SkyWAAtch

The Monthly Publication of the Westchester Amateur Astronomers *November 2007*

Griffith Observatory

Bob Kelly took this sunset photo of the Griffith Observatory in Los Angeles with his Canon A40, a 1/40th second exposure. The first-quarter Moon is visible. Serving the public since 1935, the Griffith features a 12-inch Zeiss refractor and several solar scopes as well as a planetarium. For more information, see: http://www.griffithobs.org/

As Darkness Fell

Bob framed this one-second exposure of the Moon and Jupiter over one of the Observatory's domes.

Events for November 2007

➢ Monthly Meetings

"Where the #%@&!! Is My Rotating Space Station!?"
Friday, November 2, 8:00PM
Andrus Planetarium
Hudson River Museum, Yonkers
Marc Taylor, Andrus Planetarium Coordinator, will elaborate on some of the science behind popular conceptions and misconceptions of space flight as well as other topics. Free and open to the public.

"The Life and Accomplishments of Henry Draper"
Friday, December 7, 8:00PM
Andrus Planetarium
Hudson River Museum, Yonkers
Francis J. O'Reilly, past WAA President, will speak on the accomplishments of Henry Draper, a pioneer of astrophotography. Free and open to the public.

➢ Family Stargazing Night

Thursday, November 15,
George Washington Elementary School, 3634 Lexington Ave.
Mohegan Lake, NY, 6:30 to 9pm.
Our annual stargazing night for the children and parents of George Washington Elementary School is one of our most popular star parties of the year.

➢ Starway to Heaven

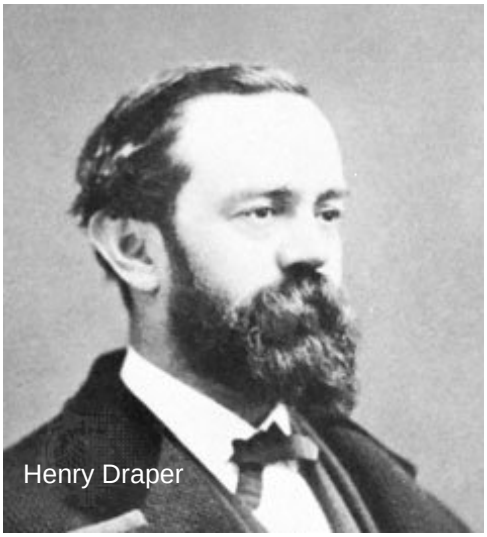
Saturday, November 10, 7:00-10:00PM
Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River
This is our scheduled observing date for November, weather permitting. Free and open to the public. The scheduled rain/cloud date is November 17.

New Members. . .

Paul Andrews, Patterson, NY
Michael Brazil, Newburgh, NY
Valerie & Christopher Doyle, Chappaqua, NY
Maida Family, Portchester, NY
Doreen Rizopoulos, Chappaqua, NY

Renewing Members. . .

Armen Balemian, Cortlandt Manor, NY
Ed Cronly, Dobbs Ferry, NY
Robert Davidson, Chappaqua, NY
Roy Johnson, Chazy, NY
Bob Kelly, Ardsley, NY
John Le Var, Briarcliff Manor, NY
Nancy Maika, Pleasantville, NY
Hans Minnich, Bronx, NY
James Peale, Bronxville, NY
Olivier Prache, Pleasantville, NY
James Steck, Mahopac, NY


Henry Draper

Call: **1-877-456-5778** (toll free) for announcements, weather cancellations, or questions. Also, don't forget to periodically visit the WAA website at: http://www.westchesterastronomers.org/.

Westchester Amateur Astronomers, Inc., a 501(c)(3) organization, is open to people of all ages with the desire to learn more about astronomy. The Mailing address is: P.O. Box 44, Valhalla, New York 10595. Phone: 1-877-456-5778. Meetings: Andrus Planetarium, Hudson River Museum of Westchester, 511 Warburton Ave., Yonkers. Observing at Ward Pound Ridge Reservation, Routes 35 and 121 South, Cross River. Annual membership is $25 per family, and includes discounts on *Sky & Telescope* and *Astronomy* magazine subscriptions. Officers: President: Charlie Gibson; Senior Vice President: Pat Mahon; Secretary: Barbara Moroch; Treasurer: Michael Virsinger; Vice President Membership: Karen Seiter; Vice President Programs: John James; Vice President Field Events: David Butler; Newsletter: Tom Boustead; Webmaster: Robert Davidson.

Articles and Photos

The Red (Hot?) Planet

by Patrick L. Barry

Don't let Mars's cold, quiet demeanor fool you. For much of its history, the Red Planet has been a fiery world. Dozens of volcanoes dot the planet's surface standing as monuments to the eruptions that once reddened the Martian sky with plumes of glowing lava. But the planet has settled down in its old age, and these volcanoes have been dormant for hundreds of millions of years.

Or have they? Some evidence indicates that lava may have flowed on Mars much more recently. Images of the Martian surface taken by orbiting probes show regions of solidified lava with surprisingly few impact craters, suggesting that the volcanic rock is perhaps only a million years old. If so, could molten lava still occasionally flow on the surface of Mars today?

With the help of some artificial intelligence software, a heat-sensing instrument currently orbiting Mars aboard NASA's Mars Odyssey spacecraft could be just the tool for finding active lava flows.

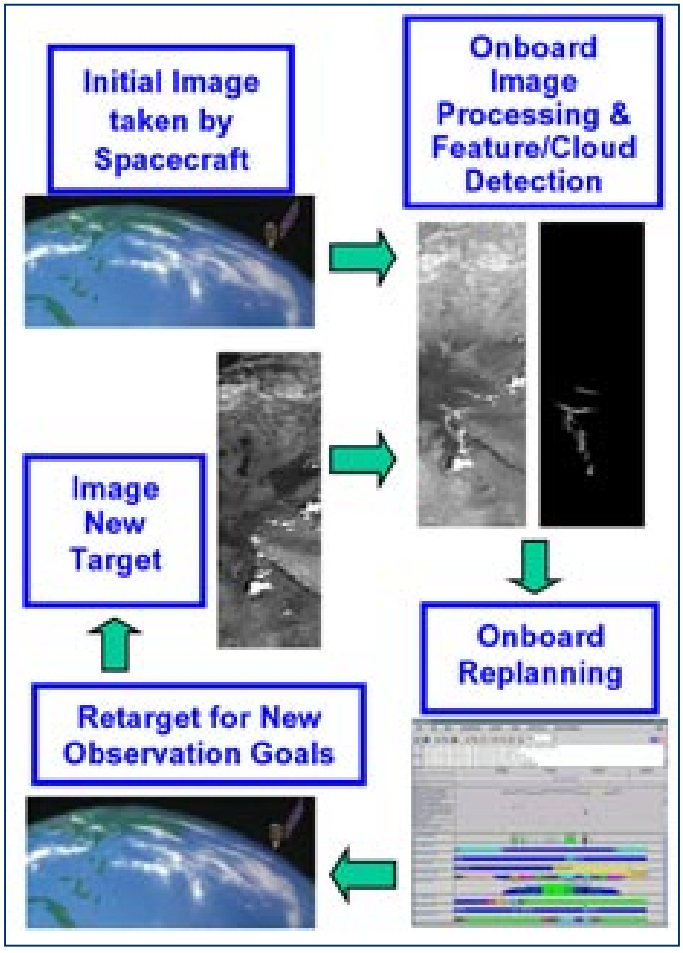
"Discovering such flows would be a phenomenally exciting scientific finding," says Steve Chien, supervisor of the Artificial Intelligence Group at JPL. For example, volcanic activity could provide a source of heat, thus making it more likely that Martian microbes might be living in the frosty soil.

The instrument, called THEMIS (for Thermal Emission Imaging System), can "see" the heat emissions of the Martian surface in high resolution—each pixel in a THEMIS image represents only 100 meters on the ground. But THEMIS produces about five times more data than it can transmit back to Earth.

Scientists usually know ahead of time which THEMIS data they want to keep, but they can't plan ahead for unexpected events like lava flows. So Chien and his colleagues are customizing artificial intelligence software called ScienceCraft to empower THEMIS to identify important data on its own.

This decision-making ability of the ScienceCraft software was first tested in Earth orbit aboard a satellite called Earth Observing-1 by NASA's New Millennium Program. Earth Observing-1 had already completed its primary mission, and the ScienceCraft experiment was part of the New Millennium Program's Space Technology 6 mission.

On Odyssey, ScienceCraft will look for anomalous hotspots on the cold, night side of Mars and flag that data as important. "Then the satellite can look at it more closely on the next orbit," Chien explains: Finding lava is considered a long shot, but since THEMIS is on all the time, "it makes sense to look," Chien says. Or better yet, have ScienceCraft look for you—it's the intelligent thing to do. To learn more about the Autonomous ScienceCraft software and see an animation of how it works, visit: http://ase.jpl.nasa.gov. *The Jet Propulsion Laboratory, California Institute of Technology, provided this article under a contract with NASA.*



Just as changing cloud patterns on Earth were identified using Earth Observing-1's Advanced Land Imager along with ScienceCraft software, the THEMIS instrument with ScienceCraft on the Mars Odyssey spacecraft can avoid transmitting useless images. This image may be downloaded at http://spaceplace.nasa.gov/news_images/sciencecraft_process.jpg

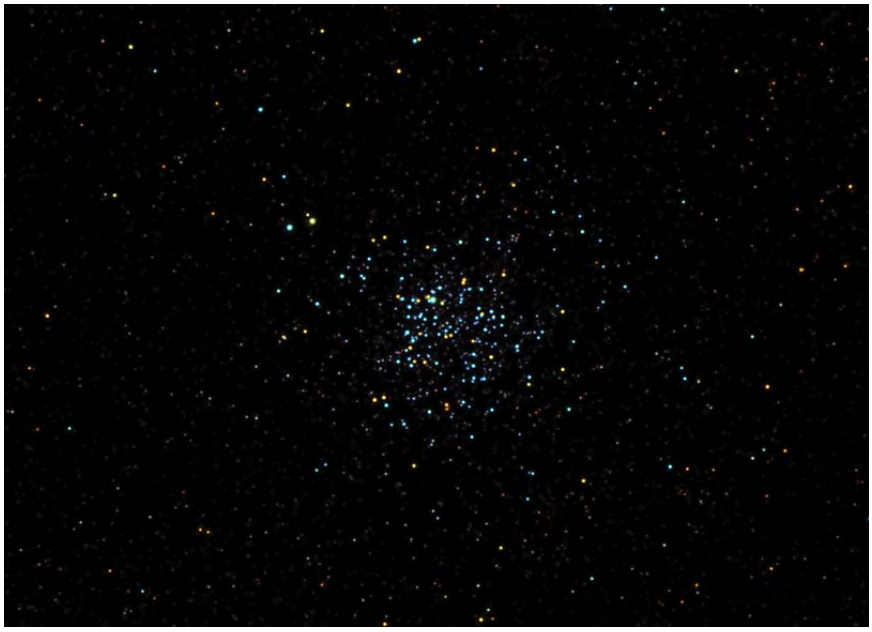
Comet 17P Holmes

Bob Kelly took this unprocessed shot of Comet 17P Holmes with his Canon A40 at ISO 100 (1-sec F4.3) and his 8-inch Dob. Notes Bob: I don't think the comet was as blue as implied by my pictures from last night. It seemed odd to me that the comet's hue changed slightly when I took off my glasses and refocused the telescope. It seemed more of a dark yellow without my glasses, sort of blue-gray with glasses on. It was very much brighter in its center with a hazy circle that almost seemed granulated. However, I was viewing through clouds so some of that granulation may have been refraction from water droplets. I never was able to pick it out with the naked eye. The streetlight across the street also made it hard to see anything other than Cappella.

Bubble Nebula

Olivier Prache took this image of the Bubble Nebula in Cassiopeia. He used a SBIG ST7-XME through a 4" Borg 101ED and CCDSoft and CS2 for image acquisition and processing. Total time was 130 minutes for luminance and 30 minutes each for R, G and B, all done with 5-minute sub-frames to limit blooms.

Also known as NGC 7635 (and Caldwell 11), the Bubble Nebula is an emission nebula, which lies at a distance of 7,100 L.yrs.



Wild Duck Cluster

Rick Bria and Ted Schimenti took this photo of M11, the Wild Duck cluster in Scutum. Taken at the Round Hill Observatory, they used a 14.5" RCOS telescope. Stacks of 7, 10, and 11 thirty second sub-exposures were combined with statistical rejection for the Red, Green, and blue frames.

The Wild Duck is an open cluster of 3000 stars within a diameter of 25 L.yrs. The cluster lies at a distance of 6000 L.yrs. It is dated at about 220 million years old.

Constellation Corner:

by Matt Ganis

November. The month conjures up thoughts of pumpkin pie, cranberry sauce and of course, wonderfully browned turkey (ok, I'm getting hungry now). But what does Thanksgiving have to do with Astronomy? Well, not much really (other than being thankful for that 16-inch telescope you got last year).

Well, since Thanksgiving is right around the corner, and I have my mind racing thinking about that drumstick, let's have a look at some of the "birds" in our own skies. The first one that comes to mind, is Cygnus the Swan, now located in our Northwestern skies.

Cygnus, the Swan is an ancient constellation, which appeared in Ptolemy's Almagest in the 2nd century AD. It had been known for centuries before as a bird, and often called a hen in some ancient mythologies. One of the more enduring legends suggests that it was the image of the bird into which Zeus transformed himself while visiting the King of Sparta's wife, Leda. Leda duly laid an egg, from which hatched not only the twins, Castor and Pollux (only Pollux was Zeus' son, Castor being the son of the King), but also Helen of Troy.

Nearby the Swan is the constellation of Aquila, the Eagle. In western mythologies, the prominent shape of Aquila has been identified with a bird for at least 3,500 years. An eagle, raven, vulture, hawk or falcon was variously assigned to the pattern by the Babylonians, Arabs, Persians and Hebrews. For those that don't like turkey on Thanksgiving, an ancient Chinese text from 500 BC identifies the pattern we know as Aquila as a draught ox. In Roman mythology however, Aquila represents the eagle sent by Jupiter to collect Ganymede, a shepherd boy, who would become cupbearer of the Gods.

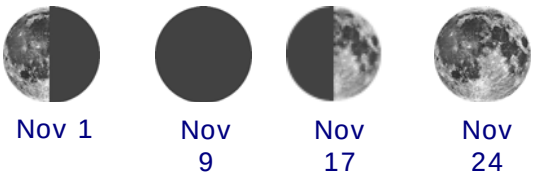
Now turning to our Southern skies, we find Corvus, the Raven. In Greek mythology, a raven serves Apollo, and is sent to fetch water. The lazy bird decides to rest on its journey because it sees a fig tree by a pond. The crow waits while the figs ripen and then slowly eats them. He sees a water snake and decides that he can use it as an excuse for being late. After finally obtaining the water in a cup the Raven takes back the water snake as well to backup his story. According to the myth, Apollo saw through the fraud, and angrily cast the crow, cup, and snake, into the sky (the origin of this story is likely to be the juxtaposition of this constellation with those of Crater (the cup) and Hydra (the serpent), in that area of the sky.

Still in the Southern skies, Columba, the Dove, is a minor constellation just south of Lepus (the Hare). The constellation is shown as a bird with flapping wings and holding a sprig of olive in its mouth. This constellation has two possible origins. It may represent the bird the Argonauts sent out ahead of their ship to help them navigate the narrow passage at the mouth of the Black Sea. Later accounts associate it with the dove Noah released during his voyage to find land. This dove returned with an olive branch in its beak, indicating dry land had been found.

To be complete, there is also Apus (the Bird of Paradise), Pavo (the Peacock), Grus, the Crane, Phoenix and Tucana the Toucan – but I'm running out of room. Remember, the next time you're talking about your favorite hobby, and someone says "Astronomy, it's for the birds", just say "yes it is – at least 10 of them.

Almanac

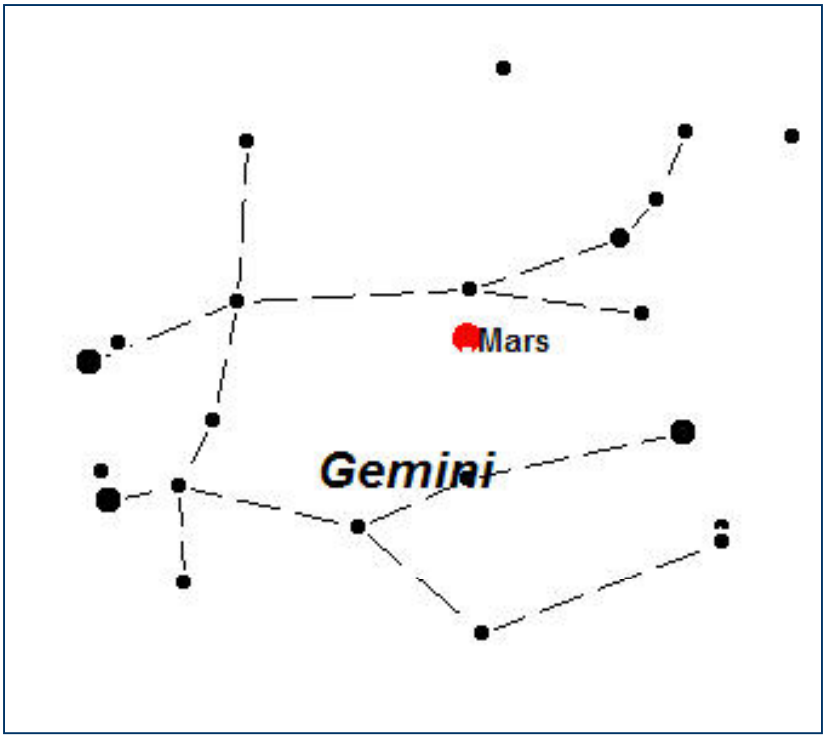
For November 2007 by Matt Ganis



Nov 1 | Nov 9 | Nov 17 | Nov 24

Our November skies bring a mix of dimming planets and the brightening of new friends. You'll need to do a little work this month to get in any planetary viewing, but in some cases, your efforts may be well rewarded. But first, remember. . .

On Sunday, November 4 (the first Sunday in November) at 2 a.m., Daylight Saving Time ends in the United States. With the passage of the Energy Policy Act in 2005, Daylight Saving Time is four weeks longer than it was in the past. The Act, which extends Daylight Saving Time by four weeks from the second Sunday of March to the first Sunday of November, is expected to save 10,000 barrels of oil each day through reduced use of power by businesses during daylight hours.



The month ends watching Jupiter, exiting stage "west". The large planet is glowing at an impressive magnitude -1.9, if you can see it. At the start of the month Jupiter will set by 7pm and will be completely below the western horizon at 5:30pm at month's end.

Of course, on the "other end" of the sky, you can see Mars rising into our evening skies. The red planet and can be found on your eastern horizon in the constellation of Gemini around 8:30pm on November 1st. Mars is shining at a magnitude of about -1.0 and will show a disk of about 13 arc seconds in a telescope. Mars will be a little easier to observe toward the end of the month when it rises around 6:30pm and brightens a bit to magnitude -1.3 making it an "all night" observable object.

For those of you that love to observe Saturn, the ringed Planet begins to make its return to our skies in the wee hours of the November skies. Saturn rises into our Eastern sky around 2am at the start of the month and continues it climb into our skies, finally rising at a more "human" hour of Midnight by December 1st. The planet isn't very bright, shining only at a magnitude of +0.8. It will brighten slightly as the month progresses, but not appreciably.

You may have some fun watching the Moon as it occults the bright star Regulus and has a close encounter with Saturn and Venus. On November 3rd the Moon will pass about 2 degrees from Regulus (at the bottom of the constellation Leo). The Moon doesn't rise until about 12:15am, so you might have a wait a little while to see this conjunction. On the night of December 1st, the Moon will pass about 3 degrees to the South East of Saturn – again, the pair won't rise until after midnight, so be prepared.

So enjoy the last of your Fall observing, and get ready for the snow of December! (yippee)