

Sky **WAA** tch

The Monthly Publication of the Westchester Amateur Astronomers

February 2008



Credit: [Expedition 9 Crew](#), [International Space Station](#), [NASA](#)

Hurricane Ivan from the Space Station

The destructive force of Hurricane Ivan damaged ninety percent of the houses on Grenada. At its peak, Ivan was a Category 5 hurricane, the highest power category on the Saffir-Simpson Scale, and created sustained winds in excess of 200 kilometers per hour. Ivan was the largest hurricane to strike the US in 2004, and, so far, the 10th most powerful in recorded history. As it swirled in the Atlantic Ocean, the orbiting International Space Station photographed from above the tremendous eye of Hurricane Ivan. The World Meteorological Organization has now retired the name Ivan from Atlantic Ocean use.

Events for February 2008

➤ Monthly Meetings

"Unique In Heaven and on Earth"

Friday, February 1, 8:00PM

Andrus Planetarium

Hudson River Museum, Yonkers

DON'T MISS! This Exclusive Presentation given by no other than, SAM STORCH! Free and open to the public.

➤ Starway to Heaven

Saturday, February 2, 7:00-9:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled observing date for February, weather permitting. Free and open to the public. The scheduled rain/cloud date is February 9.

➤ Lunar Eclipse

Saturday, February 20, 8:45-11:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

Join the Westchester Amateur Astronomers on Wednesday, February 20, and watch the total lunar eclipse. See the Almanac for background.

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/>.

Renewing Members. . .

Ramon Bloch, Yonkers, NY

Rick Bria, Greenwich, CT

David Butler, Mohegan Lake, NY

Dennis & Margot Dilmaghani, Purchase, NY

Martin Lee, Yonkers, NY

Alex Meleney, Greenwich, CT

Gary Miller, Pleasantville, NY

FOR SALE

Lightly and caringly used Tele Vue NP-101 4" APO refractor including: a 2" Everbrite diagonal with 1-1/4" adapter, a screw-on metal lens cover, a custom hard shell carry case, and a captive/sliding dew shield. Optics, coatings, mechanics and finish all are in like new condition. Purchased in July 2005. \$2,600. Other accessories are available, separately priced. Contact Chris Maier at 914-478-1388.



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.

Photos Gallery



Filter Study

Doug Baum took this interesting series of photos as he tried out a variety of filters. The top photo uses no filter. The middle image employs an H-Alpha filter while the bottom photo uses a sodium-mercury filter (NaHg). Notes Doug:

"I tried out some different filters with the MallinCam last night to see their effects. I used M42 to compare the filters.

These images are raw, no dark frames, no flat fields, no histogram adjustments, no stacking, no processing, nothing, nada! They are 7-second integrations.

I wasn't looking for a great final image, just wanted the comparison effects of the filters and it was pretty interesting.

The H-Alpha was the most impressive, and allowed me to capture the trap and nebulosity at the same time without overexposing the trap and losing those stars.

I really like the black background you get with the H-Alpha.

There is no doubt that the NaHg (sodium and mercury) improved my images. John Paladini from our group wrote the specs for this filter and Omega Optical put it into production! In fact, John was the one who suggested I run the filter tests.

It performed great and gave me more depth into the cloud structure and retained some nice color.



◀ More Orion

Dave Butler took this image of Orion's Nebula under adverse conditions. Notes Dave: "It was cold and windy with a full moon but the skies were clear. By the time the camera had cooled down and darks had been shot I had it so I did a very rough focus, took a few shots and packed up. These were 15-second shots without a wedge. I haven't got the software to guide yet. Quite different from visual you lose detail of the stars but get cloud layering totally invisible in the eyepiece."

Mare Nectaris ▶

Bob Kelley took this image of the Moon's Mare Nectaris impact basin. Note the shadowed ridges to the upper right of the dark basin. The second ridge is the Altai Scarp, which is the actual rim of the Nectaris basin. The light streak running from upper right across the ridges is a ray of material splashed from the impact that made the crater Tycho. 19-day old moon 6:45am, December 28, 2007. Bob used a Canon A40 through the eyepiece of an Orion 8-inch Dobsonian, 1/125 sec at F2.8, ISO 100.



◀ NO IT'S NOT THE MOON

It's a close up image of Mercury from NASA's MErcury Surface, Space ENvironment, Geochemistry, and Ranging probe. Credit:

Credit: [MESSENGER](#), [NASA](#), [JHU APL](#), [CIW](#).

Constellation Corner:

by Matt Ganis

What time is it? It's a question we invariably ask one another (probably) several times a day. But what is time and how do we measure it? Time keeping and construction of calendars are among the oldest branches of astronomy. All the time units that appear natural to man are caused by astronomical phenomena: For example, the year can be measured by the Earth's orbit around the Sun; the month by the Moon's movement around the Earth and the change of the Moon phases and of course, the day by Earth's rotation and the succession of brightness and darkness.

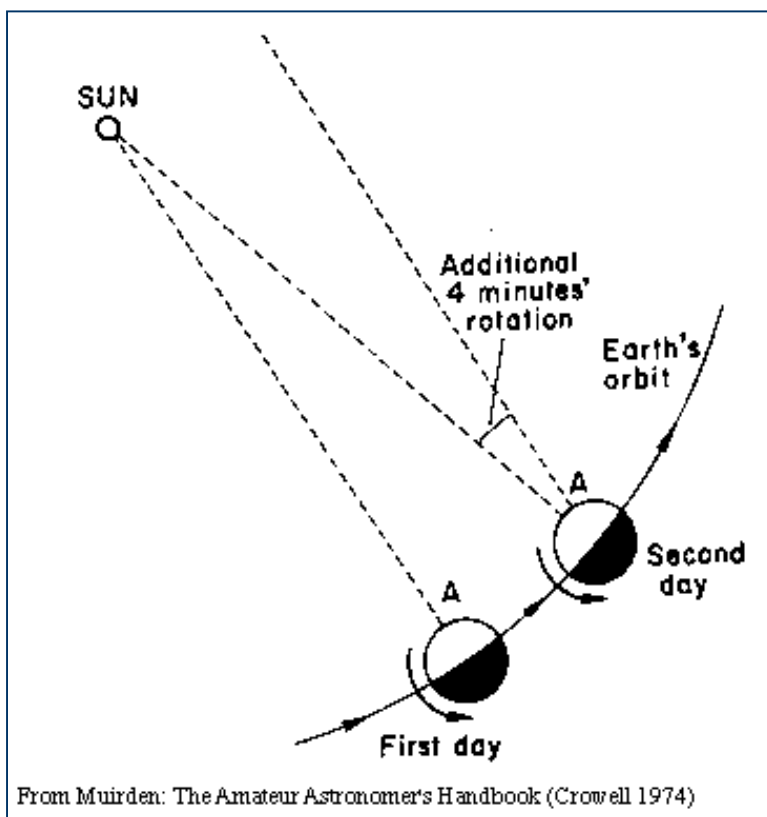
Solar time is the sort of time we're used to in our daily lives, where a day is 24 hours, or the time it takes for the Sun to complete one trip around the sky and return to its original position. Sidereal time, on the other hand, is measured according to the positions of the stars in the sky. A sidereal day is the time it takes for a particular star to travel around and reach same position in the sky. To further complicate things, a sidereal day is slightly shorter than a mean Solar day, lasting 23 hours, 56 minutes, and 4.1 seconds.

The reason that sidereal days are shorter is that while the Earth rotates on its axis, it is also moving around the Sun. Both motions are counter-clockwise as viewed from the North Pole. Consider the following diagram. Point "A" on the First day represents "Noon" – the point where the Sun is directly overhead. Now, you draw a line from the Earth to the Sun, and let it extend far beyond the Sun to point at a distant star. From the observer's point of view, the star is also overhead, although of course it would be hidden behind the Sun. Now, imagine that the Earth rotates once on its axis while it also moves through space around the Sun. Notice that "Point A" will still point toward the distant star, but it will no longer point toward the Sun! (Remember, it took us 23 hours, 56 minutes and 4.1 seconds to rotate on our axis once). It takes an additional 4 minutes for the Earth to rotate and have the Sun be directly overhead.

Standard Time is the time kept locally in each of the time zones when daylight saving time is not in use. Standard time is usually defined by an integral number of hours offset from universal time. In the 1800s, the time of the day was a local matter, and most cities and towns used some form of local mean solar time. Due to practical difficulties in having several times with respect to railroad travel railroad companies agreed to a new system which

divided the United States into four standard time zones.

For purposes of navigation and astronomy it is useful to have a single time for the entire Earth. For historical reasons, this "world" time was chosen to be the mean solar time at Greenwich, England (0 degrees longitude), and this time is called the Universal Time (UT). Universal time (UT) is simply the number of hours, minutes, and seconds, which have elapsed since midnight (when the Sun is at a longitude of 180°) in the Greenwich time zone.



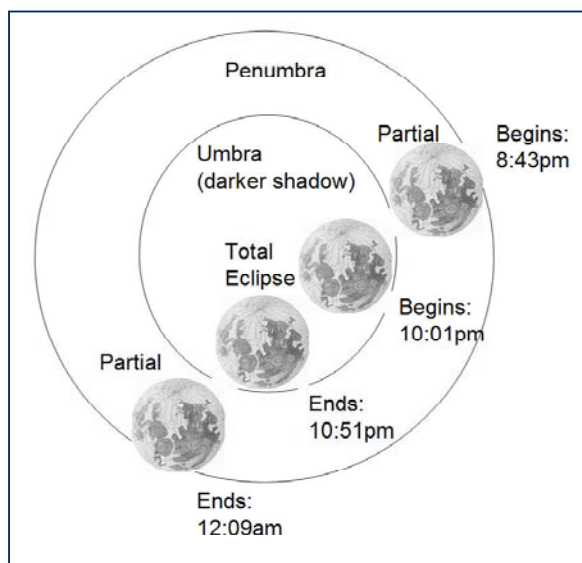
This is just the "tip of the iceberg" when it comes to time. A quick google search gives me at least 15 different ways of reckoning time. So next time someone asks you for the time, consider how complex of a question that is. Luckily for us, most people don't care about all this mess, but watch out if it's astronomer –the correct answer may be not the time, but "in what system are you referring".

Almanac

For February 2008 by Matt Ganis

This month in our skies should prove to be pretty exciting. On the evening of February 20th, you will be able to witness a total lunar eclipse. And luckily for us, the entirety of the eclipse will be visible in the eastern half of America. You should be sure to catch this one – we won't see another total lunar eclipse until December 2010.

From start to finish, this February's lunar eclipse will last about three hours and twenty-six minutes. The partial eclipse begins as the Moon's eastern edge slowly moves into the Earth's umbral shadow. During the partial phases, it takes just over an hour for the Moon's orbital motion to carry it entirely within the Earth's dark umbra. The color and brightness of the totally eclipsed Moon can vary considerably from one eclipse to another. Dark eclipses are caused by volcanic gas and dust, which filters and blocks much of the Sun's light from reaching the Moon. But since no major volcanic eruptions have taken place recently, the Moon will probably take on a vivid red or orange color during the total phase. After the total phase ends, it is once again followed by a partial eclipse as the Moon gradually leaves the umbral shadow. This eclipse will see totality lasting just under 50 minutes.



For your planetary viewing, look high in the sky, right between the horns of Taurus and you'll find a very bright Mars, shining at about a magnitude of -0.6. Better hurry though, by the end of the month the little red planet will fade in brightness to about +0.2 as it moves further from Earth in its orbit.

Of course, the prettiest of the planet's, Saturn, is well placed for your observing pleasure starting this month. The planet reaches opposition on February 24th (directly opposite the Sun) – rising at sunset and setting at Sunrise. The ringed planet isn't the brightest, shining only at magnitude of +0.3 at the start of the month. It brightens a bit as the month progresses, but not dramatically – it should still make for a pretty sight!

For you early morning risers, look for a close conjunction between Jupiter and Venus about two hours before sunrise. The two planets are separated by a mere 4 degrees in the sky and won't be this close again until 2014! I love these kinds of events – I won't go as far as to say "Once in a lifetime" – but if you miss it now and again in 2014, you may not get another chance!

Event	Time(EST)
Partial Eclipse	8:43pm
Total Eclipse Begins	10:01pm
Mid-Eclipse	10:26pm
Total Eclipse Ends	10:51pm
Partial Eclipse Ends	12:09am