S N A K E R I V E R S K I E S

M a g i c V a l l e y A s t r o n o m i c a l S o c i e t y

Volume 5, Issue 5
May 2004

MVAS Meeting: Saturday May 8th, 2004, 7pm Herrett Center, College of Southern Idaho

Paul Verhage, noted Boise teacher and science researcher, will be on hand to demonstrate his latest hands on space experiments.

Paul works with many youth organizations and science groups to study space and atmospheric phenomena. We hope also to get the latest on the Herrett Center Telescope. *FLASH: THE CCD CAMERA HAS ARRIVED! A public star party follows afterwards at dusk.

Paul Verhage giving a demonstration to a Denver Group in 2001.

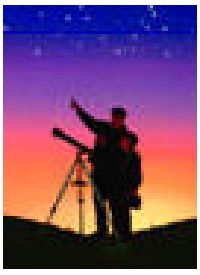
Message from the President: Phil Hafer

I want to thank Cheri Lowman, Matt Holmquist, Ken Thomason who helped at The Herrett Center on Astronomy Day. We had a large group of rocket builders, Saturn creators and Mars Rover assemblers, on hand to celebrate National Astronomy Day. We built and launched over 100 rockets, created approximately the same number of the planet Saturn and assembled over 100 Mars Rovers.

That evening we had out Star Party and had a good turn out of celestial observers who had a good time looking at the wonders of the night sky.

On Friday, 30 April 2004, we had two Star Parties. We had one at The Herrett Center for the Explore Herrett Science 2004 Camp In, where we had Phil Hafer, Chris Anderson, Cheri Lowman, Terry Wolfard, Tom Gilbertson, Forrest Ray, Ken Thomason, set up telescopes for the 144 participants and staff of the Science Camp.

We also had a Star Party at the Fine Arts Auditorium at the conclusion of the Symphony Performance. Members who set up their telescopes were Tom Gilbertson, KenThomason, Terry Wolford, Cheri Lowman. They shared their expertise with approximately 300 Symphony goers and CSI Dance Camp participants.



I want to thank all members who help with the Star Parties. They make them possible. Those who participate are the unsung heroes of our club. They make the Star Parties possible. Without them we could not support the number of Star Parties we receive each year, and the number of Star Parties is going to increase with the opening of the Centennial Observatory at the Herrett center. So keep up the good work because it is appreciated by those who come to view the night sky and the staff of the Herrett Center.

Our speaker for the month of May will be Paul Verhage who will have his computer controlled rovers for all to have a chance to drive them around the Rick Allen Hall. So plan to attend it will be a good meeting.

Phil Hafer is president of the Magic Valley Astronomical Society

MVAS Officers 2004

- *Phil Hafer, President 734-8719 phafer@pmt.org*
- *Cheri Lowman, Vice President, 736-7293, clrcl@rmci.net*
- *Rick Widmer, Secretary/ Webmaster, 539-5162, rwidmer@developersdesk.com*
- *Matt Holmquist, Treasurer, 735-5085, mholmquist@coopernorman.com*

Write to MVAS P.O. Box 5101, Twin Falls, ID 83303

If you would like to write an article or otherwise make an entry for the club newsletter, contact Jay Sneddon, 736-2447, jaysneddon@yahoo.com.

Yearly membership is $20 per person, $20 per family $10 per student, Sponsor $100

REVIEW: LIGHT POLLUTION FILTERS by David Knisely, Prairie Astronomy Club

There are a number of different filters available on the market today, with most coming in one of three classes: **1. Broad-Band "light pollution" filters, 2. Narrow-Band "nebular" filters, and 3: Line filters.**

Orion Filters

In the Broad band range are the **Lumicon Deep-Sky**, and the **Orion SkyGlow**. They enhance many deep-sky objects by blocking out the common Mercury vapor and some other emission lines which contribute to light pollution, while letting through a broad range of wavelengths. While these broadband filters do help increase the contrast of some objects somewhat, their overall effect is not terribly striking. **A similar effect can sometimes be achieved by increasing the magnification slightly, since the light pollution effect is then diluted.**

The Lumicon Deep-Sky does help enhance the visiblity of things like the Merope Nebula, the Trifid, and M42, but not much of an effect is noted with galaxies and star clusters. I have noted that using the filter on M33 and NGC 253 in my 10" when skyglow is higher than usual will help boost the visibility of the detail, but the effect is only moderate. Since some light is blocked by the Deep-Sky filter, there will actually be a light loss, and some objects may even look fainter with the filter than without. The Deep-Sky also works as a passable blue filter for observing Jupiter. Thus, the broad band filter, while somewhat useful, is not the most effective filter intended for deep-sky use.

In the narrow-band "nebular" filter range, the best filters seem to be the **Orion Ultrablock**, and the **Lumicon UHC**. These filters allow only the emission lines of Hydrogen (H-alpha and H-beta) and the bright Oxygen III lines (plus wavelengths between H-beta and the OIII lines), to get through. Their effect can be quite striking, with many faint nebular objects becoming easy to see (without the filter, some may not be visible at all!) **Even the more prominent nebulae which are visible without filters gain considerable detail and contrast with the narrow band filters.** Both the UHC and Ultrablock will, for example, often show the Rosette Nebula TO THE NAKED EYE when you look through them.

Even under a really dark sky, the contrast and detail improvement are impressive, and most observers continue to use their nebular filters at such dark-sky sites. One neat trick for finding tiny planetary nebulae is to "blink" the objects by holding the filter between the eyepiece and the eye. The stars in the field will dim somewhat, but the planetary nebula will remain undimmed, thus standing out from the background stars. In comparison, both the UHC and Ultrablock have very similar characteristics, but some people have reported a slight edge in performance with the Ultrablock. At times the Ultrablock has also been somewhat less expensive than the UHC. Both will perform very well, and should be used at moderate to low powers for best results. However, these "nebular" filters do not usually work very well on star clusters, reflection nebulae, or galaxies.

Lumicon Filters

In the "line" filter category, the **Lumicon Oxygen III (OIII)** filter is the real standout. It allows only the narrow pair of emission lines of Oxygen to get to the eye, and for many planetary and diffuse emission nebulae, the boost in visibility has to be seen to be believed! The Veil and North American Nebulae look like photographs in a 10" with the OIII filter, and many of the "green box" emission nebulae in SKY ATLAS 2000.0 jump out at you. You may even see some nebulae which are not shown on many atlases. Planetary nebulae become easy, and the "blinking" technique becomes vastly more effective, as the stars nearly vanish, leaving the planetary nebula standing out like a sore thumb. However, since the bandwidth of the OIII filter is so narrow, it may hurt some objects slightly, like the nebulae around Gamma Cygni. This filter also hurts the view of clusters and galaxies even more than the narrow band filters do.

One line filter of note is **Lumicon's H-Beta filter**. As the name indicates, the filter only lets through the H-Beta emission line of Hydrogen, and is mainly useful on a limited number of objects, like the Horsehead Nebula, the California Nebula, the Coccoon Nebula, and M43. On an 8" to 10" scope, the Horsehead Nebula goes from invisibility to visibility, as does the California Nebula. However, these objects remain fairly faint (especially the Horsehead), and unless you REALLY like looking at them, you can probably forget about buying the H-Beta!

Two Spectacular May Globular Clusters *by Phil Harrington, Astronomydaily.com*

Some of the oldest stars in the known universe are found inside of globular star clusters. Each of these huge, spherical agglomerations of stars contains between ten thousand and one million stars. Nearly all are found surrounding the galactic nuclei of the Milky Way as well as other galaxies. Not surprisingly, most of the Milky Way's 100-odd globular clusters are located in the summertime sky, in and around the constellations Sagittarius, Scorpius, and Ophiuchus, for that is where we find the Milky Way's central core. There are a few errant globulars, however, found in other parts of the sky, including two that are high in the eastern evening sky during the month of May.

M3 in Canes Venatici

A true superstar of the late spring sky, **M3** is one of those happy objects that is a joy to view regardless of telescope aperture. To spot this distant swarm, aim your telescope just short of the halfway point between the stars Arcturus in Boötes to Cor Caroli in Canes Venatici (found just south of the Big Dipper). Aim that way and you should spot M3 as a tiny puff of celestial cotton hanging near a 6th-magnitude field star.

A 4-inch (10-cm) or larger telescope will begin to resolve the haze of M3 into hundreds of tiny stellar points surrounding the cluster's moderately compressed nucleus. By doubling the telescope's aperture to 8 inches (20 cm), stars are resolved across the cluster's face, with several looking as though they line up in long strings.

M3 contains more than half a million stars, making it one of the largest members of the Milky Way's family of globular clusters. It is also the richest globular cluster in terms of variable stars, notably RR Lyrae variables. Like Cepheid variables, RR Lyrae variable stars can be used to determine distances to far-off objects like M3. By studying RR Lyrae variables, astronomers have learned that these stars have a very precise period-luminosity relationship. The more rapidly the star's brightness varies, the greater its inherent luminosity. If you know a star's luminosity as well as its apparent magnitude, it is a simple matter to calculate the star's distance using the inverse-square law. Doing just that, astronomers place M3 at 30,600 light years from Earth.

The second globular cluster featured this month is **M5**, located in westernmost Serpens. To find M5, return to Arcturus, then slide southeast to the fairly faint (4th magnitude) star Zeta Boötis. Continue from there twice the distance along a slightly more easterly course until you come to a not-quite right triangle of stars. The triangle's brightest star, positioned at the not-quite right angle, is named Unukalhai, and shines at magnitude 2.6. Turn to the southwest and look for a faint pattern of four dim stars in the shape of a flattened diamond. M5 lies just north of the diamond. Like M3, it should be visible in your finder scope as a fuzzy looking star.

M5 in Serpens

Through small telescopes, M5 will probably look just like a ball of celestial cotton. But on closer inspection with a 4 inch (10-cm) telescope (maybe even a 3 inch (7.5 cm) with great optics), you can begin to resolve some of the cluster's individual stars. An 8-inch (20-cm) telescope reveals a multitude of stellar points strewn across the entire disk. Many of the stars in the cluster seem to form lines or strings, an illusion as mentioned earlier.

By analyzing light from the cluster's individual stars, astronomers have determined that **M5 is one of the Milky Way's oldest globular clusters**. Just how old is old? These spectroscopic studies show that even the cluster's low-mass stars, which remain on the Main Sequence for billions of years, have begun to evolve into red giants. This has led many to estimate the cluster's collective age as perhaps 13 billion years. Since the universe itself is believed to have formed no more than 14 billion years ago, the stars in M5 are first generation.

Estimates say that M5 is 23,000 light years away and may contain as many as one million stars crammed into a space about 130 light years across. **This also makes M5 one of the largest globulars known**, about twice the size of M3.

As you gaze toward M3 and M5, just imagine what it would be like to live on a planet inside one of the clusters. That is just what Isaac Asimov did in his book Nightfall, a story about a planet orbiting a six-star system within a globular cluster. And we think that we have trouble with light pollution!

Magic Valley
Astronomical Society

Magic Valley Astronomical Society
P.O. Box 5101
Twin Falls, ID 83303

,

Planet Roundup courtesy skyandtelescope.com

Mercury is hidden in the glow of sunrise.

Venus (magnitude –4.5, in Taurus) is the brilliant white "Evening Star" blazing grandly in the west-northwest during twilight and much of the evening. It doesn't set until as late as about 11:30 p.m. daylight saving time. Venus is passing the 2nd-magnitude star Beta Tauri this week. In a telescope, Venus is becoming an ever-thinner crescent.

Mars (only 1/300 as bright, at magnitude +1.7) glimmers to Venus's upper left by less than a fist-width at arm's length.

Jupiter (magnitude –2.3, in the feet of Leo) is the second-brightest point of light in the evening sky, after Venus. It shines very high in the south during early evening and in the southwest later at night.

Saturn (magnitude +0.2, in the feet of Gemini) shines to the upper left of Mars and Venus.

Uranus and **Neptune** (in Aquarius and Capricornus, respectively) are low in the southeast just before dawn.

Pluto (magnitude 14, in Ophiuchus) is in the southeast to south during early morning hours.

Comet NEAT (C/2001 Q4) should finally become visible to observers at north temperate latitudes this week. It has been brightening a little slower than predicted and was about magnitude 3.5 as of May 4th. Starting around May 5th or 6th, midnorthern observers should carefully scan for it with binoculars at dusk very low above the southwest horizon as twilight fades. In the following days the comet will rapidly climb higher, winning free of the twilight glow and entering the dark night sky. See the April 2004 newsletter for a day by day position chart.

Club Calendar

The Magic Valley Astronomical Society meets the second Saturday of each month at the College of Southern Idaho, Herrett Center at 7pm. Star Party at the Herrett Center follows.

Saturday May 8th MVAS Club Meeting, 7pm Herrett Center. Public Star Party follows.