SkyWAAtch

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

Yet another galaxy ... an image of M64 taken at the Round Hill Observatory by Ted Schimenti and Rick Bria. It is a stack of 17, 6-minute sub-exposures taken with the automation software ACP. It was deconvolved (un-blurred) in two phases: In MaximDL, then contrast stretched and un-sharp masked in Photoshop CS.

Some M64 facts ... M64 is known as the "Black Eye" galaxy for obvious reasons. The dark arcing dust lane is thought to be the remains of another smaller galaxy that collided long ago and is being consumed. Stranger still, the two colliding galaxies were rotating in opposite directions. So M64 has some sections rotating one way, and other sections rotating the other. Rick explains: "I've never heard of that before, but when you think of it, with so many galaxies bumping into each other, it was bound to happen."

EVENTS for September 2006

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

➢ *Annual Amateur Night*

Friday, September 8, 8:00PM
Hudson River Museum, Yonkers

Bring your astrophotos, videos, homemade telescope equipment, or share an observing story, poem or music with your friends. Please call or e-mail the club with a brief idea of what you will be presenting. 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, September 16, 7-10:30PM
Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled observing date for September, weather permitting. Free and open to the public. **Rain/Cloud date will be September 23.**

➢ *Stamford Observatory Night*

Saturday, September 24, 7-10PM
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.

➢ *"Moon Over Hastings"*

Friday, September 29, 7-10PM, Draper Park, 407 Broadway, Hastings-on-Hudson

Observe a 1st-Quarter Moon near historic Draper Observatory Cottage. **Cloud date will be the following night, September 30.**

Club Bits

New Members...

Ed Cronly, Dobbs Ferry, NY
Mandira Roy, Hastings-on-Hudson, NY

Renewing Members...

Al Forman, Croton-on-Hudson, NY
Richard Kerrigan, Lincolndale, NY
Nancy Maika, Pleasantville, NY
Scott Nammacher, White Plains, NY
Terry Pratt, Scarsdale, NY
Martha & Carl Tomanelli, Yorktown Heights, NY

Changing of the Guard

For the past three years the club newsletter has been in the capable hands of Dick Shaw. We have all been the beneficiaries of Dick's dedication, his attention to detail and his willingness to make numerous trips to the printers. We are grateful to him for volunteering his time for the club and we now acknowledge a job well done. We wish Dick the best of possibilities for the future and look forward to seeing him at coming meetings and star parties. (We also thank the "collators" and Doug and Vivian Towers who opened their home for the monthly mailings.)

With the September issue we now welcome Thomas Boustead, who has already taken over the job as newsletter editor. Tom will be happy to hear from club members who have pictures and stories to contribute to the newsletter.

– B.D.

ARTICLES

Dancing Stars

By Carrie Zaitz

I did a google search for “arabic stars” recently, and I landed at a bellydance site. Funny, I had just visited my dance teacher, Princess Madiha. She’s a real princess, living here in the Detroit Metropolitan Area. Madiha's mother was of the Awabdi family, originally a royal family in Syria. When Madiha's grandfather, Prince Halil Awabdi, died in a power struggle in the late 1800s, the family lost all their power and wealth. Her mother later married into a farming family. Both she and Madiha are entitled to retain the title of "Princess" in memory of their heritage.

Princess Madiha is one of those special people who enrich your life in ways it takes years to fully appreciate. She not only taught me how to dance, but how to express the beauty in a kind of music that was new to me. She always said she didn’t have blood in her veins, she had music instead. She always tells her students that until the music and movements are part of our vocabulary, we’d always dance with a foreign accent.

I had been researching Arabic star names. The majority of star names are of Arabic origin. This is a little known fact, since it’s assumed that the Greeks named everything in the sky. Greek civilization was intensely interested in constellations and myths. Most of the constellations familiar to us today are of Greek origin, but the Greeks weren’t as interested in individual stars. It was the Arabs, between perhaps the 6th – 12th centuries, that catalogued and named many stars. They used the stars for time keeping, so they needed to know when individual stars rose and set. Western pronunciation has mutilated some of the names. Ibt al-Jauza is the origin of the name Betelgeuse. Its meaning is clearer than its pronunciation. It means the “armpit of the central one.” Betelgeuse marks the right armpit of Orion, the mighty hunter. His foot is marked by a star named Rigel. In Arabic, “ar-rijl” means “the foot.” The names are to the point.

The names of the constellations and planets come from the language of the Romans, Latin. However, the Romans adopted and assimilated the vast pantheon of gods and goddesses, heroes and witches from Greek culture, which in turn had assimilated images and symbols from even older cultures. The ancient Sumerians and Babylonians were the first to write down their ideas, but I am pretty sure that folks made up star pictures even before there was writing. Humans have a strong impulse to recognize patterns in things, and the sky is a good example of this. I’ve always thought it interesting that someone looked up at the teardrop shape of stars in the summer sky and decided that it looked like an Eagle. Or that the teapot shape of Sagittarius reminded the ancients of a centaur, a creature half-horse, half-man. But we look at the constellations with a “modern, foreign accent” and are ignorant of the very heavy and important symbolism the constellations once carried to cultures who relied on the stars to tell them stories of life and of time.

When you look up into the sky, you see the same star patterns that people have seen since there have been people, but the planets are always in motion. Jupiter has been pretty much the same all summer, though he is creeping toward the western sunset as summer heads down to the finish line. The other planets are basking in the Sun’s glow, and won’t be seen for a few more months.

My friends, enjoy the view!

Carrie Zaitz is at
http://zaitzobservatory.blogspot.com

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: 1-877-456-57578. Meetings: Andrus Planetarium, Hudson River Museu 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.

Deadly Planets

By Patrick L. Barry and
Dr. Tony Phillips

About 900 light years from here, there's a rocky planet not much bigger than Earth. It goes around its star once every hundred days, a trifle fast, but not too different from a standard Earth-year. At least two and possibly three other planets circle the same star, forming a complete solar system.

Interested? Don't be. Going there would be the last thing you ever do.

The star is a pulsar, PSR 1257+12, the seething-hot core of a supernova that exploded millions of years ago. Its planets are bathed not in gentle, life-giving sunshine but instead a blistering torrent of X-rays and high-energy particles.

"It would be like trying to live next to Chernobyl," says Charles Beichman, a scientist at JPL and director of the Michelson Science Center at Caltech.

Our own sun emits small amounts of pulsar-like X-rays and high energy particles, but the amount of such radiation coming from a pulsar is "orders of magnitude more," he says. Even for a planet orbiting as far out as the Earth, this radiation could blow away the planet's atmosphere, and even vaporize sand right off the planet's surface.

Astronomer Alex Wolszczan discovered planets around PSR 1257+12 in the 1990s using Puerto Rico's giant Arecibo radio telescope. At first, no one believed worlds could form around pulsars — it was too bizarre. Supernovas were supposed to destroy planets, not create them. Where did these worlds come from?

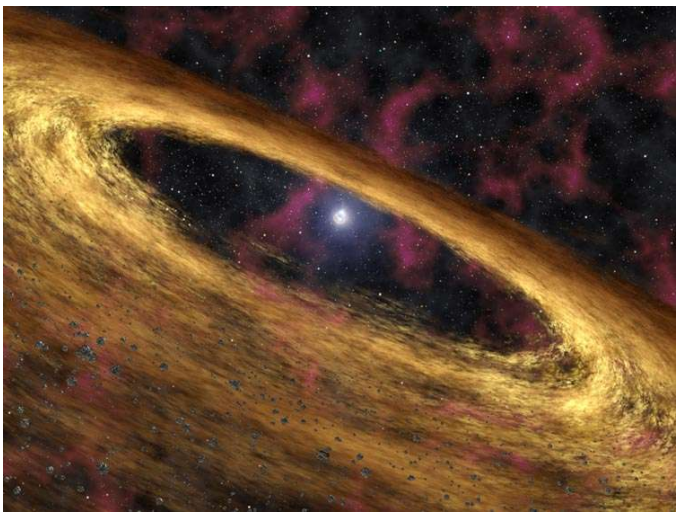
NASA's Spitzer Space Telescope may have found the solution. Last year, a group of astronomers led by Deepto Chakrabarty of MIT pointed the infrared telescope toward pulsar 4U 0142+61. Data revealed a disk of gas and dust surrounding the central star, probably wreckage from the supernova. It was just the sort of disk that could coalesce to form planets!

As deadly as pulsar planets are, they might also be hauntingly beautiful. The vaporized matter rising from the planets' surfaces could be ionized by the incoming radiation, creating colorful auroras across the sky. And though the pulsar would only appear as a tiny dot in the sky (the pulsar itself is only 20-40 km across), it would be enshrouded in a hazy glow of light emitted by radiation particles as they curve in the pulsar's strong magnetic field.

Wasted beauty? Maybe. Beichman points out the positive: "It's an awful place to try and form planets, but if you can do it there, you can do it anywhere."

More news and images from Spitzer can be found at http://www.spitzer.caltech.edu/

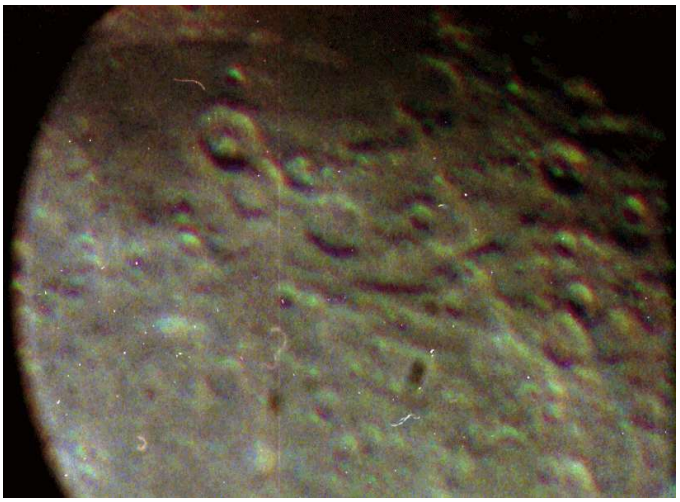
This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Artist's concept of a pulsar and surrounding disk of rubble called a "fallback" disk, out of which new planets could form.

This image may be downloaded from: http://spaceplace.nasa.gov/news_images/pulsar_system_art.jpg .

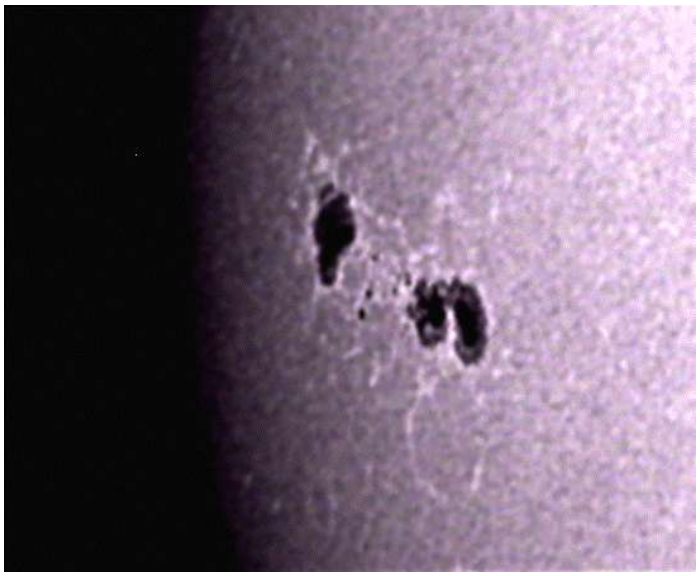
Photo Gallery



Ever wonder what the Moon looked like to 17th-Century observers? What if Christian Huygens had a camera? Here is a prime-focus image taken by **John Paladini** using his “aerial telescope” that has a focal length of 24.5 feet.

John says, "Notice how narrow the field is? Along with some chromatic aberration." The image is a 1/4-second exposure, ASA 800.

Bob Kelly took this photo of the last-quarter Moon on the morning of August 16 with his Canon A40 camera through a 2.4-inch refractor. This is a 1/30th second exposure at F/2.8 with the camera zoomed at 3x and the telescope at 28x power. The only "processing" was to crop, center and flip the image to match the naked-eye view. Bob is going to “glue” this image to a 1st-quarter photo that he took in 2004.

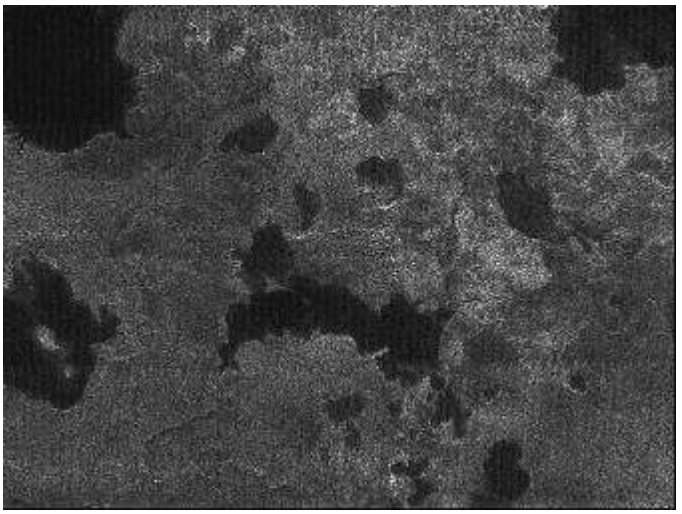


John Paladini photographed the rapid-growing sunspot group 904 on August 11. The sunspot stretched almost 60,000 miles wide. This image is a B&W video stack using a 393-nm Calcium K Filter (CaK) through a 6-inch telescope.

John Paladini took this photo of the Dumbbell Nebula (M27) in Vulpecula. Can you see the central star of this planetary nebula? John used a Meade Deep Sky Imager, a stack of six. The telescope was a 6" Meade Schmitt/Newtonian.

Our last two pictures come from NASA's Picture of the Day.

The first is a radar image from the Cassini Radar Mapper of Saturn's largest moon, Titan. Scientists speculate the smooth, dark areas are "lakes" of liquid hydrocarbons.
http://antwrp.gsfc.nasa.gov/apod/ap060731.html



The second is an artist's conception of what "rain" might look like on Titan. The fishing could be interesting in the pictured lakes.
http://antwrp.gsfc.nasa.gov/apod/ap060802.html

WANTED:

- Club members who will provide loving homes for the 20-inch Obsession or 6-inch Saturn refractor and be willing to bring these telescopes to our monthly observing nights. If interested please contact Mike Cefola or Bob Davidson.
- Webmaster -- This September the web page will be shifting over to a Wordpress format and we need someone to manage the "blog." If interested please contact Bob Davidson.

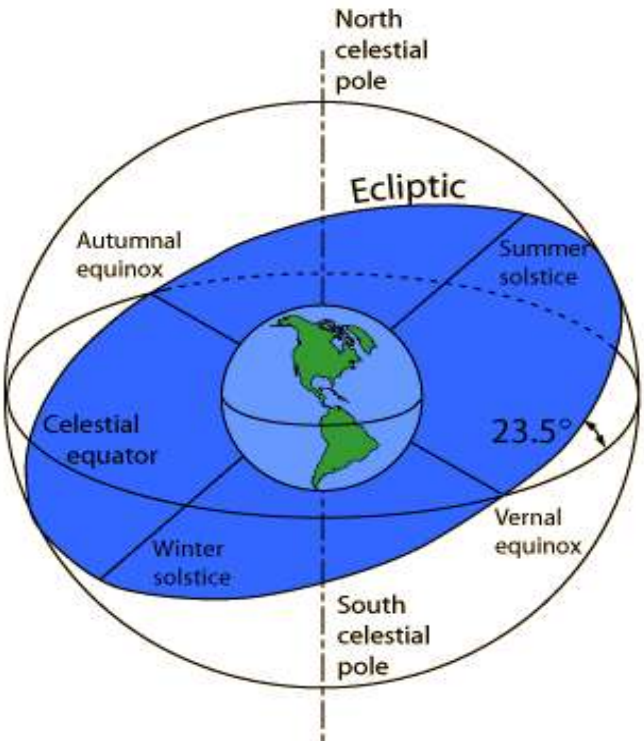
Constellation Corner:

by Matt Ganis

Since it's that time of year again when we move from Summer into Fall I thought it was a perfect time to talk about points in space that define the "change of seasons" – the equinoxes.

An equinox is one of two opposite points on the celestial sphere where the celestial equator and ecliptic intersect or cross each other. They derive their name (*aequi nox* or Latin for equal night) from the fact that when the Sun passes an equinox, the lengths of the day and night everywhere on Earth are equal or 12 hours each. The celestial sphere is an imaginary construct, where stars can be imagined to be points of light on a sphere which rotates about the Earth. Projecting the Earth's poles and equator out onto this imaginary sphere provides a framework for celestial measurement.

If the sun's path were observed from the Earth's reference frame, it would appear to trace out a



line on the celestial sphere which is tilted with respect to the Earth's axis (approximately 23.5°). The path of the Sun across the celestial sphere is very close to that of the planets and the moon. After clocks became available, it was a relatively straightforward job for astronomers to relate the path of the Sun in the daytime to the one of stars at night, and to draw it on their star charts. Because of its relation to eclipses, that path is known as the ecliptic.

The two equinoxes are known by several different names depending on which feature you want to stress.

The Spring equinox and Autumn or fall equinox are names that can be used when one wants to explain the cause of the seasons. But as the seasons of the northern hemisphere and southern hemisphere are opposites, the spring equinox of one hemisphere is the autumn equinox of the other, which makes their use ambiguous. But as you can see by how I started this column, I still think of them as the "changing point" for the seasons.

A more common naming scheme is the Vernal equinox and the Autumnal equinox. These names are direct derivatives of Latin (*ver* for spring, *autumnus* for autumn). Although in principle they are subject to the same problem as the spring/autumn pairing, their use over the centuries has fixed them to the viewpoint of the northern hemisphere. As such the vernal equinox is the equinox where the Sun passes from south to north, while the autumnal is the passing from the North to the south.

The Vernal equinox is also an important reference point on the celestial equator. The equatorial coordinate system (right ascension/Declination) has the vernal equinox for its origin, or zero point. This origin was chosen by the ancient Greeks because it is roughly fixed in space, and it remains the origin to this day.

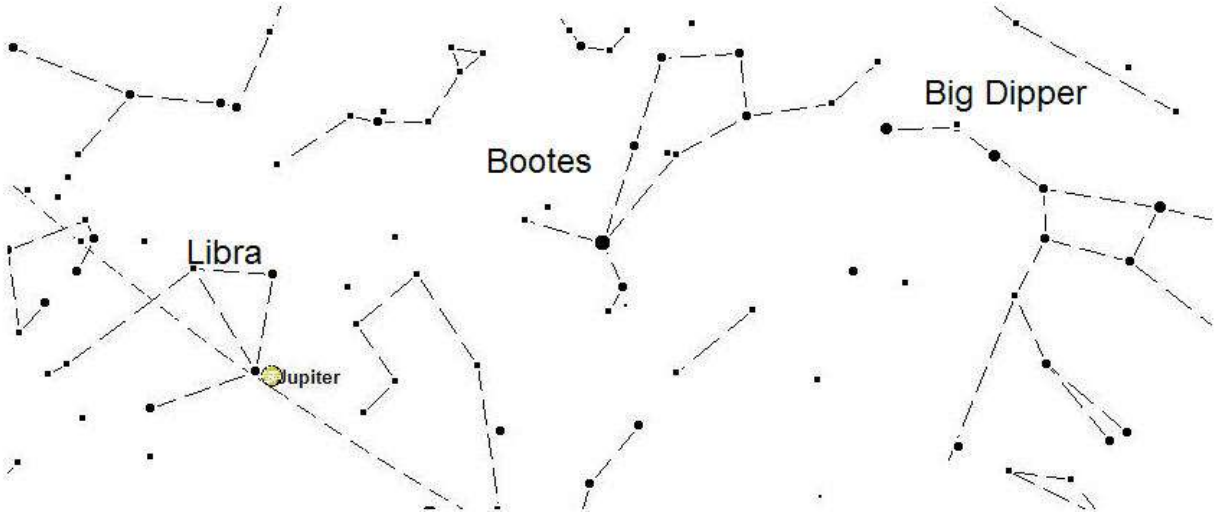
So hopefully that helps to explain a bit about motions in your nighttime sky and some common reference points that help to define locations on the celestial sphere.

Almanac

For September 2006, by Matt Ganis

It's a "slow" month (so the saying goes) in our skies this time of year. About the only observable planet in our September skies is Jupiter. You need to act quickly though if you plan to get a last glimpse of the planet as it's sinking quickly into the western horizon.

Jupiter rises into our skies around 11 am and will set by about 8:30pm at month's end. The planet is still quite bright, shining at a magnitude of -1.8, so it should be easy to pick out in your skies. Of course, since the planet is so close to the horizon by the time it's dark enough to obs erve, you won't get a great view of the planet. Finding Jupiter is easy. Start at the Big Dipper, and follow the handle down to the bright star Arcturus. Then look slightly south to the constellation of Libra, and the only REALLY bright thing in that region is Jupiter.



It might be more interesting to follow the moon and see what objects it passes near. The good news is that there will be an eclipse on the night of September 7th. The bad news is that it will only be visible Africa, Asia and Australia – so not much of a show for us here in New York. However, on the evening of September 13th(actually the early morning of the 14th) look for the moon to pass within 4 degree of the Pleiades, when it should make for a nice view in a pair of binoculars.

On the evening of the 27th, the moon will pass less than ¼ of degree from the star Pi Scorpii. Pi is a +2.6 magnitude star in the constellation of Scorpius.

On the morning of the 18th the Moon ushers Saturn into our skies in "front" of the planet by about 8 degrees. Of course, you'll have to be up at 4am to catch a good look at the ringed planet.

As long as you're up that early, look for Venus to rise over the Eastern horizon just before 6am (around 5:45am at mid-month). You don't have much time since the Sun will rise around 6:30am or so.

Finally, on September 23rd (at 12:03am EDT), the Sun crosses the equator heading south marking the start of Autumn in the Northern Hemisphere. On the Autumnal equinox, night and day are nearly of the same length as the Sun crosses the celestial equator (i.e., declination 0) moving southward. Equinox literally means "equal night". On the vernal (spring) and autumnal (fall) equinoxes, day and night are the same lengths. Neither hemisphere gets more sunlight than the other, so both have similar seasons (fall in one hemisphere and spring in the other).

So while it's not an overly exciting tour of the September skies, at least we have fall weather and darkening skies to look forward to in the coming weeks.