

Sky **WAA** tch

The Monthly Publication of the Westchester Amateur Astronomers

April 2008



Credit: STS-122 Shuttle Crew, NASA

New Face of the Space Station

The developing International Space Station (ISS) has changed its appearance again. Last month, the Space Shuttle orbiter Atlantis visited the ISS and added components that included the Columbus Science Laboratory. The entire array of expansive solar panels is visible in this picture taken by the Atlantis Crew after leaving the ISS to return to Earth.

For further details see: <http://apod.nasa.gov/apod/ap080305.html>.

Events for April 2008

➤ Monthly Meetings

"400th Anniversary of the Optical Telescope "

Friday, April 4, 8:00PM

Andrus Planetarium

Hudson River Museum, Yonkers

Alan Witzgall spans the history of the optical telescope in a commemoration of its 400th Anniversary. Free and open to the public.

Brother Novak will speak at our May meeting scheduled for May 2nd. Further details will be supplied in our next issue. Also

➤ Starway to Heaven

Saturday, April 5, 8:00-10:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled observing date for April, weather permitting. Free and open to the public. The scheduled rain/cloud date is April 12.

Editor's Note: The list of new and renewing members will be updated next month.

WANTED: CLUB PHOTOGRAPHER

All that's needed is a digital camera and the willingness to attend and photograph as many club events as possible. Respond to:

Waa-newsletter@westchesterastronomers.org

FOR SALE

Anthony Maida is selling a Celestron Nexstar 80 GT - computerized. Like brand new, hardly ever used, asking \$200. Contact at 914-937-4387. Also selling the following books

- Planets and Moons, by William J. Kaufmann
- Fireballs, Meteors & meteorites, by Harold R. Povenmire
- Encyclopedia of Astronomy and Astrophysics
- Astronomy Data Book, By J. Hedley Robinson & James Murden
- The Amateur Astronomers handbook, by James Murden
- Philip's Complete guide to Stargazing, Robin Scagell
- Hubble Vision Astronomy with the Hubble Space Telescope, Carolyn Collins Petersen & John c. Brandt
- The Cambridge Encyclopedia of Astronomy
- Space, by Anthony Feldman
- The Telescope handbook & Star Atlas, Neal Howard
- Atlas of the Solar system, Patrick Moore & Gary Hunt
- Encyclopedia of the Solar system, Paul R. Weissman.
- Lucy Ann McFadden & Torrence V. Johnson
- Astronomy, How we view our solar system and the Universe Beyond, Ian Ridpath
- Imaging Saturn The voyager Flights to Saturn, Henry cooper
- Astronomy with Binoculars, James Muirden
- Comets a Descriptive Catalog, Gary W. Kronk
- Astronomy an Intro for the Amateur Astronomer, by Jacqueline Mitton
- Space Time Infinity , by James Trefil
- The Realm of the Tesselstial Planets, By Zdenek Kopel
- Astronomy today, By Dinah Moche
- Pictorial Astronomy
- The comet Book, by Robert Chapman
- Moons and Planets, Walter Sullivan
- The Illustrated Encyclopedia Astronomy and Space
- Black Holes, Walter Sullivan
- Observational Astronomy for amateurs, by J.B Sidgwick
- The Stars and their Courses, By James H. Jeans
- A complete manual of Amateur Astronomy, by P. Clay Sherrod

OTHER TITLES AVAILABLE AS WELL.

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; Webmaster: Robert Davidson.

Articles and Photos Gallery

Tracking Wildlife from Space by Patrick Barry

It's 10 o'clock, and do you know where your Oriental Honey Buzzard is? Tracking the whereabouts of birds and other migrating wildlife across thousands of miles of land, air, and sea is no easy feat. Yet to protect the habitats of endangered species, scientists need to know where these roving animals go during their seasonal travels.

Rather than chasing these animals around the globe, a growing number of scientists are leveraging the bird's-eye view of orbiting satellites to easily monitor animals' movements anywhere in the world.

The system piggybacks on weather satellites called Polar Operational Environmental Satellites, which are operated by the National Oceanic and Atmospheric Administration (NOAA), as well as a European satellite called MetOp. Sensors aboard these satellites pick up signals beamed from portable transmitters on the Earth's surface, 850 kilometers below. NOAA began the project—called Argos—in cooperation with NASA and the French space agency (CNES) in 1974. At that time, scientists placed these transmitters primarily on buoys and balloons to study the oceans and atmosphere. As electronics shrank and new satellites' sensors became more sensitive, the transmitters became small and light enough by the 1990s that scientists could mount them safely on animals. Yes, even on birds like the Oriental Honey Buzzard.

“Scientists just never had the capability of doing this before,” says Christopher O’Connors, Program Manager for Argos at NOAA.

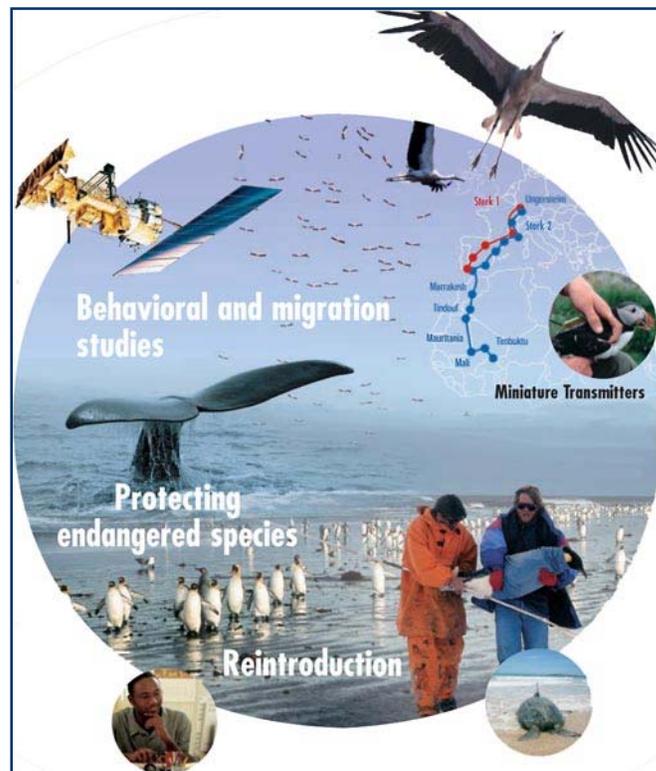
Today, transmitters weigh as little as 1/20th of a pound and require a fraction of a watt of power. The satellites can detect these feeble signals in part because the transmitters broadcast at frequencies between 401 and 403 MHz, a part of the spectrum reserved for environmental uses. That way there's very little interference from other sources of radio noise.

“Argos is being used more and more for animal tracking,” O’Connors says. More than 17,000 transmitters are currently being tracked by Argos,

and almost 4,000 of them are on wildlife. “The animal research has been the most interesting area in terms of innovative science.”

For example, researchers in Japan used Argos to track endangered Grey-faced Buzzards and Oriental Honey Buzzards for thousands of kilometers along the birds' migrations through Japan and Southeast Asia. Scientists have also mapped the movements of loggerhead sea turtles off the west coast of Africa. Other studies have documented migrations of wood storks, Malaysian elephants, porcupine caribou, right whales, and walrus, to name a few.

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



The ARGOS program tracks the whereabouts of endangered migrating animals via miniature transmitters on the animals and the POES satellites in orbit.



◀ Pelican Nebula

Rick Bria and Ted Schimenti took this image of the Pelican Nebula in Cygnus at the Round Hill Observatory. The image is over 8 hours of 15-minute guided sub exposures through an H-Alpha filter using the FSQ106mm refractor scope.

The Pelican is 1500 light years away and its shape comes from a dark absorption cloud (designated LDN 935) silhouetted between us.



◀ Moon and Jupiter

Bob Kelly took this image of the Moon and Jupiter with a Canon A40 on tripod; 1-sec exposure ISO 100 F4.8 3x optical zoom.



◀ Galaxy Wars

Rainer Zmaritsch and Alexander Gross shot this picture of the gravitational interaction between M81 and M82. For details see:

<http://apod.nasa.gov/apod/ap080325.htm>.

Constellation Corner:

by Matt Ganis

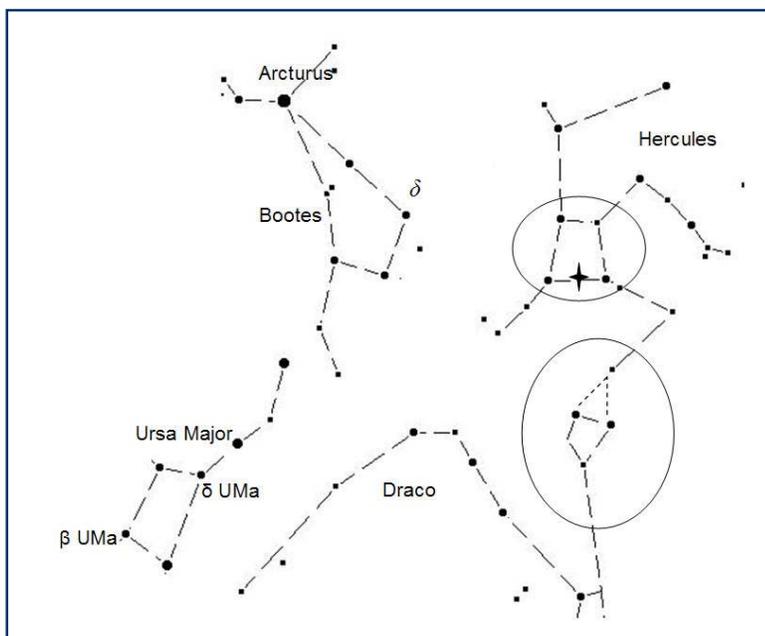
When I write this column, I like to look at what's happening that month, and relate it (somehow) to a constellation in the sky. Now for this month, according to the old wife's tale: "April Showers (are supposed to) bring May Flowers" but I couldn't find any "floral" or "wet" constellations in the sky (other than Aquarius). But do I "need" an official constellation? What if I made one up and just created my own Asterism?

The only difference between a constellation and an asterism is that a constellation is the name given to an officially recognized grouping of stars (or location on the celestial sphere). The International Astronomical Union (IAU) divided the sky into 88 official constellations with exact boundaries, so that every direction or place in the sky belongs within one constellation. An asterism, on the other hand, is a star-pattern but it is not a constellation that is recognized by the IAU. Asterisms may be made up of stars that are contained within a single constellation or consist of stars belonging to different constellations. For example, the Big and Little Dippers are asterisms within the constellations of Ursa Major and Ursa Minor respectively. Neither are "officially" constellations, but both are very recognizable patterns in the nighttime sky. So since I couldn't find a constellation this month to talk about, I thought I'd talk about some of the more common Asterism's located in our heavens.

If we start at one of the most recognized asterisms in the night sky, the Big Dipper (formed by the stars Dubhe (α UMa), Merak (β UMa), Phecda (γ UMa), Megrez (δ UMa), Alioth (ϵ UMa), Mizar (ζ UMa) and Alkaid (η UMa) – we can spot a few more. So in the chart, draw an imaginary line from Merak (β) through Megrez (δ) and after passing "over" the constellation of Bootes you should run right into the constellation of Hercules. In this constellation we find the famous "keystone" asterism named after its shape, which is made by four of the main stars in Hercules – Epsilon, Zeta (Rutilicus), Eta, and Pi. Located

between Eta and Zeta is the famous Hercules globular cluster of stars, M13.

If you follow an imaginary line from the bright star Arcturus (in the constellation of Bootes)



through the dimmer star Delta Bootis, you're lead into the constellation of Draco the Dragon. This is a large constellation that coils around the north celestial pole, appearing to encircle Ursa Minor, and does indeed resemble the object after which it is named. The Lozenge is an interesting little diamond shaped asterism that is made up of three stars that make up the head of the dragon: (Eltanin or γ Draco, Grumium (ξ Draco), and Rastaban or β Dra) and finally iota Herculis (located in the foot of Hercules).

So while some of the stars may be a little difficult to see from our skies here in the Northeast, take a look and see if you can pick out these interesting little patterns. I never did make up my own Spring time asterism- I guess I'm just not creative enough – if you can come up with an interesting "Springtime" asterism, I'd love to hear from you.

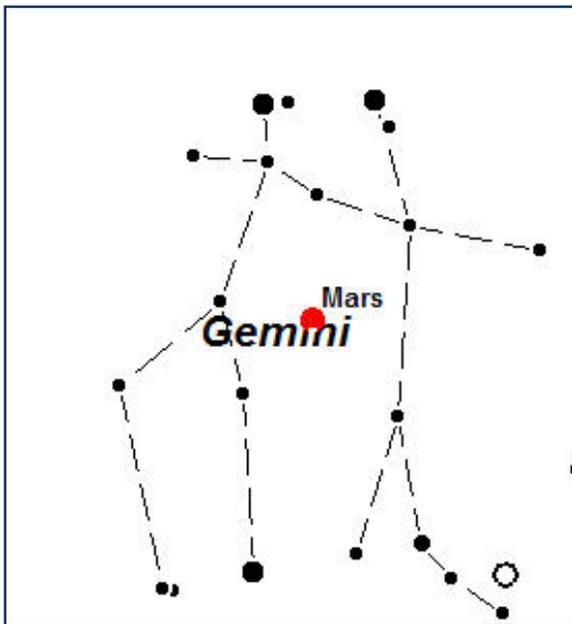
Almanac

For April 2008 by Matt Ganis

I sure hope that the month of April brings a few warmer evenings with it. I was outside with my class tonight and it's still pretty cold out there (1 week from April 1st). Even though the colder nights tend to be better for observing, I think I prefer the warm spring evenings most of all.

Saturn is still well placed for observing in our April skies. Her rings are becoming harder to see as the planet tilts them to point right at us as they practically disappear from view by 2009. On April 28, Saturn's rings will be about 9.94 degrees from edge-on, which will be showing their maximum extent for the year. Saturn is currently in the constellation of Leo, located a mere 2.5° from the bright star Regulus and shining at a respectable +0.32 magnitude (compared to the +1.36 magnitude Regulus).

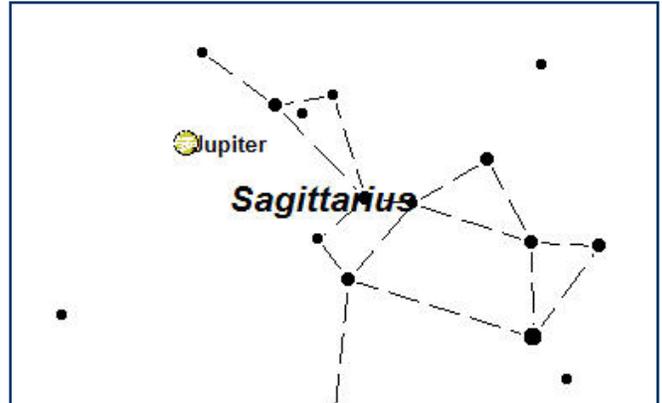
Mars is located almost exactly in the middle of the constellation Gemini (placed equidistant from both of the twins) – forming a perfect (upside down) triangle with Castor and Pollux making up the baseline. The planet is still fairly bright shining just slightly brighter than a magnitude of +1.0.



The Giant of our Solar System, Jupiter, starting at about the 3am hour, will dominate our early morning skies. Look for Jupiter just to the "left" of the teapot's handle in Sagittarius. As usual, the big planet outshines everything in its neighborhood, blaring at magnitude of about -2.26.



Astronomy Day comes the day before Earth Day on April 22. Overnight from April 21 to April 22 you can watch the peak of the Lyrid meteor shower as a way to celebrate one of the best sky shows on



Earth.

The constellation Lyra, from which the meteors appear to emanate, rises in the northeast a little after sunset. The origins of the Lyrids is a comet named Thatcher, which left behind the debris that lights-up our Spring skies this April. Thatcher is a so-called long-period comet, because it takes about 450 years to make a single trip around the sun (any comet with an orbit longer than 200 years is considered a long-period comet). The Comet Thatcher last made its closest approach to the Sun in 1861. Because of this, the Lyrids tend to be a moderate shower (at best) however, they do tend to be bright, leaving some wonderful trails in their wake. The shower typically produces about 10-20 meteors per hour (at peak) under optimum conditions. However, uncommon surges can sometimes bring the rate to about 100 per hour. Unfortunately, this year the moon (which is only one night past full) will be up all night during this year's shower. I wouldn't expect much from this shower, but of course, you never know.

On the evening of April 8th, you can watch the thin crescent Moon occult the Pleiades. Look in the western skies starting around 8pm when the Moon will be about 1.5° from the famous open cluster. As the night progresses, you can watch the moon fully occult the cluster and keep them hidden from view until it sets around 11pm. Two days later, the Moon also has a "close encounter" with Mars on the evening of April 11th. The two objects will be separated by only about 2 degrees in the sky.