes place in lieu of the monthly meeting.

The board has decided to do things a little different this year. We will begin cooking about a half-hour, or so before the start time that way no one is waiting for a burger or hot dog. Don't worry we will keep it warm, etc. We have also decided to supply all of the food items and beverages with the exception of desserts. We will include the following:

Hot dogs, hamburgers, buns, potato salad, macaroni salad, drinks, bottled water, condiments (mustard/ketchup/sweet relish/dill relish), paper goods (plates/napkins) and plastic flatware.

Also in July the Boise Astronomical Society has invited us to a members only star party and picnic at Carmela Vineyards in Glenn's Ferry, Idaho. This location is approximately the half-way point for both clubs. Overnight camping will be available at the winery, or if you choose, you may stay at Three-Island Crossing State Park which is almost next door to the winery. Carmela Vineyard has agreed to allow our clubs to use their golf course hole 3 along with one of their outer cabins for the bathroom services, for free. They have nice dark skies and we can park fairly close to the set up location so we do not have to pack equipment very far.

Every Wednesday throughout July. The Centennial Observatory's Solar Observing Sessions will be held from 1:30-3:30 pm. Safe views of the Sun with special filtered telescopes and view day time visible stars free of charge.

Clear skies until next month—David Olsen, Editor

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.

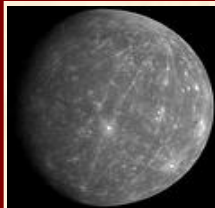
Following our meetings we have a star party (weather permitting) at the Centennial Observatory, also at the Herrett Center.

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

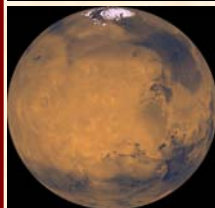
July Celestial Sky Events



Mercury will be low in the evening sky at dusk this month. It will still be a reasonably good target this month. Early in the month it will be brighter at magnitude -0.4 but lower in the sky. It does not climb much higher as the month goes on.



Venus will be sinking lower into the morning eastern horizon this month. Venus will still be shining very bright at magnitude -3.9 but will be low in the pre-dawn glare and turbulence which will make it hard to detect.



Mars will be low above the horizon in the morning glare. It will be shining at magnitude 1.4. low on the horizon and will be hard to detect like Venus. Around the 25th and 26th it will be between the "Horns" in Taurus the Bull.



Jupiter will be a good target in the pre-dawn sky this month. It will be in southern Aries but it will be easy to find because it is the brightest object in that area of the sky.



Saturn will still be a good target this month. It is fading in brightness and height so this would a good month to observe it. The best time would be right as it gets dark when it is still fairly high.



Uranus will be above Jupiter in Pisces. It will be about halfway between Jupiter and Neptune, close to the celestial equator. It will rise shortly before midnight and be reasonably high in the predawn sky just as it starts to lighten.



Neptune will be in Aquarius in the morning eastern sky this month. It will be at its best in the hours before the sky starts to lighten. It will rise before midnight and be high along the ecliptic before dawn. Neptune's birthday is the 12th.



Moon Information

- 1 New Moon
- 7 Moon at Perigee
- 8 First Quarter
- 12 Greatest S. Declination (-23.3°)
- 15 Full Moon - Buck Moon (Algonquian)
- 21 Moon at Apogee
- 23 Last Quarter
- 27 Greatest N. Declination (+23.3°)
- 30 New Moon

Sky Calendar Quick Reference

- 2 **Moon near Mercury** (20° from Sun) at 23h UT.
 - 3 **Moon near Beehive cluster** (evening sky) at 9h UT.
 - 4 **Earth at Aphelion** (farthest from Sun) at 15h UT.
- The Sun- Earth distance is 1.01674 a.u. or about 152.1 million km.
- 5 **Mars 5.4° N of Aldebaran** (33° from Sun, morning sky) at 0h UT.
 - 5 **Moon near Regulus** (evening sky) at 1h UT.
 - 6 **Mercury crossing center of Beehive cluster** (23° from Sun, evening sky) at 23h UT.
 - 6 **Venus at ascending node**
 - 7 **Moon near Saturn** (evening sky) at 23h UT.
 - 8 **Moon near Spica** (evening sky) at 22h UT.
 - 8 **Mars at ascending node**
 - 10 **Uranus stationary**
 - 12 **Neptune completes first orbit** since discovery.
 - 12 **Moon near Antares** (evening sky) at 2h UT.
 - 20 **Mercury at greatest elongation**, 27° east from Sun (evening sky) at 5h UT.
 - 23 **Moon near Jupiter** (morning sky) at 22h UT.
 - 25 **Moon near the Pleiades** (62° from Sun, morning sky) at 18h UT.
 - 28 **Moon near Mars** (38° from Sun) at 16h UT.
 - 29 **Pallas** (Asteroid) at opposition

NASA/Hubble image of Pallas

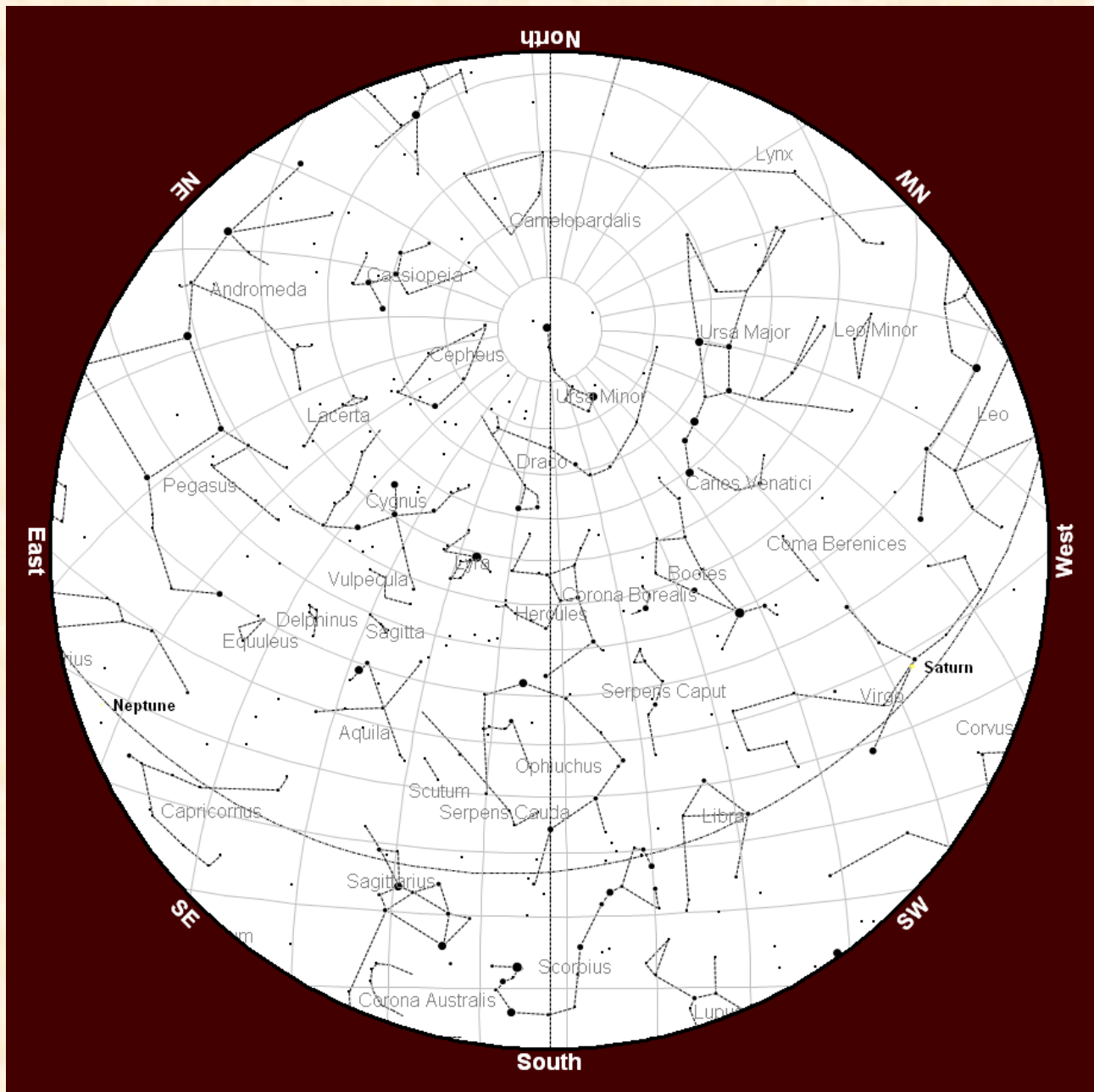


July Meteor Shower

On July 28 and 29 the peak of the Southern Delta Aquarid meteor shower occurs; however, moonlight will outshine most of the meteors. For those who still want to try, the best time to look is before dawn on July 29.



Planisphere for July



Did You Know?

The Space Shuttle Atlantis is set to liftoff on the final flight of the shuttle program, STS-135, a 12-day mission to the International Space Station. Launch will be July 8 at 9:26 (MST). Atlantis will carry a crew of four: Commander Chris Ferguson, Pilot Doug Hurley, and Mission Specialists Sandy Magnus and Rex Walheim.

Atlantis will carry the Raffaello multi-purpose logistics module containing

supplies and spare parts for the space station and its crew.

NASA's space shuttle fleet began setting records with its first launch on April 12, 1981 and continues to set high marks of achievement and endurance.

Image: Space Shuttle - STS 135 (Space Transportation System) Crewmembers in this NASA portrait.





Finding Planets among the Stars



by Dr. Tony Phillips

Strange but true: When it comes to finding new extra-solar planets, or exoplanets, stars can be an incredible nuisance.

It's a matter of luminosity. Stars are bright, but their planets are not. Indeed, when an astronomer peers across light years to find a distant Earth-like world, what he often finds instead is an annoying glare. The light of the star itself makes the star's dim planetary system nearly impossible to see.

Talk about frustration! How would *you* like to be an astronomer who's constantly vexed by stars?

Fortunately, there may be a solution. It comes from NASA's Galaxy Evolution Explorer, an ultraviolet space telescope orbiting Earth since 2003. In a new study, researchers say the Galaxy Evolution Explorer is able to pinpoint dim stars that might not badly outshine their own planets.

"We've discovered a new technique of using ultraviolet light to search for young, low-mass stars near the Earth," said David Rodriguez, a graduate student of astronomy at UCLA, and the study's lead author. "These M-class stars, also known as red dwarfs, make excellent targets for future direct imaging of exoplanets."

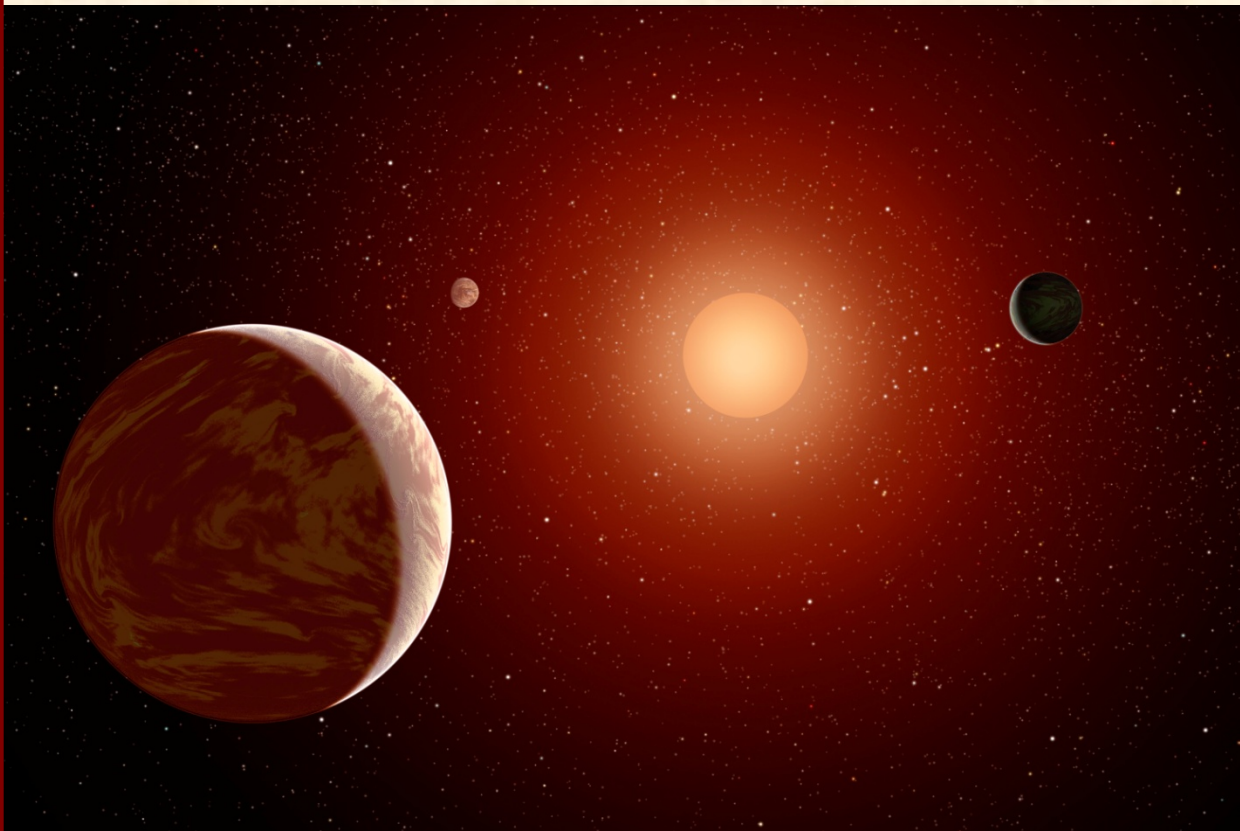
Young red dwarfs produce a telltale glow in the ultraviolet part of the electromagnetic spectrum that Galaxy Evolution Explorer can sense. Because dwarf stars are so numer-

ous—as a class, they account for more than two-thirds of the stars in the galaxy—astronomers could reap a rich bounty of targets.

In many ways, these stars represent a best-case scenario for planet hunting. They are close and in clear lines-of-sight, which generally makes viewing easier. Their low mass means they are dimmer than heavier stars, so their light is less likely to mask the feeble light of a planet. And because they are young, their planets are freshly formed, and thus warmer and brighter than older planetary bodies. Astronomers know of more than five hundred distant planets, but very few have actually been seen. Many exoplanets are detected indirectly by means of their "wobbles"—the gravitational tugs they exert on their central stars. Some are found when they transit the parent star, momentarily dimming the glare, but not dimming it enough to reveal the planet itself.

The new Galaxy Evolution Explorer technique might eventually lead to planets that can be seen directly. That would be good because, as Rodriguez points out, "seeing *is* believing." And it just might make astronomers feel a little better about the stars.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Caption: Exoplanets are easier to see directly when their star is a dim, red dwarf.

Neptune's 1st Orbit Birthday Celebration

The planet Neptune completes an orbit every 164.79 years, it was discovered on the 23rd September 1846 it will therefore have completed one complete orbit on 12th July 2011 since its discovery.

One of the largest, and slowest-moving, planets in the solar system, Neptune is so distant it cannot be seen with the naked eye. At nearly 17 times the size of earth, Neptune is the fourth-largest planet as well as one of the slowest moving. Lying at the outer reaches of the solar system, Neptune trudges through space, taking 165 earth years to orbit the sun.

It was Italian scientist and scholar Galileo Galilei who first observed Neptune, spotting the planet in 1613. He was only able to glimpse the planet for two nights, and was thus unable to gain a clear understanding of its movements. Because of this lack of information, Galileo mistook the planet for a star.

When Neptune's identity was finally uncovered in 1846, it was because of the discovery of another planet, Uranus. Astronomers had noted that Uranus did not behave as it should according to Newton's Laws of Motion. The reason, it was thought, must be that some other planet was exerting an influence on Uranus' orbit. Two astronomers, working independently, predicted the location of the unknown planet based on observations of Jupiter, Saturn and Uranus. The calculations of these astronomers, John Couch Adams and Urbain J.J. Leverrier, were confirmed when Urania Observatory director Johann G. Galle and his assistant Heinrich L. d'Arrest observed the planet very near to their predicted locations on Sept. 23, 1846. What followed was an international dispute, with both the English and the French seeking credit and the right to name the new planet. Today, both countries, and both astronomers, are credited with the discovery.

Neptune is the eighth planet from the sun, situated nearly 2.7 million miles away from the star it orbits. It is 30 times farther from the sun than is Earth. Because it orbits the sun so slowly, Neptune has not yet made a complete circle around the sun since its discovery. Neptune's orbit is at times interrupted by Pluto, whose unusual elliptical orbit periodically causes it to cross into Neptune's path, making Neptune the farthest planet from the sun for a 20-year period once every 248 Earth years.

Though massive, Neptune has the smallest diameter of the solar system's "gas giants," a group of planets which also includes Jupiter, Saturn and Uranus, and so named because they lack any solid surfaces. Still, Neptune is significantly larger than Earth, with almost four times its diameter and a volume that could hold 60 Earths. Though heavier than Earth, it is not as dense.

Neptune appears to be composed mainly of hydrogen, he-

lium and water, as well as silicates, the minerals that make up most of Earth's rocky surface. Inside, the planet seems to consist of heavily compressed gases that combine to form a liquid layer encompassing Neptune's inner core of rock and ice.

Thick, rapidly moving clouds surround Neptune, swirling around the planet at around 700 miles per hour. The clouds farthest from the planet's surface are primarily frozen methane, and the darker clouds, lying below the methane clouds, are believed to consist of hydrogen sulfide. Neptune's atmosphere contains primarily hydrogen and helium, with some methane. It is this methane that contributes to the planet's blue color, produced when red light is absorbed by the methane.

There has been one mission to Neptune: the Voyager 2 spacecraft, which visited the planet on Aug. 25, 1989. Voyager 2 found something odd on the planet's southern hemisphere: a dark area similar in appearance to a hurricane, made up of violently rotating masses of gas. Resembling Jupiter's Great Red Spot, but measuring about half the size, the area was nicknamed the Great Dark Spot. The spot moved at about 700 miles per hour, pushed westward by Neptune's high winds. In 1994, however, observations by the Hubble Space Telescope revealed that the Great Dark Spot had disappeared. It is not known if the spot has dissipated or is merely hidden by something else in the planet's atmosphere. A few months after the discovery of the spot's disappearance, a new spot was identified, this time in the planet's northern hemisphere, indicating that Neptune's atmosphere is probably continuously changing. Two other features were discovered by Voyager 2. There was an additional, smaller dark spot in the southern hemisphere, as well as a small, uneven white cloud. This cloud, nicknamed "The Scooter," races around Neptune about every 16 hours. Exactly what "The Scooter" is is not certain, but it may be a plume that rises from somewhere deep in the atmosphere.

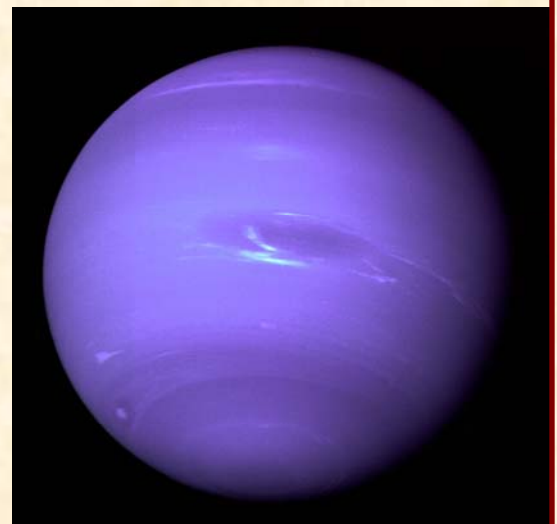


Photo: False color image of Neptune Credit: NASA/JPL

Castle Rocks / City of Rocks Star Party

City of Rocks Star Party 2011

Explore the wonders of the universe in some of the darkest, clearest skies in America.



Castle Rocks State Park

Two miles north of Almo, ID (1 hr. S. of Burley)

Friday, July 22nd & Saturday, July 23rd, 2011



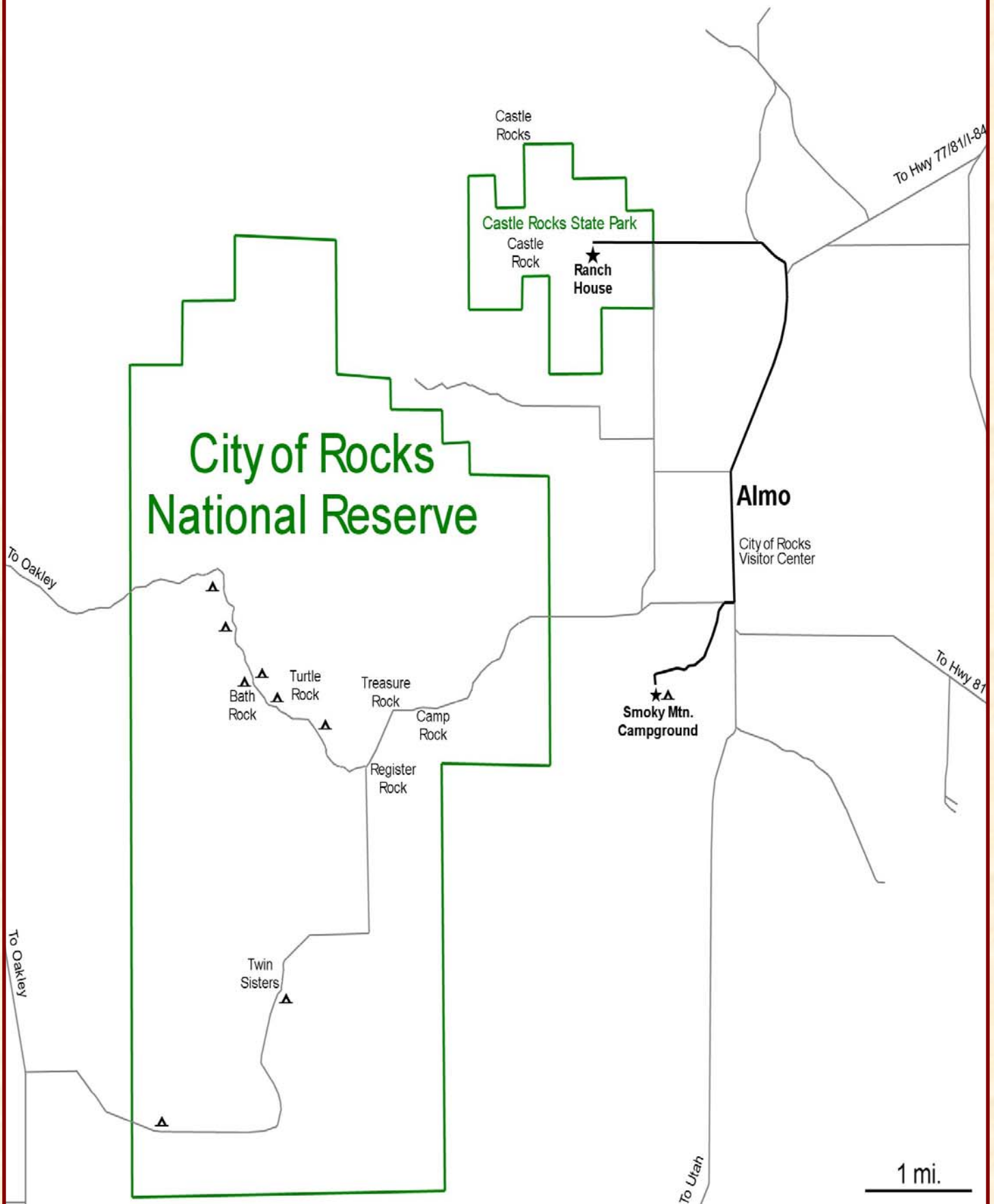
- 2:00-6:00 p.m. – **Solar viewing** (safe views of the Sun with filtered telescopes), Smoky Mtn. Campground, Castle Rocks State Park
- 9:30 p.m. – **Star party** (telescope viewing), Ranch House site, Castle Rocks State Park



Telescopes provided. Free admission—park day use fees apply.

Hosted by: Idaho Dept. of Parks & Recreation, Magic Valley Astronomical Society, and the College of Southern Idaho's Centennial Observatory

Castle Rocks / City of Rocks Star Party



A Supernova in M51

Submitted by Jim Tubbs for the newsletter of the Magic Valley Astronomical Society

May 31st, a possible supernova, later designated SN2011dh, was first noticed by French amateur A. Riou. His measurements put it at ~14 mag. I happened upon this news sometime in the first week of July quite by accident. I was "stumbling" the internet when a couple of links to this story showed up. I was immediately intrigued by the news, and I wanted to see this thing for myself. I had missed the opportunity to image the previous supernova in M51.

For the next two weeks I fretted. Clouds and wet weather dominated the daytime and nighttime skies. I was afraid SN2011dh would come and go before I would have a chance to purchase my front row seat. I cursed the global warming bringing such lengthy periods of cool wet weather, interfering with my desire to be part of a show 26+ million light years in the making. SN2011dh was sighted May 31st, and finally on July 21st a clear night presented itself for my investigation. Would I even be able to see anything by now? At this time it had not occurred to me to find and bookmark sites that were monitoring the event, so I had no idea if SN2011dh had faded or was still visible.

When I turned on my telescope, it was still a bit early to try to image M51, so for a bit of practice, I slewed my scope to M57, making sure focus and tracking were good. Since I had time, I took a series of RGB images of the Ring Nebula, and was pleased with the results. Certainly not Hubble. Not even close to professional. But for my purposes I liked what I saw. I was especially pleased that the night air seemed quite still and transparent. As I monitored progress, I noted there was very little atmospheric distortion of my tracking star.

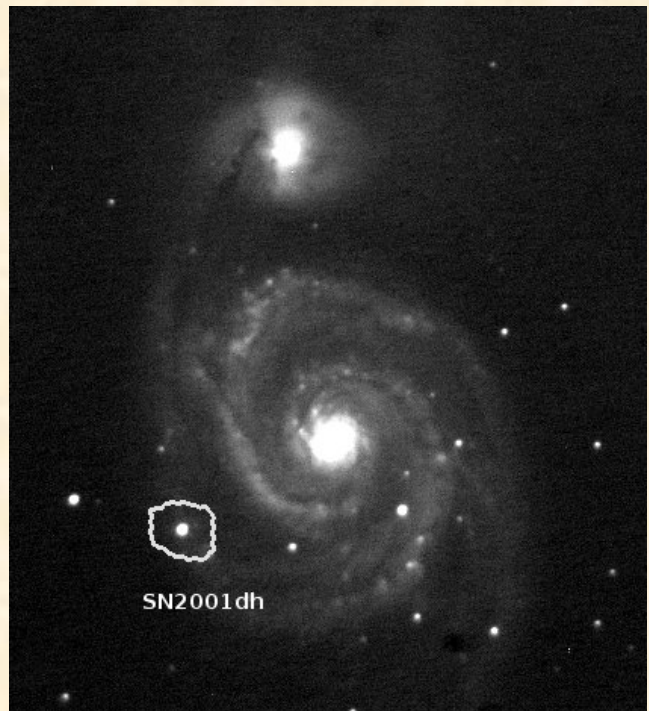
About 10:40 pm I slewed to M51. I noted the camera temperature that Envisage displayed and decided to take a new set of darks. Envisage is Meade's software included with their DSI line of cameras. My first DSI was the DSI color. It had a resolution of 510x492. Its individual pixels were 9.6 microns W and 7.5m H. As a color camera it takes great pictures, but the small chip gave me an effective field of view at prime focus roughly equivalent to a standard 10mm eyepiece. The DSI III represented a huge upgrade for me. This camera has a chip size of 1360 x 1024 with a square pixel size of 6.4x6.4. The result is a much larger field of view with a very uniform pixel size. It is also far more sensitive and extremely quiet.

One of my interests in purchasing both cameras was to ultimately develop skill in astro-photometry. I was extremely intrigued with a paper I read published in 2008 in which the authors investigated the possibility of using off the shelf equipment to detect the transit of extra-solar planets around their sun. For the test, they selected a Meade LX 200 8", the same as mine, and an SBIG cam-

era. Though they failed to detect the transit around their target, they concluded the equipment was indeed capable of doing the job. In evaluating my own equipment, I concluded my DSI color wasn't up to the task. I needed a camera that was black and white with greater capacity. While the DSI color could be operated in B/W mode, doing so limited its resolution from 16bit to 8bit, a huge penalty. So I saved my money and purchased the DSI III pro which is a B/W camera. I mention all this only because SN2011dh gave me the opportunity to begin developing my skill doing photometry work as well the sheer fun of following a supernova.

I set my exposure time to 15 seconds, and let Envisage stack my individual frames for me. I did that for each of the RGB filters, and then combined them using Meade's IP program. As soon as the first frame appeared in the window, I whooped. The supernova was not only still visible, it was the brightest object next to the core of the galaxy itself. Because I knew where to look it stood out like a sore thumb. Meade's IP program has photometric functions built in, so using a nearby star for comparison, I determined SN2011dh to be 12.9 – 12.7 mag.

I can't be any more precise. The reference magnitude I used was taken with a V filter and measurement supplied by AAVSO. However, I had enough information to get the difference in magnitudes between SN2011dh and my comparison star, even without filters. I've taken several more images since the 21st, and they all reveal a magnitude varying from 12.9 – 12.7. These are derived without a great deal of effort expended to reduce error. I plan to go back through my images and reduce them for error as much as will be possible at a later time and see if I can re-



A Supernova in M51

I don't know what is typical for a supernova in respect to duration. I'm not sure "typical" is even an appropriate term. But I am amazed that nearly a month has gone by with very little apparent dimming. When SN2011dh was detected, it was ~14 mag. Others have since confirmed brightening to ~12 mag. I plan to continue observing now that we are in the new moon and for as long as conditions permit. SN2011dh has definitely whetted my appetite to learn how to do photometry. A new V filter is on its way. Hopefully I'll get to use it before the show ends and the curtain falls.

M-51 Observational Data

Constellation Canes Venatici
 Right ascension 13^h 29^m 52.7^s
 Declination +47° 11' 43"
 Distance 23 ± 4 Mly (7.1 ± 1.2 Mpc)

Images: Preceding page. Jim's photo of M-51 showing the location of SN2011dh © 2011 by Jim Tubbs, All Rights Reserved. Used with permission of the author.

Images on this page: Below: Jim Tubbs's telescope. The Meade Lx 200 8" and camera as described in the article. Right: Jim's Magnitude worksheet he created for imaging.



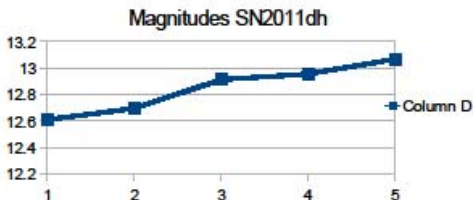
Sheet1

These values are essentially unfiltered (photographic L filter used).
 Comparison star 134 in AAVSO chart- V mag = 13.615
 Photometric Aperature = 20
 Photometric Annulus= 25
 IP gives total energy of target which already has gain factored in.

Average Intensity-->	#134 total energy	#134 Instrumental mag	<instrumental mag>
	71019.95		-12.1284509055
	Values		
06/21/11	39197.9	-11.4831570016	
06/23/11	89655.3	-12.3814399203	
06/26/11	59558.8	-11.9373612014	
06/27/11	95668	-12.4519167371	
06/28/11	53233.7	-11.815486632	

	SN2011 total e	SN2011dh instrumental mag	Magnitude
06/21/11	98893.7	-12.4879215646	12.6102354369
06/23/11	209458.8	-13.3027465278	12.6936933925
06/26/11	113771.5	-12.64008371	12.9122774914
06/27/11	175984.1	-13.1136835787	12.9532331584
06/28/11	88182.7	-12.3634584801	13.0670081519

<Delta (average) = t -	Delta (daily) d=t - c
0.3594706591	-1.0047645631
1.1742956222	-0.9213066075
0.5116328045	-0.7027225086
0.9852326732	-0.6617688416
0.2350075746	-0.5479918481



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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. 4. Star explorers image is an 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 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

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