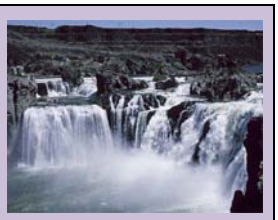
Snake River Skies

The Monthly Newsletter of the
Magic Valley Astronomical Society
January 2013



www.mvastro.org

Membership Meeting

Saturday, January 12th at the Herrett Center
New Telescope Workshop
7:00 pm

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President's Message

Winter is admittedly a difficult time for amateur astronomers, and at the time and place I write this, the temperatures are dropping below zero at night. Clearly, getting outside is not that likely. Instead, we have to get resourceful. For example, some may have actually listened to the Quadrantids over the internet instead of suffering frostbite by going out late at night. Others may be using this time to come up with those necessary tune-ups and cleanings our scopes and equipment needs. Still, there's some hint of cabin fever for us -- especially for those of us whose family and friends remembered our astronomy interests when they chose Christmas gifts for us.

To help us all deal with that itch, let's head over to the Herrett Center Saturday, Jan. 12, at 7 p.m. for our annual telescope clinic. The meeting is open to the public, giving them a chance to learn more about those scopes they got for Christmas or found in the attic.

It's also a chance for us to help each other out. Each of us has a different niche of expertise, and the upcoming meeting is a good chance to both share our expertise and learn from others. More importantly, sharing each other's interests is a good way to keep the fire burning, something needed in this cold winter.

I look forward to seeing you there.

Sincerely,

Robert Mayer

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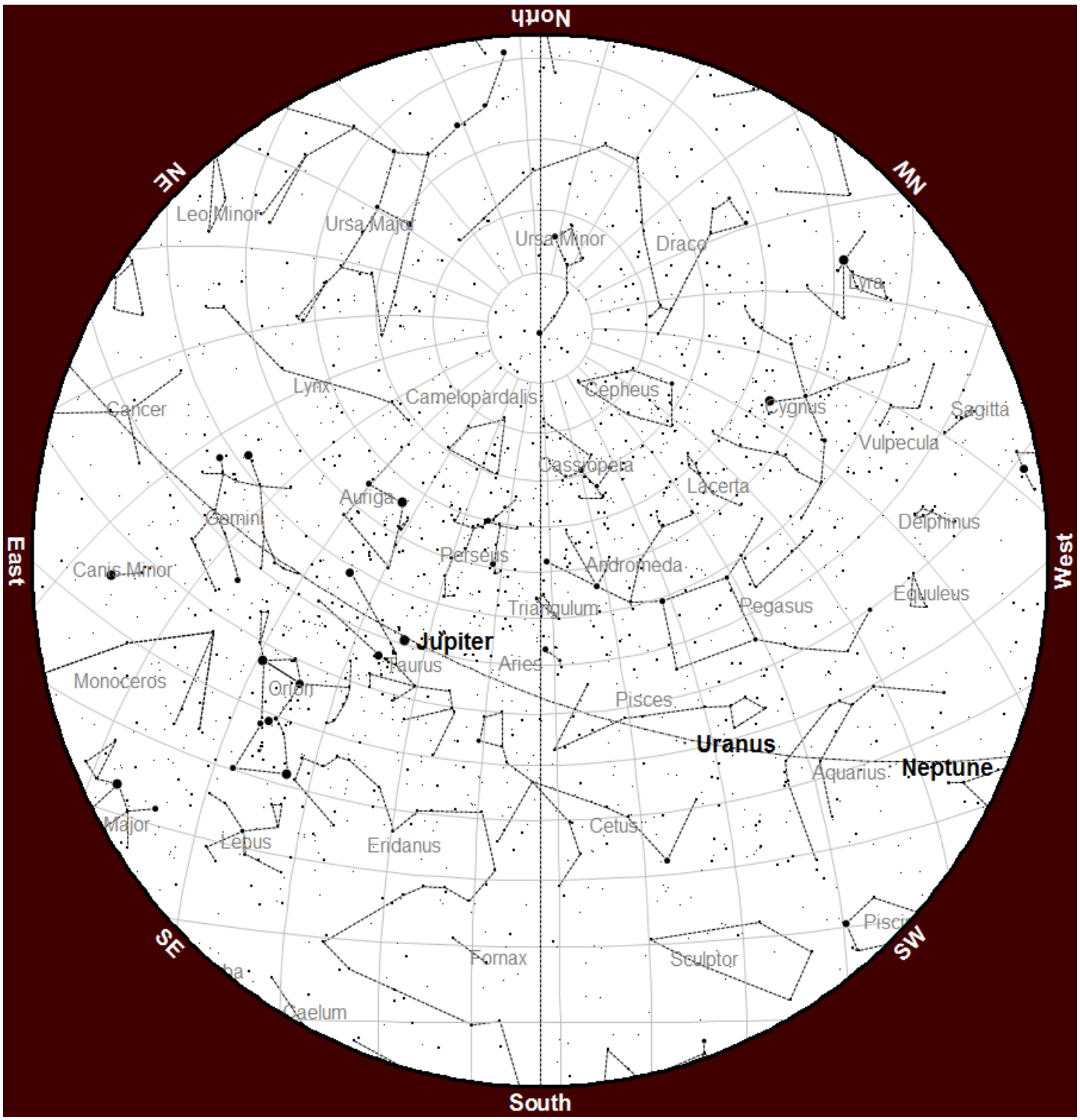
Calendar for January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 New Year's Day 1610 Galileo saw Saturn's rings through a telescope	2	3	4	5 Last Quarter Moon
6	7	8	9	10	11 New Moon	12 Membership Meeting Telescope Workshop Herrett Center 7:00pm
13	14	15	16	17	18 First Quarter Moon	19
20	21 Martin Luther King Day	22	23	24	25	26
27 Full Moon	28	29	30	31		

Planisphere for January



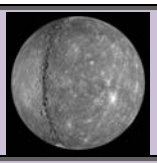
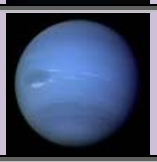
Planisphere should be used as a guide for the month of January, mid-month, end of astronomical twilight (6:45 PM)

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

Trivia Time

On the Infinite Universe and Worlds, 1584 - Giordano Bruno an Italian Dominican friar, philosopher, mathematician and astronomer declared that "There are then innumerable suns, and an infinite number of earths revolve around those suns, these worlds are inhabited if not exactly as our own, and if not more nobly, at least no less inhabited and no less nobly." Astronomers predict that an Earth-like twin will be discovered in 2013. But knowledge that extraterrestrial life exists still eludes astronomers.

Solar System Highlights

	**Mercury** Innermost Mercury is lost in the solar glare until early February, when it re-emerges in the evening sky.
	**Venus** shines like a beacon in the southeastern morning sky. At magnitude -4 the planet is still close to peak brightness, but it is rapidly losing altitude and gets closer and closer to the horizon with each passing day. At the beginning of the month, Venus spans 10.8" across and shows a disk 94-percent lit. By late January, the disk has shrunk to 10.2" and the phase has grown to 97-percent illumination.
	**Mars** has faded in the past few months, but it is still visible about half an hour after sundown, low in the southwest Because of its small angular diameter of only 4" this January, Mars is a challenging object to observe. Even when closest to Earth it is disappointingly small, and high magnification on a good telescope with a steady atmosphere are required to see some details on the surface.
	**Jupiter** The gas giant still rises shortly after sunset remains visible all night and looks stunning through a telescope. It shines at magnitude -2.6 and resides in Taurus, close to Aldebaran, the brightest star in the constellation and one of the brightest in the nighttime sky.
	**Saturn** rises in the east around 3 A.M. local time and by the beginning of dawn it is fairly high in the south. A small telescope will reveal Saturn's system of rings which span 37", surrounding a disk about 17" in diameter. The rings are tilted 20° to our line of sight, the widest open they have been in seven years.
	**Uranus** is technically at the threshold of vision at magnitude +5.9, and can be found among the stars of the constellation Pisces immediately after dark. For a proper identification, however, you will need binoculars and a current finder map. A good telescope and a power of 100x or more are needed to make the planet's disk obviously nonstellar.
	**Neptune** Bluish Neptune is in the constellation Aquarius, just 2° northeast of the 4th-magnitude star Iota Aquarii. The planet is rather faint, at magnitude +8, but can be found with binoculars provided that the night is very dark, very clear, and you are far from sources of light pollution.
	**Pluto** The dwarf planet is barely emerging from the glow of dawn, so it will be obscured for many observers. It will not be high enough above the horizon for telescopic viewing until about mid-February.
	**Asteroid** 4 Vesta is best viewed in the early evening, when Taurus the Bull - the constellation through which the asteroid tracks - is highest above the southern horizon. Aldebaran (Alpha Tauri) serves as a good guidepost for following the slow nightly motion of 7th-magnitude Vesta, but it may take a few nights of telescopic observing before you notice the asteroid's movement.
	**Comets** Comet C/2012 K5 LINEAR is highest above the horizon just before dawn. At the beginning of the month, K5 LINEAR is only 10° away from Capella. 273P/2012 V4 Pons-Gambart This primordial snowball will appear in the morning sky around mid-January. Glowing at 9th-magnitude, the comet will be well within the reach of a 6-inch telescope at low power under a dark sky. Make sure you are dark-adapted, and use averted vision.
	**Meteors** The Coma Berenicid meteors come from a radiant very easy to locate, near the large naked eye star cluster designated Melotte 111. In early January, the radiant rises about 11 P.M. local time.

Idaho Skies for January 2013

Idaho Skies is a column for beginning amateur astronomers and those interested in astronomy. Suggestions about the column are gladly accepted by the columnist at streetastro@gmail.com. Check the Idaho Skies Twitter page for notices and images at www.twitter.com/IdahoSkies.

This month look for the star, Sirius. Sirius is the Lucida of the constellation of Canis Major, the Big Dog. It's half way up the sky when you face towards the southeast on January evenings. Sirius is the brightest star in the heavens and significantly brighter than any other star. In fact, the second brightest star, Canopus, is only half as bright as Sirius. Of the planets, only Venus, Mars, and Jupiter can surpass Sirius in brilliance. Sirius appears as a bright white spark of light. When it is low to the horizon, the star throws off shards of color because there's thicker atmosphere to refract its starlight. If you were born in 2006, then Sirius is your birthday star this year because the light you see tonight left Sirius nine years ago. The name Sirius comes from the Greek word for scorching. During the Dog Days of summer (early August), the sun and Sirius reside close together in the sky. The Greeks believed that the additional heat of Sirius added to the sun's heat to make these days especially hot.

A companion named Sirius B accompanies Sirius. Astronomer's hypothesized the existence of Sirius B as early as 1844 due to the wobbling they observed in Sirius's slow motion across the sky (a movement called the star's proper motion). From the amount of measured wobble, astronomers deduced that the companion star had a mass equal to the sun. This created a problem, however. A star like the sun nine light years away would be easily visible. As the companion of Sirius was not visible in telescopes, the star had to be incredibly faint for its mass; and an astronomical mystery. It wasn't until 1862 that astronomers finally observed the star through an 18.5 inch refractor telescope. Later measurements of the star's spectrum indicated that it was incredibly hot. So hot in fact, that its surface brightness was greater than the sun's surface brightness. The star's high surface brightness but low total brightness was a sign that this star is a white dwarf star. Some 120 million years ago, Sirius B, or the Pup Star was a star like the sun. Today however, the star's nuclear core has shut down, letting the star collapse into a smaller sphere. Since atoms consist of mostly empty space, there's enough room for the atoms to squish down to one millionth their original volume. That compression is needed to convert a sun-like star into a white dwarf. White dwarf stars like Sirius B have a density in far excess of any material known on earth. Their typical densities are around 200,000 times greater than the density of Earth. Therefore, a sugar cube sized piece of white dwarf weighs roughly one ton on Earth.

January 1 – 7

On January 1st, Earth is at the perihelion of its orbit around the sun. Perihelion is that point in the Earth's orbit that is its closest to the sun. Today, Earth is only 91,402,600 miles from the sun. Compared to its average distance from the sun, which astronomers call an astronomical unit (AU), Earth is 0.983 AU from the sun at perihelion this year. The distance between Earth and the sun is more than 3,600 trips around the world's equator.

Also on the 1st, we celebrate the discovery of the first asteroid, Ceres. Italian astronomer Guiseppe Piazzi was a member of the celestial police, a group of astronomer's dedicated to searching for a missing hypothesized planet. On the night of January 1, 1801, he hit pay dirt with the discovery of the solar system's largest asteroid. Astronomers discovered few asteroids initially; however, after the invention of astrophotography, images of the sky began showing so many asteroids that astronomers began referring to them as the vermin of the sky.

Have you heard of the Mercury 13? On January 1, 1961, 13 women were selected from a larger group of applicants. Tests showed these women were more than capable of flying the Mercury space capsule. However, NASA kept their selection quiet from the public and never allowed them to command a space mission. The Soviet Union did know of their selection and wanted to maintain it lead in the space race with the United States. Therefore, they selected a woman to fly (actually it was more like ride) their Vostok space capsule into space. Her name was Valentina Tereshkova. It would be another 20 years before an American woman flew into space.

If he were still with us, Isaac Asimov would be 93 years old on the 2nd. It's a shame he hasn't appeared on a US stamp yet. You would think that if the US Postal Service could find enough public interest to put Mickey Mouse on a stamp, they could find sufficient interest to put one of the United States' greatest science fiction writers and science popularizers on a stamp.

The Quadrantid meteor shower reaches its peak on the night of the 2nd and morning of the 3rd. The Quadrantid meteor is a shower well populated with meteoroids; however, they tend to create dimmer meteors than those appearing in showers like August's Perseids.

An observer in clear and dark skies can expect to see around 40 meteors per hour from this shower. The problem this year is that the radiant of the shower will rise at about the same time as the last quarter moon. The moon's light will wash out some of the fainter members of this shower, making it appear weaker than average. Still, since it will be several months before our next shower, look for meteors originating from the lower northeast after midnight. The maximum peak of this shower is pretty narrow, so don't expect to see nearly as many meteors if you observe them a day or two before or after the peak. Enjoy the Quadrantids now; by the year 2400, Jupiter's gravity will alter the orbit of the Quadrantid meteor stream enough that it will no longer intersect Earth's orbit.

Spirit, a Mars rover, landed on Mars on the 3rd in 2004. The solar-powered rover operated for over 2,000 days, well in excess of its 90 day planned operation and drove 4.8 miles. Spirit didn't transverse a greater distance because it became stuck in soft Martian sand. Unable to free itself, Spirit continued making measurements from its location until the onset of local winter. With it unable to orient itself toward the sun, Spirit's solar array did not collect enough solar power to keep the rover functional over the cold winter. The last day that the Jet Propulsion Laboratory heard from Spirit was March 22, 2012.

Isaac Newton was born on January 4, 1643. If it hadn't been for calendar reform, we would have celebrated his birthday last Christmas. Many consider Newton one of the world's greatest scientists. While the plague was ravaging through London where he was attending college, Newton escaped to the country-side of his home and tinkered together the foundations of mechanical physics (the motion of objects), a universal theory of gravity, the behavior of optics, and calculus. That's not bad for a whipper-snapper in his early 20's.

Newton's three laws of motion demonstrated that forces control the motion of objects. In addition, he showed that can in principle we can understand them using simple mathematical terms. Newton's work with gravity demonstrated that it was a universal force acting between all objects in the universe. It controlled the motion of falling apples and the orbits of the planets around the sun. Newton's experiment with the prism was simple yet informative. He demonstrated that white light is the combination of all the colors of the rainbow and that there were no undiscovered colors. He solved the problem of chromatic aberration in refracting telescopes by designing a reflecting telescope. Finally, he demonstrated a technique for dealing with infinitesimally small changes in mathematical functions. This permitted him to calculate instantaneous rates of changes in mathematical functions and to add up infinitely small changes in functions. We call this calculus.

The moon is last quarter on the night of the 4th. This will be a good time to point your telescope or binoculars at the moon. Large Maria fill the lunar west side along with large crates with bright rays like Copernicus, Kepler, and Aristarchus. The ancient lava-filled and therefore dark crater of Grimaldi (on the far west side) and Plato (in the north) are also visible at third quarter.

The Lucida of Virgo, Spica, is only 2½ degrees from the moon on the morning of the 5th. Check it out if you stay awake late on Friday nights and early Saturday mornings. Both the moon and Spica will fit within the field of view of your binoculars.

The Soviet Union launched the space probe, Venera (Russian for Venus) 5 on its way 44 years ago on the 5th. Upon arrival, the probe plunged into the Venusian atmosphere only to expire 53 minutes later. The increasing atmospheric pressure and intense heat experienced by the probe were a lethal combination. This was the Soviet Union's second partially successful attempt to land on Venus. Later missions showed just how hostile the atmosphere of Venus is to Earthly spacecraft.

On the morning of the 6th, Saturn will be 7 degrees east of the moon. You need to go out just after midnight of the 6th (early Sunday morning) to see this pairing. Use a telescope to see Saturn's rings and binoculars to see moon craters.

Did you follow the early moon program? Prior to the Apollo moon landings, NASA checked out the moon with a variety of unmanned moon missions. One of the last was Surveyor 7. NASA launched this spacecraft on January 7, 1968. It became the 7th successful American moon landing after touching down three days later on the 10th. The 600 pound spacecraft returned over 20,000 images of the moon's surface and measured the elements present in the lunar soil. In addition, the lander measured its own behavior during the landing in order to give NASA valuable information on what to expect for the Apollo lunar modules. Surveyor 7 operated for two lunar days (each day and night lasting two weeks) and confirmed that the lunar surface is volcanic.

One final note, Surveyor 7's camera detected a faint glow on the horizon after the sunset. It appears this glow was sunlight reflecting off of dust levitated above the lunar surface by electrostatic forces.

All around interesting science guy, Galileo Galilei discovered the first three satellites of Jupiter on the 7th in 1610. Later astronomers named the satellites Io, Europa, and Callisto. Galileo missed the other large satellite, Ganymede because it was too close to Jupiter that night. He realized that this satellite existed a few days later. If you observe Jupiter with a pair of binoculars, you will be seeing the satellites a lot like Galileo did 400 years ago.

January 8 – 14

The Soviets launched the first robotic (unmanned) rovers designed for interplanetary missions 40 years ago on the 8th. The launch of Luna 21 carried this unmanned spacecraft to the Sea of Serenity. After landing, it lowered two ramps, one facing forward and the other backwards. This gave its payload, Lunokhod 2 two ways off the lander (in case debris blocked one). Lunokhod 2 was the last moon rover. Its operators on Earth used its television cameras to navigate across the lunar landscape. The nearly one ton rover traveled 23 miles in four months before succumbing to lunar dust. In that time it returned panorama images, tested the mechanical characteristics of the soil, and measured radiation and magnetic fields. Although the rover no longer travels across the lunar surface, its laser ranging experiment continues to return measurements of the moon's distance from Earth. Recently, the American Lunar Reconnaissance Orbiter returned images of the tracks left by Lunokhod 2. In an interesting turn of events, the American computer gaming entrepreneur Richard Garriott purchased the rover at an auction. Good luck collecting your new property.

The moon passes close to Venus on the morning of the 10th. Finding the moon will be difficult this morning because it is only a day from new. Use binoculars and point them at easier to find Venus. Then move your binoculars slightly to the left to position Venus in the right side of your field of view. The thin crescent moon will be within the binoculars in their left side.

Also on the 10th, the moon is at perigee, or it's closest to earth. The distance between the center of Earth and the moon is 223,723 miles today. Since Earth has a diameter of 7,926 miles and the moon 2,159 miles, the distance between their surfaces is only 213,638 miles.

That perigean moon is going to be difficult to locate, as the moon is new on the 11th.

January 15 – 21

The third week of January is kind of slow astronomically speaking. Our first event doesn't occur until the 18th when the moon reaches first quarter. Take the opportunity tonight to observe its many craters and mountains with binoculars or a telescope tonight.

Three days later, on the 21st, the moon passes very close to the planet Jupiter. By close, I mean within a moon's angular distance from the moon. Through a telescope, the moon's angular diameter will appear 36 times larger than Jupiter's angular diameter. However, in real life, the planet's diameter is 41 times larger than the moon's real diameter. Through a telescope, imagine that the moon is really Jupiter and Jupiter is really the moon. Now you have an idea of their real relative proportions.

January 22 – 30

The moon extends its smallest diameter in the sky on the night of the 22nd. That's because our satellite is at its greatest distance from Earth, or at the apogee of its orbit. Tonight, the center of the moon is 251,848 miles from the center of Earth. That makes the moon 28,125 miles farther away that it was two weeks ago at perigee. That's a little over three earth diameters farther away.

The moon is full on the night of the 26th. The fill moon in January is called the Wolf Moon.

Beginning on the 29th, the Zodiacal light becomes visible in the west after it gets dark. It will remain visible for the new two weeks until the evening moon begins interfering with its faint light. The Zodiacal Light is the reflection of sunlight off of dust orbiting around the sun. The dust resides within the inner solar system and owes its origin to comet tails and colliding asteroids. The dust eventually spirals into the sun. However, since our solar system is filled with comets and asteroids, dust continues to be generated fast enough to maintain the Zodiacal Light. You'll know you've seen the Zodiacal Light because it appears as bright as the last light of dusk, but is extend upwards as opposed to hugging the horizon.
The American Space Age began 55 years ago on the 31st. Explorer 1 was a cylindrical satellite 80 inches long weighing 31 pounds (the battery required to operate both the satellite's experiments and its radio took up 40% of that weight). It was the third satellite in Earth orbit, after Sputnik 1 and Sputnik 2. Explorer 1 remained in orbit far longer than either of its predecessors and didn't reenter the atmosphere until 1970. The reason Explorer 1 remained in orbit for so long is that its orbit reached an apogee of 1,580 miles and perigee of 222 miles. Unlike either of the Sputniks, Explorer 1 carried instruments to measure cosmic radiation in space. The designer of the Geiger counter experiment was none other than

Dr. James Van Allen from the University of Iowa. Because the satellite did not carry a tape recorder, data from the Geiger counter experiments could not be recorded for later payback. The result was spotty and initially confusing measurements of the cosmic ray flux in earth orbit. At times the Geiger counters recorded a low background flux of energetic particles around Earth and at other times it detected no cosmic rays at all. Dr. Van Allen eventually realized that the Geiger counters on Explorer 1 produced no data when they were swamped with very high cosmic counts. In other words, the flux wasn't zero; it was actually too high for the Geiger counters to handle. This observation led to the first major discovery of the Space Age, the belt of trapped radiation around Earth. Today we call the belt the Van Allen Belt.

This Month's Sources

Any day is space history, http://www.astronautix.com/thisday/janary01.htm
Astronomy Calendar of Celestial Events for Calendar Year 2013, http://www.seasky.org/astronomy/astronomy-calendar-2013.html
Explorer 1, http://en.wikipedia.org/wiki/Explorer_1
Luna 21, http://en.wikipedia.org/wiki/Luna_21
Lunokhod_2, http://en.wikipedia.org/wiki/Lunokhod_2
Meteor showers online, quadrantids, http://meteorshowersonline.com/quadrantids.html
Night Sky Explorer (software)
Sirius, http://en.wikipedia.org/wiki/Sirius
Space Calendar, Baalke, Ron, www.jpl.nasa.gov/calendar/
Stars, Kaler, James, www.astro.uiuc.edu/~kaler/sow/
Surveyor 7, http://en.wikipedia.org/wiki/Surveyor_7
The Old Farmer's Almanac 2013
Venera 5, http://solarsystem.nasa.gov/misions/profile.cfm?Sort=Nation&Nation=USSR&MCode=Venera_05
White Dwarf stars, http://imagine.gsfc.nasa.gov/docs/science/know_l2/dwarfs.html

Dark Skies and Bright Stars,
The Street Astronomer

Image: Full Moon rising above the Snake River Canyon
Pillar Falls (foreground) and Shoshone Falls (back) visible. MVAS © 2012 by Gary Leavitt

Deep Sky Highlight

Anyone who has attended a "star party", where experienced observers conduct guided tours of the wonders of the night sky, has seen at least a few star clusters. The Pleiades star cluster, also known as the Seven Sisters and Messier 45, is a conspicuous object in the night sky with a prominent place in ancient mythology. The cluster contains hundreds of stars, of which only a handful are commonly visible to the unaided eye. The stars in the Pleiades are thought to have formed together around 100 million years ago, making them 1/50th the age of our sun, and they lie some 130 parsecs (425 light years) away. Right Ascension: 3 Hours 47 Minutes 24 Seconds Declination: + 24° 7′

Partnering to Solve Saturn's Mysteries

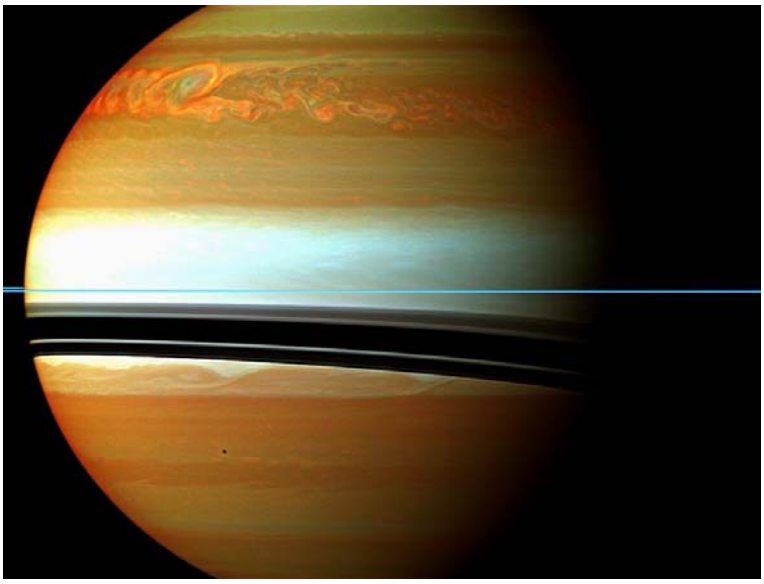
By Diane K. Fisher

From January 2010 through mid-summer 2011, a giant storm raged in Saturn's northern hemisphere. It was clearly visible not only to NASA's Cassini spacecraft orbiting Saturn, but also astronomers here on Earth—even those watching from their back yards. The storm came as a surprise, since it was about 10 years earlier in Saturn's seasonal cycle than expected from observations of similar storms in the past. Saturn's year is about 30 Earth years. Saturn is tilted on its axis (about 27° to Earth's 23°), causing it to have seasons as Earth does. But even more surprising than the unseasonal storm was the related event that followed. First, a giant bubble of very warm material broke through the clouds in the region of the now-abated storm, suddenly raising the temperature of Saturn's stratosphere over 150 °F. Accompanying this enormous "burp" was a sudden increase in ethylene gas. It took Cassini's Composite Infrared Spectrometer instrument to detect it. According to Dr. Scott Edgington, Deputy Project Scientist for Cassini, "Ethylene [C_2H_4] is normally present in only very low concentrations in Saturn's atmosphere and has been very difficult to detect. Although it is a transitional product of the thermochemical processes that normally occur in Saturn's atmosphere, the concentrations detected concurrent with the big 'burp' were 100 times what we would expect."

So what was going on? Chemical reaction rates vary greatly with the energy available for the process. Saturn's seasonal changes are exaggerated due to the effect of the rings acting as Venetian blinds, throwing the northern hemisphere into shade during winter. So when the Sun again reaches the northern hemisphere, the photochemical reactions that take place in the atmosphere can speed up quickly. If not for its rings, Saturn's seasons would vary as predictably as Earth's. But there may be another cycle going on besides the seasonal one. Computer models are based on expected reaction rates for the temperatures and pressures in Saturn's atmosphere, explains Edgington. However, it is very difficult to validate those models here on Earth. Setting up a lab to replicate conditions on Saturn is not easy! Also contributing to the apparent mystery is the fact that haze on Saturn often obscures the view of storms below. Only once in a while do storms punch through the hazes. Astronomers may have previously missed large storms, thus failing to notice any non-seasonal patterns.

As for atmospheric events that are visible to Earth-bound telescopes, Edgington is particularly grateful for non-professional astronomers. While these astronomers are free to watch a planet continuously over long periods and record their finding in photographs, Cassini and its several science instruments must be shared with other scientists. Observation time on Cassini is planned more than six months in advance, making it difficult to immediately train it on the unexpected. That's where the volunteer astronomers come in, keeping a continuous watch on the changes taking place on Saturn. Edgington says, "Astronomy is one of those fields of study where amateurs can contribute as much as professionals."

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration. This false-colored Cassini image of Saturn was taken in near-infrared light on January 12, 2011. Red and orange show clouds deep in the atmosphere. Yellow and green are intermediate clouds. White and blue are high clouds and haze. The rings appear as a thin, blue horizontal line.



Centennial Observatory and Faulkner Planetarium Events

Event	Place	Date	Time	Admission
Telescope Tuesday	Centennial Observatory	Tuesday, January 8th, 2013	6:15 to 9:00 PM	$1.50 per person Free - children 6 & under Free to all with paid planetarium admission
Bimonthly Astronomy Talk: "Comets: Past, Present, and Future"	Rick Allen Room	Friday, January 11th, 2013	6:00 to 7:00 PM	$2.50 adults $1.50 students (incl. CSI) Free - children 6 & under
Astronomy Talk Night Telescope Viewing	Centennial Observatory	Friday, January 11th, 2013	7:00 to 9:00 PM	$1.50 per person Free - children 6 & under Free to all with paid astronomy talk or planetarium admission
Cabin Fever Day Solar Viewing	Centennial Observatory	Saturday, January 12th, 2013	1:00 to 3:00 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, January 12th, 2013	6:30 PM to midnight	FREE
Telescope Tuesday	Centennial Observatory	Tuesday, January 22nd, 2013	6:30 to 9:00 PM	$1.50 per person Free - children 6 & under Free to all with paid planetarium admission

Day	Time	Faulkner Planetarium Show Schedule 4th – 12th
Friday, Jan. 4th	7:00	Star Signs/Live Sky Tour
	8:15	Pink Floyd: The Wall
Saturday, Jan. 5th	2:00	WSKY: Radio Station of the Stars/Live Sky Tour
	4:00	The Greatest Wonders of the Universe
	7:00	Star Signs/Live Sky Tour
	8:15	U2
Tuesday, Jan. 8th	7:00	Star Signs/Live Sky Tour
Friday, Jan. 11th	7:00	Star Signs/Live Sky Tour
	8:15	Pink Floyd: The Wall
Saturday, Jan. 12th *Free "Cabin Fever Day" shows	1:30*	Lifestyles of the Stars/Live Sky Tour
	2:30*	Lifestyles of the Stars/Live Sky Tour
	3:30*	Lifestyles of the Stars/Live Sky Tour
	4:30*	Lifestyles of the Stars/Live Sky Tour
	7:00	Star Signs/Live Sky Tour
	8:15	U2

Day	Time	Faulkner Planetarium Show Schedule Beginning 1/15
Tuesday	7:00	Star Signs/Live Sky Tour
Friday	7:00	Star Signs/Live Sky Tour
	8:15	Pink Floyd: The Wall
Saturday	2:00	WSKY: Radio Station of the Stars/Live Sky Tour
	4:00	The Greatest Wonders of the Universe
	7:00	Star Signs/Live Sky Tour
	8:15	U2

Special Announcement

As many of you know Boise Astronomical Society member Bob Niemeyer passed away a few weeks ago. His wife Susan wants to sell his Celestron 14" go-to scope since she needs the cash. I told her that I would advertise it for her and I thought I would advertise it among the BAS members first. Here is a list of some of the equipment. A picture is attached of the setup.

Celestron 14" (2001 model?), wedge mount on pier
9x50 Finder Scope with illuminated reticle
Eye pieces: 32mm Erfle 2"; 55mm Televue 2"; 12.5mm Celestron MicroGuide 1.25"; 10.5mm Televue 1.25"; 19mm Widefield Teleview 1.25"; 30mm Bausch & Lomb 1.25" with Rich Field Adapter; 12.7mm Celestron Aspen 1.25"; 26mm Meade Plossle 1.25"; 2" eye piece w/o markings.
Focal Reducer Celestron f 6.3
Sky Glow Ultra Block Filter
Celestron Star Diagonal 1.25"
2" Diagonal
Barlows 2X and 3X 1.25"
Computer Equipment to go with the Go-To system
Total asking price for the above $6,000.00

Also:
Orion Starshoot Pro Deep Space Imaging $800.00
Meade Deep Sky Imager II Color CCD Camera $600.00
Meade Autoguider CCD Pictor 201XT $150.00
Astrovid StellaCam $450.00

Make an appointment to see the equipment with either Susan Niemeyer at 375-7147, or with Rob Niemeyer at 921-1700, email robniemeyer@rocketmail.com.

If anybody has any questions they can contact me, Odo Siahaya, at odo@clearwire.net or 272-0763.

Think about this: The amazing thing is that every atom in your body came from a star that exploded. And, the atoms in your left hand probably came from a different star than your right hand. It really is the most poetic thing I know about physics: You are all stardust. You couldn't be here if stars hadn't exploded, because the elements - the carbon, nitrogen, oxygen, iron, all the things that matter for evolution - weren't created at the beginning of time. They were created in the nuclear furnaces of stars, and the only way they could get into your body is if those stars were kind enough to explode. So, forget Jesus. The stars died so that you could be here today. From "A Universe from Nothing" by Dr. Lawrence M. Krauss, PhD.

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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"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 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 three telescopes for loan and would gladly accept others. Contact Rick Widmer, Webmaster for more information.