The High Desert Observer

The Bulletin of the Astonomical Society of Las Cruces

July, 2006

Supernovas! - July Program

Bert Stevens

Everyone has heard about supernovas, but do you know what causes them? This month's talk will discuss the supernova and how it comes at the end of the star's life, generating one of the most cataclysmic explosions in the universe. We will explore what happens in the heart of a giant star just before it goes supernova. We will see how it impacts the solar system that circles it and the interstellar medium beyond. We'll also look at the differences between Type I and Type II supernovae and see how the other kind of supernova occurs. Finally, we will see how amateur astronomers are discovering supernova in external galaxies by using automated search techniques. The meeting this month will be at the usual time and place (DABCC, room 77, 7:30pm).

As Far As the Eye Can See

Joseph Mancilla

How faint can your eyes and telescope go? Those of us who are visual observers may wonder just how deep we can go with our given eyes and our favorite telescope. A good experiment is to test your eyes and scope on a given target of known magnitude. The star field around M57 offers us a perfect test site. In the September 2001 issue of *Sky and Telescope* is an article by Brian A. Skiff called "Taking your telescope to the limit." There is a wonderful star chart showing stars from mag. 11.1 to mag. 17.3 and fainter. This chart will cover everything from an 80mm scope up to a 20 inch behemoth. Now you have to be really patient when trying to observe at the edge of your personal limit. Relax your eyes when using averted vision and hold your head very still. Try not to stare as that will cause eye strain. If you practice regularly, you can see fainter and fainter. My 8" reflector is listed as having an upper limit of mag. 14.2, but I have seen the star that is mag. 14.7 right next to M57. There are a number of stars in this field that offer a progressive sequence. Mag. 11.1, 11.6, 12.3, 12.8, 13.0, 13.4, 14.1, 14.7, 15.3, 15.7, 16.6. If you can reach mag 16.6, you should try for the central star of M57. Once your eyes are used to the appearance of faint stars, then you will be able to better judge sky transparency. Happy Hunting!

This Month's Observer

Star Parties

White Sands Star Party**:** White Sands National Monument, September 22-24. Camp out and observe southern New Mexico's dark skies in a truly unique location - the gypsum white sands of White Sands National

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Monument. The White Sands Star Party benefits those teaching the science of astronomy. This event will support Project ASTRO-New Mexico, a cooperative project of the Space Center, the Astronomical Society of the Pacific, and the National Science Foundation. For additional information, please see the WSSP website: http://www.zianet.com/wssp/.

Fall Southern New Mexico Star Party: City of Rocks State Park, October 17-22, details to follow.

Astro-Tidbits (formerly Beginner's Corner) - July Meeting

Nils Allen

Despite the fact that the sky often gives the impression of being two-dimensional, common astronomical objects are anything but the same distance away. This can provide the basis for a special summer celestial tour you could give to uninitiated family/friends that can have a real "WOW" factor if their minds can even slightly understand the great range of object distances. We'll see how this might be done. We'll meet at 7:10pm, just before the regular monthly meeting on July 28 (DABCC, room 77).

From Thunderstorms to Solar Storms

Patrick L. Barry

When severe weather occurs, there's a world of difference for people on the ground between a storm that's overhead and one that's several kilometers away. Yet current geostationary weather satellites can be as much as 3 km off in pinpointing the true locations of storms. A new generation of weather satellites will boost this accuracy by 2 to 4 times. The first in this new installment of NOAA's Geostationary Operational Environmental Satellites series, called GOES-N, was launched May 24 by NASA and Boeing for NOAA (National Oceanic and Atmospheric Administration). A new polar-orbiting weather satellite, NOAA-18, was launched May 2005.

Along with better accuracy at pinpointing storms, GOES-N sports a raft of improvements that will enhance our ability to monitor the weather - both normal, atmospheric weather and "space weather."

"Satellites eventually wear out or get low on fuel, so we've got to launch new weather satellites every few years if we want to keep up the continuous eye on weather that NOAA has maintained for more than 30 years now," says Thomas Wrublewski, liaison officer for NOAA at NASA's Goddard Space Flight Center. Currently, GOES-N is in a "parking" orbit at 90° west longitude over the equator. For the next 6 months it will remain there while NASA thoroughly tests all its systems. If all goes well, it will someday replace one of the two active GOES satellites - either the eastern satellite (75°W) or the western one (135°W), depending on the condition of those satellites at the time. Unlike all previous GOES satellites, GOES-N carries star trackers aboard to precisely determine its

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orientation in space. Also for the first time, the storm-tracking instruments have been mounted to an "optical bench," which is a very stable platform that resists thermal warping. These two improvements will let scientists say with 2 to 4 times greater accuracy exactly where storms are located. Also, X-ray images of the Sun taken by GOES-N will be about twice as sharp as before. The new Solar X-ray Imager (SXI) will also automatically identify solar flares as they happen, instead of waiting for a scientist on the ground to analyze the images. Flares affect space weather, triggering geomagnetic storms that can damage communications satellites and even knock out city power grids. The improved imaging and detection of solar flares by GOES-N will allow for earlier warnings. So for thunderstorms and solar storms alike, GOES-N will be an even sharper eye in the sky.

Find out more about GOES-N at goespoes.gsfc.nasa.gov/goes. Also, for young people, the SciJinks Weather Laboratory at scijinks.nasa.gov now includes a printable booklet titled "How Do You Make a Weather Satellite?" Just click on Technology.

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

Astronomical League's Annual Grand Gathering

Howdy! You are invited to Texas for ALConExpo 2006, the Astronomical League's annual grand gathering of amateur astronomers! ALConExpo 2006 will take place on August 4-5, 2006. The Texas Astronomical Society of Dallas is the host society for ALConExpo 2006. Convention activities will take place on the campus of the University of Texas at Arlington, located in the heart of the Dallas/Fort Worth Metroplex. Convention headquarters will be the E. H. Hereford University Center. The College of Science at UT Arlington is the on-campus sponsor. The Friday night Star-B-Que will feature Distinguished Lecturer Marni Berendsen from the Astronomical Society of the Pacific. An outdoor public star party will follow the Star-B-Que.

The traditional Saturday night Awards Banquet will feature Keynote Speaker, Dr. Fritz Benedict, Senior Research Scientist at McDonald Observatory, who will discuss the use of the Hobby-Eberly Telescope in the search for Extra-Solar Planets. The Astronomical League's Annual Council Meeting will be held in the University Center on August 3, 2006.

For more information, check the website: http://wwww.alconexpo.com. The registration deadline is July 15. Or contact the convention chair, Dr. Linda Fay McCalla, at lindamccalla@yahoo.com or the convention co-chair, Mr. Jeff Barton, at chipdatajeffb@yahoo.com.

August Issue HDO

Articles for the August issue should be to me by Tuesday, August 8. Material should be sent as email (gmhlcnm@msn.com) or as an attached Microsoft Word document. If you have any questions about submitting something to the HDO, please don't hesitate to contact me (532-5648 or via email). Thanks in advance! George Hatfield, Editor, ASLC Newsletter

July Sky Map From Rich

July Skymap is accurate for mid-July at 9pm MDT

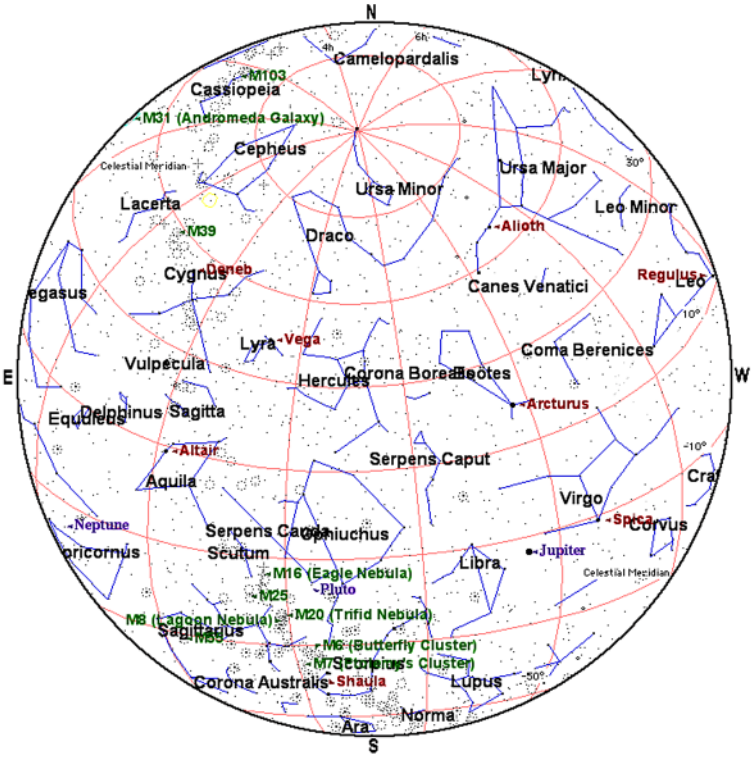
Additional maps are available from the club website.

August 2

July 10

July 17

July 24



Mars

In Leo, mag. 1.81,
sets around 10pm

Jupiter

In Libra, mag. -2.16,
sets about 1:30am

Saturn

In Cancer, mag. 0.37,
sets around 9:30pm

Venus

In Taurus, mag. -3.90
Rises around 4:15am

Interesting Tidbits

7/3 - Earth at Aphelion

7/14 - Uranus 0.4 degree from Antares

7/20 - Moon 1/2 degree from M45 (the Pleiades) at 1am

8/7 - Mercury at Greatest Western Elongation

8/10 - Neptune at Opposition

8/10 - Mercury 2 degrees from Venus

8/12 - Perseids Meteor Shower Peak

The Astronomical Society of Las Cruces (ASLC) is dedicated to expanding members and public awareness and understanding of the wonders of the universe. ASLC holds frequent observing sessions and star parties, and provides opportunities to work on club and public educational projects. Members receive *The High Desert Observer*, our monthly newsletter, membership in the Astronomical League, including AL's quarterly *A.L. Reflector*. Club dues are $35 per year. Those opting to receive the ASLC newsletter electronically, receive a $5 membership discount. Send dues, payable to A.S.L.C. with an application form or a note to: Treasurer ASLC, PO Box 921, Las Cruces, NM 88004

ASLC members are entitled to a $10 discount on subscriptions to *Sky and Telescope* magazine. S&T subscribers MUST subscribe and renew through the Society Treasurer for the special club rate. To avoid a lapse in delivery, this must be done when S&T sends their reminder, 4 months in advance.

Minutes, June 2006 Meeting

Vince Dovydaitis opened the meeting with an announcement. One of our ASLC members, Joseph Zurlinden, had an article in the *Las Cruces Sun-News*. The article described Joseph's work on the design, construction and manufacturing of optical equipment and telescopes in support of White Sands Missile Range. Joseph passed out some copies of the article.

Vince counted twenty nine members in attendance at the start of the meeting. He commented that this was good for discussion to follow with Mr. John Gilkison who heads the National Public Observatory (NPO).

Nils Allen mentioned that he would like a show of hands of who would be interested in volunteering to support a star party on Thursday, June 29, at the Columbia Elementary School. The Star Party was in support of a culminating event for Special Needs Children.

Vince then introduced Mr. John Gilkison of the NPO. John is promoting a star party at the City of Rocks and he is soliciting participation from the El Paso Astronomy Club and the ASLC to promote it and to share in revenues. The proposed dates of the Southwestern New Mexico Star Party (SNMSP) are October 17 – 22. The NPO has over 60 members and conducts public outreach in over seven different state parks. This past spring, the star party was under-attended. So, in order to raise attendance for the fall star party, John is offering that the ASLC can keep half of the registration fee for those ASLC members who attend. There was a question on the registration fee structure. The NPO will charge $6 per day with a minimum of two nights of attendance at the star party. The City of Rocks Sate Park charges $10 per day for camping (40 sites) or $14 per day for camping with electric power (10 sites). The NPO has a 14" Meade Go To in a roll-off roof observatory. There are three observing pads. Also to the north, there is a more remote observing site which is more protected from lights from camp sites. There will be public events on Wednesday night, October 18, and Saturday night, October 21. There would not be a need for ASLC to perform any duties during the star party. What John wants is ASLC attendance. Rich Richins suggested that John train some interested ASLC members as volunteers and then allow us to use the telescope at other times of the year for imaging. There was a motion to recommend that the NPO Star Party publicity include ASLC as a co-sponsor with the El Paso Astronomy Club. This motion passed.

There was a discussion concerning whether to continue the ASLC membership in the Astronomical League. There was mention of the benefits to the ASLC. Besides the *Reflector* magazine, the AL provides insurance at a reduced price and is an advocate for anti-light pollution issues. As an aside, Mesilla Park recently passed a light pollution ordinance. There was a motion to reaffirm the ASLC membership in the Astronomical League and the motion passed.

For the evening program, our ASLC member, Wirt Atmar, arranged for a recorded talk synchronized with a computer PowerPoint slide show. The presentation was a recorded talk given by Dr. Seth Shostak from the SETI Institute, Mountain View, CA. Dr. Shostak's talk was entitled "Uncovering Extraterrestrial Intelligence: When will it happen and what will we find?" The talk briefly discussed an optical Search for Extraterrestrial Intelligence (SETI)

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sensor (construction of an optical telescope to search for nanosecond pulses). However, the bulk of the talk concentrated on Radio SETI and Project Phoenix. This would look for radio signals in the 1 to 3 gigahertz realm with concentration in the "Water Hole" part of the radio spectrum (21 centimeters or 1.4 GHz). There will be a new radio telescope array called the Allen Array located at Hat Creek Observatory in California. The Allen Array is a joint venture of U.C. Berkeley and the SETI Institute, and it is underwritten by a $26 million donation by Microsoft founder, Paul Allen (hence the name of the array). 350 radio dishes, about 6 meters (20 feet) each in diameter, will constitute the Array when completed, giving it a collecting area greater than that of a 100 meter dish. Some members stayed around for a second computer talk and slide show. This was a more technical talk by Dr. Webster Cash of the University of Colorado and was entitled "New World Imager." Dr. Cash discussed a diffraction occultation system that would be a much lower cost mission than the NASA proposed Terrestrial Planet Finder. After the talks, Vince asked if the ASLC Vice President would take on the responsibility of arranging future speakers for our monthly meetings. Joseph Mancilla agreed to undertake this task. -- Bill Stein, ASLC Secretary

Columbia Elementary School Star Party Report

Nils Allen

This event on June 29th was rather different than many of our school star parties involving younger children. To start with, the staff provided a nice burger/dog dinner for the astronomers who helped out. Also, many of our "customers" were handicapped in some fashion. This created some challenges for our equipment set-ups, but thanks to the variety of scopes brought we covered most of the bases. Initially I didn't expect but one or two of our members to support this event due to the dismal-looking cloud conditions in early evening, but we ended up with four astronomers and four useful telescopes. They covered the range from large to small, with Jerry Gaber's 12" Dob and Bill Stein's C-11 to my tiny 4.5" Dob. Bert V also had his C-8 there and the Schmidt-Cass scopes were especially good for the handicapped viewers.

As dusk approached, we tried to entertain folks with views of ground targets and demos of our scopes, till finally the clouds parted enough for good views of the crescent moon. Then, as darkness fell, everyone's patience was rewarded by finally getting access to Jupiter and some bright/double stars. Of course, despite the improving conditions, it was getting quite late by then and many folks slowly departed - we did enjoy the large contingent of teachers (maybe 25?) in attendance.... I think almost all got to inspect the moon and Jupiter through our scopes. They felt it was a successful event and star party, so we didn't argue - I think we might expect a repeat request from them next year! Many thanks to Bill, Bert, and Jerry for their good-spirited support. Believe it or not, it is possible to hold a successful school star party during the start of monsoon season, but it is challenging!

ASTRONOMICAL SOCIETY of Las Cruces
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ASLC - Sharing the Universe
With Our Community
for Over 50 Years