



The Monthly Newsletter of the Magic Valley Astronomical Society

November Highlights

Nov. 5th - Bimonthly Astronomy talk - Chris Anderson will present "Measuring Cosmic Distances" at the Herrett Center beginning at 8:15pm -12:00am. Observing after the talk weather permitting. Admission: \$1.50, kids 6 and under free.

Nov. 13th Society Meeting at 7:00 pm this meeting is informal following the meeting is our monthly star party at the Centennial Observatory. There is no charge to attend and the public is invited.

Nov 16th Family Night Telescope Viewing at the Centennial Observatory - Admission: \$1.50, kids 6 and under free. Free to all with paid admission to the 7:00pm program in the Faulkner Planetarium.

All month long is the **new** Faulkner Planetarium Show "Oceans in Space." Water is the key to life, both on and off the Earth. Join Star Trek's Avery Brooks on a search for alien oceans. A live sky tour follows. Admission: Adults: \$4.50, Seniors: \$3.50, Students: \$2.50 call the Herrett Center desk 208-732-6655 for show times.



Taking Visual Observing to the Next Level—Club Membership

Our interest in astronomy prompted most of us to purchase our first telescope. Many then joined the Magic Valley Astronomical Society (MVAS) to share in their excitement of Astronomy.

The MVAS has a few experienced visual and imaging-oriented users of amateur telescopes. However, for many other members there is an artificial barrier that will limit their enjoyment and prevent the observing of some of the finest astronomical objects in the heavens.

What is this rut that many can't seem to breach? Are you observing only the moon, the planets, and a few of the brightest deep-sky objects every time you use your telescope? You may be ready to take visual observing to the next level. O.K., so you've learned the sky: constellations, ecliptic, alt/az,

ra/dec, etc. You can point your telescope and you have a good non-magnified reflex sight like a Telrad.

You have both lower power and higher power eyepieces. You can readily use planetarium software like Cartes du Ciel (freeware), Starry Night, The Sky, MegaStar, SkyTools, or printed star charts and Atlases. You are now ready, so what's keeping you? If asked this question of several experienced visual observers in the MVAS who had once been briefly, and some not so briefly, stalled at this precipice. Their answers would no doubt be varied:

- I had no motivation to go further.
- I was solo. Alone and with questions.
- I did not know what astronomical objects I could observe with my instrument and with my observing site's

degree of light pollution.

- Even if I had a list, I'd want to observe only the "best" objects.
- Light pollution is so bad now that observing fainter objects is nearly impossible.
- Most of those "faint fuzzies" all look the same and are therefore relatively uninteresting.

Continued on pg. 4

MVAS Mission

The Magic Valley Astronomical Society 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. The society serves as a source of astronomical phenomena, history and lore by providing educational and observing opportunities and information for its members and the general public and promotes viewing of celestial objects with special events for adults and children in south central Idaho.

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

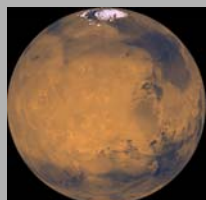
November Observing Highlights



Mercury will be in the very low on the southwestern horizon during the evening twilight early in the month. It will be tough to spot without binoculars and a good view of the horizon. On the 20th a much dimmer Mars passes 1.7° above Mercury.



Venus will be rising in the predawn sky this month. It will be very bright all month so it will be hard to miss even though it is competing with the sunrise glare. Venus will stay below the nearly star Spica all month.



Mars will be barely visible early in the month very low in the southwest sky as it grows dark. On the 20th brighter Mercury passes 1.7° south of Mars.



Jupiter will be very big and bright in the sky as it gets dark. It will be well placed high in the southern sky as it gets dark so this will be a good time to observe it. It will be shining around magnitude -2.7.



Saturn will be climbing higher every morning in the predawn sky. It will be above the much brighter Venus. By the end of the month Saturn will be 30° above the horizon at the start of dawn's twilight. It may still be too low for great observation of Saturn.



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Uranus will still be close to the brighter Jupiter all month. Uranus will be a good target. It will be out high in the sky in the south as it gets dark. This will be a good time to look. Jupiter will be around 3° southwest of Uranus all month.

Moon Phases for November



- 3 Moon at perigee (closest to Earth)
- 6 New Moon
- 13 First Quarter Moon
- 15 Moon at apogee (farthest from Earth)
- 21 Full Moon
- 28 Last Quarter Moon
- 30 Moon at perigee (closest to Earth)

Sky Calendar -- November 2010

- 1 Moon near Regulus (morning sky)
- 4 Moon near Spica (18° from Sun, morning sky)
- 5 Taurid (south) meteor shower peaks. Active between 25 Sept and 25 Nov. Associated with Comet 2P/Encke.
- 7 Moon near Mercury (12° from Sun, evening sky)
- 7 Moon near Mars (22° from Sun, evening sky)
- 8 Moon near Antares (evening sky)
- 8 Moon, Mars and Antares within 5° circle
- 11 Mars 3.9° N of Antares (evening sky) 12 Taurid (north) meteor shower peaks. May produce the occasional bright fireball.
- 14 Mercury, Mars and Antares within 5° circle
- 15 Mercury 2.4° NNE of Antares
- 16 Moon near Jupiter
- 17 Leonid meteor shower peaks at 21h UT. Arises from debris ejected by Comet Tempel-Tuttle in 1533. Expect about 25 to 30 meteors per hour under dark skies.
- 21 Moon near the Pleiades (midnight sky)
- 22 Moon near Aldebaran (morning sky)
- 26 Moon near Beehive cluster M44 (morning sky)
- 28 Moon near Regulus (morning sky) at 8h UT.

Daylight Saving Time Ends

Don't forget to set your clocks back on November 7. Night will come more quickly and you won't have to wait as long to get a glimpse of the stars. Note: The title is correctly spelled have you been misspelling it with an extra **s** on Saving (s)?

Novembers Full Moon

The full Moon of November is known as the Frost Moon or Snow Moon.

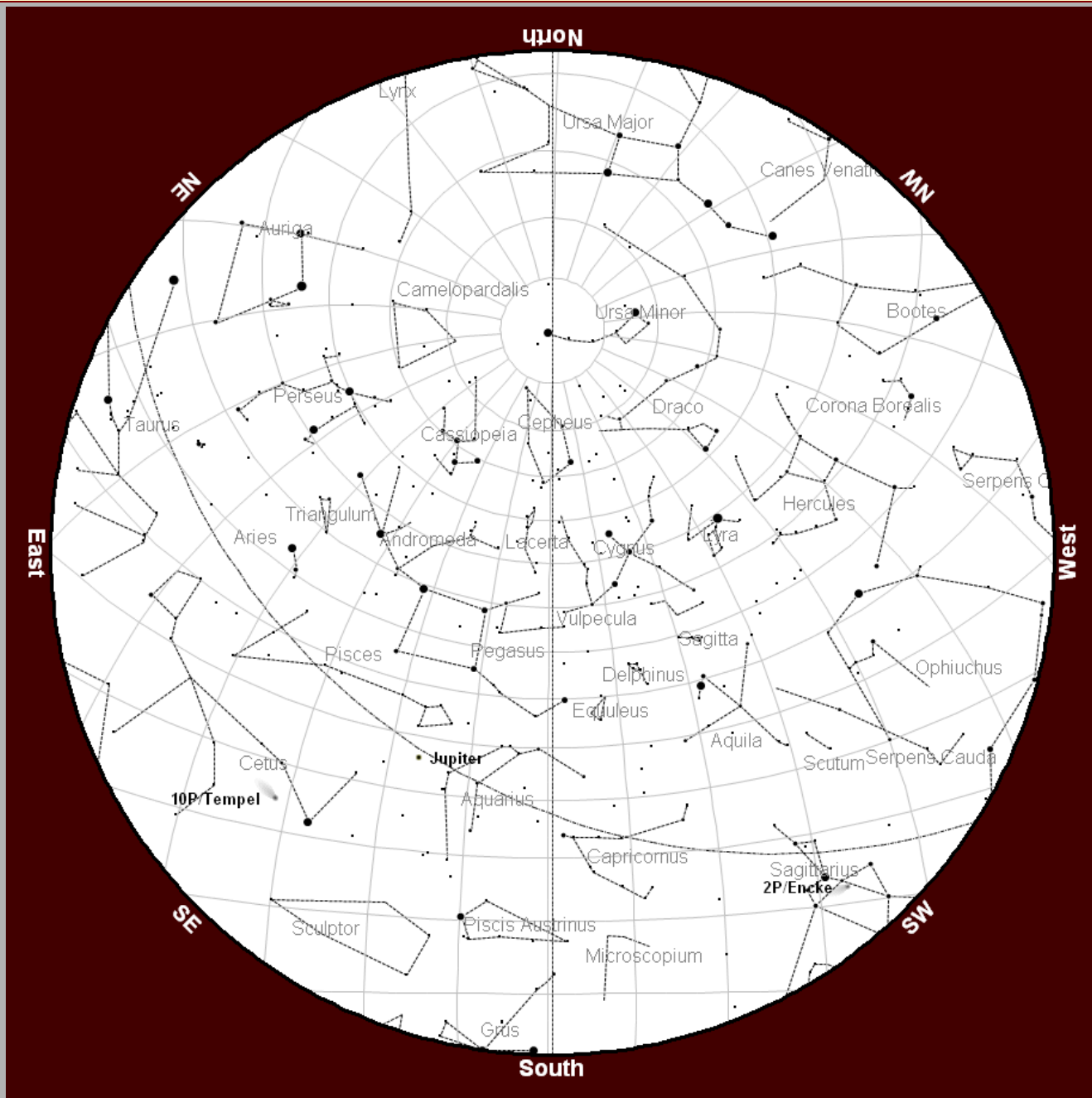
Comet 103P/Hartley

Comet 103P/Hartley should be visible in the morning sky this month. It is predicted to 5th magnitude which would make it an easy binocular target and a good naked eye object from dark skies. In late October the dust tail was edge on to us so it appeared short. Throughout November the dust tail and possibly the gas tail should come out from behind the comet's nucleus. In November the comet goes south between the border of Canis Minor and Canis Major. It goes west of Procyon early in the month and east of Sirius late in the month. We should get some pretty great views of the comet soon. NASA has a satellite flying with 550 miles of the comet on November 4th.

Image: Comet 103P/Hartley as seen in October imaged ©2010 October Mohammad Rihinni Honjan - Esfahan, Iran under Creative Commons License



Planisphere for November



Did You Know?

Since November 2nd 2000, the International Space Station has been continuously occupied. Constant human presence aboard the space station--an outpost one official has called the "zero gravity United Nations"—has been an unparalleled global success, from both a scientific and cultural standpoint.

The venerable International Space Station (ISS) has had a human crew for Ten years! Ten years, 200 inhabi-

tants, 15 nations, 600 experiments and a faulty toilet or two. Impressive stuff, in other words. The exploration outpost has served as a symbol of international cooperation and worldwide unity.

Sunlight glints of the International Space Station with the blue limb of Earth providing a dramatic backdrop in this photo taken by an astronaut on the shuttle Endeavour just before it docked after midnight on Feb. 10, 2010 during the STS-130 mission. Credit: NASA.



Taking Visual Observing to the Next Level—Club Membership

Solutions to these common stumbling blocks vary, but they tend to have a common thread. Learning some details about astronomy in general, and visually observable astronomical objects in particular, can go a long way toward increasing your interest in visual observing.

For example, knowing that the faint, star-like object you're observing through your relatively modest telescope is a quasar (3C273) at a distance of 1.2 billion light years can be a thrill. Superficially, as a relatively faint point of light, it may appear unimpressive. However, knowing its extreme distance, and that humankind



and most mammals we know today weren't even around on Earth when the photons hitting your eye left this quasar, can make it truly spectacular and awe-inspiring.

Understanding the types, morphology, and origin/life-cycle of many deep-sky objects (DSOs) such as galaxies, open star clusters, globular clusters, reflection nebulae, planetary nebulae, dark nebulae, double and multiple star systems, and variable stars, can lead one to examine these objects visually in detail. With galaxies, for instance, knowing to look for dust-lanes, concentrated galactic cores, spiral arms, HII star-forming regions, even extragalactic globular clusters, may make them all visible to those who know where and how to look for them. Simply having a good reference and studying each object for several minutes,

sweeping your averted vision through and around each object, will gradually tease out more detail as you observe it. Once a detail is found, it becomes easier to see even more detail beyond this.

Training your power of telescope observation is very important and most easily done if you log your observations; i.e., recording what you see on a voice recorder or jotting them down on paper. Drawing objects is also a great way to increase the visual observing detail that you capture. Carefully study star-charts/planetarium software, as supernovae are often discovered when the observer notes a star embedded in a galaxy that is not present in any reference material. Be sure to research before you report to CBAT. I've had a couple of exciting close calls that I determined via research were actually embedded stars from our galaxy.

However, supernovae are discovered by amateur astronomers—maybe you? Other DSOs have similar details of interest. Globular clusters and open clusters have classification systems that amateurs can be readily taught to recognize via Astronomical League observing programs.

One of the most important factors in breaking out of the observing rut is finding an observing buddy. This is simply a person willing to go out observing with you, often each with your own instruments, allowing the trading of hints and tips on observing with each other. This is why we are encouraging the use of the members list and trying to find dark sky areas like Sid Butte.

This last year we held a second night session at City of Rocks / Castle Rocks S.P. and while the second night was for club members some non-club members came anyway. Observing was done and no one was turned away. We encourage this as a means to build membership in the club.

Sadly, though, club membership has



waned in recent years. One common thread we, the Board of Directors" hears is "no more exciting stuff." We, therefore; would like to take a moment of your time to explain our club policy regarding volunteer opportunities, Star Parties and club meetings. We also want to ask what is it that you believe you want to see from the club in the coming years.

Our e-mail list (members <at> mvastro.Org) policy for the members group is that anyone is allowed to be on the group as long as they do not try to spam our group. If you spam us, you are permanently banned. Some members group folk are past MVAS members, some are members of sister clubs, some are just friendly and interested people who like to keep in the know on current astronomical events. We use this as the best form of communication, but have been asked to consider a phone tree for events like Auroras and such.

Images: Upper Left-Moon setting over the Pacific Ocean near Reedsport, OR © 9/2010 by Pamela Olsen used with permission. Society members at the 2010 picnic. Photo by Irwin Horowitz, BAS © 2010 IrwinH. M-13, Great Globular Cluster in Hercules a commonly imaged and sought out object by astronomers. In dark sky conditions it is easily discerned with the unaided eye. - Wikimedia License used.



Taking Visual Observing to the Next Level—Club Membership

We have our club meetings once a month and our monthly star parties both at the Herrett Center with observing at the Centennial Observatory.



In the summer we host our annual membership picnic at the Herrett Center on the Kinney Court (patio) to encourage socializing between members with no pressure to hold an observing session. Just food and stories.

In July and August we hold two informal, but busy star parties in the Cassia County area. These events have been well attended by the public.

We have been invited to hold star parties all over the Magic Valley, the Wood River Valley and have even been invited to events in Nevada.

Every year we have a full calendar or so it seems and sometimes it seems just a small core of members from the club who participate.

This all brings us to the point of membership in the Society. Sure, you have heard this before, but like the opening on the first page maybe your observing is stuck in a rut and you cannot find a way to break out.

The Society has good programs that we hold with our general meetings and yes, we want to hear from you to help improve what you want.

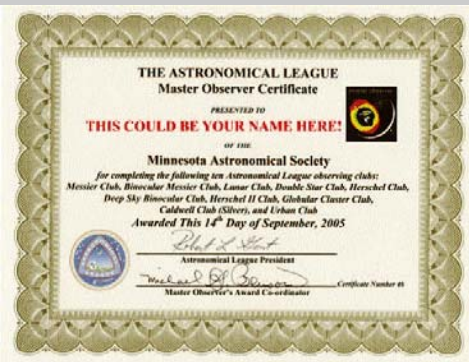
We want to improve our club educational efforts and will be encouraging more participation in local schools.

We have some loaner scopes for folks who have not yet bought a scope.

Another very interesting avenue to

consider is semi-competitive observing. This is often more of a competition against oneself than with other observers. The Messier Marathon is a good example. MVAS holds a Messier Marathon every spring in March with the Centennial Observatory and you can compete for a Astronomy League award if you'd like.

Perhaps Astrophotography is your specialty and you need some cues to become more proficient at what you are trying to accomplish. We have some members who are giving this venue a try. Even they could use some help especially if you know how to use Adobe Photoshop.



We would also highly recommend attending a regional star party such as the Idaho Star Party, the Craters of the Moon Star Party, or even the Oregon Star Party. These are large events that attract hundreds of amateur astronomers to some of the darkest skies in North America. Here there will be several visual observing lists to suit the beginner through the most seasoned visual observer. There are often observing lapel/hat pins that are awarded upon submission of the observing check-list.

Do you need a good list of objects to observe? Our club and many others would recommend the Messier list as a good starter. The Astronomical League has a wonderful diversity of lists to suit just about any amateur astronomer (www.astroleague.org). The Herschel 400 list is the next natural DSO list to tackle. Then there is the Royal Astronomy Society of Canada (RASC) and the Saguaro

Astronomy Club (SAC) have wonderful "Best of the NGC Lists" of about 110 objects each, with some overlap between these lists. The A.L. also has wonderful advanced topical lists such as Globular Clusters, Planetary Nebula, Open Clusters, Comets, Arp Galaxies, Galaxy Groups and Clusters. Another advanced general list is the Herschel II with another 400 DSOs, some of which are much more faint than those in the Herschel 400 A.L. list. To get started on these lists you might want to attend a meeting to learn more information. Club membership packets will be available soon and we hope to have a new member and renewal application available to fill out and download off our website.

Want to help the board plan an event? Then plan to attend one of the open board meetings, which are held before the general meeting. If we meet anywhere else we will try and let members know by sending out an e-mail.

Clear dark skies are always a Celestial Showcase for Astronomers. Explore and wonder from your backyard or with the Society.

Information for this article came from a series of e-mail exchanges between the editor and the treasurer of the Boise Astronomical Society, Barb Syriac, thank you Barb.

Images: Upper left: Enhanced star glow and Milky Way trail rising over Craters of the Moon National Monument near Arco, ID Photographer unknown—Creative Commons license used. Center: Certificate for a Master Observer as awarded from the Astronomical League. AL file image. Below - The Full Moon rises over southern Twin Falls County Idaho near the NV border. Photo ©2010 by Kim Brackett, All Rights Reserved, used with permission.



Discovery's Long Voyage



It has flown to space more than any other craft, and it has carried more crew members to orbit. It was the first spacecraft to retrieve a satellite and bring it back to Earth. It has visited two space stations. It launched a telescope that has seen deeper in space and in time than ever before. And twice it has demonstrated the United States' will to persevere following devastating tragedy, returning America to orbit following the two worst accidents in space history.

Although all five vehicles that have comprised NASA's space shuttle fleet are unmatched in achievements, space shuttle Discovery is unique among the extraordinary.

In 38 trips to space, Discovery has spent 352 days in orbit, almost a full year. Discovery has circled Earth 5,628 times, all the while speeding along at 17,400 miles per hour. It has traveled almost 143 million miles. That equals 288 round trips to the moon or about one and a half trips to the sun.

Discovery has carried more crew members -- 246 -- than any space vehicle. Those have included the first female to ever pilot a spacecraft, the oldest person to fly in space, the first African-American to perform a spacewalk, the first cosmonaut to fly on an American spacecraft and the first sitting member of Congress to fly in space.

Discovery was used for NASA's Return to Flight Mission following the Challenger accident, during which the STS-26 crew delivered the TDRS-C satellite to Earth orbit. Image Credit: NASA.

It took four years to build Discovery, the third shuttle orbiter built. Named for past sailing ships of exploration, it rolled out of its Palmdale, Calif. assembly plant in October 1983 and was delivered via piggyback airplane flight to NASA's Kennedy Space Center the next month. Discovery's first launch was Aug. 30, 1984 on mission STS-41D. That flight launched three communications satellites and tested an experimental solar array wing. The mission was commanded by astronaut Henry W. Hartsfield.



On its second mission, Discovery became the first spacecraft to retrieve a satellite and bring it home. Through a spectacular series of spacewalks using the free-flying Manned Maneuvering Unit jetpacks, two malfunctioning satellites were retrieved and tucked into Discovery's payload bay for the trip home.

In 1985, Discovery became the only shuttle orbiter to fly four times in a single year. One of those missions, STS-51D, counted the first sitting member of Congress among its crew, Utah Senator Jake Garn.

After more than a two and a half year hiatus to add safety improvements throughout the shuttle systems following the January 1986 Challenger accident, Discovery took America back to orbit on mission STS-26 in September 1988. Commanded by astronaut Rick Hauck, the mission tested safety improvements and launched a NASA communications satellite.

It was Discovery's seventh flight and the nation's first return to flight.

One-time cold war adversaries found common ground above the Earth aboard Discovery in February 1994 on mission STS-60, as Sergei Krikalev of Russia became the first cosmonaut to fly on a U.S. spacecraft. The eight-day research flight was commanded by astronaut Charles F. Bolden, Jr.

Discovery moved the fledgling partnership closer on mission STS-63 one year later as it became the first shuttle to rendezvous with the Russian Mir Space Station. As Discovery flew to within 40 feet of the orbiting complex, the mission broke other barriers as well. Commanded by astronaut James D. Wetherbee, the crew included the first female to pilot a U.S. spacecraft -- astronaut Eileen Collins.

Discovery's only other visit to Mir came on mission STS-91 in June 1998, a docking with the space station that ended the Shuttle-Mir Program. The cooperative effort had seen nine shuttle missions dock to the Russian station since Discovery's trailblazing rendezvous in 1995.



Photo Credits: Upper Left, Image of Shuttle Discovery awaiting launch in 2009. Image by NASA/Bill Ingalls. Middle column: Discovery was used for NASA's Return to Flight Mission following the Challenger accident, during which the STS-26 crew delivered the TDRS-C satellite to Earth orbit. Image Credit: NASA. This Column Mercury and Shuttle Astronaut John H. Glenn, Jr. in a 1998 NASA photo for the Shuttle Program. Astronaut John Glenn, Jr. was the third American in space and the third person to orbit the Earth. In 1998, he became the oldest person to fly in space.

Discovery's Long Voyage

In October 1998, Discovery flew a science mission that again broke barriers on Earth and in space. The crew included the oldest astronaut to fly to space -- astronaut John Glenn, who at age 77 made his second trip to orbit on Discovery's STS-95 mission. In 1962, Glenn became the first American to orbit Earth. In addition to other duties with the STS-95 crew, Glenn was a test subject for a host of experiments that studied aging.

In October 2000, Discovery launched on the 100th mission of the Space Shuttle Program, a flight to the new and growing International Space Station on mission STS-92. The 12-day mission installed a shuttle docking port on the station and the first piece of the station's exterior truss structure, setting the stage for the arrival of its first resident crew only a few weeks later.

In February 2003, the world again mourned as the shuttle Columbia and her crew were lost during reentry. America resolved to continue the shuttle program and again improve the safety of flight, and NASA again turned to Discovery to return the nation to space on mission STS-114 to the International Space Station. The mission, commanded by Eileen Collins, included new procedures to ensure the shuttle heat shield was in good condition for the trip home, among them a first of its kind "back flip" as Discovery approached the station to enable the station crew to capture high resolution imagery of the shuttle's heat shield.



Astronaut Stephen K. Robinson, STS-114 mission specialist, anchored to a foot restraint on the International Space Station's Canadarm2, participates in the mission's third spacewalk. Image Credit: NASA.

NASA's final mission of 2006 was expected to be one of its most challenging. Discovery's STS-116 mission to the space station called for installation of the port five truss segment and a major overhaul of the station's electrical power system. Problems arose while retracting one of the station's solar arrays, which was to be relocated on a future flight. During the retraction, the array snagged. During two spacewalks, astronauts Bob Curbeam, Suni Williams and Christer Fuglesang assisted in the retraction by hand, successfully troubleshooting the problem and folding the array.



Cosmonaut Valeriy V. Polyakov, who boarded Russia's Mir Space Station on January 8, 1994, looks out Mir's window during rendezvous operations with the Space Shuttle Discovery. Image Credit: NASA.

Discovery participated in another space milestone in October 2007 as mission STS-120 marked the first time that two female commanders were in space together. Discovery Commander Pam Melroy flew the shuttle to dock with the space station, which was under the command of astronaut Peggy Whitson. The mission installed the Harmony module on the complex and relocated and deployed the solar array that had been folded on STS-116. The crew and ground had to improvise as the array was unfolded, installing straps that mended and stabilized the panel.

On STS-124 in May 2008, Discovery headed back to the station to deliver the centerpiece of the Japan Aerospace Exploration Agency's Kibo experiment laboratory. STS-124 was the second of three shuttle flights that delivered the elements to complete the Japanese lab.

On its final flight in November 2010, Discovery will deliver a final module to the U.S. segment of the station, the Leonardo Permanent Multipurpose Module, as well as the first humanoid robot to fly in space, Robonaut2. The new module will be a storeroom and provide additional research space. Robonaut2 is a technology demonstration to learn how humanoid robots can assist crews in orbit. Discovery also will carry a host of spare equipment to be stored aboard the complex. Befitting the milestones that have punctuated Discovery's career, its final visit to the station will coincide with the 10-year anniversary of a permanent human presence aboard the outpost.

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. Starting with Columbia and continuing with Challenger, Discovery, Atlantis and Endeavour, the spacecraft has carried people into orbit repeatedly, launched, recovered and repaired satellites, conducted cutting-edge research and built the largest structure in space, the International Space Station.

As humanity's first reusable spacecraft, the space shuttle pushed the bounds of discovery ever farther, requiring not only advanced technologies but the tremendous effort of a vast workforce. Thousands of civil servants and contractors throughout NASA's field centers and across the nation have demonstrated an unwavering commitment to mission success and the greater goal of space exploration.



Image: The final Shuttle patch celebrating 30 years of space exploration with the Space Shuttle which officially retires in 2011.

Magic Valley Astronomical Society
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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.



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. Please contact a board member for details.

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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. 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. Star Party image is a open source photo, photographer unknown.

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.

NASA News - Lego's go to Space

CAPE CANAVERAL, Fla. - NASA announced Tuesday the signing of a Space Act Agreement with The LEGO Group to conduct education and public outreach activities aimed at increasing participation in science, technology, engineering and math fields.



This astronaut represents just one element of a new LEGO City line of products, which are based in part on NASA's human spaceflight program. Image Credit: LEGO / NASA

To commemorate the beginning of this partnership, the crew of space shuttle Discovery's STS-133 mission will carry a small LEGO® shuttle when it launches in early November. The partnership marks the beginning of a three-year agreement that will use the inspiration of NASA's space exploration missions and the appeal of the popular LEGO bricks to spur children's interest in STEM. The theme of the partnership is "Building and Exploring Our Future." The LEGO Group will release four NASA inspired products in their LEGO CITY line next year.

The space-themed products will vary in terms of complexity, engaging audi-

ences from young children to adult LEGO fans. Each product release will contain NASA-inspired education materials. "Partnering with The LEGO Group is a perfect fit. We have taken the excitement of NASA's missions and coupled that with kids' love of creating things with the iconic LEGO bricks," said Leland Melvin, NASA's associate administrator for Education. "These projects not only foster creativity but also instill in the young builders a real sense of the engineering and design principles that NASA uses every day. Fun learning activities like these can help inspire kids to become the next generation of explorers."

As part of the Space Act Agreement, NASA will send special LEGO sets to the International Space Station aboard shuttle Endeavour's STS-134 mission in February 2011. The sets will be assembled by astronauts on-orbit and by children and student groups across the country. The building process and set activities will demonstrate the challenges faced when building things in the microgravity environment of space. "The LEGO Group's purpose is to inspire children to think creatively, reason systematically and release their potential to shape their own future," said Stephan Turnipseed, president of LEGO Education North America. "The partnership with NASA provides us a unique opportunity to fulfill our purpose while expanding the imaginations of children around the world.

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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