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Astronomical League of the Philippines' *HerAld*

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FEATURE IMAGE THIS ISSUE



Feb. 24, 2009

Feb. 23, 2009

Feb. 22, 2009

Above is a sequence of images taken from Feb 22 to 24, 2009 that shows the rapid development and evolution of Comet Lulin as the changing geometry of its approach changed the way the comet looked. This image sequence was featured in Spaceweather.com. John's other Comet Lulin images start on page 32. © John Nassr

CLUB NEWS



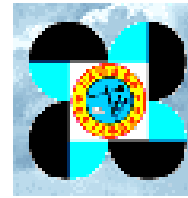
Philippine Astronomy Convention

Last February 15, the 1st Philippine Astronomy Convention was held at the Plenary Hall of the Rizal Technological University (RTU) in Boni Avenue, Mandaluyong City. Among the members of ALP who were present were ALP President James Kevin Ty, VP Jett Aguilar, Vincent Lao, Alice Villa-Real, Rich Pijuan, Armando Lee, Antoinette Icot, Brian Davis, Christopher Go, Raymund Sarmiento, Angie Tan, Edward Tan, Melisa Bata, Nathaniel Custodio, Irving Raymundo, Dennis Buenvaije, Henry So, new ALPers Rosalyn Penol, Miguel Cano, and March Anthony Honrade. Astro Camp members Bencie Lee, Wilbert Palma, Francis Esporlas, Fermin Naelga, and Mark Ian Singson were also there to help facilitate the convention activities. RTU Astro Tech students Frank Kelvin Martinez, Rhyan Coronel, Pauline Pearl Divinagracia, Lordnico Mendoza, Miguel Artificio and Ma. Angela Lourdes Lequiron, were also there to assist.

Aside from them, representatives from various schools such as Rizal Technological University, Cavite State University, Cayetano Science High School, Valenzuela City Science High School, Trinity University of Asia - High School, Pasig City Science High School, Polytechnic University of the Philippines, University of the Philippines - Diliman & Integrated School, Asian Institute of Computer Studies, and members of the Philippine Astronomical Society, National Institute of Physics and IYA-NOC were also present to grace the event. An estimated crowd of more than 230 participants filled up the Plenary Hall. ALP souvenir items such as pins, patches, keychains as well as Bernie Esporlas' Starry Night Sky Maps were available at the registration booth.

The event started at around 9:30 a.m. with the ribbon cutting ceremony to formally open the 1st Philippine Astronomy Convention. ALP PRO Alice Villa-Real, as master of ceremonies, ushered the event with a prayer invocation, followed by the singing of the National Anthem. She then introduced RTU Vice President Dr. Jesus Rodrigo Torres, who gave the opening remarks, in place of RTU President Dr. Jose Macaballug, who was out with a bad cold.

The first speaker of the convention was no other than RTU Astronomy Technology student Pauline Pearl Divinagracia, who gave a talk entitled " IYA2009". She gave a beautiful account of her experience as one of the delegates chosen by IYA-NOC to attend the opening ceremony of the International Year of Astronomy in Paris (⇒ p. 26).



Pauline was accompanied by IYA Philippines SPOC Dr. Cynthia Celebre. Pauline also gave a full discussion of the mission and vision of IYA2009 to the audience.



RTU VP Dr. Jesus Rodrigo Torres led the ribbon cutting ceremony with ALP president James Kevin Ty as well as ALP NAW Chairman Dr. Armando Lee and ALP PRO Alice Villa-Real.



ALP PRO Alice Villa-Real was the emcee of the convention. She is shown here leading the prayer invocation to usher in the start of the event.

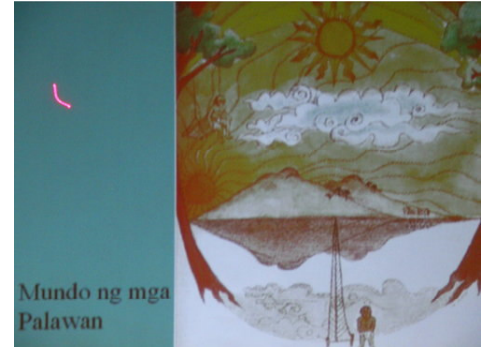
Afterwards, it was Dr. Jesus Rodrigo Torres' turn to give a talk entitled "Course Offerings In Astronomy In The Philippines". He explained the significance of studying astronomy and assured students who are planning to take up the course that they will have a good chance of landing stable jobs. More details on the astronomy courses offered by RTU can be found at <http://www.astroleaguephiils.org/rtuastro.html>. After his lecture, Alice invited the students, enthusiasts and guests to visit the Astrophoto Gallery Exhibit at the adjacent room of the Plenary Hall where astronomical images taken by members of the ALP were displayed.



RTU VP Dr. Jesus Rodrigo Torres did the welcome remarks in place of RTU President Dr. Jose Macaballug.

Also, at the exhibit room was Samahang Pisika ng Pilipinas (SPP) President Dr. Perry Esguerra, who showed students, astronomy enthusiasts and guests his computer simulation of a galaxy collision. Another highlight at the exhibit room is a looped photo slide show of the first 5 years of ALP, which was played through a laptop screen. There was also a telescope exhibit at the ground floor of the Plenary Hall, which showed numerous types of telescope designs and models for the participants to see. The telescopes on display were later used to view the night sky after the conclusion of the convention proper.

At around 2 p.m., Dr. Dante Ambrosio of the UP Department of History gave an interesting talk on "Ethno-Astronomy in the Philippines." He talked on how ancient people integrate astronomy into their lives. He investigated various ethnic tribes in the Philippines and how they perceive astronomy as applied to their own culture.

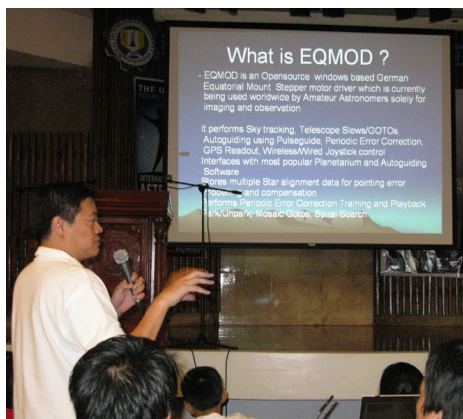


Dr. Dante Ambrosio and his talk on Ethnoastronomy in the Philippines (above).

Then, IYA-NOC 100 Hours of Astronomy Overall Coordinator, Bamm Gabriela (below), gave a brief discussion on how the 100 Hours of Astronomy will be implemented in the Philippines on April 2-5, 2009 as well as around the world. It was expected that astronomers and astronomy enthusiasts around the world will bring out their telescopes and share the views of the heavens to the public. This is one of the cornerstone projects of the International Year of Astronomy (⇒ p. 27).



ALP NAW 2009 Chairman Dr. Armando Lee, who is also the Sidewalk Astronomers' 100 Hours of Astronomy Philippines Coordinator, gave a lecture on how the "Sidewalk Astronomers" celebrates IYA2009 (100HA, Global Star Party, IYA). He discussed how the Sidewalk Astronomers Philippines will celebrate its local version of the Global Star Party this coming April 2 - 5, 2009. ALP will be celebrating the Global Star Party on April 4, 2009.



ALPer Raymund Sarmiento (above) then proceeded with his scientific talk on how he designed the EQMOD software to improve the Chinese-made EQ-6 and HEQ5 equatorial mounts, making their tracking capabilities more accurate. He explained in detail his innovation, as well as showed a short demo using his software to drive a telescope.



Questions being raised during the presentations



Although the sky was cloudy that evening, the participants were still able to get a glimpse of the planet Venus through some of the telescopes (top). Members of the ALP and some of the convention participants later had a group photo taken for posterity (middle top). - James Kevin Ty; Images by James Kevin Ty, Dennis Buenviaje, Alice Villa-real & Armando Lee

IYA 2009 Opening

Last February 16, the local opening ceremony of the International Year of Astronomy was held at SM Mall of Asia Foyer 1 area. Around 200+ participants from various schools, agencies and astronomical organizations attended the said event, with Ms. Venus Valdemoro as the emcee.

Last, but certainly not the least, ALPer Christopher Go came all the way from Cebu to give the participants an interesting and enlightening talk on how he discovered the changes in Jupiter's Oval BA, or more famously called "Red Spot, Jr." Christopher made headlines around the world with his February 2006 discovery.



He was a part of the NASA Hubble Team and is involved in various research studies to further understand the Jovian planet. He was given the Father Leo Boethin Astronomy Achievement Award by ALP in 2006 for his discovery of Red Spot, Jr. This award is given to individuals who have made important discoveries which lead to the expansion of astronomical knowledge.

ALP President James Kevin Ty (above) concluded the event with the closing remarks and thanked the speakers as well as those who made the 1st Philippine Astronomy Convention a huge success, and a milestone in Philippine astronomy. He then invited the participants to a stargazing session with numerous telescope setups to get a live view of the night sky. Meanwhile people viewed the photo exhibit outside (middle).

The program started with PAGASA's Sining Amihan leading the prayer invocation as well as singing of the National Anthem. This was followed by the opening remarks from Ms. Anni Garcia, president of Shopping Center Management Corporation, then followed by messages coming from Ms. Yolanda Berenguer, Space Education Programme Coordinator, UNESCO; and, DOST Secretary Estrella Alabastro. The event's guest speaker, Senator Edgardo Angara, was not able to attend due to his hectic schedule, so RTU President Dr. Jose Macaballug led the closing remarks (⇒ p. 28).

The Opening ceremony for IYA Philippines (held last Feb 16, 2009 at SM Mall of Asia - Science Discovery Center - SDC) where ALP played a big part also proved successful when close to 200 participants mostly from Manila Science High School and Pasay Science High School were able to attend and meet prominent figures in the astronomical community, like: Yolanda Berenguer, Dr Proscio Nilo, and of course the SPOC for IYA Philippines - Dr Cynthia Celebre.



Ms. Yolanda Berenguer of Space Education Programme Coordinator of UNESCO leads the first congratulatory message to the IYA-NOC.



DOST Sec. Estrella Alabastro leads the second congratulatory message to the IYA-NOC.



IYA NOC Chairman Dr. Prisco Nilo, DOST Sec. Estrella Alabastro, Space Education Program Director for UNESCO Yolanda Berenguer & Dr. Jose Macaballug led the ribbon cutting ceremony to formally open the IYA 2009 activities.

The ribbon cutting ceremony was led by PAGASA Director/IYA NOC Chairman Dr. Prisco Nilo and Ms. Yolanda Berenguer, together with Dr. Jose Macaballug, Sec. Estrella Alabastro, IYA Philippines SPOC Dr. Cynthia Celebre, Ms. Anni Garcia and Mr. Yoshikatsu Chikira of Sun East Asia

Corporation, and marked the opening of the IYA Photo Exhibit outside the Science Discovery Center (SDC). Lunch buffet was served to the guests before the IYA-NOC held a press conference at the lecture room of the SDC.



Ms. Venus Valdemoro was the master of ceremonies for the IYA Philippines opening ceremony.



ALPer Christopher Go gave an interesting talk on Jupiter and Red Spot, Jr.



ALPer Dr. Armando Lee receives a certificate of appreciation from Dr. Cynthia Celebre for his talk.

After the press conference, the 2 scheduled lectures of the event were presented by ALP member Christopher Go and ALP NAW Chairman Dr. Armando Lee. Christopher gave an interesting talk on Jupiter and Red Spot, Jr., while Dr. Armando Lee ended the event with a similarly interesting lecture on the New Solar System and Search for Habitable Worlds.



Dr. Jose Macaballug gave the closing remarks for the opening ceremony marking start of the IYA 2009 activities.

The event ended around 3 p.m. Both Christopher and Armand were given certificates of appreciation by Dr. Cynthia Celebre after their lectures. - *James Kevin Ty; Images by James Kevin Ty & Dr. Armando Lee*

ALP Projects and Activities: IYA2009

1. Philippine Journal of Astronomy

The Astronomical League of the Philippines initiated the creation of the very first astronomical journal in the country, the Philippine Journal of Astronomy or PJA. This journal will publish refereed technical papers, non-refereed general astronomy articles, astronomy reviews, conference/convention proceedings, and letters from readers and members of the astronomical community. For details, please visit the PJA web page at <http://www.astroleaguephils.org/pjastro.html>

2. Philippine Astronomy Convention

The 1st Philippine Astronomy Convention (PAC 2009) will be held during the National Astronomy Week celebrations this year, on the third week of February. This is an annual meeting of amateur and professional astronomers in the country and serves as a formal forum to exchange ideas and research findings. For details, please visit the PAC web page at <http://www.astroleaguephils.org/pac.html>

3. Total Solar Eclipse Expedition - July 22, 2009

The ALP will be sending a solar eclipse expedition team to Wuhan and Shanghai, China, to document the longest solar eclipse of the century! This will be a sentimental moment for all of us since this eclipse belongs to the Saros 136 family, the same one as the one observed in Manila way back in June 20, 1955. ALP will conduct scientific research, thorough documentation, as well as imaging of the said eclipse (⇒ p. 29).

Data from the expedition will then be submitted to corresponding scientific institutions in the US.

4. 100 Hours of Astronomy - IYA Cornerstone Project

The Sidewalk Astronomers have named Dr. Armando Lee as the National Organizer of the Philippines for 2009. The Astronomical League of the Philippines, together with Dr. Lee, is taking a lead role in organizing the 100 Hours of Astronomy event in the country. Observation sessions are planned for April 2 - 5, which will coincide with the International Sidewalk Astronomy Night (ISAN), and the Global Star Party on April 4th. The 100 HA project is in line with the ALP's objective, which is to promote observational astronomy in the country. The International Year of Astronomy was put into motion to commemorate Galileo's first use of the telescope as an astronomical instrument. The IYA is a momentous occasion for observational astronomy, and astronomy, in general, as field of study. For details, please visit the 100 Hours of Astronomy website at <http://www.100hoursofastronomy.org/>

5. Developing Astronomy Globally

The goals of the society are directly in congruence with the objectives of the Developing Astronomy Globally Cornerstone Project of the IYA. Hence, the ALP will participate actively in the promotion of Astronomy locally and globally in partnership with the Developing Astronomy Globally team. For details, please visit the Developing Astronomy Globally website at <http://www.developingastronomy.org/>

6. Philippine Sunspot Number Program

As the official center for astronomical data archiving and requisition in the country, the Astronomical League of the Philippines is responsible for producing the Philippine Sunspot Number or Rp with the assistance of astronomers sending sunspot data to the society. The relative sunspot number or Wolf Number is computed using the equation $R_p = k(10g + s)$, where: Rp corresponds to the Philippine Sunspot Number; g = number of visible sunspot groups; and s = total number of individual sunspots. The k-coefficient used is unity or 1. The sunspot monitoring program is being headed by the Chair of the Sunspot Commission, under the Solar Division. Currently, the commission is being chaired by Raymund John Ang, and the division director is James Kevin Ty.

Guidelines

1. Observers are requested to make observations of sunspots using direct or projection method. Full aperture filter must be placed over the objective for direct viewing.

Note that the use of eyepiece solar filters is extremely hazardous and can cause irreversible blindness. Although the projection method yields lower resolution, it is recommended for beginning solar observers. Remember to cover the finder scope to avoid accidents and injuries.

2. Telescopes with clear aperture of 50 - 80mm should be used when monitoring sunspots. If using medium to large aperture equipments, use an aperture stop to reduce effective aperture to about 80mm. Useful magnification for sunspot observations is from 40 - 100x. Low and high magnification scanning of solar surface is advisable.
3. Be sure to count all visible groups and spots. The relative sunspot number devised by Wolf is adopted in computing for the Philippine Sunspot Number (Rp), with k-coefficient set to unity or 1.
4. Sunspot data should be sent to the Chair of the Commission on Sunspots before the 5th day of the proceeding month for inclusion in the Solar Bulletin section of the Philippine Journal of Astronomy.

For details, please visit the Philippine Sunspot Number Program at <http://www.astroleaguephils.org/sciprograms.html#sunspots>

7. Annual Philippine Messier Marathon - Raymund Ang

February Meeting

Last February 8, members of the Astronomical League of the Philippines (ALP) held its monthly meeting at the Manila Planetarium. Members who were present that day were James Kevin Ty with wife Dr. Charito Ty and son Kendrick Cole; Dr. Jett Aguilar; Angie Tan; Alfonso Uy; Dr. Armando Lee; Vincent Lao; Tommy Tan; Edgar Ang; Melisa Bata and friend Leen Leen Agcaoili; Jomar Lacson; Brian Davis; Hernando Bautista; Andrew Ian Chan; Michelle Lampa; Alfredo Pascual; Dennis Buenviaje; Francis Sarmiento; Mac Libid; and, newest ALP member Antoinette Icot.



The meeting started at around 3:30 p.m. with ALP President James Kevin Ty doing a video as well as Powerpoint presentation on what to expect during a total solar eclipse.

He used the Oct 24, 1995 Total Solar Eclipse, as well as other eclipse images taken by other eclipse chasers to illustrate the experience one can have when observing a total solar eclipse.

Afterwards, he openly invited members to join the July 22, 2009 total solar eclipse expedition to Wuhan, China as he said it is one of the best total solar eclipses, and not to be missed because of its long totality duration as well as its closeness to our country. James is the Expedition Team Leader and will train the members en route to E-Day on July 22. Out of the members that will go to the trip, a 10-man research team will be set up to undergo special training so that they can perform scientific experiments as well as document the event with still and video footage. ALP has decided to make Wuhan its official eclipse expedition site with a secondary site to be set up at Shanghai.

Among the first batch of members that had confirmed to join the team are: James, Dr. Jett Aguilar, Dr. Armando Lee, Henry So, Jun Lao, Eric Africa, Christopher Go, Tomio Akutsu, Angie Tan, Melisa Bata, Andrew Ian Chan, Brian Davis, Alfonso Sy, Alfredo Pascual, Alice Villa-Real, Francis Sarmiento, Antoinette Icot, Vincent Lao, Edgar Ang, Dennis Buenviaje and Tommy Tan. Some of the member's family members are also expected to join the trip as well. More members are expected to join in the days to come.

For those who want to join the team, kindly inform James at (0917) 8559863 of their full intention to join the trip in China. Details and plans of the eclipse trip will be announced at a later date. The meeting ended at around 6:30 p.m. - *James Kevin Ty*

Fund Raising

Once again many thanks for members' support and inspiring attitude during our last ALP CHRISTMAS PARTY & FUNDRAISING NIGHT. Our goal as quoted last December:

"....Estimated cost of Epson X6 ₱ 32,800.00 or Epson S6 ₱ 26,500. If anyone can find this specs with lesser amount, feel free to submit your offer or recommendation. ..."

With all who participated and supported we were able to raise ₱ 3,900.00 from the book sales and ₱ 3,440.00 from the pledge and "trash-into-cash" project, a total of ₱ 7,990.00. It is still a long way to go but attainable. The fundraising project is ongoing until we reach our target amount so we continue to seek the help and assistance of fellow ALPers and friends (⇒ p. 30).

ALP director Edgar Ang suggested running another fund raising project to try to fund our LCD projector by asking your support by donating the following items:

- 1) Newspapers - not magazines
- 2) Aluminum soda cans
- 3) Cartons
- 4) Scrap Metal

The above items can be brought by our members to our monthly meeting, whatever the quantity. Members who will donate the above items are requested to donate the full proceeds to our society. That way, we can accomplish the goals of our fund drive, and finally buy our very own LCD projector. This project will continue every month till we are able to get enough money out of the fund. In case you have a large quantity of it and thus have a hard time bringing them to the meeting, we can arrange a date for pickup or can meet with you on a convenience place for pickup.

Even with small quantity, this can be of help if all of us will help support the project. Please contact me at +63-917-855-9863 for your concerns. - [James Kevin Ty and Angie Tan](#)

Titan Transit

We got word from Keith Noll of the Hubble Heritage Team that our proposal to image the quadruple transit at Saturn on Feb 24 using HST has been approved! We are given 3 orbits! This will be one of STScI's contributions for IYA 2009! - [Chris Go](#)

BREAKING NEWS

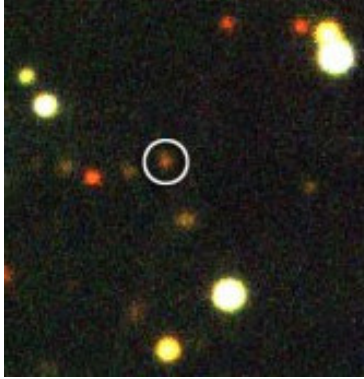
Huge Gamma Ray Blast

The US space agency's Fermi telescope has detected a massive explosion in space which scientists say is the biggest gamma-ray burst ever detected. The spectacular blast, which occurred in September in the constellation Carina, produced energies ranging from 3,000 to more than five billion times that of visible light.

"Visible light has an energy range of between two and three electron volts and these were in the millions to billions of electron volts," said astrophysicist Frank Reddy of US space agency NASA.

"If you think about it in terms of energy, X-rays are more energetic because they penetrate matter. These things don't stop for anything - they just bore through and that's why we can see them from enormous distances," Reddy said. A team led by Jochen Greiner of Germany's Max Planck Institute for Extraterrestrial Physics determined that the huge gamma-ray burst occurred 12.2 billion light years away.

Taking into account the huge distance from earth of the burst, scientists worked out that the blast was stronger than 9,000 supernovae - powerful explosions that occur at the end of a star's lifetime - and that the gas jets emitting the initial gamma rays moved at nearly the speed of light.



The fading optical afterglow

This burst's tremendous power and speed make it the most extreme recorded to date. Gamma-ray bursts are the universe's most luminous explosions, which astronomers believe occur when massive stars run out of nuclear fuel and collapse. Long bursts, which last more than two seconds, occur in massive stars that are undergoing collapse, while short bursts lasting less than two seconds occur in smaller stars.

In short gamma-ray bursts, stars simply explode and form supernovae, but in long bursts, the enormous bulk of the star leads its core to collapse and form a black hole, into which the rest of the star falls. As the star's core collapses into the black hole, jets of material blast outward, boring through the collapsing star and continuing into space where they interact with gas previously shed by the star, generating bright afterglows that fade with time.

It's thought that something involved in spinning up and collapsing into that black hole in the center is what drives these jets. No one really has figured that out. The jets rip through the star and the supernova follows after the jets. Observing the massive explosions could also lift the veil on more of space's enigmas, including those raised by the burst spotted by Fermi, such as a "curious time delay" between its highest and lowest energy emissions.

Such a time lag has been seen in only one earlier burst, and "may mean that the highest-energy emissions are coming from different parts of the jet or created through a different mechanism," said Stanford University physicist Peter Michelson, the chief investigator on Fermi's large area telescope.

The Fermi telescope and NASA's Swift satellite detect "in the order of 1,000 gamma-ray bursts a year, or a burst every 100,000 years in a given galaxy," said Reddy. Astrophysicists estimate there are hundreds of billions of galaxies. - [AFP](#)

Reports

Penumbral Lunar Eclipse

Last February 9, 2009, members of the Astronomical League of the Philippines (ALP) set up their telescopes at the roof deck of PAGASA Observatory in UP-Diliman to observe the Penumbral Lunar Eclipse. Among those present were James Kevin Ty, Jett Aguilar, Vincent Lao, Fred Pascual, Francis Sarmiento and Antoinette Icot. Antoinette, also an Astro student in Rizal Technological University (RTU) in Boni Avenue, was joined by her classmates, Frank Kelvin Martinez, Rhyann Coronel, Pauline Pearl Divinagracia, Miguel Artificio and Ma. Angela Lourdes Lequiron. Members of the local TV stations ABS-CBN 2, GMA 7 and UNTV 37 were there as well to cover the event.



They arrived at around 8 p.m. and started to set up their telescopes to observe and image the penumbral lunar eclipse that was to start at 8:36 p.m. PST (Philippine Standard Time). Unfortunately, the sky was overcast and it was not until around 9:45pm PST that the Moon peeped out of the thick clouds to show its glory. At that time, the penumbral shadow was almost invisible, but through the images, the subtle shading was clearly noticeable. Following are a sequence of shots taken more or less 30 minutes apart to show the subtle penumbral shadows:



9:46 p.m. PST
(⇒ p. 31).



10:15 p.m. PST



11:11 p.m. PST

Images taken by James Kevin Ty using Canon 300D DSLR on TV-101 refractor at prime focus, f/5.4 with 1/1000 s exposure at ISO 100.

It was a cat and mouse affair the whole time with the Moon coming in and out of the thick clouds covering the entire sky! Nevertheless, ALPers and members of the media waited patiently during the entire event and they were blessed with some good views during the event. After 11:00 p.m. PST, many of the media people had departed the site with only ALPers staying till midnight, before packing up their stuff. It was a happy session as imagine having 2 successive eclipse events in about 2 weeks!
- James Kevin Ty



I was very lucky to get a break in the clouds at 22:39.

Below left's a stack of 20 from my house via my 127ED with a Canon 30D at prime focus. Image taken using Canon 30D DSLR and 127ED refractor at ISO 400. - Brian Davis

I was able to observe and take some photos of the penumbral lunar eclipse last night using a Meade ETX-90 (f/13.8), with 25mm eyepiece; handheld with Canon Powershot SD400 at manual setting: ISO 50.

The sky was clouded out before and during the start of the eclipse so I wasn't able to take any photos. Fortunately, the clouds began to open up around 9 p.m. so I had the chance to image the eclipse at 10 - 20 minute intervals.



At 21:40 PST



At 22:40 PST

I could notice slight shadowing at the lower right portion of the moon - which corresponds to the northwestern limb - the area around Mare Frigoris and Plato crater.

Unlike a total lunar eclipse, a penumbral lunar eclipse may not be that noticeable, except if you use a telescope visually or image the event.

Images taken with Meade ETX-90 (f/13.8), with 25-mm eyepiece; handheld with Canon Powershot SD400 at manual setting: ISO 50.
- Raymund John Ang, Bacolod City



Image above taken with Canon A540 digicam camera with 25mm eyepiece afocally attached to an 80mm f/5 generic Newtonian reflector. - Vincent Lao



Image above taken using Sony T700DSC with 20mm eyepiece on Celestron Astromaster 130EQ. - Jeffrey Canton



Image above taken with Canon 50D DSLR on Takahashi TSA-102 refractor at prime focus. - Jett Aguilar

(⇒ p. 32).



Image taken using Olympus FE-170 digicam afocally attached to a 20mm Plossl on Vixen 130sdf Newtonian reflector. - [Teodoro Gonzaga](#)

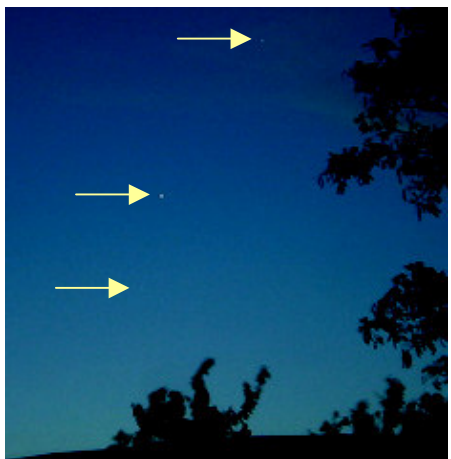
Moon



And now, the Moon not in eclipse - I got this photo of the moon 2 days after full. - [Vincent Lao](#)

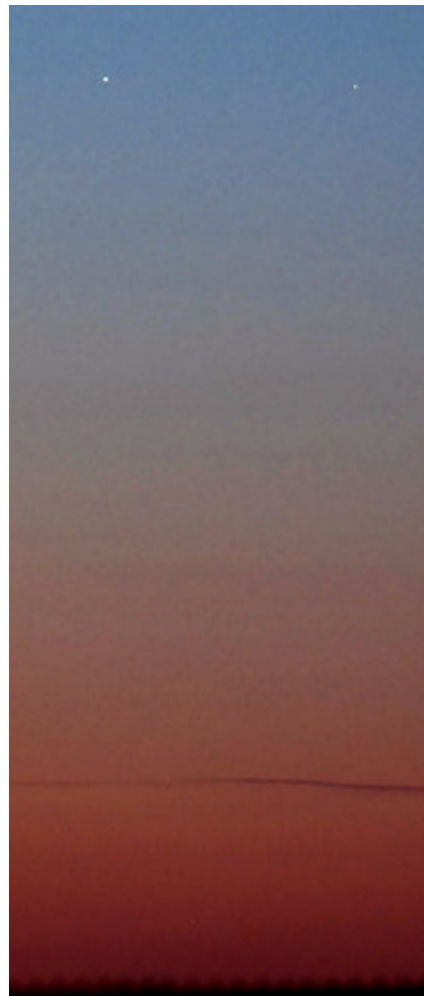


Waning crescent Moon, taken afocally, Feb 21, 2009 at 5:19 a.m. - [Teodoro Gonzaga](#)



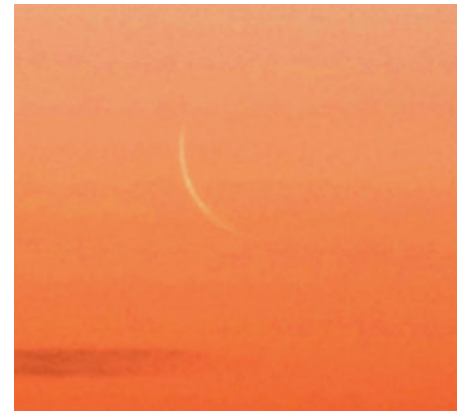
Conjunctions

At bottom left is an image of Mercury (top), Jupiter (bright center) & Mars (dim bottom). Taken with handheld digicam, Feb 21, 2009, at 5:43 a.m. - [Teodoro Gonzaga](#)



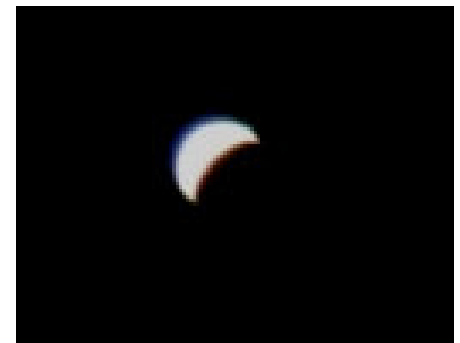
Feb. 23. On the chilly morning of Feb. 23, I bundled up in layers and rushed out after coffee and half the bread I was eating, and headed out to Cottrell Park, less than 10 minutes drive from home. The temperature outside was almost 10 degrees below zero C, but the sky was clear and Jupiter was beaming above the housetops. When I arrived, I immediately took out my camera and tripod, and set it at 300 mm f/5.5 and ASA 1000 and went to work, clicking away. I didn't realize it, but I was capturing both Jupiter and Mercury to its right (*above*) - Mars was just overwhelmed by the brightness of the sky to be visible. Note the motion of Mercury (moving down) relative to Jupiter in Ted's shot.

A little later, I noticed that the sliver of a crescent Moon (*top right*) lay to the lower left of Jupiter, much closer to the horizon. I just took a bunch of images that came out nicely, showing some distortions to the image of the thin sliver of a Moon while it was low near the horizon.



Note the near vertical crescent that we normally don't see in the Philippines. - [Jun Lao, Mason, Ohio](#)

Venus



Venus taken during the NAW 2009 closing public stargazing session. - [Vincent Lao](#)

Comet Lulin



Feb. 5. It was easy to find through 7x50 binoculars and appeared as a fuzzy ball. This is a 21-minute exposure of Comet Lulin a day after its tail disconnection event. An anti-tail and a new faint tail are again present in a field of view over three full moons wide. Imaged with a Borg 77ED f/4.3 and Atik 16HR camera on Losmandy Titan mount with 21 minutes Exposure using Astronomik Filter L 21x1min

Feb. 19. Comet Lulin glows at approximately magnitude 5 and was just barely visible without any optical aid under very clear and fairly dark skies. It is well placed and high above the eastern horizon by 11 p.m. Through 7x50 binoculars, a faint tail could be discerned. This image taken last night (*next page*) captured both a tail and anti-tail in just 8 minutes of exposure (⇒ p. 33).



February 19, 2009 with a Borg 77ED f/4.3 and Atik 16HR camera on Losmandy Titan mount with 8 minutes exposure using Astronomik LRGB Filter 2,2,2,2, minutes.

104x155 arc minute field of view and is a mere 0.42 AU from the Earth in this image. An AU or "astronomical unit" is the distance from the Earth to the Sun. Zavijava aka 5-

The image was taken using a Borg 77ED f/4.3 and ST10XME camera on Losmandy Titan mount. Exposure: 5 minutes with Astrodon Filter L 5x1minute

Feb. 24. On its closest approach to Earth last night, Lulin is without its tail! Only its sunward pointing anti-tail is visible.



February 24, 2009 with Borg 77ED f/4.3 telescope and ST10XME camera on Losmandy Titan mount. Exposure 24 minutes with Astrodon LRGB Filter 6,6,6,6 x 1 minute



February 22, 2009. Borg 77ED f/4.3 telescope with ST10XME Camera with 5 minutes exposure using Astrodon Filter L 5x1minute and Losmandy Titan Mount

Beta Virginis is the brightest star on the left.

February 25. Taken with Borg 77ED f/4.3 telescope and ST10XME camera on Losmandy Titan mount. Exposure 5 minutes with Astrodon L filter 5 x 1 minute



As Comet Lulin heads towards opposition a day from now, a hint of an ion tail might be emerging below the comet's head (at 7 o'clock).

The long trailing dust tail appears more than five full moon widths and extends beyond this image's 104x155 arc minute field of view.

February 27. Taken with Borg 77ED f/4.3 telescope and ST10XME camera on Losmandy Titan mount. 24 minutes with Astrodon LRGB Filter 6,6,6,6 x 1 minute.



Comet Lulin is just past opposition with respect to the Earth and Sun and is now heading back into the depths of space
- John Nassr, Baguio (⇒ p. 34).

Feb. 22. Comets are especially fascinating in part because they are usually full of surprises with their rapidly and ever changing shapes. Comet Lulin does not fail in this regard displaying a very prominent anti-tail spiking southeast towards the Sun and a tail on the opposite side buffeted by solar winds. Lulin and its two tails span approximately four full moon widths in this

Feb 23. Below is an image of Comet Lulin last night. Its tail is rapidly evolving!





Feb. 22. We made a trip to PAGASA observatory after our NAW closing event. There we managed to find and photograph the comet. - [Vincent Lao](#)



Feb. 20. We've had some pretty variable weather here in the Cincinnati area, with cold freezing weather alternating with wet spring weather with rain and thunderstorms.

Over Friday early morning and at night, though, the skies were cold and clear enough to allow me to take a wide field image of the area where Comet Lulin was. I had difficulty finding the comet through binoculars (since I have some light pollution, being in the suburbs), but my images showed a green patch where the comet was, and so I then looked at the area with binoculars, and yep, there was a faint fuzzy where the comet was. The comet was moving quite rapidly, as even a two hour difference in imaging showed the comet had perceptively moved in the sky.

Feb. 24. Comet Lulin is rapidly moving in position. Came back from driving to my dark sky site, about 40 mins. from home - it's a lake dam called Lake Cowan State Park, where the sky overhead is pitch black.



The comet is within the 3 deg. binocular field as Saturn and was quite easy to see with 20 x 80 mm binoculars from the dark sky site. It sported a spikey teardrop shape, with the wide portion being the head with the greenish coma and then a tail that seems to disappear into a point with some gossamer strands. A slight hint of another tail - the tails look a little like the hands of a clock at 10:30, but only with averted vision. It's interesting that it seems to be perceptibly moving across the background stars as the tail sweeps across the stars in the area. I took an image that tries to capture how it looks like with binoculars - [Jun Lao](#), [Mason](#), [Ohio](#)



Feb. 22. A few ALPers with enough strength and stamina went to PAGASA to try to observe and image the comet after the closing of NAW free public viewing at Baywalk and they were able to observe and image it through a hazy and light polluted sky. Here is a fast processed initial image of the comet. Amid a light polluted sky, I can see a 1 deg long tail, seen in this image going to the 11 o'clock position. The comet was moving so fast that I can almost see movement in every minute of my images from 2:17-3:54 a.m. I need to force process the image above to show better tail detail, thus light vignetting is obvious in my initial image processing.

The comet was estimated to be around magnitude 6 more or less and from the image above, a 1-degree long tail can be seen faintly because of bad sky. We stayed there till 4:30 a.m. PST and had a group shot taken before we packed up our equipment.



Feb. 28. I went to Caliraya, Laguna with some members of the Astronomical League of the Philippines (ALP) to observe and image Comet Lulin C/2007 N3. The dark skies of Caliraya really brought out the best view of this comet and compared to my observation of this comet last February 22 under the light polluted sky at PAGASA Observatory in UP-Diliman. So, one can really say that it is worth spending a little more money and time to go out to a darker site to observe not only Comet Lulin but also other deep sky objects!! - [James Kevin Ty](#)

[What was happening?](#)

Strangely, this comet is traveling almost exactly along the ecliptic — backward! Could this really be just a coincidence? The comet's nearly parabolic orbit indicates that it has never much interacted with the planets at all. Yet its orbital inclination is 178.4°, meaning that it's orbiting in the opposite direction from the planets just 1.6° from the ecliptic plane. Because the comet stays nearly on the ecliptic, its tail (which points away from the Sun) aligns with the ecliptic and with the comet's own direction of motion across the sky.

Moreover, because Earth remains in the comet's own orbital plane, we see the comet with a very thin tail and an antitail, a spike pointing in almost the opposite direction from the main tail. Why? In three dimensions a comet's dust tail is often wide but it's always thin, like a paper cutout, confined to the comet's orbital plane. When we are in or near this plane, we can sometimes see parts of the wide, thin dust tail on opposite sides of the comet's head. We pass through most comets' orbital planes briefly. But this time, the situation lasted.

And indeed, as early as January 7th, Lulin did have an anti-tail. A comet's blue and green gas (or ion) tail, on the other hand, always points nearly in a straight line away from the Sun in space (⇒ p. 35).

Comet Lulin's ion tail switched locations, as seen in John Nassr's sequence of images. You can almost see the rotation as the tail moves from opposite the dust tail to aligning with it. Cometary gas is blown directly away from the Sun at high speed by the solar wind. - SkyandTelescope.com

Saturn



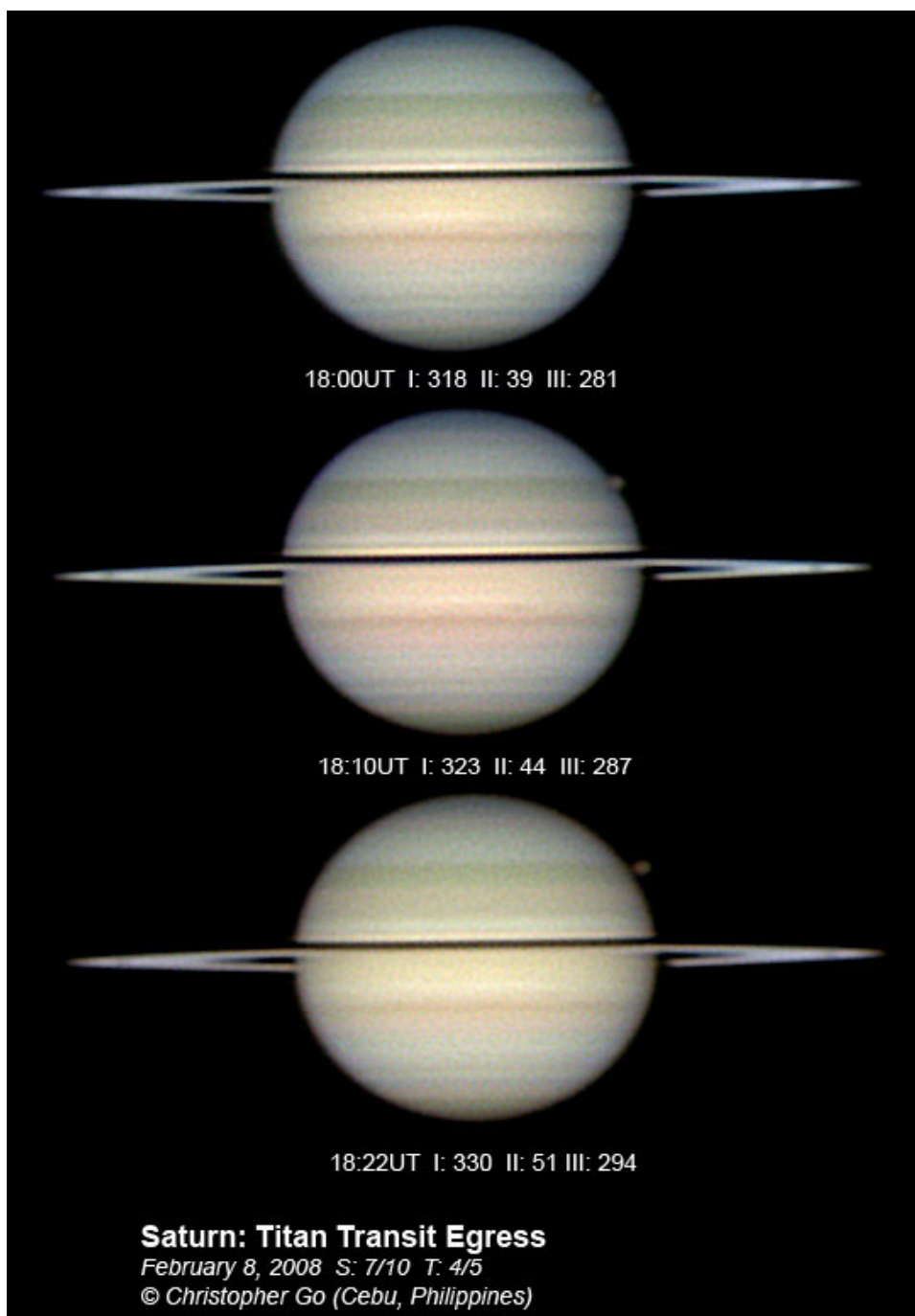
Feb. 17. Ring almost edge-on. Image stacked video frame afocal taken using a Canon Powershot A540 on an Orion Starblast with 17 mm eyepiece plus 3x Barlow. - [Vincent Lao](#)

Feb. 8. I woke up at around 1 a.m. to image the egress of Titan's transit on Saturn. The sky was overcast from around 1 a.m. to around 1:50 a.m. I was fortunate to see the end of the transit (*right*), which is really stunning as it gave Titan a 3D effect! Condition was average. This will be my third Titan transit this season. Visually, Titan was prominent at around 350X. Titan is about to exit Saturn's disk. Titan looks reddish. Note the dark barge just north of the SEB (South Equatorial Belt).

There will be two more transits visible this year. The one of Feb 24 is special as it will be a quadruple transit of Titan, Mimas, Dione and Enceladus. At around 14:25 UT on that day, all 4 moons will be within Saturn's disk!!



Feb. 18. I imaged early this evening to capture the transit of Rhea and it's shadow.



Seeing was terrible because Saturn was still very low in the sky (*left*). Imaging the shadow was simple because of the contrast. But the shadow is very small! Rhea itself is difficult to see. Look at the area around NEBs (North Equatorial Belt) on the right side. You can see Rhea but the contrast is not good. - [Chris Go, Cebu](#)

Table of Scorpius

I searched for Comet Lulin last night in the Virgo (near Spica) and Leo area, but I didn't find it. Is it really that bright? Or do we really need a dark sky to see it (I'm observing in Sampaloc U-belt area)?

Since I couldn't find it, I photographed other objects instead. Here's an image of the Table of Scorpius (NGC6231):



Taken afocal using Canon Powershot A540 on an Orion Starblast 4.5" reflector - [Vincent Lao](#)



Fox Fur Nebula

NGC 2264 (above) lies in a large and extremely complex stellar nursery found in the constellation Monoceros. Young stars recently condensed from the dense hydrogen clouds light up the region to reveal a nebula resembling a fox's fur.

Imaged Jan. 2 - Feb. 23, 2009, using Astrophysics 5" Starfire f/8 with Atik 16HR camera on Losmandy Titan mount. Exposure: 12.5 hours using Astronomik LRGB filter 28,15,15,70 x 10 minutes - *John Nassr, Baguio*

Sky Calendar

March is when the skies open up and warmer temperatures start becoming more dominant.

Venus undergoes a dramatic change as it comes in close to the Earth in its orbit, and we see it. This year in the 8-year cycle of Venus appearances is when Venus passes farthest north of the Sun during inferior conjunction. You can spot the crescent shape of Venus in binoculars this month, and possibly, with the naked eye or at least as more than a circular point of light.

Saturn is visible all night long.

Comet Lulin crosses from Leo into Cancer at the beginning of March and, having passed opposition, is now best seen in the evening hours. But observers will have to contend with moonlight from about March 1st through 11th.

The night of March 5th sees the 6th-magnitude comet within 2° of both Delta (δ) Cancri and the Beehive Cluster, M44, but the Moon is also nearby. Another conjunction occurs on March 16th when the comet, now around 7th or 8th magnitude but in a dark sky (and best seen in early evening), is 1° from Delta Geminorum.

As Comet Lulin recedes, its passage across our sky will slow. Indeed, from the end of March to the end of May (when Lulin may have faded to 11th magnitude) it will stay within a narrow, 3° strip of sky bounded by Epsilon (ε), Mu (μ), and 36 Geminorum. By May's end it will be lost in the afterglow of sunset.

Comet Lulin won't return again to the inner solar system for more than a thousand years, if ever. - *SkyandTelescope.com*

The Sky

DAY HR	EVENT
March 2009	
08 03:54	Saturn at Opposition
08 10:03	Moon 2.0° S of Beehive cluster
11 10:37	FULL MOON
17 13:59	Moon 0.2° N of Antares
19 01:46	LAST QUARTER
20 19:43	Equinox
23 03:32	Jupiter 0.9° S of Moon
27 00:05	NEW MOON
28 03:23	Venus at Inferior Conjunction
30 23:15	Moon 0.3° N of Pleiades
31 11:29	Mercury at Superior Conjunction

April 2009

02 22:33	FIRST QUARTER
04 15:13	Moon 1.5° S of Beehive
09 22:55	FULL MOON
13 19:34	Moon 0.4° N of Antares
17 21:35	LAST QUARTER
19 22:56	Jupiter 1.9° S of Moon
22 12:04	Lyrids Meteor Shower Peak
22 22:06	Venus 0.7° S of Moon
25 11:22	NEW MOON
26 15:40	Mercury Greatest Elongation 20° E
27 00:43	Mercury 1.3° S of Moon
27 04:08	Moon 0.2° S of Pleiades
30 18:32	Mercury 1.4° S of Pleiades

