

Sky **WAA** tch

The Monthly Publication of the Westchester Amateur Astronomers

March 2009



The Leo Triplets

Doug Baum captured the above image of the Leo Triplets (galaxies M65, M66 and NGC 3628) with his Takahashi FSQ-106 EDX refractor on the Takahashi EM-200 Temma 2 mount. He used a QSI 532 full frame Non-Anti Blooming CCD camera. The image was created from 120 second subs using AstroDon LRGB filters. Luminance was 9 subs, RGB were 3 subs in each channel.

M65 and M66 are spiral galaxies residing about 21-25 million light years away. NGC 3268 (the edge-on galaxy at the left) clearly displays its equatorial dust lane in Doug's image. It is 35 million light years away.

Events for March 2009

➤ Monthly Meetings

“Methane Discovery and Its Implications for finding Life on Mars”

Friday, March 6th, 8:00 PM

Andrus Planetarium

Hudson River Museum, Yonkers

Brother Robert Novak will discuss the telescopic discovery of methane on Mars and how that affects the likelihood of finding life. Free and open to the public.

“Energy Technologies for Earth and Other Planets”

Friday, April 3rd, 8:00 PM

Andrus Planetarium

Hudson River Museum, Yonkers

Join us as Prof. Steve Greenbaum gives an updated lecture on Energy Technologies for Earth and Other Planets. Free and open to the public.

➤ Starway to Heaven

Saturday, March 21st, 7:00-9:00PM

Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled Starway to Heaven observing date for March, weather permitting. Free and open to the public. The scheduled rain/cloud date is March 28th.

➤ Upcoming Events

Quaker Ridge Elementary School,

Monday March 30th, 7:45-8:45PM

125 Weaver Street, Scarsdale

(Exits 20 southbound or Exit 21 northbound Hutch & Rt. 125)

A large group of students will be waiting for us to show them the Spring Night Sky. Meet and set up telescopes at the back parking lot. Rain date: April 1st.

NOTE: The WAA election for officers has been postponed while the slate is completed. Volunteers for President, Webmaster and VP Membership are needed. Those interested should contact the Club.

New Members. . .

Robert & Melissa Baker, West Harrison, NY

Sue Barker, Yonkers, NY

Brenda Cohen, Yorktown Heights, NY

Sophia Gaine, South Salem, NY

Cami & Kevin Moss, South Salem, NY

Emelie, Anthony & Amanda Sciarpelletti, Sleepy Hollow, NY

Renewing Members. . .

David Butler, Mohegan Lake, NY

Margot & Dennis Dilmaghani, Purchase, NY

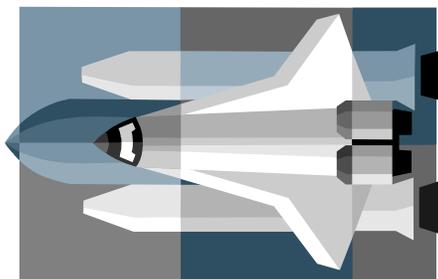
Jay Friedman, Katonah, NY

Theodore Keltz, New Rochelle, NY

Warren Lindholm, Cortlandt Manor, NY

Anthony Maida, Portchester, NY

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/>.



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.

Articles and Photos

Where did all these gadgets come from?!

Ion propulsion; artificial intelligence; hyper-spectral imagers: It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way," says Stevens.

In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions.

And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design

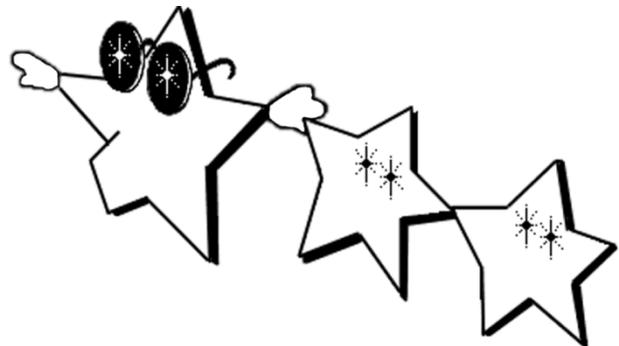
probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye. Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud! The results of all NMP's technology validations are online and the list is impressive: nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with NASA.



Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1.





◀ Ursa Major Galaxies

Doug Baum again used his Takahashi FSQ-106 EDX refractor and QSI 532 CCD camera to capture this image of M81 & M82 in Ursa Major (30 second subs using AstroDon LRGB filters. Luminance - 30 subs, Red Green and Blue were 10 subs each).

Arguably, the best known galaxy pair in the night skies; M81 and M82 lie about 12.5 million light years distant. M82 still bears the scars of the pair's close encounter some 200 million years ago in the form of intense starburst activity in its core.

Slooh On-line Viewing by Dave Butler

This winter has either been cloudy or bitterly cold and windy. Slooh offers an alternative. So what is Slooh? It's a combination of slewing and ooh (see <http://www.slooh.com/>). The cost is 50 dollars which gets you a commander membership which runs for one year. They will have three sites: Canary Islands opened in 2003. The site in Chile has just opened with another site is being constructed in Australia. They're open from 2pm to 2am but will soon be open 24 hours. Each site has two domes. Dome1 has wider angle scopes and Dome2 has higher power scopes. Missions run in 5 minutes. Editor's Channel targets the most popular bright objects. Users can take up to 3 pictures per mission. During the mission the Slooh narrator will describe the history and contents of the image. Missions on the Member Channel are programmed by members, and can be viewed by all. Mission reservations on the Member Channel are on a first-come, first-served basis, and can be made up to seven nights in advance. The only restriction is that no one member can have more than six mission reservations on the system at any one time. A vote mission runs in the member channel as the last mission of each hour. You are offered up to 5 target choices and can vote for one.

The two channels alternate between the two domes. Usually, Dome 1 is assigned to the Editor's Channel on odd numbered days and the Member Channel on even numbered days. Opposite is true for Dome 2.

Cloudy skies can occur keeping all scopes off line and it is possible for a site to be down for a week because of this. It is also possible that upgrades can keep a site down. Such was the case when I joined. The images below are examples of Slooh images; Comet Lulin is a screen capture.



Comet Lulin



Crab Nebula—M1

Constellation Corner

By Matt Ganis

Let's spend some time with the "little guys" this month. No, not the kids, the minors in the sky: Leo Minor, Ursa Minor and Canis Minor. Everybody talks about their larger counterparts, but let's see if we can find anything interesting in these tiny constellations. Let's start over by my favorite constellation in the winter skies: Orion.

In Greek mythology, Canis Major (The Great Dog) and Canis Minor (The Little Dog) are the hunting dogs of The Great hunter, Orion. Canis Major is one of the most striking constellations in the heavens while Canis Minor is a small constellation consisting mainly of two stars, Procyon and Gomeisa. Procyon, the brighter of the two stars, is ironically the eighth brightest star as seen from Earth. Procyon means "before the dog" in Greek as it rises before the Dog Star, Sirius (in Canis Major). It is said that Canis Minor was the favorite of Helen of Troy who prayed for the dogs' immortality and as a result he was placed among the stars.

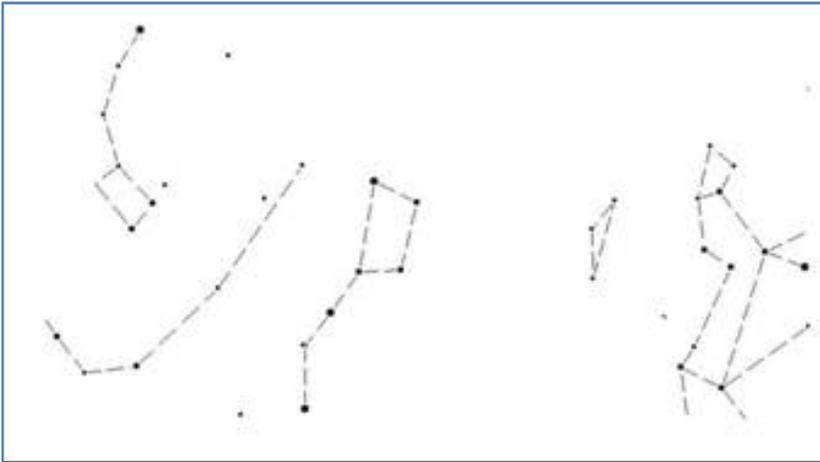
stars is above 4th magnitude. It is named 46 Leonis Minoris and shines at magnitude +3.79 and is located 98 light-years away. It can be found about $24\frac{1}{2}$ degrees above Regulus or between the hind legs of Ursa Major.

The constellation Ursa Minor is the last of the "lesser" constellations. The "little bear" contains the group of stars commonly referred to as Little Dipper. The handle of the Dipper is the Little Bear's tail and the Dipper's cup is the Bear's flank. The Little Dipper is not a constellation itself, but an asterism, which is a distinctive group of stars.

Of the three constellations discussed, Ursa Minor is really the only one with a "Claim to Fame" –that of the holding the Pole Star. According to one myth, Ursa Major grew greedy in her old age and wanted to steal the Pole Star for herself since Polaris matches her own stars in brightness. She has never managed to do so, however, because of the "Guard Stars" in Ursa Minor. These two stars form the front edge of the Little Dipper and are located between Polaris and the greedy Greater Bear, thereby protecting Polaris.

The Pole Star, alpha Ursa Minor is commonly referred to as Polaris, a Cepheid variable star. Polaris has a period of 4 days, meaning the brightness varies between a magnitude of +2.1 and +2.2. Additionally it's a double star; the companion, is a star of 9th magnitude and can usually be separated with small telescopes. To be accurate, Polaris marks the spot nearby the true pole which is about 1-degree away.

So they may be small, and somewhat obscured by their larger counterparts, but these constellations are definitely some gems in our skies.



Located between the constellation Leo and the back paw of Ursa Major 'the Great Bear' is the "lesser Lion", Leo Minor. There is no Greek mythology connected with this constellation; however, the Arabs said that Leo had scared a group of gazelles with his roar and the stars of Leo Minor were their tracks as they raced to safety. It may be a challenge to pick out the triangular shape of Leo Minor. Only one of its

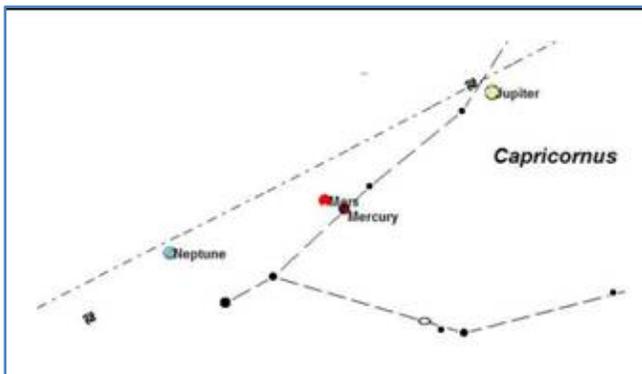
Almanac

For March 2009 by Matt Ganis

Based on the activity in this month's sky, it's clear that March is indeed entering more like a Lion than a lamb this year. From beautiful views of Saturn and Venus to a special "visitor" (Comet Lulin) it looks to be a great month for astronomy.

Our evening skies contain two planets, directly opposite of each other as the Sun sets. Looking to the west we still have Venus (you can't miss it) which is just overpowering everything else in the sky at a magnitude of -4.6. Catch it while you can though, it's setting earlier and earlier every day, and by the end of the month will "catch up" with the setting Sun, out of our evening skies.

Turning to the Eastern skies, Saturn is continuing its climb into our skies, ushered in by the great constellation Leo. It's not an overly bright object, shining at an average magnitude of +0.5. The good thing is that it remains in our sky all night (rising around 6pm and setting at about 7pm). So you might want to give it some time to rise a bit higher into our skies before having a look.



There's an interesting (and challenging) conjunction of planets in the early morning at the beginning of the month. About a ½ hour before sunrise (from about March 1st till about March 3rd or 4th) look in the South eastern skies for Jupiter, Mars, Mercury (and with binoculars) Neptune – though it's a very dim magnitude +8.0.

Don't forget, this year Daylight Saving Time begins on March 8 at 2am and will end on November 1st. For the record, Daylight Saving Time begins on the second Sunday of March and ends on the first Sunday of November.

So what's all the excitement in the press? Well, there's a very nice double-tailed comet in the sky



Mar 4



Mar 10



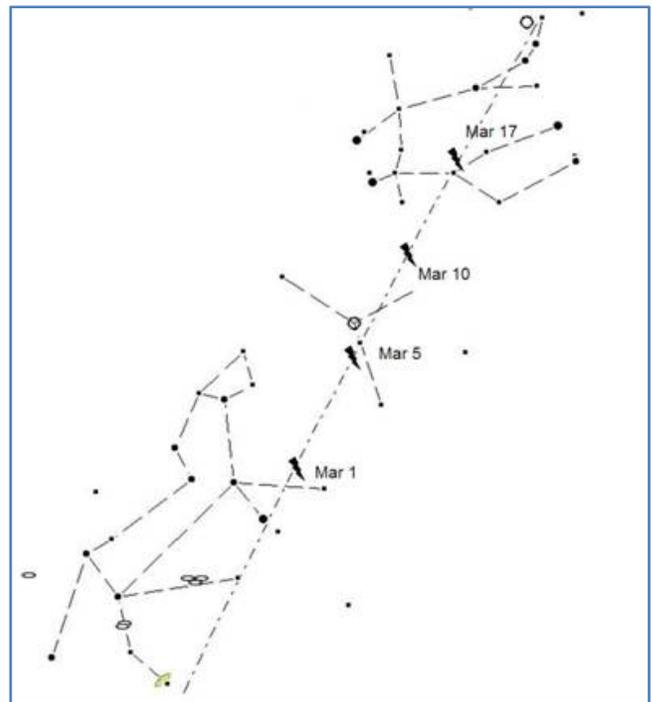
Mar 18



Mar 26

this month, and you should be able to spot it with a pair of binoculars. I'm writing this on February 24th and I was easily able to see it from my front yard with a pair of binoculars. I couldn't make out the individual tails, but I'll try again tonight with the telescope.

The comet, formally known as "C/2007 N3 (Lulin)", was discovered at Lulin Observatory in Taiwan in July 2007. According to Sky & Telescope the comet should reveal both a dim gas tail and a dust-spike anti-tail pointing in nearly the opposite direction in most telescopes and low-light images. According to the estimates, the comet is at about its peak brightness of about magnitude +5.0 but will be fading quickly. It's moving fast too. Lulin is speeding across the sky at just over 5° per day.



Look for this comet to cross from Leo into Cancer at the beginning of March and, having passed opposition, will best be seen in the evening hours. However, you'll have to deal with the moon March 1st through 11th so observing will be difficult. On the night of March 5th watch the 6th-magnitude comet come within 2° of the Beehive Cluster, M44. I've included a map so you'll know where to look (by the time you read this, the comet should be just about in the middle of Cancer). For some additional maps check out:

http://media.skyandtelescope.com/documents/Comet_Lulin_Mar14.pdf