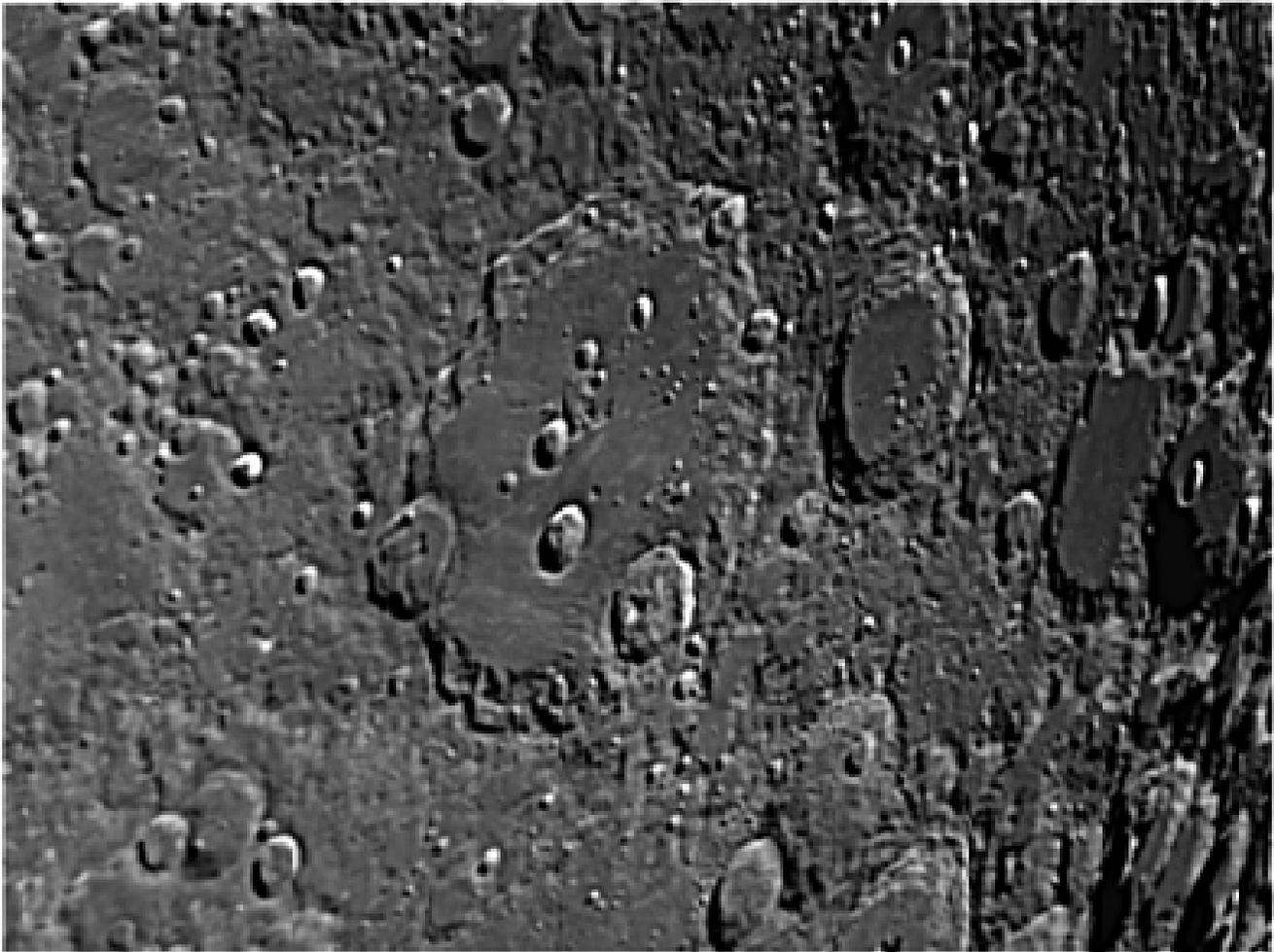


Sky **WAA** *tch*

The Monthly Publication of the Westchester Amateur Astronomers

February 2010



Clavius

John Paladini took the above image of the crater Clavius with a Celestron 9.25 SCT scope. Clavius is the third largest crater on the near-side of the Moon, stretching some 225km in diameter. At roughly 8 o'clock and 4 o'clock, the craters Porter (52km) and Rutherford (48km) can be seen. Named after the German mathematician and astronomer, Christoph Klau, Clavius houses numerous smaller craters often used as a test for the resolution of small scopes.

Events for February 2010

➤ **An Invitation**

“Life on Mars”

Friday February 5th, 7:30pm

LaPenta Student Center, IONA College

715 North Avenue, New Rochelle, NY

Brother Novak has invited WAA members to a public lecture, which will discuss the possibility of life on Mars and the latest scientific discoveries to date. Light refreshments will be served, starting at 7pm. The lecture will be held at the New Rochelle Campus of Iona College, and begin at 7:30 PM in the 2nd Floor of the LaPenta Student Center. Enter the campus from the North Avenue entrance. There is a guard kiosk there; when coming in, inform the guard that you are attending the Astronomy lecture and you will be directed to the appropriate parking area. For further directions, see:

<http://www.iona.edu/directions.cfm>

Due to a schedule conflict, there will be no WAA meeting in February at the Hudson River Museum.

Upcoming Lectures

On March 5th David High, a NASA Solar System Ambassador, will speak on the the Chandra X-Ray Space Telescope. The time and location of future meetings will be announced.

➤ **Starway to Heaven**

Saturday February 13th, 6:30-9:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled Starway to Heaven observing date for February, weather permitting. Free and open to the public. The scheduled rain/cloud date is February 20th.

Renewing Members. . .

Scott Nammacher - White Plains

Darryl Ciucci - Greenwich

Doug Towers - Yonkers

George Thomas - Irvington

Al Forman - Croton

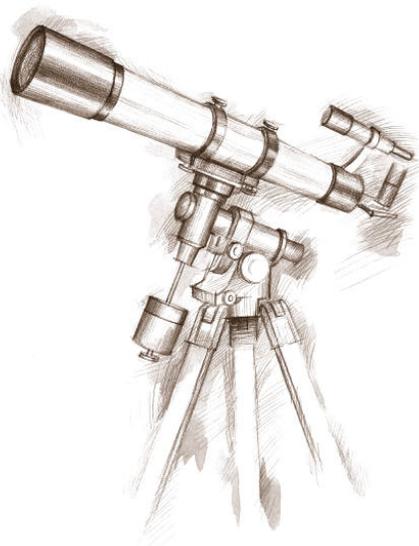
Anthony Sarro - Scarsdale

Rick Bria - Greenwich

Dennis and Margot Dilmaghani, Purchase

Harry Butcher - Mahopac

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: Mike Virsinger; Vice President: Charlie Gibson; Vice President Programs (lectures): Pat Mahon; Treasurer: Doug Baum; Vice President Membership: Paul Alimena; Vice President Field Events: David Butler; Newsletter: Tom Boustead.

Articles and Photos

Building a Case Against Ozone by Patrick Barry

When it comes to notorious greenhouse gases, carbon dioxide is always in the headlines. Meanwhile, ozone is not as famous or as powerful, but still is a big player.

After tracking this lesser-known climate culprit for years, NASA's Tropospheric Emission Spectrometer (TES) has found that ozone is indeed a shifty character. Data from TES show that the amount of ozone—and thus its contribution to the greenhouse effect—varies greatly from place to place and over time.

"Ozone tends to be localized near cities where ozone precursors, such as car exhaust and power plant exhaust, are emitted," says Kevin Bowman, a senior member of the TES technical staff at the Jet Propulsion Laboratory. But the ozone doesn't necessarily stay in one place. Winds can stretch the ozone into long plumes. "Looking out over the ocean we can see ozone being transported long distances over open water."

Unlike CO₂, ozone is highly reactive. It survives in the atmosphere for only a few hours or a few days before it degrades and effectively disappears. So ozone doesn't have time to spread out evenly in the atmosphere the way that CO₂ does. The amount of ozone in one place depends on where ozone-creating chemicals, such as the nitrogen oxides in car exhaust, are being released and which way the wind blows.

This short lifespan also means that ozone could be easier than CO₂ to knock off.

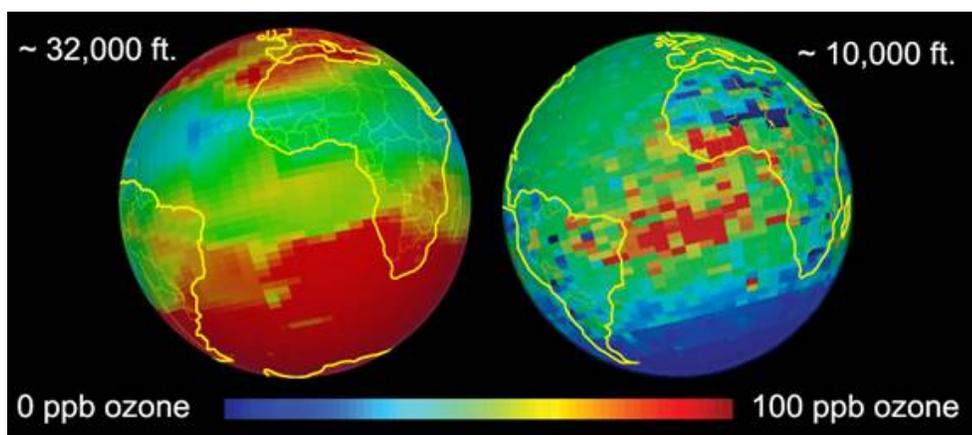
"If you reduce emissions of things that generate ozone, then you can have a quicker climate effect than you would with CO₂," Bowman says. "From a policy standpoint, there's been a lot of conversation lately about regulating short-lived species like ozone."

To be clear, Bowman isn't talking about the famous "ozone layer." Ozone in this high-altitude layer shields us from harmful ultraviolet light, so protecting that layer is crucial. Bowman is talking about ozone closer to the ground, so-called tropospheric ozone. This "other" ozone at lower altitudes poses health risks for people and acts as a potent greenhouse gas.

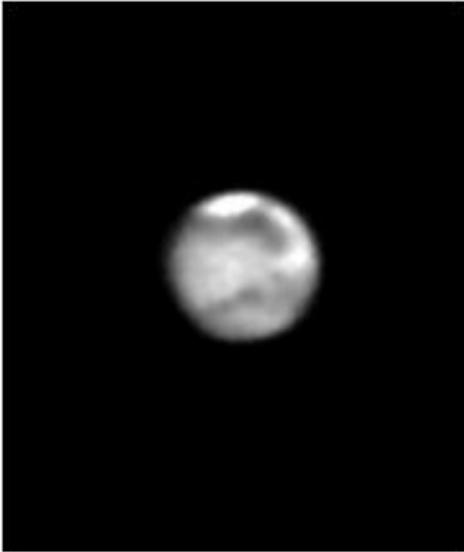
TES is helping scientists track the creation and movement of low-altitude ozone over the whole planet each day. "We can see it clearly in our data," Bowman says. Countries will need this kind of data if they decide to go after the heat-trapping gas.

Ozone has been caught red-handed, and TES is giving authorities the hard evidence they need to prosecute the case..

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with NASA.



These images are TES ozone plots viewed with Google Earth. Colors map to tropospheric ozone concentrations. The image on the left shows ozone concentrations at an altitude of approximately 32,000 feet, while the one on the right shows ozone at approximately 10,000 feet. The measurements are monthly averages over each grid segment for December 2004



← Mars

John Paladini captured this image of Mars with a Celestron 9.25 (dmc camera, 500 stack). Mars reached opposition on January 29th. It will be 2012 before the planet again obtains such a large angular diameter.



← Martian Landscape

They might look like trees on Mars, but they're not. Groups of dark brown streaks have been photographed by the Mars Reconnaissance Orbiter on melting pinkish sand dunes covered with light frost. The above image was taken in 2008 April near the North Pole of Mars. At that time, dark sand on the interior of Martian sand dunes became more and more visible as the spring Sun melted the lighter carbon dioxide ice. When occurring near the top of a dune, dark sand may cascade down the dune leaving dark surface streaks -- streaks that might appear at first to be trees standing in front of the lighter regions, but cast no shadows

Credit: HiRISE, MRO, LPL (U. Arizona), NASA



← Tethys Behind Titan

Explanation: What's that behind Titan? It's another of Saturn's moons: Tethys. The robotic Cassini spacecraft orbiting Saturn captured the heavily cratered Tethys slipping behind Saturn's atmosphere-shrouded Titan late last year. The largest crater on Tethys, Odysseus, is easily visible on the distant moon.

Credit: Cassini Imaging Team, ISS, JPL, ESA, NASA

Constellation Corner

By Matt Ganis

As I look at the sky month I noticed a constellation that I don't think I've ever covered in this column. Maybe because it's not as well known as many of the "superstar constellations" up there or maybe because the stars of the constellation are so dim nobody pays much attention. In either case, to "right a wrong" lets start out this month's constellation corner by having a look at the constellation Lynx.

Lynx or more precisely "the lynx" is a constellation that was designed by Johannes Hevelius in 1687. It's a very poor zone for stars (i.e., there aren't many in this area of the sky) and for that reason Hevelius came up with this name. Why? Well, by

his reckoning, to see anything in this area of the sky it was necessary it to have eyes of lynx (or cat). A Lynx has very large "padded snowshoe paws" that help them when threading though the snowy mountains. Because of this, the presence of a Lynx in an area can go unnoticed for years. Making it not only very stealthy but rather mysterious as well. The Lynx often plays an important role in mythology because it is such an elusive, ghost-like animal that sees without being seen. Because of these qualities (silence and watching) the Lynx has also been associated with scientists and their search for knowledge.

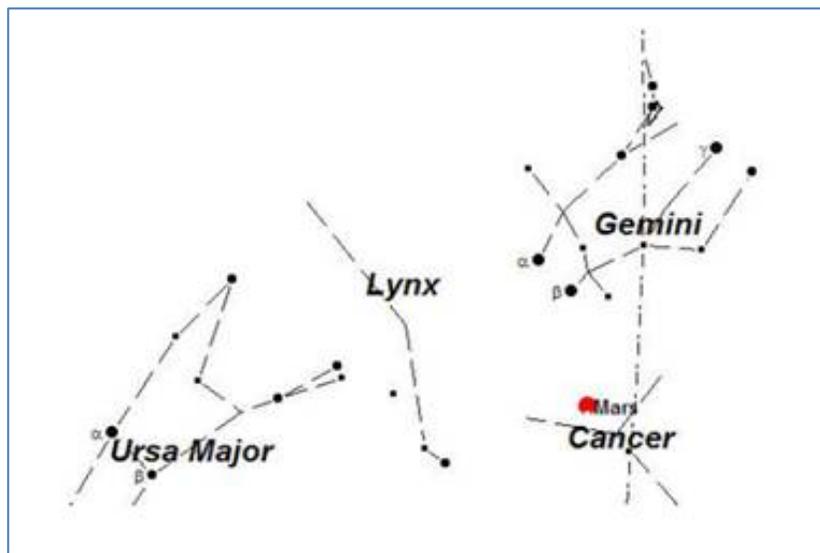
The mythology of the constellation is scarce at best. One story claims the constellation is named after Lynceus who was one of the Argonauts that participated in the hunt for the Caledonian Boar. He was said to have excellent sight and even able to see underground.

One story that I like involves Pluto (God of the Underworld) and Proserpina, the daughter of Ceres (who was the Goddess of Agriculture). At one point, Pluto, having been struck by Cupid's arrow, abducted Proserpina in order to marry her and have her live with him in Hades as the Queen of the Underworld. Upset at the turn of events, Ceres set out to cause a great blight to kill all of the grains and lay the

Earth barren until Pluto returned her daughter to her. Of course by this time Proserpina was already the queen of the Underworld and could not be returned to her mother.

Zeus stepped in and decreed that for six months during the year

Proserpina would live in the Underworld (winter, the season when nothing grows) and then for six months she would live in the Upperworld (summer, the season when crops grow and mature). This placated Ceres' rage enough for her to send a messenger in her dragon-drawn Chariot to rain seeds of harvest across the Earth. When her messenger came close to the land reigned by the jealous and envious King Lyncus, he plotted to kill Ceres' messenger and take the credit for the good harvest. But, just as the murder was about to happen, Ceres changed Lyncus into a Lynx and placed him in the sky where the stars were so dim that nobody could see him, unless "you had the eyes of a lynx."



Almanac

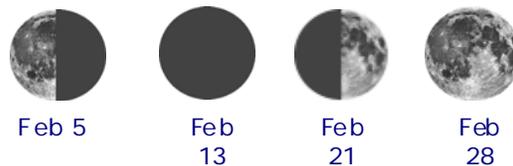
For February 2010 by Matt Ganis

It seems that mother nature is looking to make this a short winter season. One of the best parts of the year so far has been NOT having to stand in the snow when I'm at the telescope! Hopefully this calm weather holds out through February and March: Keep your fingers crossed.

As the month of February opens we find Jupiter about 12° above the western horizon: Close to the horizon - but still well placed for some last minute views. It won't be around long, by midmonth the large planet will succumb to the light of the setting Sun and the quickly approaching horizon – disappearing from view by the end of the month.

Of course, when something goes down, something else must come up, right? As Jupiter makes its exit from our evening skies, Venus climbs higher into it. On the evening of the 14th the two planets reach a fairly close conjunction, separated by a mere $1/3$ of a degree. It might be tough to see this pair as they'll be quite close to the southwestern horizon. But have a look, it should be a nice sight!

On the "other side" of the sky, Mars is putting on quite a show as it continues to climb higher into the evening skies. The little red planet is quite bright, shining at a magnitude of about -1.25 at the start of the month. It will steadily decrease in brightness as the month progresses, dimming to a (still respectable) -0.6 in magnitude.



A little later in the evening (around 9pm) Saturn will make its appearance into our evening skies. The ringed planet can be found in the constellation of Virgo, shining at a magnitude of about $+0.6$.

The nights in the first part of the month mark a good time to observe a phenomenon called the zodiacal light. The zodiacal light is a band of very faint light in the night sky. It is thought to be sunlight reflected from the interplanetary dust grains lying mostly in the plane of the ecliptic (or the line that runs through the zodiac). It can be seen in the west just after twilight and in the east just before dawn. For us in the midnorthern latitudes it is best seen evenings in February and March and mornings in September and October. The light can be followed visually to a point about 90° from the Sun.

