SkyWAAtch

The Monthly Publication of the Westchester Amateur Astronomers *November 2008*

In the Center of the Lagoon Nebula

The center of the Lagoon Nebula is a whirlwind of spectacular star formation. Visible on the upper left, at least two long funnel-shaped clouds, each roughly half a light-year long, have been formed by extreme stellar winds and intense energetic starlight. The tremendously bright nearby star, Hershel 36, lights the area. Vast walls of dust hide and redden other hot young stars. As energy from these stars pours into the cool dust and gas, large temperature differences in adjoining regions can be created generating shearing winds which may cause the funnels. This picture, spanning about 5 light years, was taken in 1995 by the orbiting Hubble Space Telescope. The Lagoon Nebula, also known as M8, lies about 5000 light years distant toward the constellation of Sagittarius.

Events for November 2008

➢ Monthly Meetings

"SPECIAL EVENING PROGRAM /HOW TO BUY A TELESCOPE"
Friday, November, 14th (7:30-9:00)
Andrus Planetarium
Hudson River Museum, Yonkers
Bring your telecopes as the WAA joins forces with "Big Al" from TELEVUE in a public outreach effort to create educated consumers on this most worthwhile as well as life-long investment. Free and open to the public.

"The NEAR Shoemaker Mission to Asteroid Eros"
Friday, December 5th, 8:00 PM
Andrus Planetarium
Hudson River Museum, Yonkers
David High, a designated NASA Solar System Ambassador, will be giving a lecture on the NEAR Shoemaker Mission to the Asteroid Eros. Free and open to the public.

➢ Starway to Heaven

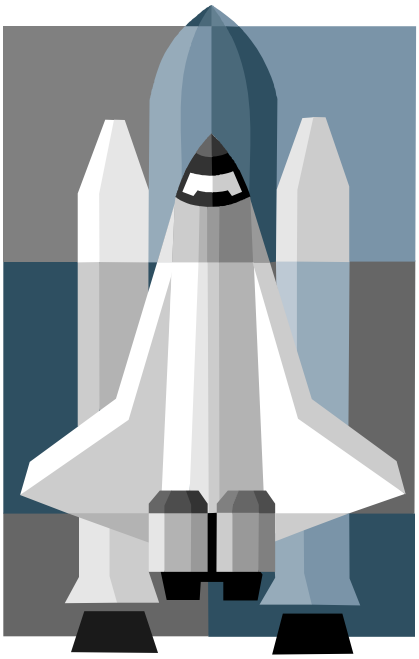
Saturday, November 22nd, 7:00-9:00PM
Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River
This is our scheduled Starway to Heaven observing date for November, weather permitting. Free and open to the public. The scheduled rain/cloud date is November 29th.

Renewing Members. . .

Doug & Vivian Towers, Yonkers, NY
A. Henry Marzullo, South Salem, NY
Oliver Prache, Pleasantville, NY
John Le Var, Briarcliff Manor, NY
Mandira Roy, Hastings-on-Hudson, NY

Please note that due to difficulties with the Valhalla mailbox some members who paid their dues did not appear on this month's renewal list. If your check was returned to you please remail it to: P.O. Box 44, Valhalla, NY 10595 so that we can credit your account.

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; Vice President: Michael Virsinger Vice President Programs (lectures): Pat Mahon; Treasurer: Doug Baum; Vice President Membership: Karen Seiter; Vice President Field Events: David Butler; Newsletter: Tom Boustead.

Articles and Photos Gallery

In Search of the Aurora Borealis

By Karen Seiter

We walked outside of Terminal 7 arrivals at JFK airport into the 58 degree fall air and said, “Wow it’s hot here”. We had just returned from our weeklong trip to Iceland (where the temperatures were in the 20’s) in hopes of seeing the aurora borealis. Maybe we were a little unrealistic taking this trip during the solar minimum. However I am impatient and didn’t want to wait another 4 years for the Sun to act up enough to see a spectacular show. Also, we found a tour with Travel Quest International that had enough interesting sites to see during the day so it wouldn’t be a total loss if we didn’t see the aurora.

We left NY on September 26th on our overnight flight to Iceland. I searched every possible mileage upgrade option and discovered there were none; so we were stuck in a very tight coach section. Needless to say there was not much sleep or comfort. After landing and meeting up with the other 12 people on the tour and our guides we viewed an area where the Eurasian and North American tectonic plates meet. By shuffling from side to side you could step “America, Europe, Europe, America”. The endless lava that made up the landscape in this volcanically active corner of the Earth made you feel like you had landed on a different planet rather than in a different country.

Enough geology for now: we were on to one the highlights of the tour—the Blue Lagoon. This is a large geothermal spa that is fed by the water output of a nearby geothermal power plant. Iceland uses geothermal heat to efficiently power the country. After showering and changing into our bathing suits, we dipped into the very warm, silica and sulfur rich waters. The weather in Iceland changes from minute to minute. So while we were lazing in these 104 degree waters the outside air changed from sunny to icy rain. It was invigorating to be pelted in the face with ice crystals while the rest of your body was soaking in these warm, soothing waters. There should be a law requiring a visit to one of these spas after every transatlantic flight.

Next we spent two days in downtown Reykjavik. Reykjavik is similar to other small European cities except that everything you go to see has at least 10 letters and 3 J’s in its name. We explored some of the sites on our own and rested up for the upcoming part of the tour.

The next day we met up with our co-travelers and boarded our daytime home for the next 5 days—a Mercedes-Benz off road bus. We travelled to Thingvellir National Park to stroll

Strokkur Erupts

around Althingi, Iceland's most sacred site and the home of the old Viking parliament. Then it was on to the hot spring area of Geysir where we viewed multicolored pools of water and mud. Geysir, in the Haukadalur valley of Iceland, is the world's oldest known geyser. Apparently the English word geyser derives from Geysir which itself is derived from the Icelandic verb gjósa meaning to erupt. Geysir is not what it used to be and eruptions are infrequent. However a second geyser, Strokkur, which erupts reliably every 5-10 minutes up to heights of 70 feet, put on a great show for us.

After lunch, we drove to the first of many waterfalls to be seen, Gullfoss. En route to our next hotel we pulled over to witness a magnificient double rainbow crossing the road. Both rainbows had clearly visible 180 degree arcs with the deepest colorations (including violet) I had ever seen in a rainbow.

Then it was on to our next hotel, The Hotel Highland in the remote Icelandic highlands. This hotel was a contrast in styles. The outside appearance was that of a bunker- low to the ground and covered in aluminum. My husband gave me that "what have you gotten us into now" look. The landscape was completely stark with nothing around as far as the eye could see. However once inside we realized that this hotel was a real gem. The rooms were small, but comfortable with thick fluffy duvets on our beds. There was a warm, welcoming lounge with deep leather couches. The staff lit many votive candles for ambiance. It was like the W Hotel Iceland. We had the entire hotel to ourselves and it was a great place to relax and get to know your fellow travelers better. The group was the usual eclectic mix of people. Most enjoyed off the beaten path travel. Several had been to the North Pole on prior trips and one had been to the South Pole with TQ International to search for meteorites. We had a wonderful lamb dinner which was as good as any Manhattan restaurant. Next was a lecture on the aurora and aurora photography from our Sky and Telescope/Travel Quest guide, Paul Deans. Although we were all ready for our first aurora experience, cloudy skies told us we would have to wait.


Exploring the Icelandic Highlands

The next day we travelled to Landmannalaugar, a volcanic zone with a mixture of colorful rhyolite and black obsidian stones, which were mostly covered with a field of snow. The scenery was a stunning combination of newly fallen white snow and a beautiful turquoise blue sky. We saw Mt. Hekla, the most active volcano in Iceland. Several in the group hiked up to Ljótipollur (the ugly lake), a huge crater formed in the 15th century. Then it was back to the lodge for dinner and our second night of aurora viewing.

This time the weather (both Earth and Sun) was more cooperative. We were scheduled to have a second lecture by Paul. However after I went outside and then returned to the dining room with my first aurora photos, the room cleared as if a fire alarm had gone off. Everyone ran for their gear and went outside for the first chance to view and photograph the aurora. Theoretically we shouldn't have seen anything with the Sun being so quiet. After all, there hadn't been any sunspots anytime recently. However it was our great fortune that a coronal hole had formed several days earlier, and now the solar wind was blowing wildly. The aurora was there! At first you see a large green band that quietly arcs across the northern sky from East to West. Then there are ripples that travel back and forth within the arc. Next the original arc begins to oscillate like a snake, and then curtains of light stream down from the arc.

Finally pink light appears. Everyone came out to see, and to try out their newly-learned aurora photography techniques, However many did not last in the long as this was the coldest night, 15 degrees with the wind chill factor.

The next day we travelled through the Thjórsádalur Valley, which demonstrated more of the rugged volcanic Icelandic landscape. We stopped at another waterfall, Hjálparfoss, and then at a reconstruction of a 12th-century Viking farmhouse. Then it was on to Hotel Ranga, just off the main road on the south shore of Iceland. This hotel is located in a more accessible area, but still far enough away from civilization to have dark skies at night. It looks like a log cabin on a west Texas ranch. This was a much larger hotel with several other guests present, but its purpose was the same--to see the aurora.

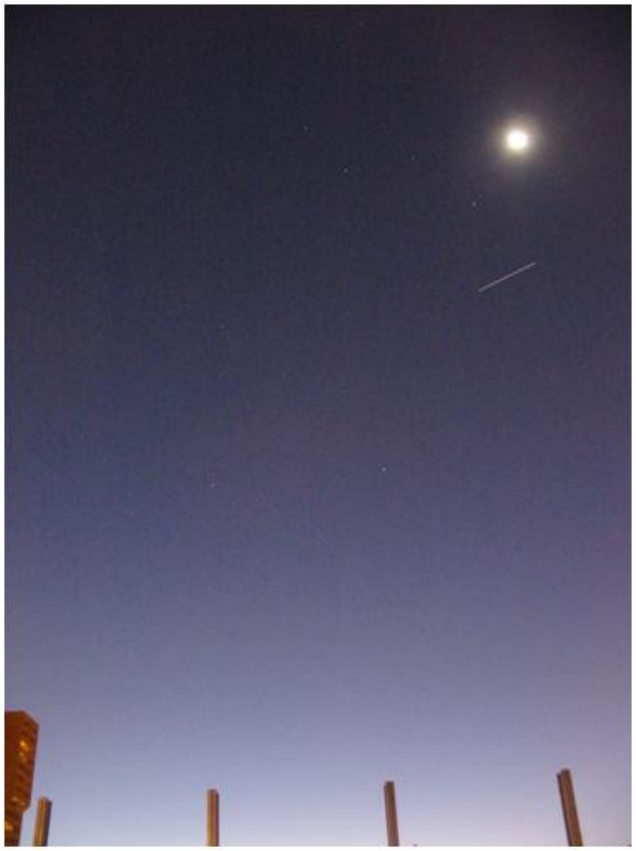
The Aurora Borealis over Hotel Highland

The owner sat at the front desk searching aurora websites and then let you know his prediction for the exact time the aurora would peak that night. After dark he kept watch and at the first sight of the aurora he turned off all the outside hotel lights for optimum viewing. After dinner I stayed outside for awhile. Again I saw a green band arcing across the sky but not much more. It seemed that the sky was less active than the previous night, or so I thought. Suddenly, then, the sky exploded. The green band became many bands that rippled back and forth across the sky. I ran back into the hotel to alert people that it was time to come out. The ripples turned to curtains that were green and pink. Then the lights filled the sky. From directly overhead, for as far right and left as your eye could see the entire northern sky filled with light. It was incredible. My Icelandic guide rated it a 9 out of 10. So much for the solar minimum! It goes to show that luck overrides any type of scientific planning. Unfortunately, this activity was short lived. By the time most of the people had donned their heavy clothes and gotten outside it had passed. Needless to say I was very happy with the display I had seen.

The next morning we visited another waterfall and then the village of Skógar, a living folk museum where old homes are preserved in their original state. After lunch, we traveled to see a glacier, and then the beautiful volcanic, black-sand beach of Reynisfjara. Our fourth night of aurora viewing was sabotaged by a snowstorm. However with the good food at the hotel and the company of our fellow travelers we had a very pleasant evening.

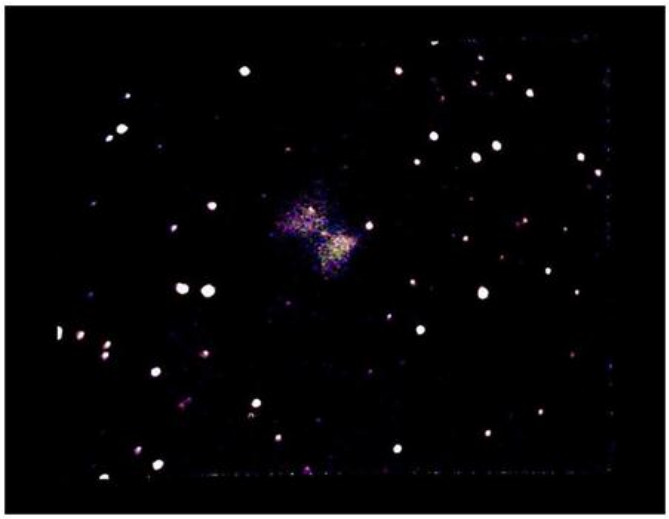
The next morning we drove inland to the Thorsmork Nature Reserve. This was a remote, mountainous area covered in snow. The drive required that our bus ford many rivers. Luckily our driver was very experienced and we did not have to be towed- as can happen apparently. Then it was back to the lodge for a farewell dinner and our last night of aurora viewing. Again things started slow. However just when you thought it was going to be a quiet night the sky lit up like the finale of the fireworks display on the 4th of July. This time many people were outside and everyone was pretty much satisfied that they had seen all they had hoped to on this wonderful trip.

The next day was back to reality. Now Reykjavik seemed like a congested city with too many people. Then it was the joy of airport security and the trip home. However the trip far exceeded my expectations—both in terms of the quality of the tour as well as the spectacle of the sky.



Space Station from the Bronx

Bob Kelly took this photo from the top of the parking deck at Montefiore Hospital. He used his Canon A40 camera on a tripod--a five second exposure. The overexposed light is the Moon, the short line below it is the trail of the International Space Station



Messier Objects

Dave Butler captured these images of M51 (the Whirlpool Galaxy) in Canes Venatici and M27 (the Dumbbell nebula) in Vulpecula. Notes Dave: The focus is off and as a result there is some noise in the dumbbell section. The no field rotation was intentionally redden for effect. Due to light pollution the sky is naturally red so I enhanced the effect with the sliders.

Constellation Corner

by Matt Ganis

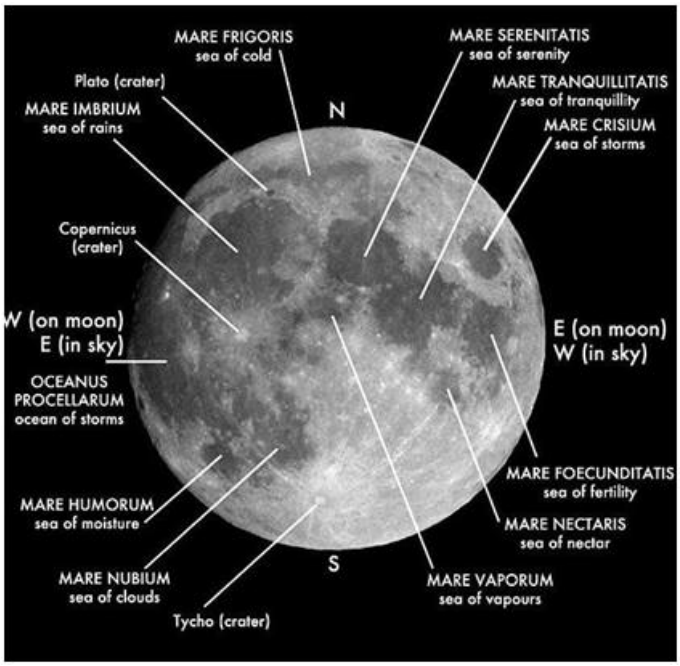
The Moon is one celestial object that never fails to impress the casual (and well seasoned) observer when seen through a telescope. It's our nearest neighbor in space: big, bright, and beautifully detailed when viewed under the right conditions. This makes the Moon a wonderful target for even the simplest setup. We can spot at least a dozen of its surface features with the unaided eye, additional detail with binoculars, and telescopes can keep you busy on the Moon and its various craters forever.

Each month the Moon circles the Earth cycling through its familiar phases. The Moon "starts" from "new Moon," when it is nearly in our line of sight to the Sun, essentially making it "invisible" to us on Earth. Over the following days the Moon grows, or waxes, to a crescent, then to first quarter (half lit), onto a gibbous (somewhat football-shaped), and then a full Moon (it then wanes back through gibbous, last-quarter, and crescent phases to new again). When waxing, the Moon is visible mostly in the evening. When waning, it's best seen in the early morning hours.

In every phase except full Moon, the Moon is divided by what is called the terminator, the line that separates the Moon's dark and light side. Near the terminator, the lunar landscape stands out most visibly. Mountains, craters and valleys look especially steep and rugged, because the low Sun makes every low hill cast a long, dramatic shadow. As you look away from the terminator onto the Moon's light side the surface appears smoother, because it's lit by a higher Sun that casts smaller shadows. So it's always best to observe the Moon when it's between its early phase and just after the first quarter (when the Moon isn't too bright).

The Moon's most obvious features are the large, flat, dark patches called maria (MAH-ree-a) They were dubbed maria, latin for "seas", by early astronomers who mistook them for actual seas. In fact, the "seas" are ancient lava flows that flooded most of the Moon's lowlands between 3.8 and 3.1 billion years ago. But what's fun about the Maria is you can observe them with and without an optical aide.

Obviously the craters and mountain ranges are the high points when we turn a telescope toward the Moon. Impact craters are the remains of collisions between an asteroid, comet, or meteorite and the Moon. Over time, these variable sized objects hit



the Moon over a wide range of speeds averaging about 12 miles per second. With no atmosphere to help protect it from bombardment by potential impactors, the surface is just covered with "pockmarks" (a quick look at the surface of the Moon shows it's scarred with millions of impact craters). Since there is no wind or water on the Moon and little geologic activity to wear away these craters, they remain unchanged until another new impact changes it. Most craters on the Moon have diameters less than about 15 kilometers and have a simple, bowl-like form. Lunar craters with a diameter over about 15 kilometers have more complex forms, including shallow, flat floors made of solidified lava, central uplifting (a single peak, multiple peaks, or a ring), and terraces on the inner-rim walls.

One of the nicest online Lunar atlas' I've seen is: http://www.lunarrepublic.com/atlas/index.shtml which allows you to zoom in on various sections of the Moon. By moving your mouse pointer over various objects, they are automatically labeled for you, making identification even easier.

So take some time and observe the Moon, perhaps plan your lunar observing based on the phase of the Moon or the position of terminator, and see how many features you can identify!

Almanac

For November 2008 by Matt Ganis

Nov 6 | Nov 13 | Nov 19 | Nov 27

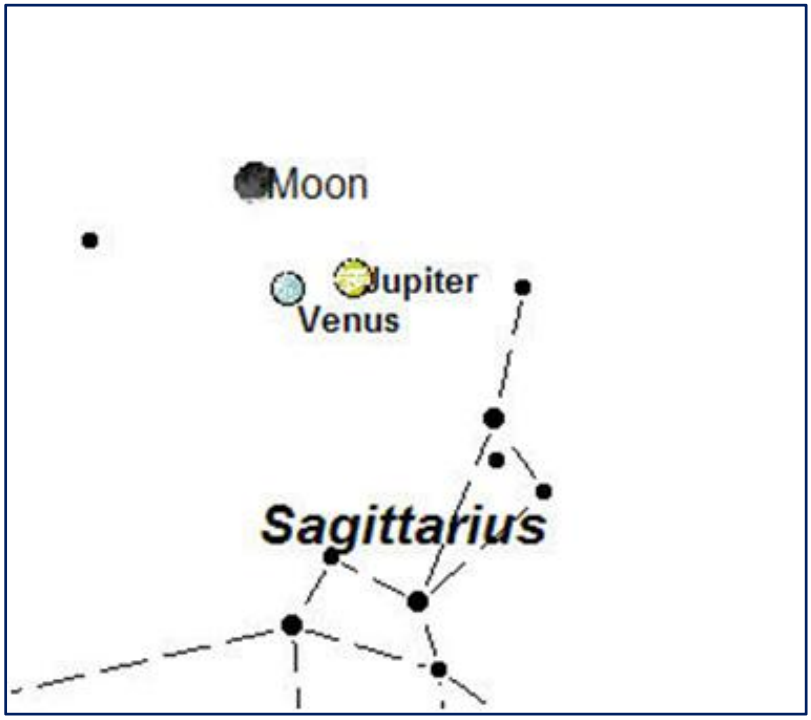
Wow it's gotten cold out there. Fall has officially arrived and with it, some wonderfully crisp, clear evening skies. I love this time of year, a walk outside under our night skies reveals a tremendous number of stars and wonderful views.

On Sunday, November 2 (the first Sunday in November) at 2am, Daylight Saving Time ends in the United States. This is the second year that Daylight Saving Time is four weeks longer due to the passage of the Energy Policy Act in 2005. The Act extends Daylight Saving Time by four weeks from the second Sunday of March to the first Sunday of November. So on November 2nd; move your clocks back one hour at the resumption of Standard Time.

The bright planet Jupiter is hanging just over the western horizon (about 20 degrees above it) as the month opens. With the nice clear autumn skies, it's still a very impressive telescopic object shining at an apparent magnitude of -2.1. Catch it early in the evening however, since it sets around 9pm this month.

Toward the end of the month, as Jupiter is quickly moving to the horizon, the planet Venus "rises" above the western horizon, toward Jupiter. If you have a nice clear view of the western horizon, you should be about to catch a glimpse of Venus and Jupiter (separated by about 2 degrees) and a 4 day old Moon located about 3° to the South of the close pair.

For those of you that love to observe Saturn, the ringed Planet returns to our skies in the early hours of November. Saturn rises into our Eastern sky around 2am at the start of the month and continues its climb into our skies, finally rising at the more decent time of Midnight by around December 1st. The planet isn't very bright, shining only at a magnitude of +1. It will brighten slightly as the month progresses, but not appreciably. The ringed planet is located at the base of Leo the Lion, right under the Lion's rear foot.



Typically the Leonids meteor shower has produced some of the greatest meteor storms in history, with rates as high as several thousands of meteors per hour. These storms often recur in cycles of 33 years. However In 2008 we're at a low point in the cycle, with a maximum of perhaps 10-15 meteors per hour. The radiant is best placed from about 2am until the beginning of morning twilight, although on November 17, there is also a large bright waning gibbous moon in the sky after midnight making for some poor observing conditions. If you're a diehard, the Leonids are expected to be most active on the mornings of Monday, November 17 and Tuesday, November 18.

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