

Skywatchers

Newsletter of the China Lake Astronomical Society

Volume 44 No. 11

November 1, 2007

NEXT MEETING 7:30 p.m., Monday, November 5, 2007

Maturango Museum, 100 East Las Flores Avenue, Ridgecrest, California

PROGRAM FOR THE NOVEMBER 5 MEETING – ANDROMEDA

Andromeda is directly overhead in the early evening in early November. That puts it in the best position for viewing at our November star party. Let's talk about the Andromeda constellation and galaxy at our November meeting. If you have pictures or observing tips, bring them along.

DATES TO KEEP IN MIND

Monday, November 5, 2007: Regular CLAS Meeting at the Maturango Museum, 7:30 p.m.

Friday, November 9, 2007: Regular monthly Star Party, see details below

Monday, November 19, 2007: Early Deadline for next Skywatchers Newsletter (Thanksgiving Holiday)

Monday, December 3, 2007: Regular CLAS Meeting at the Maturango Museum in Ridgecrest, 7:30 p.m.

STAR PARTY SCHEDULE FOR THE 2007 SEASON:

Star Parties will be held on the dates listed below. Star Parties are an activity where members and guests come together to view the skies. If you have a telescope, bring it; if not, come and look through someone else's. They are held at a site in the open desert south of Ridgecrest. To reach the site from Ridgecrest, go south on China Lake Boulevard 6.5 miles from its intersection with Ridgecrest Boulevard. Continue straight across Highway 395 and you will be on Brown Road (Old Highway 395). Follow Brown Road as it curves to the right and goes west. After 2.3 miles there will be a 30-inch orange cone on the left. Turn left and follow the dirt road marked by 12-inch cones. The CLAS star party is 0.5 miles along this road. Signs and cones will be put out about a half hour before viewing starts. Call Carroll Evans 760-375-5681, or Bruce Churchill 760-375-7247, for more information.

Friday, November 9: Signs out at 5:30 p.m., Viewing starts at 6:00 p.m.

Public star parties resume in March 2008.

THE SKY IN NOVEMBER by Roger Brower

1. Venus remains in the morning sky month and rises in the east about 4 hours before the sun.
2. Saturn rises about 1 1/2 hours before Venus in the morning. Look for it in the constellation of Leo, about 8 degrees east of Regulus.
3. Mercury, also in the morning sky, will put on a fine display in the east for the first three weeks of November before sinking into the sun's glare.
4. Jupiter is still in the evening sky, however it will be very low in the southwest and by next month will fade into the sun on its way to the morning sky.

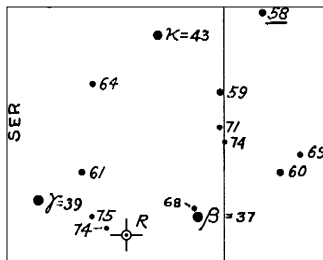
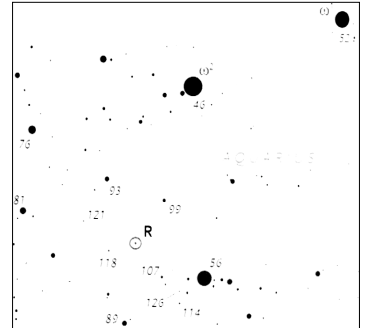
5. For early risers, the Leonid meteor shower peaks on the morning of the 18th.

STAR WATCH FOR NOVEMBER 2007 by Bob Stewart

There is only one bright naked-eye variable star this month that we can see from Ridgecrest. One of last month's brightest stars has just peaked and another is on the rise.

R Aqr

This Mira type red giant is located in the southern constellation of Aquarius just south of Omega 2. Omega 1 & 2 are located in the southeastern part of the constellation. It should reach its maximum brightness of mag. 6.5 on the 27th, up from a minimum of mag. 11. There is a good finder chart and article about this star on page 72 of November's *Sky & Telescope*. For a comparison chart go to: ftp://www.aavso.org/charts/standard/AQR/R_AQR/



R Ser

This easy to find variable reached its maximum brightness of mag. 6.9 weeks ahead of the predicted date of October 29th and was at mag. 5.6 as of this writing. You can now watch it while it fades to its minimum of 13.4. It is located just between Beta and Gamma Serpens. For a comparison chart go to: ftp://www.aavso.org/charts/standard/SER/R_SER

Mira Minimum

Of all the variable stars, Mira has an unusually brilliant maximum. At a typical peak of its cycle Mira reaches magnitude 3.4, but in March 2007 it reached second magnitude. Mira is near the middle of its period of 332 days and around its predicted minimum of 9.4. It will reach its maxima in February, so now is a good time to start watching. Look for Cetus in the eastern sky, rising about 9 PM. For a comparison chart go to: http://www.aavso.org/charts/CET/O_CET/

Next Month: More variables plus some colorful doubles. And don't forget to send in your observations and pictures to your web site (www.chinalakeastrosoc.org).

VISIT TO ARECIBO OBSERVATORY by Alex Shlanta

On 20 July 2007 while on vacation I visited Arecibo Observatory. The following discussion presents some of my personal reflections from this experience.

The Observatory is located in the western Karst topology region of Puerto Rico. It is the home of the world's largest single dish radio telescope. The receiving dish is located in a large reshaped sinkhole. The facility is operated by Cornell University and supported by the National Science Foundation. The observatory was completed in 1963 and upgraded in 1973 and 1993. The main reflector dish has a diameter of 305 meters (1,000 feet) and covers an area the equivalent of 26 football fields. Suspended 450 feet above the dish is the 6-story dome containing the instrument's Gregorian reflector system. This platform hangs in midair from 18 cables, strung from three reinforced concrete towers. The moveable Gregorian dome has two reflectors and contains a radar transmitter and microwave receiver as well. The system also has a Doppler capability.

Originally operating at 430 Mhz, the system with its upgrades now operates in the range 300 MHz to 12,000 MHz.

Early efforts with the telescope involved looking at the Earth's upper atmosphere and the solar system. Studies of the ionosphere studied its structure, geomagnetic disturbances, temperature, wind velocity, electric potential, composition, density, magnetic fields, and auroras. Thunderstorms and lightning were investigated as well. Within the solar system, the surfaces of the Moon, Mercury, Venus, and Mars, and the rings of Saturn were examined.

It was found that Mercury's rotation rate was 59 days, versus 88 days as previously thought. The cloud veil surrounding Venus was penetrated and a 243-day retrograde rotation was measured. Further, Venus was discovered to be a ferocious place and certainly not habitable. Preliminary data from the Arecibo telescope inspired further spacecraft probes to Venus. Jupiter's red spot was seen to be a source of high radio energy, and the ring structure of Saturn was mapped using the telescope.

There continues to be emphasis on finding and tracking asteroids in space that could be potential hazards to the Earth, a very important activity. Meteors are tracked in their path through the upper atmosphere. The telescope helps guide spacecraft through the solar system to intercept other planets, asteroids, and comets and determine the best places to land on them.

In deep space, a great deal of effort goes into finding and studying pulsars, which are rapidly rotating neutron stars that emit strong pulsed radio waves from near their magnetic poles. Most of the pulsars we know about were discovered at Arecibo Observatory. Quasars, central regions of young galaxies with black holes emitting an enormous amount of radio energy, continue to be studied. These quasars are more than 10 billion light years away and are receding at a rate of over 95% the speed of light.

Galaxies continue to be studied at Arecibo. It was found that many galaxies are more massive than originally thought and consist of much "dark matter" which cannot be seen optically. Galaxies in the early stages of evolution have displayed extended gas haloes which may be the precursors of present-day spirals such as our Milky Way. Maps have been made of three-dimensional distributions of galaxies in space.

Radio spectroscopy is used to look at low temperature chemistry in space. Such materials as alcohol, formaldehyde, and carbon monoxide have been detected. Interstellar gas clouds in our galaxy and others have been investigated. SETI (Search for Extraterrestrial Intelligence) is an ongoing effort at Arecibo.

The future of the Arecibo Observatory is in jeopardy, and this concerns me since it would be criminal to lose the capability of this telescope. The difficulties involve being in compliance with the government mandate against lead-based paints. The large reflector dish needed to be scraped and repainted at a price of \$3.5 million. The parts to be painted were 500 feet above ground level, so it was no easy task. The task of painting the telescope is now nearing completion. There have been no observations while the reflector is being painted. When the repainting is complete the telescope will need a great deal of calibration before it becomes operative again. The National Science Foundation almost closed down the facility in Spring 2007. However, several influential citizens of Puerto Rico banded together and fought in support of the facility so it would not be closed. Unfortunately, the staff was cut by 75% and the observatory is presently in limbo.

SECOND ANNUAL CERRO COSO COLLEGE ASTRONOMICAL BARBECUE & STAR PARTY by Carroll Evans

The event was a great success. The weather was breezy, and attendance was good. Alex Shlanta will give a full report next month.

MEMBERSHIP INFORMATION

Basic CLAS dues are \$20.00 per year, which includes the *Skywatchers Newsletter*. As a benefit of membership you may also receive *Astronomy Magazine* and/or *Sky and Telescope Magazine*. The fee schedule is as follows:

Basic membership	\$20.00 per year
Membership with Astronomy magazine	\$54.00 per year
Membership with Sky and Telescope magazine	\$53.00 per year
Membership with both S & T and Astronomy	\$87.00 per year

Send your check to: Roger Brower, Treasurer, China Lake Astronomical Society, P.O. Box 1783, Ridgecrest, CA 93556.

PRESIDENT – Earl Wilson – 760-876-5455 (email zearl.email@gmail.com)
VICE-PRESIDENT – Bruce Churchill - 760-375-7247 (email bchurchill@atsecure.net)
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TREASURER – Roger Brower - 760-375-1181 (email brower@iwvisp.com)
NEWSLETTER EDITOR – Carroll Evans Jr. - 760-375-5681 (email clevans@ridgenet.net)

WESTERN AMATEUR ASTRONOMERS WEB SITE <http://www.waa.av.org/>

Meetings of the China Lake Astronomical Society are held at the **Maturango Museum** at 7:30 p.m. on the first Monday evening of each month, except when the first Monday is a holiday.

**SKYWATCHERS, Newsletter of the
CHINA LAKE ASTRONOMICAL SOCIETY
POST OFFICE BOX 1783
RIDGECREST, CA 93556-1783**

FIRST CLASS

**NEXT MEETING: 7:30 p.m., MONDAY NOVEMBER 5, 2007: “ANDROMEDA” AT THE
MATURANGO MUSEUM, 100 EAST LAS FLORES AVE., RIDGECREST, CA
CLAS WEB PAGE <http://www.chinalakeastroc.org>
INDEX OF CLAS NEWSLETTERS <http://www.ridgenet.net/~clevans/clas/>**