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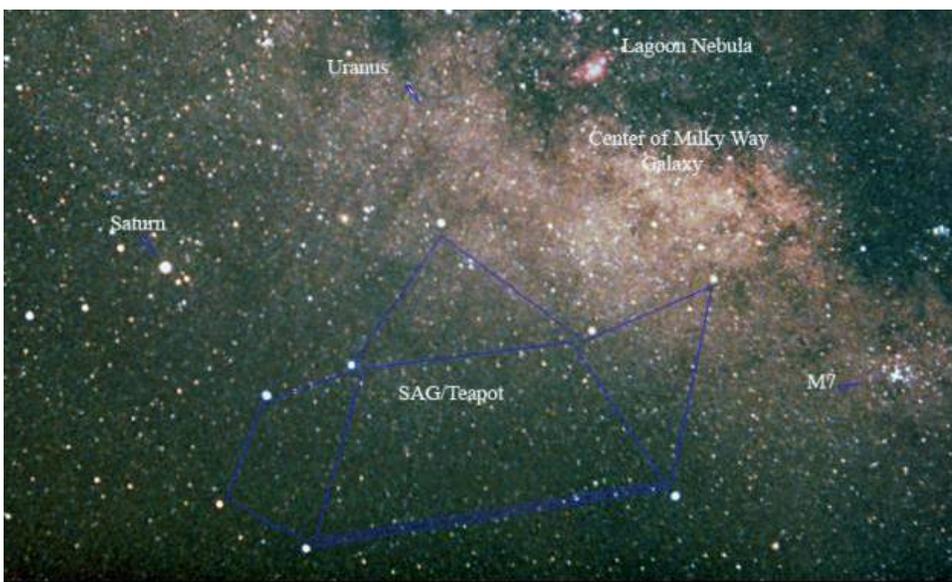
The Monthly Publication of the Westchester Amateur Astronomers

May 2007



◀ Say Good Bye To Winter

Bob Kelley took this photo of the departing winter showpieces—Orion and the Pleiades—on April 10th at Westchester County Airport. He used a Canon A40 held on the ground against a small wooden frame. Venus hangs just below the Pleiades.



◀ Looking Ahead

Rick Bria supplies us with a preview of summer offerings with this photo of from his archives. Says Rick: It's an image of Sagittarius using a film camera at the 1989 Texas Star Party. I used a 50mm lens on an Olympus camera, piggybacked on my old Meade 10" Schmidt Cassegrain. The exposure was 4 minutes on 3200 ASA film. The slide was then copied with a 'Spiratone slide copier' to increase contrast (it was an old trick we used back in the stone-age). Then the image was digitized onto a Kodak Photo CD for archiving. There it stood until a few weeks ago.

Events for May 2007

➤ Monthly Meetings

"Astronaut Close Encounters"

Friday May 4, 8:00PM

Hudson River Museum, Yonkers

Linda Zimmermann will look at the facts and fiction regarding astronaut sightings of UFOs. Have their been legitimate sightings? Are there cover-ups? Is there any hard evidence? Linda is the author of 14 books and a popular speaker who has made numerous appearances on television and radio.

"WAA Lecture"

Friday June 8, 8:00PM

Hudson River Museum, Yonkers

Charles Liu, Professor of Astrophysics at the College of Staten Island and associate at the Hayden Planetarium, will speak. He works primarily on observational galaxy evolution. He is a contributing editor to *Natural History* and co-author of *One Universe: At Home In The Cosmos*.

➤ "Starway to Heaven"

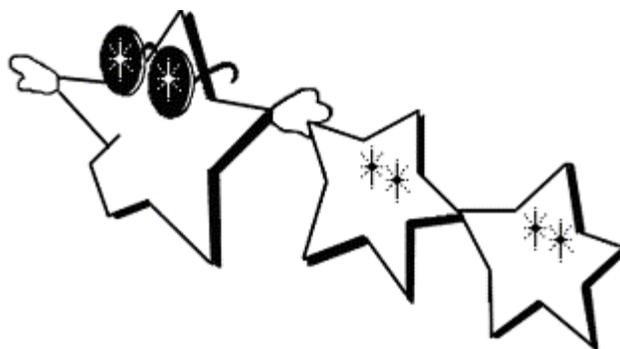
Saturday, June 16, 8-11:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled observing date for June, weather permitting. Free and open to the public. The scheduled rain /cloud date is June 23rd.

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/>.



Club Bits

New Members...

Sher Bauer, Mt. Kisco, NY

Renewing Members...

Erik and Eva Andersen, Croton-on-Hudson, NY

Robie Burke, Katonah, NY

Donna Cincotta, Yonkers, NY

John Cook, Stamford, CT

Ruth Fischer, Pleasantville, NY

John James, Sunnyside, NY

Arthur Linker, Scarsdale, NY

Dan Logue and Monica Roth, Bedford, NY

James Peale, Bronxville, NY

Theodore Plotkin, Somers, NY

Charles Schulster, Crompond, NY

Frank Tedeschi, Crompond, NY

Jay Yee, Dobbs Ferry, NY

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

Clouds From Top To Bottom

By Patrick L. Barry

During the summer and fall of 2006, U.S. Coast Guard planes flew over the North Pacific in search of illegal, unlicensed, and unregulated fishing boats. It was a tricky operation—in part because low clouds often block the pilots' view of anything floating on the ocean surface below. To assist in these efforts, they got a little help from the stars.

Actually, it was a satellite—CloudSat, an experimental NASA mission to study Earth's clouds in an entirely new way. While ordinary weather satellites see only the tops of clouds, CloudSat's radar penetrates clouds from top to bottom, measuring their vertical structure and extent. By tapping into CloudSat data processed at the Naval Research Laboratory (NRL) in Monterey, CA, Coast Guard pilots were better able to contend with low-lying clouds that might have otherwise hindered their search for illegal fishing activity.

In the past, Coast Guard pilots would fly out over the ocean not knowing what visibility to expect. Now they can find out quickly. Data from research satellites usually takes days to weeks to process into a usable form, but NASA makes CloudSat's data publicly available on its QuickLook website and to users such as NRL in only a matter of hours—making the data useful for practical applications.

"Before CloudSat, there was no way to measure cloud base from space worldwide," says Deborah Vane, project manager for CloudSat at NASA's Jet Propulsion Laboratory. CloudSat's primary purpose is to better understand the critical role that clouds play in Earth's climate. But knowledge about the structure of clouds is useful not only for scientific research, but also to operational users such as Coast Guard patrol aircraft and Navy and commercial ships at sea.

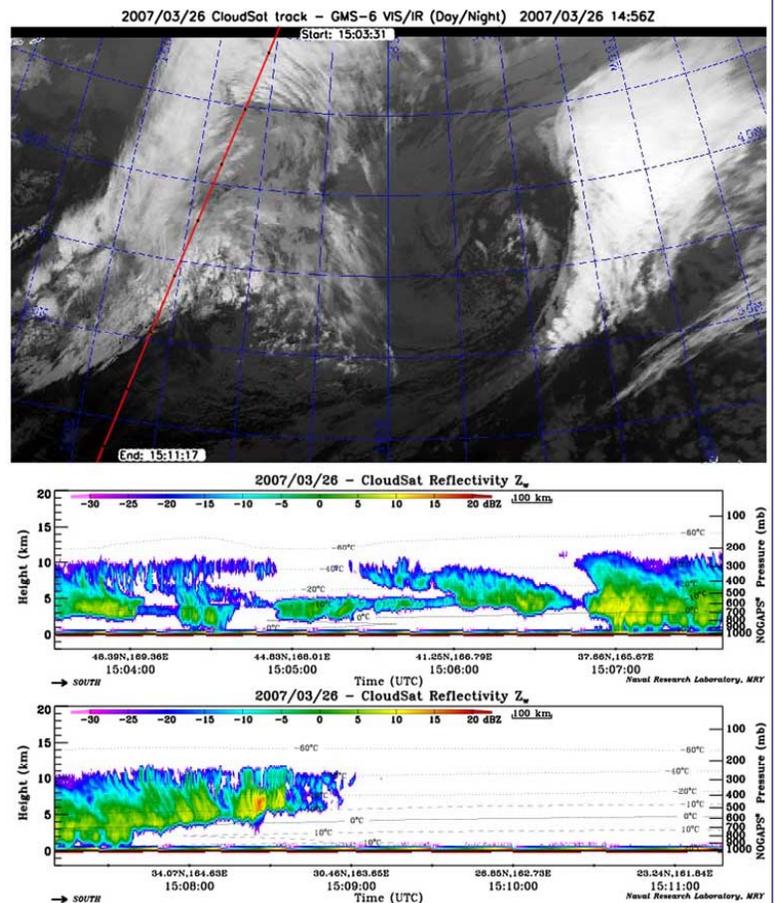
"Especially when it's dark, there's limited information about storms at sea," says Vane. "With CloudSat, we can sort out towering thunderclouds from blankets of calmer clouds. And we have the ability to distinguish between light rain and rain that is falling from severe storms." CloudSat's radar is much more sensitive to cloud structure than are radar systems operating at airports, and from its vantage point in space, CloudSat builds up a view of almost the entire planet, not just one local area.

"That gives you weather information that you don't have in any other way."

There is an archive of all data collected since the start of the mission in May 2006 on the CloudSat QuickLook website at:

<http://cloudsat.atmos.colostate.edu/>

The Jet Propulsion Laboratory, California Institute of Technology provided this article, under a contract with the National Aeronautics and Space Administration.



A CloudSat ground track appears as a red line overlaid upon a GMS-6 (a Japanese weather satellite) infrared image. CloudSat is crossing the north-central Pacific Ocean on a descending orbit (from upper-right to lower-left) near a storm front. The radar data corresponding to this ground track (beginning in the center panel and continuing into the lower panel) shows a vertical cloud profile far more complex than the two-dimensional GMS-6 imagery would suggest. Thicker clouds and larger droplets are shown in yellow/red tones, while thinner clouds are shown in blue. This image may be downloaded from:

http://spaceplace.nasa.gov/news_images/cloudsat_pass.jpg

Observing Reports and Photos

Even Experienced Viewers Can Have Problems **By Dave Butler**

Saturday April 21, 2007, Starway to Heavens

I arrived early expecting to see only one or two cars, but the first row of the Meadows area parking lot was almost filled. Only the Moon and Venus were visible. I pointed my scope north, turned on the tracking and pressed GOTO Venus. The scope pointed downward instead and I had to stop it. Something was wrong! Did I burn out a circuit board? Or was a sensor covered with grease. At any rate objects had to be found by releasing the locks and moving to the target and relocking. No fine movement controls on this scope. By this time the second row of cars had filled up. The good turn out had become very good.

Venus was my first target. It was about 2/3 illuminated, the top 1/3 unlit. In a scope without a diagonal it's the bottom 1/3 unlit. Normally I would have gone around looking at other scopes/targets but with no tracking, keeping the target in a narrow field zoom lens required more attention. Saturn was the next target. Saturn with its rings, a lower band and its small moons is always a crowd pleaser. Most of the evening I confused high power settings with low power. Man, was the moon bright (I thought I was at 250x but was at 83x). The Orion Nebula was an early target. The sky was too bright at that time to see anything other the multi-star system Trapezium. In fact I could see the Trapezium even in binoculars. An astronomy teacher had to point my scope to it. Also I was using low power thinking I was using higher power needed to darken skies. Even when the skies darkened Orion was viewed with too little power to show cloud structure.

The Moon is a fantastic target at 250x: the craters large and the shadows long. Slowly scrolling over the terminating divider, the southern part of the moon was filled with tiny craters whose density is hard to imagine.

I started a star tour with the Orion Nebula. Several busloads of kids came in at this time, although few seemed to have left the bus? My telescope's tracking now seemed to function. So I recalibrated the sky, put in a wide-angle 2-inch eyepiece and went to the beehive cluster, an 80-minute cluster of young stars. This was the first open cluster that the

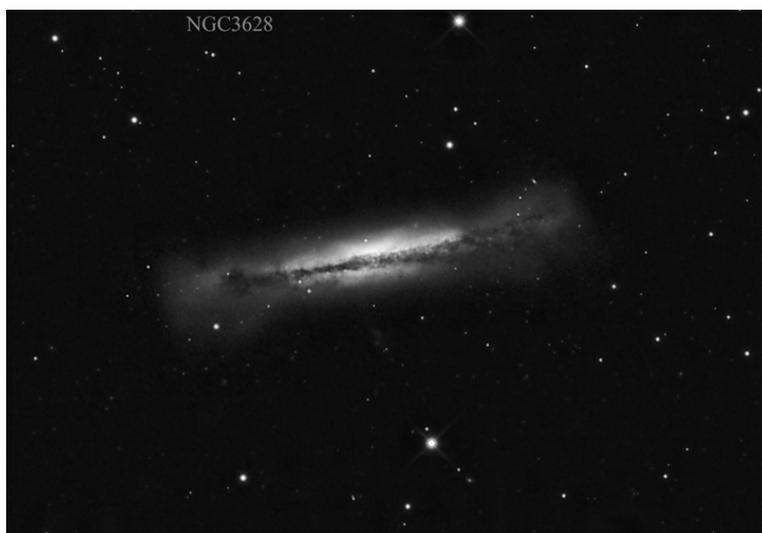
students had seen. We also looked at the close double, Castor and the red giant Betelgeuse. Then we viewed planetary nebulas: the Ghost of Jupiter and the Eskimo Nebula. The center star could be seen without adverted, vision but extra structure was seen with adverted vision. Normally the Crab Nebula would have followed as a super nova remnant, but I felt the moon would wash it out.

The students next viewed the globular clusters M3 and M5, practicing adverted vision to see fainter stars in the clusters. Now we went galaxy hunting. The Sunflower galaxy and the Blackeye were the first on the list. We also did two irregular galaxies; M81 was the best one of these. We viewed it at high power.

This was a very large crowd. The next day was Astronomy day at the Hudson River Museum it had 265 visitors. That was followed the next day at Quaker Ridge School with over 200 viewers viewing just Saturn, the Moon and Venus under mostly cloudy skies.

▼ **NGC 3628**

Rick Bria took this picture of NGC 3628—an edge on spiral galaxy in Leo, some 30 million light yrs away.

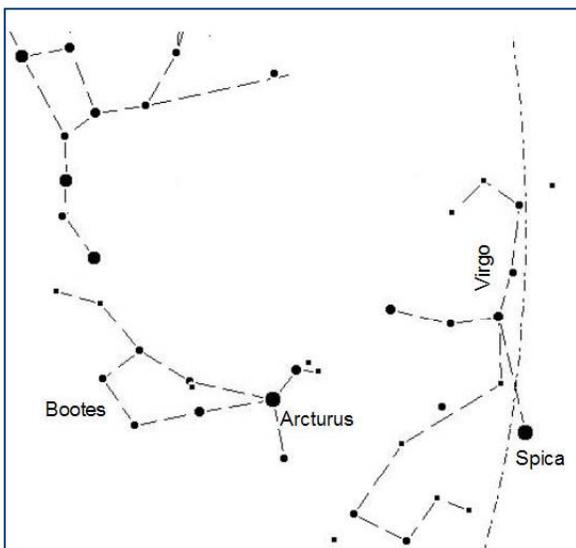


Constellation Corner:

By Matt Ganis

I was outside with my Observational Astronomy class the other night; I realized it was “Virgo time” again. It’s the time of year when it’s easy to get a good glimpse at that constellation and at the wonderful galaxies located in this “astronomical treasure chest”. Finding Virgo is pretty easy. I’ve done this in the past, but it never hurts to repeat. Start with the Big Dipper. Follow the stars in the handle of the dipper as they create an arc in the sky. As the saying goes, you “Arc on down to [the star] Arcturus” (which is in the constellation of Bootes) then you “spike on down to Spica (pronounced Spike-Ah)” and you’ll be in the constellation of Virgo.

Virgo is the second largest constellation in the sky (with the largest being Hydra) and spreads out over a fairly large region of the sky. The Sun passes through this constellation from late September through the end of October, which is the time of the Autumn Equinox. So it shouldn’t be surprising that the constellation is a Spring/Summer constellation. The origin of Virgo as both a mother and virgin can be traced to prehistoric times, and it is often associated with birth and new life. By tradition, this is the only female figure counted among the constellations of the Zodiac. She is usually depicted either holding an ear of wheat or carrying the Scales of Libra, the adjoining constellation.



Virgo contains over 2,000 galaxies—spirals, barred spirals, lenticulars and ellipticals may be found within this constellation due to the fact that this area of the heavens is in the same line of sight as the Virgo cluster of galaxies, the greatest concentration of galaxies in the Earth’s region of the universe. The cluster, of which the

Milky Way is a distant member, is part of the Local Supercluster, an even larger group of galaxies which are bound together by the invisible forces of gravity. The light which reaches Earth from these galaxies today began its long journey at approximately the same time the dinosaurs became extinct (some 60 million years ago). The brightest of these is known as the Sombrero Galaxy (M104) an edge-on galaxy that has the appearance of a sombrero hat because of a dark dust lane that cuts along its equator, The galaxy has an apparent magnitude of 9.0, making it a galaxy that can easily be seen with amateur telescopes.

There is an interesting “string” of galaxies located in the central region of the Virgo cluster called “The Markarian’s chain” from the name of the observer who first noticed it. You can see the two bright elliptical galaxies of M84 and M86 on the right hand side and a gentle curve that is stretched to the northeast formed by several fine galaxies. Though this picture shows you only bright ones (because it was taken with a small telescope) actually this noticeable curve consists of over ten galaxies with various sizes and brightness. The Markarian’s chain is a very characteristic row of galaxies in the Virgo cluster; you can enjoy jumping galaxies into your field of view one after another by tracing telescope along the curve. You should remember that the members of Markarian’s chain have no special gravitational interactions. These galaxies are lined up simply by chance and our line of sight, much in the way that various constellations are formed by connecting characteristic stars. The Markarian’s chain is, as it were, like a kind of constellation composed of galaxies.



Almanac

For May 2007 by Matt Ganis

Can you believe it's May already? I didn't get my fill of the winter constellations and now I have to change gears and re-familiarize myself with the Spring/Summer skies. It still bothers me that there aren't any "wet" or "flowery" constellations so I could use the old "April Showers brings May flowers" saying—but given I'm allergic, that's probably for the best.

If you've been following Venus lately this may seem a little hard to believe. But this month Venus makes it's BEST appearance of the year (as if it hasn't been spectacular up until now). As May opens, the already bright planet increases in magnitude to about -4.2 and climbs a bit higher into our evening skies, setting about 3 ½ hours after sunset. The planet isn't much to look at in a telescope (in my opinion), but it is slightly gibbous which makes for an interesting view.

By far, the prettiest sight in our nighttime skies is Saturn. It never ceases to make me laugh; every time I take newcomers out to the telescope and center it on Saturn. I just stand back and wait for the "Ooooooo" – happens every time! Saturn can be found in the Constellation of Leo, having just finished its retrograde motion. The planet is shining at a magnitude of about +0.2. If you want to see it, get out early, it's starting to set earlier and earlier (right now it sets at about 2:30am, but by month's end the planet will vanish under the western horizon by about 12:30am).

Around mid-month look for Mercury to enter the picture, low in our western skies. The little planet has just come out of its Superior Conjunction, a condition where an interior planet and the Earth are on opposite sides of the Sun; so we can once again get a glimpse of this fast moving planet. The tiny planet is just "below" Venus, located just between the horns of Taurus the Bull, and moving toward Venus in the constellation of Gemini. Mercury is shining at a magnitude of about -0.11 but since it will be so close to the Western horizon at midmonth, it may not appear that bright until month's end when it's had time to climb higher in the skies.



May 1



May 10



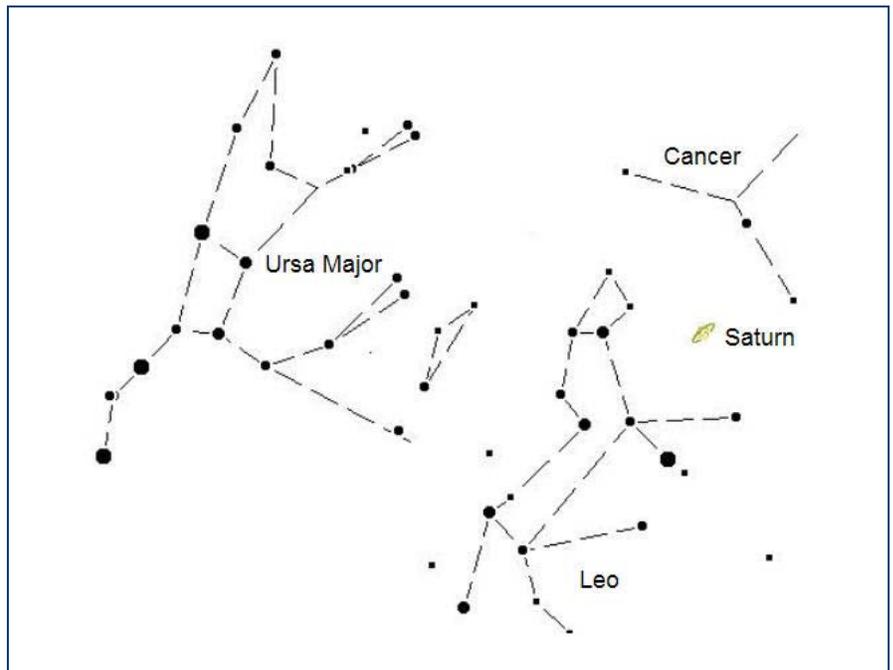
May 16



May 23

Jupiter is starting to come into view this month. At the start of the month, the "King" of our Solar System rises around 10:30pm, but by month's end the planet will rise around 8:30pm (just when it's getting dark) and reaches it's greatest height in our evening skies about the time that Saturn sets beyond the western horizon. Jupiter is shining at an impressive magnitude -2.5, so come next month; this should be a readily available, bright object that can be added to your observing list.

The Eta Aquarids are flakes of dust from Halley's Comet, which last visited Earth in 1986. Although the comet is now far away (beyond the orbit of Uranus) it left behind a stream of dust which the Earth passes through twice a year: in May and October. In May we have the Eta Aquarid meteor shower and in October we have the Orionids (both are caused by Halley's Comet). The Eta Aquarid meteor shower peaks on Saturday, May 6th, and the best time to look is during the hours



immediately before sunrise on Saturday morning. This isn't a very active shower since meteor rates are expected to be 5 to 10 meteors per hour. Unfortunately the moon will have just been full on the 2nd of May, so the sky will still be quite bright, diminishing this shower even more.