

North Jersey Astronomical Group

The Dark Sky Observer

A Publication of the North Jersey Astronomical Group

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SUMMER STARGAZING

Join us on Wednesday evenings at 8:30 for some Summer Stargazing at the Iris Gardens in Montclair. Members are encouraged to bring their telescopes! Contact us for directions to the gardens.

The Dark Sky Observer

is a publication of the North Jersey Astronomical Group (NJAG), whose purpose is to promote the study and knowledge of the science of astronomy. The Dark Sky Observer is produced monthly for NJAG members by NJAG members.

FROM THE EDITOR:

Remember the Dark Sky Observer needs your input! Letters, comments, suggestions, and articles are welcomed and encouraged. Contact the editor at a meeting, at (973) 340-5963 or at this address:
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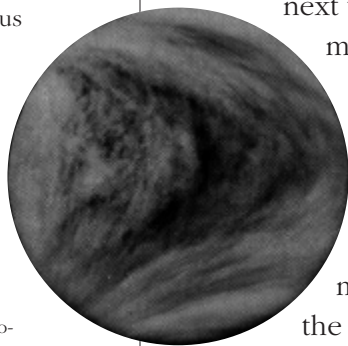
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JULY SKIES

Corona Borealis, the Northern Crown, is high in the sky -- almost overhead in early July. It is right next to Bootes the herdsman. To find it look above and to the left of Arcturus for a very small circlet of stars. Its brightest star shines like a diamond at the front of the crown. It is appropriately named Gemma or "Gem Star."

Venus is closest to the bright star Regulus on July 11. Look for them in the west between 9:00 and 9:30 p.m.

Venus has been a brilliant "evening star" for months but it will be at its brightest on Wednesday, July 14. Now that it is a few days after new, the Moon becomes visible as a thin crescent after sunset. By Wednesday it should be easy to find in the west. Venus and Regulus are above and to the left of the Moon.

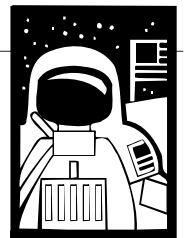
On Thursday, July 15, Venus, Regulus, and the Moon are gathered together in a triangle. Face west between 9:00 and 9:30 p.m. to see them (this should be a good photo-op for next year's astrophoto contest!).

July 20 is the 30th anniversary of the first moonwalk. Celebrate by

looking at the Moon on this night: it will be at first quarter, the perfect time for lunar observing.

“Someday I would like to stand on the moon, look down through a quarter of a million miles of space and say, ‘There certainly is a beautiful Earth out tonight.’”

William N. Rankin



JULY MEETING

The July meeting of the North Jersey Astronomical Group will feature our own President Dennis Barlow. Dennis will present "Chemistry in the Cosmos."

The meeting will take place Wednesday, July 14 at 8:00 p.m. in Richardson Hall room 226 on the Montclair State University campus.

For a weekly update on the night sky, call the StarLine at 973-680-8420.

ECLIPSE FIELD TRIP?

We are considering organizing a field trip to Sandy Hook or Island Beach State Park to see the sunrise partial eclipse of the Sun on August 11. The Sun rises around 6:00 a.m. so only the early bird will get the worm! If you are interested call Kevin Conod at 973-340-5963 or stargazer@advanix.net.

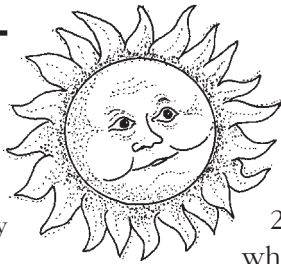
LETTERS

The following was received on June 24 from Alice Berman, an NJAG member who now works on the FUSE spacecraft.

Hi Everyone,
Just wanted to let you know that we launched at 11:44 this morning, and everything went perfectly! Our solar arrays are deployed, and our 2 ground stations (in Hawaii and Puerto Rico) have already made contact with FUSE. Everything is looking great!
We have a satellite!
Here are some great photos from the launch:
<http://www.flatoday.com/space/explore/uselv/delta/d271/index.htm>
Now, we'll be very busy here!
Hope everyone is well!

Alice

Visit the FUSE homepage at:
<http://fuse.pha.jhu.edu>



GEMINI TELESCOPE'S FIRST IMAGES TO BE REVEALED

The Gemini Project is an international partnership that will result in two 8.1-meter telescopes (each telescope has a main mirror over 26 feet across.) The name Gemini comes from the mythological twins, whose stars will be visible to both telescopes.

Together, the two telescopes will provide coverage of the entire sky, in both visible and infrared wavelengths. Building two telescopes from a common design will also save considerably on engineering and fabrication costs. Infrared images from the northern site, in particular, should be comparable to or better than optical images from the Hubble Space Telescope.

The Gemini twins will occupy astronomically superb sites. Mauna Kea is viewed as the best all-around observing site in the Northern Hemisphere. At 4200 meters, it towers above much of the atmospheric water vapor that hampers most observations from Earth into space. In Chile, Cerro Pachon, 2700 meters high, sits within the dry mountains of the Atacama desert and offers an atmosphere for astronomical observation as good as any site in the Southern Hemisphere.

Gemini will be particularly suited for investigating the origins of stars and galaxies. The dust shrouds of young stars can best be parted at infrared wavelengths, revealing the stars at the earliest epochs of their formation. The telescopes will also enable probes of how the farthest known galaxies were formed and evolved.

The first images from Gemini North in Hawaii were released at its dedication on June 25. The exceptional clarity of the infrared images obtained with Gemini North reflect an extraordinary improvement in our ability to explore the universe with ground based telescopes. U.S. National Science Foundation Director Rita Colwell; Hawaii Governor Benjamin J. Cayetano; His Royal Highness Prince Andrew, the Duke of York; and other representatives from the seven participating nations dedicated the telescope near the summit of Hawaii's Mauna Kea on June 25.

High-resolution versions of the infrared images obtained by Gemini North and digital photographs of Gemini North and Gemini South will be available at : <http://www.gemini.edu/media/media1.html>

Source: National Science Foundation

SUBARU TELESCOPE

After several months of careful adjustments to the primary mirror control system, Subaru Telescope has recently produced images as sharp as 0.20 arcsec. This demonstrates the excellent quality of both the telescope and the observing site and the promise of things to come. Subaru Telescope's infrared secondary mirror unit is currently being brought into service and should help make 0.2 arcsec resolution imaging a common occurrence at Subaru Telescope. And when the Subaru Telescope adaptive optics unit goes into service, 0.06 arcsec imaging should become the new norm in highest-resolution ground-based observing, exceeding even what is currently possible with the Hubble Space Telescope.

For more information and images see: <http://www.nao.ac.jp>

Source: National Astronomical Observatory of Japan

ASTEROID HUNTERS BRING OLDIE-BUT-GOODIE INTO NEW AGE

The first Palomar Sky Survey was carried out on the Oschin Schmidt Telescope 1950-1957. This sky survey continues to be one of the most frequently used astronomical resources; paper or glass copies of the plates are to be found in most of the world's observatories.

NASA astronomers searching for asteroids headed toward Earth are expanding their sky-watching repertoire by adding high-tech, computerized electronic upgrades to the classic 1.2-meter-diameter (48-inch) Oschin telescope atop Palomar Mountain near San Diego, California.

Right now, NASA's Near Earth Asteroid Tracking (NEAT) system uses a fully automated charge-coupled device (CCD) camera mounted on a 1-meter-diameter (39-inch) telescope atop Mt. Haleakela on Maui, HI. The U.S. Air Force operates the telescope.

NEAT scientists will computerize the pointing system of the Oschin telescope, which currently uses a human operator exclusively, and replace photographic plates with a modern electronic camera. The refurbished telescope will enable them to peer deeper into the sky than they can from Haleakela - they'll see 20 percent farther, and their field of view will be 10 times wider.

"Imagine watching the Super Bowl on your 25-inch TV and then switching to an 80-inch giant screen TV," said Dr. Steven Pravdo, NEAT project manager and co-investigator. "But in this case, it's even better than the TV analogy because, with the wider field, we'll see many more asteroids in each

picture - those that would be on the 'sidelines' of other telescopes."

"For ten years, I've dreamed and mapped out plans for adding electronic detectors to this telescope," said Eleanor Helin, principal investigator for NEAT, which has been operating since December 1995.

"We've been able to study only a fraction of the sky so far, and we've been looking for ways to cover the entire sky."

NASA's goal is to find all asteroids larger than 1 kilometer (0.6 mile) across within 10 years. "This will achieve one-third of that goal, with the remaining two-thirds filled by the Haleakela camera and other viewing sites," Helin explained.

"The Oschin telescope at Palomar may become the premier finder of near-Earth objects in the world."

It's estimated there are 1,000 to 2,000 asteroids larger than 1 kilometer (0.6 mile) that approach within 48 million kilometers (30 million miles) of Earth. Less than 20 percent have been detected so far. Although the vast majority are harmless and will never pose a threat to Earth, scientists want to keep track of the tiny percentage whose orbits could eventually put them on a collision course with Earth.

The Oschin telescope, operated by the California Institute of Technology, Pasadena, CA, has served as a world-class telescope since it was built in 1949. Helin used the telescope to discover near-Earth asteroids and comets from the late 1970s to the early 1990s. The instrument is currently completing the second of two sky surveys that serve as a resource to

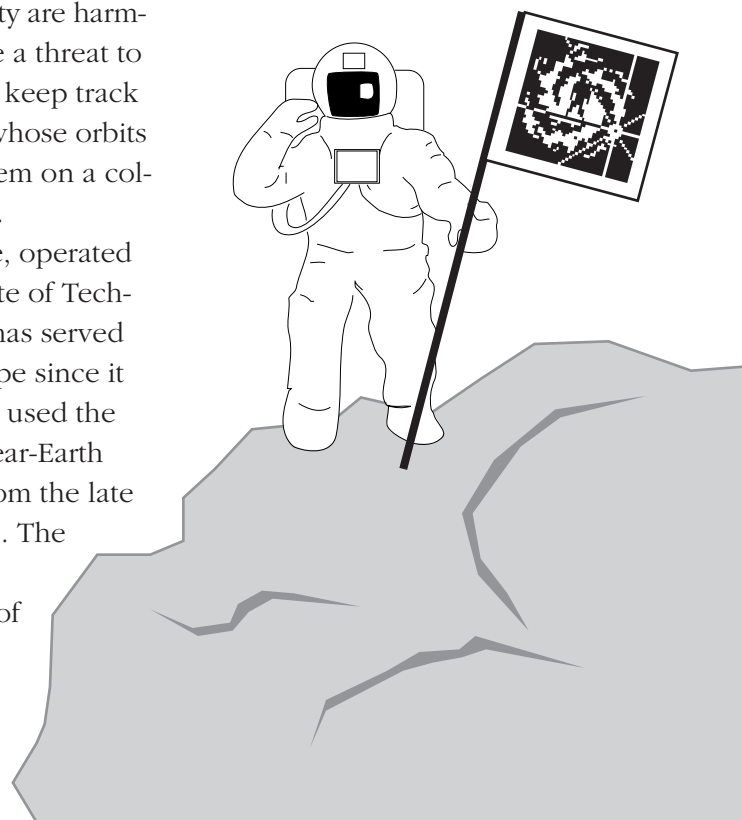
astronomers worldwide. The Oschin telescope has done yeoman's duty for astronomers through the years, but it has been surpassed in many ways by newer, more advanced telescopes. Nonetheless, it remains the telescope with the largest field of view.

NASA will fund the Oschin upgrade, estimated to cost \$300,000 to \$500,000, and Caltech will provide the use of the facility and the infrastructure. Within about two years, astrophysicists from Yale University in New Haven, CT, may provide further high-tech upgrades to maximize the potential of the Palomar telescope.

Images gathered by NEAT using the Oschin telescope, along with general information on NEAT, are available at the following web site: <http://neat.jpl.nasa.gov/>

Information on the Palomar Observatory is available at: <http://astro.caltech.edu/observatories/palomar/public>

Source: Jet Propulsion Laboratory




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Sky Calendar

- 3 Mars in SSW to SW at dusk.
Mag from -0.4 to 0.0
Compare to Arcturus.
- 4 Independence Day
- 6 Third Quarter Moon
- 10 Aldebaran occulted by Moon
- 11 Venus and Regulus 1.2° apart
- 12 New Moon
- 13 Look for Mercury and very young
Moon in WNW at dusk
- 14 NJAG Business Meeting, 8pm
- 14 Venus at its brightest, mag -4.5
- 15 Moon, Venus and Regulus make
a great trio for binocs/naked eye
- 20 First Quarter Moon
- 27 Partial lunar eclipse - not visible
from northeastern U.S.
- 28 Full Moon
- 28 Jupiter and Saturn's rings tilted
21° in SE an hour before dawn
- ★ Summer Stargazing
Iris Gardens, Montclair State

 <h1 style="margin: 0;">July '99</h1>						
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