SkyWAAtch

The Monthly Publication of the Westchester Amateur Astronomers **October 2006**

Rick Bria took this impressive photo of the full moon at the Round Hill Observatory on September 7th; it's a two-piece mosaic, assembled in MaximDL4. He employed a 14.5 RCOS scope, with an exposure of .11 seconds, binned 2X2.

Why didn't the full moon swamp the CCD chip? A Hydrogen Alpha filter was used. Says Rick: "It's a filter that lets in a very small bandwidth of light in the red area of the visible spectrum . . . [I]t almost completely eliminates light pollution. Since most emission nebula emit H-Alpha light, it comes in very handy when imaging those kinds of objects from Greenwich. Also, one can image in H-Alpha with a bright Moon out, so it adds about 2 weeks per month of imaging time. And, since it only lets about 6 nanometers of bandwidth through, you can even image the full Moon without overwhelming the CCD chip of your imaging camera."

Serving the Amateur Community Since 1983

Events for October 2006

➢ *Basics of the Hertzsprung-Russell Diagram*

Friday, October 6, 8:00PM
Hudson River Museum, Yonkers

Paul Renken, a science teacher at Roosevelt High School in Yonkers and a past President of the Westchester Amateur Astronomers, will discuss the Hertzsprung-Russell Diagram and how this diagram is used to categorize stars. The lecture is free and open to the public. Join us at 7 p.m. for our social hour or a free planetarium show before the meeting.

➢ *"Starway to Heaven"*

Saturday, October 14, 7-10:00PM
Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled observing date for October, weather permitting. Free and open to the public. **Rain/Cloud date will be October 21.**

➢ *Stamford Observatory Night*

Sunday, October 15, 7-10:00PM
39 Scofieldtown Road, Stamford, CT

Charles Scovill will guide us around the skies with the 22-inch Maksutov – now a "go to" telescope with a video monitor. The rain/cloud date is October 22.

Call: 1-877-456-5778 (toll free) for announcements, weather cancellations, or questions.

Call for Nominations:

It's time to hold our annual elections for the 2007 calendar year. Any current member with an interest in volunteering as an officer is welcome to nominate themselves (or suggest someone else) to the following positions: President, Senior Vice President, Treasurer, Secretary, Vice President Field Events, Vice President Programs and Vice President Communications. Nominations must to be received by November. This is a great opportunity for anyone to combine his or her interest in astronomy with the month-to-month affairs of the club. Please consider running and contact the club.

Club Bits

New Members:

Alan Marzullo, South Salem, NY

Renewing Members...

James Brook, Rye Brook, NY
Robert Davidson, Chappaqua, NY
Kevin Doherty, White Plains, NY
Margaret Frisch, Mahopac, NY
Alexander Halimou, Pleasantville, NY
John Klaus, Valhalla, NY
Christine Nowakowski, Mt. Vernon, NY
Richard and Kevin Shaw, Yonkers, NY
James Steck, Mahopac, NY
Robin Stuart, Valhalla, 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: $25 per family, and includes discounts on *Sky & Telescope* and *Astronomy* magazine subscriptions. Officers: Mike Cefola, President; Robert Davidson, Senior Vice Pres.; Mike Virsinger, Treasurer; Karen Seiter, Secretary; Charles Gibson; Vice Pres. Programs; Barbara Moroch, Vice Pres. Communications; Newsletter: Tom Boustead; Webmaster: Robert Davidson.

Articles

Staggering Distance

By Dr. Tony Phillips

Tonight, when the sun sets and the twilight fades to black, go outside and look southwest. There's mighty Jupiter, gleaming brightly. It looks so nearby, yet Jupiter is 830 million km away. Light from the sun takes 43 minutes to reach the giant planet, and for Earth's fastest spaceship, New Horizons, it's a trip of 13 months.

That's nothing.

Not far to the left of Jupiter is Pluto. Oh, you won't be able to see it. Tiny Pluto is almost 5 billion km away. Sunlight takes more than 4 hours to get there, and New Horizons, 9 years. From Pluto, the sun is merely the brightest star in a cold, jet-black sky.

That's nothing.

A smidgen to the right of Pluto, among the stars of the constellation Ophiuchus, is Voyager 1. Launched from Florida 29 years ago, the spacecraft is a staggering 15 billion km away. It has traveled beyond all the known planets, beyond the warmth of the sun, almost beyond the edge of the solar system itself.

Now that's something.

"On August 15, 2006, Voyager 1 reached the 100 AU mark—in other words, it is 100 times farther from the Sun than Earth," says Ed Stone, Voyager project scientist and the former director of NASA's Jet Propulsion Laboratory. "This is an important milestone in our exploration of the Solar System. No other spacecraft has gone so far."

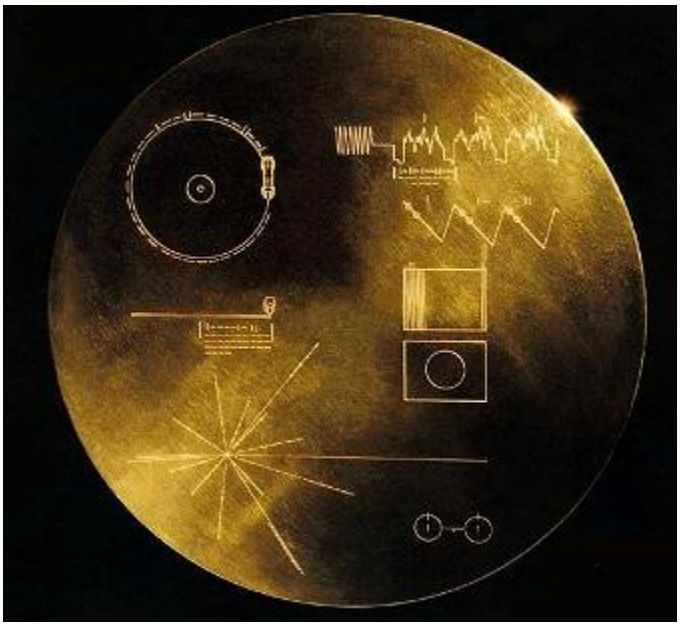
At 100 AU (astronomical units), Voyager 1 is in a strange realm called "the heliosheath."

As Stone explains, our entire solar system—planets and all—sits inside a giant bubble of gas called the heliosphere. The sun is responsible; it blows the bubble by means of the solar wind. Voyager 1 has traveled all the way from the bubble's heart to its outer edge, a gassy membrane dividing the solar system from interstellar space. This "membrane" is the heliosheath.

Before Voyager 1 reached its present location, researchers had calculated what the heliosheath might be like. "Many of our predictions were wrong," says Stone. In situ, Voyager 1 has encountered unexpected magnetic anomalies and a surprising increase in low-energy cosmic rays, among other things. It's all very strange—"and we're not even out of the Solar System yet."

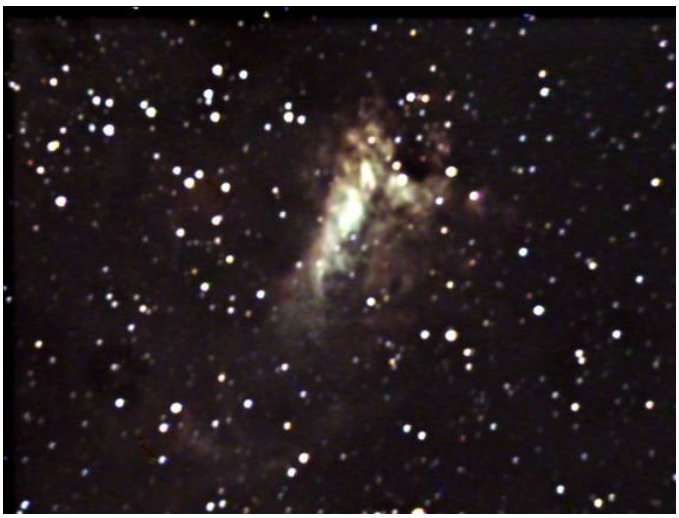
To report new developments, Voyager radios Earth almost every day. At the speed of light, the messages take 14 hours to arrive. Says Stone, "it's worth the wait."

Keep up with the Voyager mission at voyager.jpl.nasa.gov. This article was provided by the Jet propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



In case it is ever found by intelligent beings elsewhere in the galaxy, Voyager carries a recording of images and sounds of Earth and its inhabitants. The diagrams on the cover of the recording symbolize Earth's location in the galaxy and how to play the record.

Photo Gallery



Swan Nebula ◄

John Paladini took this photo of the Swan Nebula (M17) in Sagittarius. Also known as the Omega and Horseshoe nebula, M17 is an emission nebula somewhat under 5,000 L.yrs distant. John used a Meade Deep Sky Imager, a stack of ten. The telescope was a 6" Meade Schmitt/Newtonian.

Veil Nebula ►

John Paladini also took this photo of NGC 6960, part of the Veil nebula in Cygnus. Sometimes known as Caldwell 33/34, the Veil nebula is a remnant of a star, which went supernova some 15,000 years ago. The nebula is about 2,500 L.yrs distant. The bright star is 52-Cygnus (magnitude: 4.2).

You are encouraged to send your photos and sketches for inclusion in the Newsletter to info@westchesterastronomers.org.

Wanted: Want a Big Telescope? We are looking for two club members who would like to use the 20-inch Obsession or the 6-inch Saturn refractor. All we ask is that you store the telescopes in a safe location and occasionally bring them to our observing events. Contact the club if interested.

For Sale: Celestron Nexstar 8i/Starbright XLT with GPS Module, eyepiece promo kit, Power Tank portable power source, 8-inch dew shield, Lumicon 2-inch enhanced diagonal, 1.25-inch adapter and Parks 10mm G.S. Plossl. If interested, you can notify the club and we will put you in contact with the seller.

Constellation Corner:

By Matt Ganis

Here in the Constellation column I try to discuss some of the more interesting constellations in the sky and where to find them. In reading my latest issue of *Sky & Telescope* I noticed a nice little article about my favorite asterism, "the coathanger", so I thought I would devote this month's column to the topic.

So what is a constellation? Simply put, a constellation is a pattern of stars in the sky named for a person, animal, or object – typically derived from a mythological legend. Astronomers use these constellations to designate directions in space; for example the Pleiades star cluster, M45, lies in the direction from us marked by the pattern of stars we call Taurus.

In 1930, the International Astronomical Union (IAU) divided the entire sky into 88 constellations. Many in the Southern Hemisphere were named in the 1600s, and reflect the scientific interests of the time. These include Telescopium (the telescope), Microscopium or the Microscope and Fornax, the furnace. Constellations in the Northern Hemisphere were typically named in ancient times, and have names derived from Greek and Roman mythology. Remember, simply because the International Astronomical Union adopted Greek and Roman constellations by no way means that the Greeks and the Romans were the only people to make up constellations. Nearly all cultures did (and do) since the patterns make the stars easier to identify, and therefore more useful for timekeeping which was essential for agriculture.

An asterism on the other hand is a star-pattern or arbitrary group of stars, which may be part of a constellation or contain pieces of several constellations to form its pattern. Asterisms aren't official constellations: they're simple geometric patterns, usually only of the brightest stars, that serve as useful guides to finding the constellations. The word "Asterism" derives from the Greek word for star, aster. However, in ancient astronomical texts aster was often used for a combination of stars rather than for single stars. Aster could also refer to a planet, a particular configuration of planets or a conjunction of planets and stars. This usage might be implicit in the Bible's description of the Star (aster) of Bethlehem, which, if it was not an angelic or supernatural phenomenon, need not have been a single star.

The Big and Little Dippers are asterisms within the constellations of Ursa Major and Ursa Minor. The Summer Triangle and Winter Hexagon are asterisms that include stars from several constellations (in the case of the Summer triangle, it's made up of three stars: Altair, Deneb and Vega – all from different constellations).

The "Coathanger" asterism, or Brocchi's Cluster, is made up of ten stars ranging from fifth to seventh magnitude which form the conspicuous Coathanger, a straight line of

six stars with a "hook" of four stars on the south side. An additional thirty or so fainter stars are sometimes considered to be associated as well. The asterism, or Brocchi's Cluster, can be seen with the naked eye as an unresolved patch of light, but binoculars or a telescope at very low power are needed in order to view the Coathanger. It is best found by slowly sweeping across the Milky Way along an imaginary line from the bright star Altair toward the even brighter star Vega. About one third of the way toward Vega, the Coathanger should be spotted easily against a darker region of the Milky Way.

Almanac

For October 2006 by Matt Ganis

Sept 30 | Oct 6 | Oct 13 | Oct 22 | Oct 29

This month's October sky doesn't provide for much in the way of planetary viewing. But, if you want to get a glimpse of Jupiter, wait until just after sunset, and find a location with a clear view of the western horizon. The planet itself is still very bright, shining at a magnitude of about -1.8. You better hurry though, at month's end the planet will set by about 5:20pm and you'll miss it. While you're at it take a look closer to the Western horizon to get a quick look at Mercury. It's quite bright in it's own right, shining at a magnitude of -0.08 – but remember that you'll need a clear view of the Western horizon.

Early in the month of October we get a guided tour of two of the more distant planets in our solar system: Neptune and Uranus (if we listen to the IAU we could say the outer most two planets of our solar system). On October 2nd the planet Neptune is about 5 degrees North of an almost-full moon. The planet is rather dim, shining at a magnitude of only +7.5. With the moon about 75% full, the glare may add to the difficulty, but it's still worth a shot. Then on October 4th, the moon passes about ½ of a degree to the south of a magnitude +5.7 Uranus. This should be an interesting view, but again, the moon reaches full on October 6th, so it may be a bit of a challenge.

The Orionid meteor shower is active throughout October and the first week of November. This shower is produced by the inbound particles of the famous Halley's Comet, which last passed through the inner solar system in 1986. The Earth passes closest to the comet's orbit on October 21. At this time the Earth actually only skims the outer fringes of the debris field produced by Halley's Comet, but can still produce a very entertaining display of celestial fireworks. When seen near maximum activity, you should be able to count 15 to 25 Orionid meteors per hour. The radiant of the shower, the area of the sky where the meteors seem to originate, is located in northern Orion. As the month progresses the radiant travels slightly less than one degree per night, toward the northeast. On the morning of maximum activity, October 21st, the radiant will be located on the Orion/Gemini border, three degrees west of the bright star Alhena (or Gamma Geminorum).