



## The Monthly Newsletter of the Magic Valley Astronomical Society

### April Highlights

#### April is Global Astronomy Month

**Apr. 9th** - Membership Meeting and Monthly Star Party. Meeting begins at 7:00 pm at the CSI Herrett Center and the monthly star party follows at the meeting (8:00 pm) at the Centennial Observatory.

**Apr. 12th** - Yuri's Night, Human Spaceflight became a reality 50 years ago with the launch of a bell-shaped capsule called "Vostok 1" on April 12th, 1961. The capsule was carrying Soviet Cosmonaut Yuri Gagarin, who took his place in history as the first human to leave the bounds of Earth and enter outer space. More pg. 5

#### Apr. 22 - Earth Day

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### Messier Marathon at the Jerome Gun Club

Article by Club Member Rob Mayer—A handful of MVAS members along with a few former members and friends managed to make something of poor viewing conditions in an attempt at a Messier Marathon, on Friday, April 1, at the Jerome Gun Club.

Seven people and eight telescopes showed up, ranging from the Mayers' pair of 4" Newtonians to Chris Sutton's 16-inch Dobsonian. The weather prevented completion of the marathon and hindered viewing almost from the beginning. Despite that, members reported some successes as they negotiated sucker holes before finishing up between 1 and 2 a.m.

While Chris Sutton had the most success, finding more than 40 objects, including difficult finds such as galaxy M33 and planetary nebula M76 – one of the dimmest in the Messier catalog-others reported success as well. Jim Hoggatt found 12 objects, including four new ones. Rob Mayer found 18 objects, including 13 with the small Newtonians.

A couple of members used Go-to scopes just to enjoy the viewing conditions, including Terry Wofford, who was trying out his newest telescope for the first time. Terry bagged several objects himself. That included being able to pull out the dim galaxies M108 and 109 along the bottom of the Big Dipper, some of the dimmer objects in the Messier Catalog.

Terry Wofford and Rob Mayer teamed up around midnight for a teaching moment when the sky opened up to reveal Canes Venatici and Coma Berenices. Terry would find a Messier object in one of the constellations with his Go-to scope, and Rob would line up his laser pointer next to the spotting scope to learn where the object was in the sky. Rob would then go to his 4" f/10 Newtonian and star hop over to the object (he was using a 32mm Plössl eyepiece).

After Rob found the object, Terry would then look at what Rob had found to confirm he wasn't seeing things. Rob found M51, M53, M63 and M64 that way. While the experience showed Rob what his scope could look at in even mediocre conditions, finding globular cluster M53 and black-eye galaxy M64 in Coma Berenices encouraged others to look at these underrated gems.

MVAS would like to not only thank all who helped out and attended, but also the Jerome Gun Club for offering the use of the site. Here's hoping more club star parties will be popping up in the future.

### 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

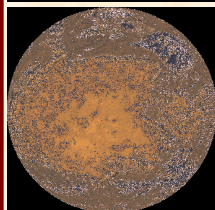
## April Celestial Sky Events



**Mercury** will be very low above the horizon in the morning glare in the later half of the month. It will be close to Jupiter and Mars. All these planets will be hard to see. Mercury will be at inferior conjunction on the 9th.



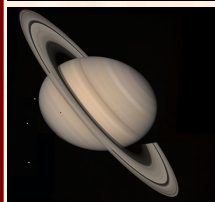
**Venus** will be sinking lower into the morning eastern horizon this month. Venus will still be shining very bright at magnitude -3.9 which allows it to pierce through the morning twilight.



**Mars** will be very low above the horizon in the morning glare in the later half of the month. It will be close to Jupiter and Mercury.



**Jupiter** will go behind the Sun on April 6th and be impossible to see. By mid April it will be barely above eastern horizon's glare just before sunrise.



**Saturn** will be a great target all month. It reaches opposition April 4th. This is when it will be closest to Earth and at its biggest and brightest for 2011. Saturn's rings will appear tilted about 8° from horizontal.



**Uranus** will be in the morning predawn traffic jam of planets but it will likely be too dim to see. On the 22nd it will be within 1° of the much brighter Venus



**Neptune** will be in Aquarius in the morning eastern sky this month. It will be not be too high above the horizon. It will be at its best just before the sky starts to lighten. It will still not be too good.



### Moon

- 2 Moon at apogee
- 3 New Moon
- 8 Greatest N. Declination (+23.6°)
- 11 First Quarter Moon
- 17 Moon at perigee
- 18 Full Moon (Pink Moon-Algonquian)
- 21 Greatest S. Declination (-23.4°)
- 25 Last Quarter Moon

4 **Saturn at opposition** (opposite the Sun) at 0h UT. Visible all night long, the ringed planet is at its brightest (mag. +0.6) and closest all year (disk diameter 19.4"). The rings appear magnificent even in a small telescope.

6 **Jupiter at conjunction** with the Sun at 15h UT. Passes into the morning sky (not visible).

7 **Moon near the Pleiades** at 11h UT (evening sky).

8 **Moon near Aldebaran** (evening sky) at 7h UT.

9 **Mercury at inferior conjunction** with the Sun at 20h UT. Mercury passes into the morning sky.

11 **Moon near Pollux** (evening sky) at 15h UT.

12 **Moon near Beehive cluster** (evening sky) at 17h UT.

14 **Moon near Regulus** (evening sky) at 5h UT.

17 **Moon near Saturn** (evening sky) at 3h UT. Mag. +0.4.

17 **Moon near Spica** (midnight sky) at 22h UT.

22 **Lyrid meteor shower peaks** at 23h UT. Active April 16-25. Radiant is between Hercules and Lyra. Expect 10 to 20 bright, fast meteors per hour at its peak.

23 **Venus 0.85° SSE from Uranus** (30° from Sun, morning sky) at 2h UT. Mags. -3.9 and +5.9.

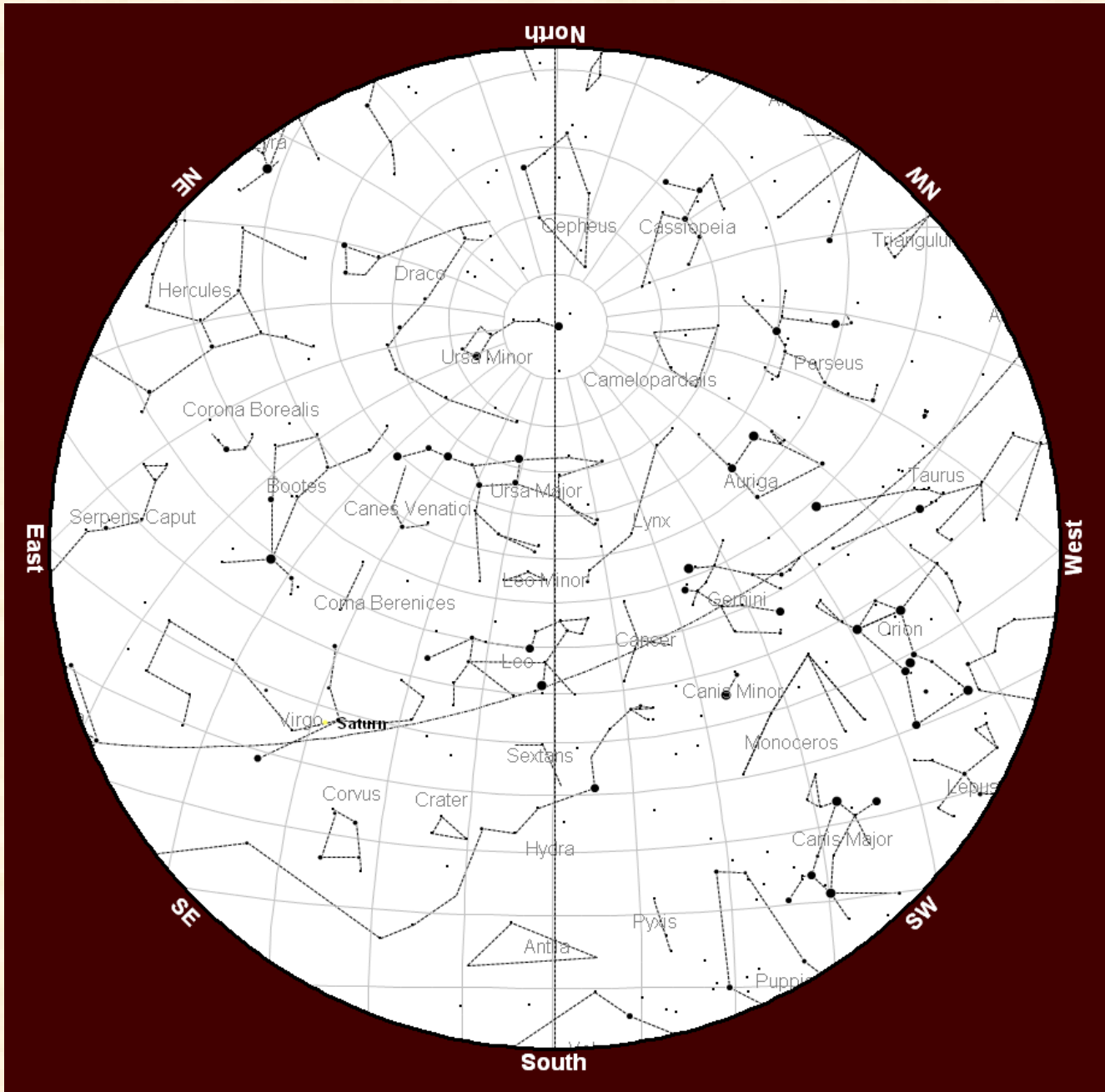
25 **Last Quarter Moon** at 2:47 UT. 29 **Moon at apogee** (farthest from Earth) at 18h UT (distance 406,039 km; angular size 29.4').

30 **Moon near Venus** (28° from Sun, morning sky) at 18h UT. Mag. -3.9.





## Planisphere for April



### Did You Know?

**Apollo 16** was the tenth manned mission in the Apollo program. It was the fifth mission to land on the Moon and despite a malfunction in the Command Module which almost aborted the lunar landing, Apollo 16 landed successfully in the Descartes Highlands on April 21, 1972. During the mission, the Apollo 16 (John Young and Charles Duke) astronauts also conducted performance tests with the lunar rover, at one time getting up to a top speed of 11

miles per hour (18 kilometers per hour), which still stands as the record speed for any wheeled vehicle on the Moon (listed as such in the Guinness Book of Records). Astronaut John Young would go on and later command the first Shuttle Flight (STS-1) on April 12th 1981.

Image: NASA file photo of Astronaut John Young jumping while saluting the American flag. The rover is just to the left of the flag.



## NASA Science News

Planet hunters have found hundreds of planets outside the solar system in the last decade, though it is unclear whether even one might be habitable. But it could be that the best place to look for planets that can support life is around dim, dying stars called white dwarfs.

In a new paper published online in *The Astrophysical Journal Letters*, Eric Agol, a University of Washington associate professor of astronomy, suggests that potentially habitable planets orbiting white dwarfs could be much easier to find – if they exist – than other exoplanets located so far.

White dwarfs, cooling stars believed to be in the final stage of life, typically have about 60 percent of the mass of the Sun, but by volume they are only about the size of Earth. They are much cooler than the Sun and emit just a fraction of its energy, so the habitable zones for their planets are significantly closer than Earth is to the Sun.

"If a planet is close enough to the star, it could have a stable temperature long enough to have liquid water at the surface – if it has water at all – and that's a big factor for habitability," Agol said.

A planet so close to its star could be observed using an Earth-based telescope as small as 1 meter across, as the planet passes in front of, and dims the light from, the white dwarf, he said.

White dwarfs evolve from stars like the Sun. When such a star's core can no longer produce nuclear reactions that convert hydrogen to helium, it starts burning hydrogen outside the core. That begins the transformation to a red giant, with a greatly expanded outer atmosphere that typically envelopes – and destroys – any planets as close as Earth.

Finally the star sheds its outer atmosphere, leaving the glowing, gradually cooling, core as a white dwarf, with a surface temperature around 5,000 degrees Celsius (about 9,000 degrees Fahrenheit). At that point, the star produces heat and light in the same way as a dying fireplace ember, though the star's ember could last for 3 billion years.

Once the red giant sheds its outer atmosphere, more distant planets that were beyond the reach of that atmosphere could begin to migrate closer to the white dwarf, Agol said. New planets also possibly could form from a ring of debris left behind by the star's transformation.

In either case, a planet would have to move very close to the white dwarf to be habitable, perhaps 500,000 to 2 million miles from the star. That's less than 1 percent of the distance from Earth to the Sun (93 million miles) and substantially closer than Mercury is to the Sun.

"From the planet, the star would appear slightly larger than our sun, because it is so close, and slightly more orange,

but it would look very, very similar to our sun," Agol said.

The planet also would be tidally locked, so the same side would always face the star and the opposite side would always be in darkness. The likely areas for habitation, he said, might be toward the edges of the light zone, nearer the dark side of the planet.

The nearest white dwarf to Earth is Sirius B at a distance of about 8.5 light years (a light year is about 6 trillion miles). It is believed to once have been five times more massive than the Sun, but now it has about the same mass as the Sun packed into the same volume as Earth.

Agol is proposing a survey of the 20,000 white dwarfs closest to Earth. Using a 1-meter ground telescope, he said, one star could be surveyed in 32 hours of observation. If there is no telltale dimming of light from the star in that time, it means no planet orbiting closely enough to be habitable is passing in front of the star so that it is easily observable from Earth. Ideally, the work could be carried out by a network of telescopes that would make successive observations of a white dwarf as it progresses through the sky.

"This could take a huge amount of time, even with such a network," he said.

The same work could be accomplished by larger specialty telescopes, such as the Large Synoptic Survey Telescope that is planned for operations later this decade in Chile, of which the UW is a founding partner. If it turns out that the number of white dwarfs with potential Earthlike planets is very small – say one in 1,000 – that telescope still would be able to track them down efficiently.

Finding an Earthlike planet around a white dwarf could provide a meaningful place to look for life, Agol said. But it also would be a potential lifeboat for humanity if Earth, for some reason, becomes uninhabitable.

"Those are the reasons I find this project interesting," he said. "And there's also the question of, 'Just how special is Earth?'"

This artist's concept illustrates a dead star, or "white dwarf," surrounded by the bits and pieces of a disintegrating asteroid. Credit: NASA/JPL-Caltech





## I see Earth. It's so Beautiful.

These are the first words spoken by a man from space. That man was Cosmonaut Yuri Alekseevich Gagarin of the former Soviet Union.

On March 9, 1934, a boy was born in the country-side west of Moscow. His name was Yuri Gagarin. He grew up on a collective farm, where his father worked as a carpenter. When Yuri was seven years old, the German armies invaded Russia. Yuris father joined the army, while his mother took him and his older brother and sister away from the fighting.

In high-school, Yuri decided to train as a technician, and attended a technical school on the outskirts of Moscow. He left school in 1951 as a trained metalworker and enrolled at an industrial college. While he was a student he became interested in aircraft and took lessons at a local flying school. In 1955, after completing his technical schooling, he entered military flight training at the Orenburg Pilot's School. While there he met Valentina Goryacheva, whom he married in 1957, after gaining his pilot's wings in a MiG-15. Post-graduation, he was assigned to Luostari airbase in Murmansk Oblast, close to the Norwegian border, where terrible weather made flying risky. He became Lieutenant of the Soviet Air Force on 5 November 1957 and on 6 November 1959 he received the rank of Senior Lieutenant.

In 1960, after the search and selection process, Yuri Gagarin was chosen with 19 other pilots for the Soviet space program. Gagarin was further selected for an elite training group known as the Sochi Six from which the first cosmonauts of the Vostok program would be chosen. Gagarin and other prospective cosmonauts were subjected to experiments designed to test physical and psychological endurance; he also underwent training for the upcoming flight. Out of the twenty selected, the eventual choices for the first launch were Gagarin and Gherman Titov because of their performance in training, as well as their physical characteristics — space was at a premium in the small Vostok cockpit and both men were rather short. Gagarin was 1.57 metres (5 ft 2 in) tall, which was an advantage in the small Vostok cockpit.



Image: Yuri Gagarin in his spacesuit before his historic flight of 12 April 1961. This photo is unattributed since it originally taken 50 years ago.

On 12 April 1961, Gagarin became the first man to travel into space, launching to orbit aboard the *Vostok 3KA-3* (Vostok 1). His call sign was Siberian Pine Russian: Кедр).

During the flight of Vostok 1, Gagarin was not given control of his craft. This was because of the perceived insecurity regarding reactions of the mind and physics in weightlessness. The Russians didn't want to risk the cosmonaut losing control over himself while in space, and thus endangering the mission.

There was a key available in a sealed envelope which enabled the cosmonaut to take control over the vessel in case of an emergency. The Vostok also contained a supply of food and water for ten days in case of retrorocket failure. Due to the orbit chosen, the ship was expected to return naturally during this period. However, Gagarin did not encounter any problems. "The spaceship put in orbit, and the carrier-rocket separated, weightlessness set in. At first the sensation was to some extent unusual, but I soon adapted myself" "I maintained continuous communication with Earth on different channels by telephone and telegraph".

Upon return Gagarin actually ejected at an altitude of approximately 7 kilometers, and landed safely.

The first launch of the Space Shuttle occurred on 12 April 1981, exactly 20 years after the first manned space flight, when the orbiter *Columbia*, with two crew members, astronauts John W. Young, commander, and Robert L. Crippen, pilot, lifted off from Pad A, Launch Complex 39, at the Kennedy Space Center — the first of 24 launches from Pad A. The launch took place at precisely 7 a.m. EST. A launch attempt 2 days earlier was scrubbed because of a timing problem in one of *Columbia's* general purpose computers. Not only was this the first launch of the Space Shuttle, but it marked the first time that solid-fuel rockets were used for a NASA manned launch.

**On 12 April 2011 Celebrate the first flight into space with the world during Yuri's Night. Visit <http://yurisnight.net/> for more information.**



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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](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: Currently we have no books to lend.

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

## Elected Board

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