

Sky WAA tch



Lunar Portrait

Rick Bria captured this image of the Moon with a 76mm Televue Refractor and a Canon T1i (in video mode) on September 15, 2010. The image is a 212 digital stack from a video containing thousands of frames. It was processed in Registax 5 and Photoshop CS5. Notes Rick: A quick look confirms that the Moon has been bombarded with asteroid impacts. These impact craters are a record of the violent conditions in our early solar system. Billions of years ago asteroids hit the Earth, and the Moon with tremendous force, blasting out craters. Since the Moon has no wind, rain, or plate tectonics, its craters remain to this day for us to study. The Earth has about one hundred craters that still can be seen (some from Google Earth) compared to the Moon which has about thirty thousand craters.

ANNUAL ELECTION

It's election time for the Westchester Amateur Astronomers. Please print out the Ballot on Page 8 of this issue, mark your votes, and then bring it to the November 5th meeting or mail to the Club at WAA, PO Box 44, Valhalla, NY 10595 postmarked no later than November 15th.

Events for November 2010

WAA Lectures

“The Discovery of Supernova 2008ha”

Friday November 5th, 8:00pm

**Miller Lecture Hall, Pace University
Pleasantville, NY**

Caroline Moore will speak on her discovery of a rare supernova. On November 7th, 2008, at age 14, Ms. Moore became the youngest person to record the finding of a supernova--supernova 2008ha in the galaxy UGC 12682 in the constellation Pegasus. Free and open to the public.

Upcoming Lectures

**Miller Lecture Hall, Pace University
Pleasantville, NY**

On December 2nd, Charles Scovill will give a talk entitled “A History of the Stamford Observatory, its 22-inch Telescope and the Astronomical Society.”

Starway to Heaven

Saturday November 6th, 7:00-9:00pm

**Meadow Picnic Area, Ward Pound
Ridge Reservation, Cross River**

This is our scheduled Starway to Heaven observing date for November, weather permitting. Free and open to the public. The scheduled rain/cloud date is November 13th. Participants and guests should read our [General Observing Guidelines](#).

New Members. . .

Benoit Bussiere - Croton-on-Hudson
Claudia & Kevin Parrington - Harrison



Renewing Members. . .

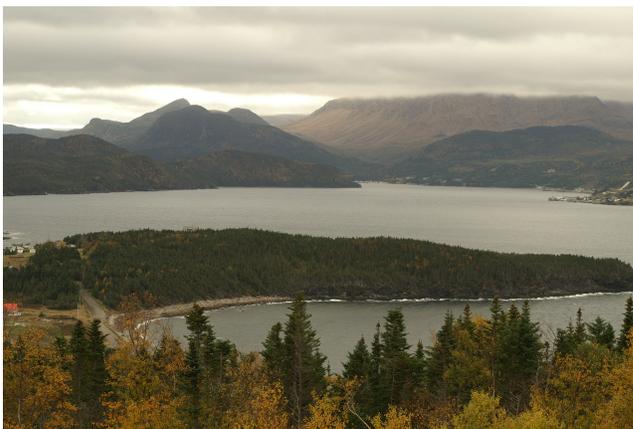
Frank Jones - New Rochelle
Olivier Prache - Pleasantville
Tom Boustead - White Plains
Rosalind Mendell - Hartsdale
Scott Nammacher - White Plains
John Mancuso - White Plains

WANTED: Individual to help edit the WAA newsletter. Initial responsibilities to be proof-reading, but eventually seeking someone to co-edit newsletter. Knowledge of Apple Pages would be helpful. Contact:

tom.boustead@westchesterastronomers.org

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/>.



Courtesy of Karen Seiter: The View from Norris Point, Gros Morne National Park, Newfoundland. The “Tablelands” are seen in the upper right of the photo. The Tablelands give an extremely rare view of the Earth's mantle which broke through the Earth's crust several hundred million years ago. They are considered to be strong evidence of plate tectonics.

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. 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: Mike Virsinger; Vice President: Charlie Gibson; Vice President Programs (lectures): Pat Mahon; Treasurer: Doug Baum; Vice President Membership: Paul Alimena; Vice President Field Events: David Butler; Newsletter: Tom Boustead.

Articles and Photos

Viewing Jupiter

by Larry Faltz

Jupiter is the King of the Planets. I know this because I was Jupiter in the 1957 P.S. 96 (Bronx) production (if you call what 4th graders do a "production") of a play about the solar system. I still recall my opening line, "I am Jupiter, King of the Planets." After that I recited some figures about the planet's distance, size and composition, and then I missed a cue. Thus began and ended my career as a thespian. This playlet, by the way, was the same one that my classmate Dava Sobel mentioned in her book The Planets. Dava was Pluto, the "Lonely Planet". How prophetic and ironic that was -- she was one of the members of the International Astronomical Union committee that recommended expelling Pluto from the fraternity of "actual" planets, which the IAU did in August 2006.

But back to Jupiter. Jupiter is obviously the King of the Planets. It's the most massive solar system body (other than the sun, of course). It alters the course of comets and asteroids as they pass through its gravitational well, and absorbs those that crash into it with the merest burp (for example, the famous impact of Comet Shoemaker-Levy in 1994). Only a King might have the power, or perhaps merely royal planetary-sized chutzpah, to command a storm, the Great Red Spot, to continue to blow for hundreds if not thousands of years. The King must be decked out in the finest garments, which we see as multicolored bands, spots and festoons on the planet's surface, details of which are visible in very large telescopes or with imaging devices and computer processing. And the King needs a court, in the form of 63 satellites, the 4 brightest (Io, Europa, Callisto and Ganymede) being fascinating objects for casual viewing.

For the next couple of months, Jupiter will be well placed for after-dinner observing on clear evenings. It reached opposition on September 16th, when the Earth was exactly between it and the sun. It was then 3.96 astronomical units from us (about 362 million miles), shining at magnitude -2.9 with a diameter of 49.8 seconds of arc. It is currently



Anthony Wesley, Exmouth WA Australia
 Aug 2010 17:49.4 Z CMI 60 CMII 203 CMIII 43
 This photograph is by one of the world's most accomplished planetary astrophotographers, Anthony Wesley, through a 14.5" reflector in his observatory in Australia. Used with permission.

retrograding (moving west against the stars) as we pass it on our inner orbit, but will reverse course in mid-November. It will be visible in the early evening at a reasonable elevation until February, with the earth's rotation carrying it towards the west as the days go by. The table shows the altitude above the horizon and the azimuth (180° is due South) at 8:00 pm (data from Cartes du Ciel).

Jupiter at 8:00 pm on	Altitude °	Azimuth °	Mag	Diam "
11/1/10	38.6	143.1	-2.8	46.8
11/15/10	43.4	161.0	-2.7	44.9
12/1/10	45.4	182.4	-2.6	42.6
12/15/10	44.0	200.5	-2.5	40.7
1/1/11	39.0	219.5	-2.4	38.6
1/15/11	33.2	232.4	-2.3	37.1"
2/1/11	25.1	243.5	-2.2	35.6

The planet will remain enticingly bright, fading only 0.6 magnitude between November and February, but as we move away in our orbit its diameter will decrease from 46.8" to 35.6", still an

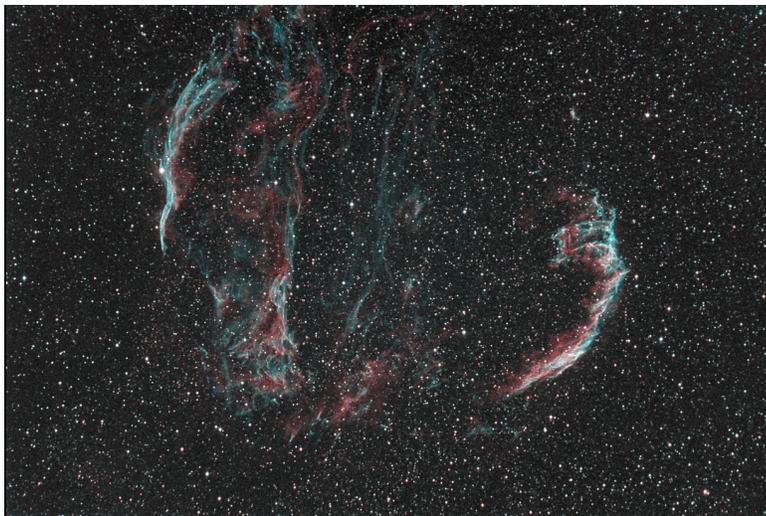
easy and worthwhile sight even in small telescopes. Because of its brightness, viewing is not compromised by the light of the moon, but be sure to use a dew shield or similar baffling device when the moon is close to avoid reflections.

Telescopes of every kind and configuration are wonderful for Jupiter viewing. A pair of binoculars will show the planet's disk and Galilean moons (I sometimes like to call them the "Medicean Stars", the name Galileo gave them). For telescopes, the general rule of planetary observing is that refractors are better than Newtonians, which in turn are better than compound telescopes (SCTs and Maksutovs) although all can give splendid views especially when the optics are good, the scopes are well-collimated and scopes with mirrors are cooled to ambient temperature (which can take an hour or more for SCTs and Maks). "Better" means sharp images with high contrast for the surface features. Achromatic refractors show chromatic aberration (CA) at shorter focal lengths ($f/6$ - $f/8$). CA causes slight purple and green fringes at the margins of bright objects, and can reduce resolution. This aberration can be partially compensated by a "minus violet" filter. Very slow $f/15$ achromatic refractors essentially devoid of CA are excellent scopes for looking at solar system objects and double stars. They used to be fairly common, but no one makes them anymore. Instead, many manufacturers are producing fast ($f/5$ - $f/7$) apochromatic refractors with expensive "ED" glass. These are often beautiful and versatile instruments, if somewhat expensive, and have wide fields good for scanning the Milky Way or for deep sky astrophotography in addition to tolerating very high magnification per inch for planets. For Newtonians and compound scopes, at any given aperture, the smaller the central obstruction the better the contrast and detail. The venerable 6" $f/8$ Newtonian, the mainstay of amateur astronomy in the days when owning a scope meant making your own mirror, is an outstanding planetary scope if the optics are good (and they are generally inexpensive). Aperture is always helpful: my best view ever was through the giant 26" Alvan Clark refractor at the Naval Observatory in Washington, DC in 1975.

Jupiter and its moons can be very pleasing at 50-60x. As you seek more detail by using a lower focal-length eyepiece, remember that most scopes don't tolerate more than 50-60x per inch of aperture

(and maybe 30-40x for Schmidt-Cassegrains). Our suburban skies usually prevent magnifications greater than about 250x in any scope because of all the particulates, humidity and heat columns in the atmosphere. Resolution is more important than magnification: a small, sharp image is usually more pleasing and revealing than a large, blurry one. As you get to higher magnifications with scopes that can perform reasonably you will see detail on the surface and even the Great Red Spot, which is more of a pinkish color these days. A light blue filter will enhance contrast on the surface bands and the GRS. You'll also notice that the South Equatorial Band has mysteriously disappeared, which happened in early 2010! As for eyepieces, generally the less glass the better: 4-element Orthoscopics are preferred by many planetary observers, with good Plossls not far behind. Their narrow field of view isn't a problem for planets but at short focal lengths low eye relief can be annoying. Televue Radians and TMB Planetary eyepieces have more elements but are well corrected for sharp images and have the advantage of 60-degree fields and generous eye relief. Wide-field eyepieces are good for keeping the moons in the same field as the planet, but may not be quite as sharp for Jovian detail (Televue Ethos 100-degree eyepieces are reputed to be very sharp, but cost a King's ransom).

The elegant quadrille of the Galilean moons doesn't need a huge amount of magnification to enjoy, although you'll need at least 100x to get a good look at shadow transits on Jupiter's surface. You can watch the shadows travel across the face of the planet in the course of a few hours. It's also fun to watch the moons as they emerge from the planet's limb, movements often perceptible over the course of a few minutes. Sky and Telescope's web site has [interactive observing tools](#) (free registration required) including a nice applet that shows the positions of the moons and reports transits, shadow transits, eclipses and occultations for any date and time.



◀ **Veil Nebula**

Doug Baum took this image of the complete Veil SuperNova complex in Cygnus, including both the Eastern and Western Veil as well as Pickering's Triangle in the middle. It is a narrowband bi-color image--the result of two narrowband filters, H-alpha and OIII. H-alpha is assigned to Red. OIII is assigned to both Green and Blue. It is 2-1/2 hours of exposure through a 200mm SLR lens using a QSI 532 CCD camera.



◀ **Red Spots**

Rick Bria imaged Jupiter with a 16" SCT and Canon T1i camera (a stack of 860 frames from 3600, that was processed in Registax5 and PhotoshopCS5). It shows Jupiter's Great Red Spot (GRS) and the Red Spot Jr. Europa, one of Jupiter's many moons, can also be seen at the lower left. Notes Rick: The Great Red Spot is a huge oval-shaped hurricane on Jupiter; it is over twice the size of the Earth. In March of 2000 three small white ovals merged to become one larger white oval. Called Oval BA, it passed close to the Great Red Spot in 2002, 2004, and 2006. During those close encounters with the GRS some thought Oval BA would be destroyed, but instead it seemed to get stronger, and turned red in February 2006. Oval BA was then given the nickname Red Spot Jr. Red Spot Jr. is as big as the Earth; it can be seen in the image just above and to the right of the GRS.



◀ **Comet Hartley 2**

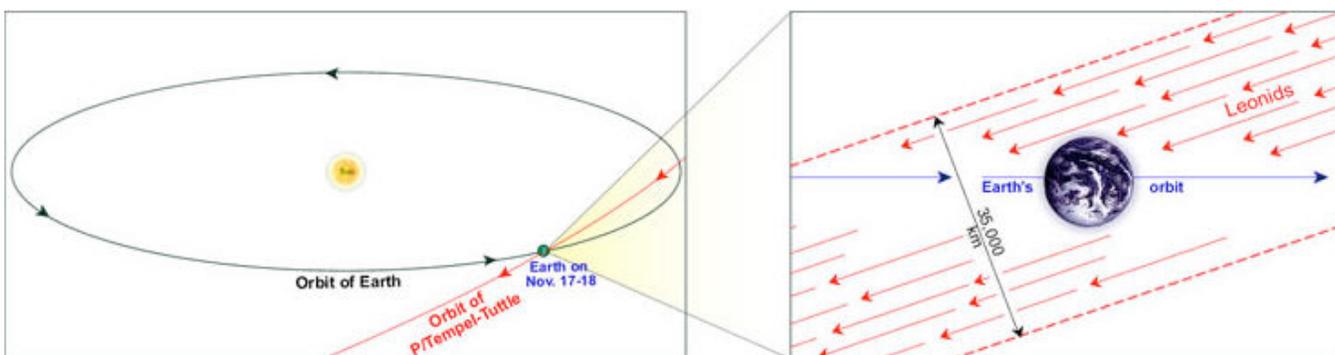
John Paladini imaged Comet Hartley 2 as it passed near the Double cluster in Perseus. He used a DSLR camera and an old Astro-tech lens that he removed and remounted into a home-made body.

Constellation Corner

by Matt Ganis

On November 17th and 18th the Leonids Meteor Shower will grace our skies. The Leonids happen to be one of the better meteor showers to observe since they tend to produce an average of 40 meteors per hour when they hit their peak. The shower itself has a cyclic "peak year" every 33 years where hundreds of meteors can be seen each hour with the last of these cycles having occurred in 2001.

So what is a meteorite and where do they come from?



atmosphere and the sky will seem to be filled with a shower of sparks and streaks.

A meteor shower's radiant is the point in the sky from which all the meteors appear to originate. The Leonid radiant is within the so-called "Sickle" of Leo; a backwards question-mark pattern of stars that outlines the head and mane of the constellation Leo, the Lion. Hence these meteors are known as "Leonids."

A meteor is the streak of bright light that can be seen from Earth when a meteorite enters our atmosphere. The actual object entering the atmosphere is called a meteorite, and can sometimes be a piece of an asteroid. The term meteor refers only to the image created by this entry into our atmosphere, often referred to as a falling star.

The bright light of a meteor is a result of heat produced by the meteorite entering our atmosphere. Rather than friction, this heat is produced by something called "ram pressure" - which is a pressure that is exerted on an object moving through a fluid medium which causes a strong drag force to be exerted on the object. This pressure heats the meteorite and the air around it to such a degree that the image of the meteor can be seen from earth.

In the course of the Earth's orbit, our planet meets (or passes through) a number of these streams and clusters of tiny meteoroids at certain points in its orbit. These streams and clusters are believed to be fragments of comets that pass through our Solar System over the years. As the Earth passes through this debris, millions of tiny particles enter our

The Leonids are known to be made up of cosmic litter from a small, dusty comet discovered by two astronomers in the late 19th century and was aptly named Comet Tempel-Tuttle. The Leonid meteors are thought to be the dusty legacy of Comet Tempel-Tuttle because the dust is moving around the sun in virtually the same orbit as the comet. As the Earth encounters the debris left behind by the comet's previous passes through our orbit, these tiny fragments of the comet - typically no bigger than a grain of sand - impact our atmosphere at speeds of up to 45 miles per second causing them to blaze briefly but brightly in the night sky.

Almanac

For November 2010 by Bob Kelly

It's been great to step out the front door in the predawn dark and see the Big Dipper doing a handstand, handle pointing to the ground. But Daylight Time ends Sunday, November 7th before sunrise, leaving only a few days left of later morning darkness. A thinning Moon also greets us high in the southeast morning sky in the last week of DT. The good news for those who love to see in the dark is that we pass the 14 hours of darkness mark this month.

The earlier darkness in the late fall evenings after DT ends always takes me by surprise. No more waiting for Jupiter to rise after dark – it'll be out there on the way home from work, a quarter-way up in the southeastern sky. Be ready to tell people about the wonders of Jupiter in any optical aid, especially when the nearly-full Moon comes by on the 15th and 16th. Jupiter is so bright people have been noticing it on their own and asking me about it – no finder chart needed for this astronomical wonder!

Comet Hartley2 heads south this month. Dave Butler picked it up in 8x30 binoculars and got a better view using his Binocular Photon Machine and a Hydrogen-Alpha filter. I couldn't see Hartley2 just before morning twilight with 8x25 binoculars or my 9x50 finder scope. Hartley2 is hard to pick up because the coma of dust and gas is very diffuse, but it passes several notable stars this month that serve as jumping-off points for finding our temporary next-door neighbor. The comet observation satellite formerly known as 'Deep Impact' will pass about 620 miles from the half-mile wide nucleus of Hartley2, taking photos for several weeks afterwards.

Venus pops up in the pre-dawn sky during the first week of the month. Can you catch a snapshot of the crescent Venus in your scope? Can you really see the crescent without optical aid? Too bad that after the 6th, sunrise is earlier in the morning than last month as Saturn is starting to get up out of the dawn mists, and the rings are opening up for viewing by the early riser. Its fainter moons may be harder to see now that the rings are opening up.

Mars just won't go away behind the Sun. The very thin Moon joins Mars on the evening of the 7th,



Nov 4



Nov 13



Nov 21



Nov 28

so far down on the horizon you'll need binoculars at least. Usually fleet Mercury creeps up slowly from the southwestern horizon, lower than Mars until late November and early December.

Uranus and Neptune are well up in the evening sky. Uranus is easier to find in binoculars or telescope, just a few degrees east of Jupiter. Sky and Telescope has a finder chart for Uranus' moons for November for the observer with a large scope, good eyes and high power. You'll need a good finder chart for 8th-magnitude Neptune in Capricornus.

Are you a fan of meteors? No big outbursts are predicted for the Taurids or the Leonids in this, their peak month. Look for an increase from the background by a half-dozen per hour of bright, slow meteors from the Taurids anytime of night. The Leonid peak is sharper, with rates of 25 per hour near dawn after the nearly-full Moon sets on the 17th and 18th.

The next-to-last launch of the USA's Space Transportation System was scheduled for November 1st. The end of an era in American access to space is upon us. When will the next era of American human space launches begin? In the meantime, the International Space Station is a bright moving dot in the evening sky through November 17th and in the morning sky from the 24th through mid-December. There may be some nice views of the fainter STS Discovery chasing the ISS low in the north-northwest during the first few days of the month and after undocking toward the end of the 111-day mission. It's hard to believe, but there is at least one web site that will predict when the ISS can be seen in front of the Sun or the Moon. Such transits last less than a second over very narrow paths, but people with fast cameras and good timing have captured photos of these transits.

No photos of ISS transits, but other nice shots at my blog at <http://bkellysky.wordpress.com/>



Westchester Amateur Astronomers Ballot for 2011 Officers

Member's Name _____

Please Vote for the nominated individuals who will assume office as of January 1, 2011 (by marking in the spaces provided), or Write in an Alternative. Return this ballot by mail (postmarked no later than November 15th, 2010) to:

WAA
PO Box 44
Valhalla NY 10595

Alternatively, please give your ballot to an officer at the meeting on November 5th.

1. For President:

Doug Baum _____. Alternative _____

2. For Senior Vice President

Larry Faltz _____. Alternative _____

3. For Treasurer

Rob Baker _____. Alternative _____

4. V.P. Membership/Secretary

Paul Alimena _____. Alternative _____

5. V.P. Educational Programs

Pat Mahon _____. Alternative _____

6. V.P. Field Events

Bob Kelly _____. Alternative _____

7. V.P. Public Relations

David Parmet _____. Alternative _____