

Sky **WAA** tch

The Monthly Publication of the Westchester Amateur Astronomers

September 2008



Great Andromeda Galaxy

Doug Baum captured this image of M31, the Andromeda Galaxy, using a 106mm refractor and Canon 450 Xsi camera. Amazingly, this is a single 10-minute, unguided, exposure. Note: the two satellite galaxies—M32 (at 11 o'clock) and M110 (at 7 o'clock)—as well as the dust lanes.

M31 Facts: At 150,000 light yrs in diameter, M31 is the largest member of the local group, which includes our Milky Way galaxy. At 2.3 million light yrs distant, M31 is approaching the Milky Way. It is expected the galaxies will eventually merge.

Events for September 2008

➤ Monthly Meetings

“WAA Amateur Night”

Friday September 5, 8:00PM

Andrus Planetarium

Hudson River Museum, Yonkers

WAA members will showcase their astrophotos and equipment. Let us know if you have something to show or tell. Please email the club with a brief idea of what you will be presenting.

“Binary Stars”

Friday October 3, 8:00PM

Andrus Planetarium

Hudson River Museum, Yonkers

Dr Dennis Dawson of Western Connecticut State University will share some of the results of his research on binary stars. Free and open to the public.

➤ Starway to Heaven

Saturday, Sept. 20th, 8:30-11:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled Starway to Heaven observing date for September, weather permitting. Free and open to the public. The scheduled rain/cloud date is September 27th.

New and Renewing Members. . .

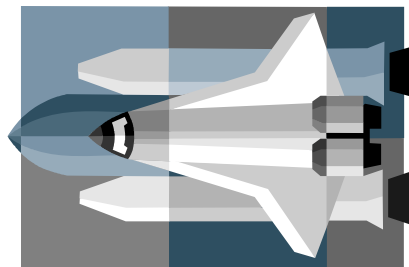
The list will be updated next month.



Last Quarter Moon

Bob Kelly took the above lunar image, using his 8-inch telescope through an eyepiece at 80x, plus a 3x zoom on the camera, a 1/125 sec exposure (at F4.8 due to the 3x zoom). Notes Bob: “I think it's interesting, if you look at the bottom of the photo and move the eye up to the heavily cratered area at the top. The effect of the surface curving away toward the top makes me feel like I'm flying along the terminator.”

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

A Google for Satellites: Sensor Web 2.0

If you could see every satellite passing overhead each day, it would look like a chaotic meteor shower in slow motion. Hundreds of satellites now swarm over the Earth in a spherical shell of high technology. Many of these satellites gaze at the planet's surface, gathering torrents of scientific data using a dizzying array of advanced sensors — an extraordinary record of our dynamic planet.

To help people tap into this resource, NASA researchers, such as Daniel Mandl, are developing a "Google for satellites," a web portal that would make requesting data from Earth-observing satellites almost as easy as typing a search into Google. "You just click on it and it takes care of all the details for you across many sensors," Mandl explains.

Currently, most satellites are each controlled separately from the others, each one dauntingly complex to use. But starting with NASA's Earth Observing-1 (EO-1) satellite, part of the agency's New Millennium Program, Mandl and his team are building a prototype that stitches these satellites called "Sensor Web 2.0."

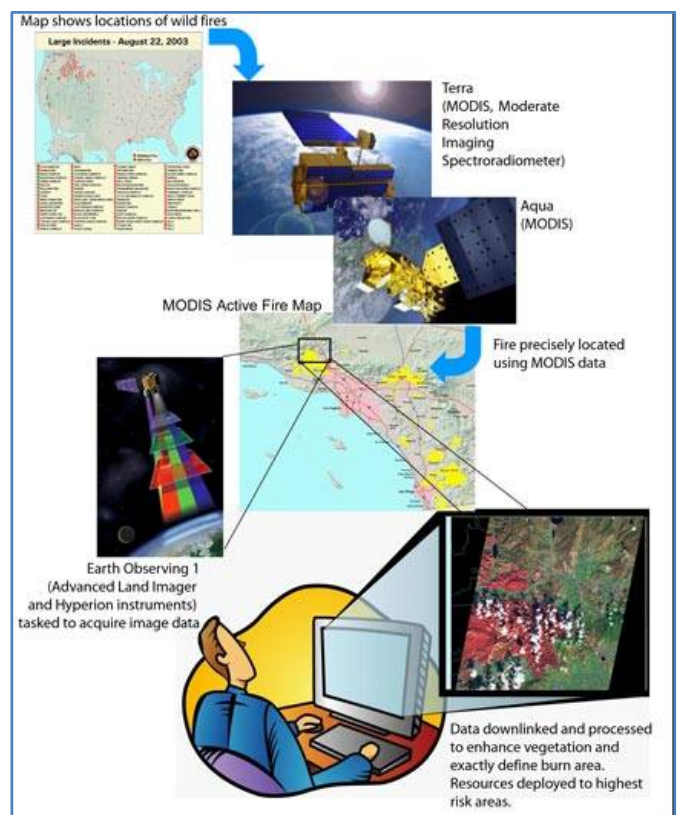
The vision is to simply enter a location anywhere on Earth into the website's search field along with the desired information types — wildfire maps, vegetation types, floodwater salinity, oil spill extent — and software written by the team goes to work.

"Not only will it find the best sensor, but with proper access rights, you could actually trigger a satellite to take an image in the area of interest," Mandl says. Within hours, the software will send messages to satellites instructing them to gather the needed data, and then download and crunch that raw data to produce easy-to-read maps.

For example, during the recent crisis in Myanmar (Burma) caused by Cyclone Nargis, an experimental gathering of data was triggered through Sensor Web 2.0 using a variety of NASA satellites including EO-1. "One thing we might wish to map is the salinity of flood waters in order to help rescue workers plan their relief efforts," Mandl says. If the floodwater in an area was salty, aid workers would need to bring in bottled water, but if flood water was fresh, water purifiers would suffice. An early and correct decision could save lives.

Thus far, Mandl and his team have expanded Sensor Web 2.0 beyond EO-1 to include three other satellites and an unmanned aircraft. He hopes to double the number of satellites in the network every 18 months, eventually weaving the jumble of satellites circling overhead into a web of sensors with unprecedented power to observe and understand our ever-changing planet. To learn more about the EO-1 sensor web initiatives, go to: <http://eo1.gsfc.nasa.gov/new/extended/sensorWeb/sensorWeb.html>.

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



A "Google for satellites" type of web portal will allow users to request real-time data from Earth observing satellites.

August 9 Viewing at Pound Ridge **By Dave Butler**

A number of people arrived early, maybe because Saturn, Mars, Venus and Mercury were all low on the horizon. Doug Towers came well-prepared, with a home-made binocular stand. He was the first to spot Venus; Bob Kelly was next. The sky was very bright and clouds were coming in fast. Karen Seiter was waiting for some stars to appear so she could align her LX90. I aligned on the Sun and did a go-to search for Venus but failed to properly tighten the RA lock and thus missed the alignment. The Sun was then covered by the clouds by the time I realized the problem.

The clouds came in quickly leaving us all hunting for targets and with a feeling it might be a short night. But later it cleared and afforded some great viewing. Chris arrived a little later with an interesting 12.5 inch mirror in a bowl he bought at NEAF. It was a truss Dob that sat on a square piece of wood, with electronics that allowed it to track. A new club member, Dorothy, didn't bring a scope but had good knowledge of the sky. The Moon was a little more than 1/2 lit and showed a great deal of detail at 250x in my scope. Jupiter was OK although it was never more than 25-deg high. No curls could be seen in the bands; some patterns were visible.

Chris covered the Veil, the Eagle and the Lagoon nebulas with an OIII filter and captured M81 and M82 in the same eyepiece. Some pretty double stars were covered, including Alberio, Mizar and Rasalgethi (which looks brown to the naked eye). We observed favorite Open Clusters M103 (Christmas tree), the Owl Cluster (upside down), the Wild Duck cluster, the Double Cluster and M39. Planetary Nebulas included the Saturn, Cats Eye, Ring and Dumbbell nebula. I would guess someone may have got the Blue Snowball. The Dumbbell Nebular was gray without the OIII filter. But it appeared white with the filter removing the background light and so enhancing this nebula. The Saturn Nebula looked less round and more Saturn like, but seeing was poor and I need to try at higher magnification. The Swan nebula was also enhanced by the OIII filter showing an upside down Swan with a diagonal. But the best improvement was the Lagoon Nebular—the difference was huge. The O-III filter showed clouds that filled the eyepiece except the dark Lagoons and showed nebulosity in the nearby open cluster NCG 6530. The Trifid showed little improvement—the dark lanes in the nebula did not show up. The Eastern and Western Veils need an OIII filter and a 12 inch diameter scope. Other objects included the Andromeda Galaxy and an occasional meteor from the Perseid shower.



Straight Wall

Bob Kelly provides us with 2 images of Straight Wall (Rupes Recta) in the Mare Nubium (taken with a Canon A40 at the eyepiece of an eight inch Dobsonian). Notes Bob: "The "Wall" throws a shadow at lunar sunrise and is bright when the sun shines from the other side before lunar sunset. The dark version of the Wall is easy to see in any scope, but it's easiest only a day or two after lunar sunrise, which is usually the day after the moon reaches first quarter. The Straight Wall is a fault line on the Moon. Despite its stark shadow, it is believed to be a slope, not a sheer drop.

Constellation Corner

by Matt Ganis

One of the more interesting and easy to locate constellations in our summer sky is Lyra, (a stringed instrument like a harp). The constellation, while mostly dim, is easy to find because it includes the fifth brightest star in our sky, Vega. In the northern hemisphere Vega is the second brightest star with a magnitude of +0.03 and is one of the three stars of the Summer Triangle (along with Altair and Deneb). The constellation also includes several double stars and Messier objects, which makes it an interesting target to observe.

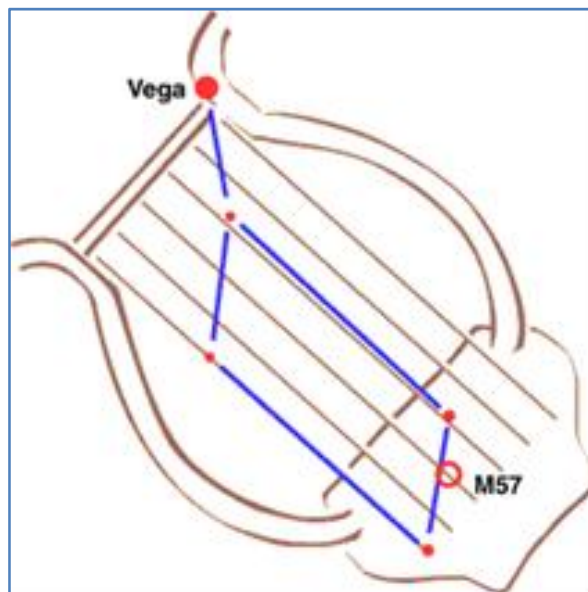
The lyre is one of the most ancient of musical instruments. It's believed (according to excavated artifacts) that even in the year 3000 BC musicians would play the lyre for royalty. However, in Greek mythology, the lyre was said to have been invented by Hermes. When only a child, he supposedly stretched a cow-gut across a tortoise shell to create the first instrument. Hermes later gave this lyre to his half-brother Apollo (both were fathered by Zeus) as the god of music, and Apollo then became associated with the instrument. Later, Orpheus was given the instrument by Apollo when only a child, and the Muses taught him to use it. According to the myths, even Nature herself would stop to listen, enraptured by his music.

When Eurydice, the wife of Orpheus, died from a snake bite and was taken to the Underworld, Orpheus followed her in hopes of bringing her back. His playing convinced Hades (God of the Underworld) to release her, providing Orpheus didn't look back at his wife during the journey home - but just as he emerged from the Underworld into the sunlight Orpheus turned and gazed upon his wife, and thereby lost her forever.

The constellation itself is small and rather faint. Using your imagination, you may be able to visualize a stringed instrument with Vega representing the handle. Vega, which translates to "Falling Eagle" or "The Harp Star", is only the fifth brightest star, but it dominates the summer skies in the northern

hemisphere. Interestingly, around 12,000 years ago Vega served as the Pole Star (as does Polaris does today) and will again make the pole in another 12,000 years.

Beta Lyrae, the star just "above" M57 (the Ring Nebula), is sometimes known as "Sheliak" (Tortoise); it is a prototype of a variable star in which a close companion is transferring matter to its gigantic primary star. In Beta Lyrae's case, the transference is occurring very rapidly and eventually the system will become an Algol variable (which is where a large and bright primary star is regularly eclipsed by a dimmer star).



M57 (or NGC 6720) - also known as the Ring Nebula - is one of the finest planetary nebula in the skies. The "ring" itself should be clearly visible in medium scopes but the 14th magnitude central star is typically out of view for those with smaller to medium sized telescopes. A planetary nebula is actually a large cloud of gas which was previously expelled from the central star. Having lost much mass to the cloud, the central star compresses to a very dense and hot star that illuminates the gas cloud via ultraviolet radiation in much the same way as electric current lights up neon in a sign.

Almanac

For September 2008 by Matt Ganis

WOW, can you believe that it's September already? Time for the kids to head back to school and get ready for some of that fine cool autumn weather. Hopefully it stays dry for us, providing for some nice clear skies.

The month opens with an interesting grouping of planets low in the western horizon. At the start of the month, just around sunset, look into the western skies and catch a glimpse of Mercury, Venus and Mars (forming a triangle with sides about 3-degrees in length). Venus is, by far, the brightest of the three planets, gleaming at a magnitude of almost -4.0 ! The other two may be a little tougher to spot, with little Mercury shining at a $+0.11$ and Mars coming in at a dim $+1.7$. While these aren't overly dim (relative to some of the stars we can see in our evening skies), given that they are so close to the horizon and so near the Sun just after sunset, spotting them could take a little work. If you remember the old "adage" to follow the handle of the dipper and "Arc on down to Arcturus, and Spike on Down to Spica" – and you drift from Bright Spica a bit to the west towards a very bright Venus, you'll "cross" right over the planets. All three of the planets are quickly moving toward the western horizon, so try to catch them early in the month. They will be out of the evening sky by mid-month, but not before Venus and Mars come within about 20 arc-mins of each other (or about $1/3^{\text{rd}}$ degree).

Our evening skies are dominated by the largest planet in our Solar System: Jupiter. Located just to the east of the "Teapot" in Sagittarius, this bright planet is shining at a whopping -2.5 magnitude, easily spotted before anything else in the sky.

On September 22nd at 11:44am we arrive at the Autumnal Equinox. On this date (near



Sep 7



Sep 15

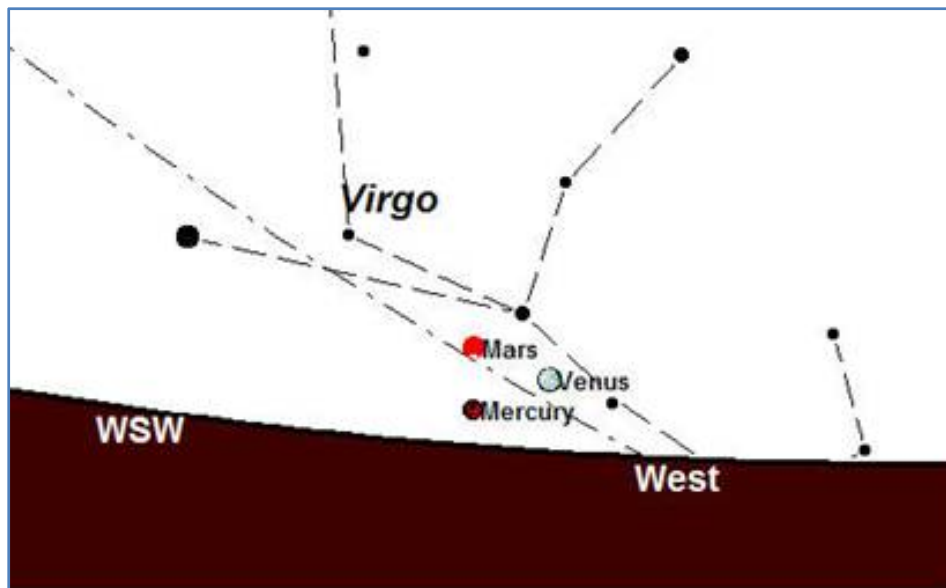


Sep 22



Sep 29

September 22 in the northern hemisphere) night and day are nearly of the same length. Technically it's when the Sun crosses the celestial equator (declination zero) moving southward (for those viewers in the Northern Hemisphere). Think about it: In the Southern hemisphere, the autumnal equinox marks the time when the center of the Sun crosses the celestial equator as it moves northward. For us, the Autumnal Equinox marks the first day of the season of autumn (you all know how much I love the autumn).



So enjoy the planetary conjunctions this month. If you're looking for me, I'll be off apple picking, my yearly greeting to the fall weather.