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Astronomical League of the Philippines' *HerAld*

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CLUB NEWS



100 Hours of Astronomy

Manila

Last April 4, members of the Astronomical League of the Philippines (ALP) staged a free public stargazing session at Rajah Sulayman Park in Baywalk, Luneta from 6 p.m. to 10 p.m. Members who were there to help stage the event were ALP President James Kevin Ty with wife Charito & son Kendrick Cole (KC); Treasurer Henry So; Secretary Rich Pijuan; Auditor Brian Davis; Membership Chair Angie Tan; Director Edgar Ang; ALP/ISAN 100 HA Philippine Coordinator Armando Lee with wife Mia and son Jason; Vincent Lao; Dennis Buenviaje; Andrew Ian Chan & sister Bernice; Aldrin Palacio; Tommy Tan; Lea Visaya; Nathaniel Custodio; Rosalyn Penol; Mark Anthony Honrade; Antoinette Icot; Irving Raymundo; and, Bel Pabunan & Manila Planetarium staffers Nel Lagda, Roberto Silvestre, Liza Quitlong, Desiree del Rosario & Lalaine Yorobe. Also with them were Astro Camp members Benci Lee, Wilbert Palma, Chris Sabijon, RTU BS Astro Tech student Miguel Artificio and representatives of Sun East Asia Corporation, led by Mr. Yoshikatsu Chikira and Jojo Doliente.



Nel Lagda of the National Museum - Manila Planetarium assisted some students in viewing the Moon through a Schmidt-Cassegrain telescope.

James brought his TV-101 refractor on GPDx mount as well as ALP's Meade 8" SCT on LX10 mount; Brian his Celestron C8 SCT on EQ-6 mount; Planetarium staff their Celestron C8 SCT on fork mount and Skywatcher 102 refractor on EQ-4 mount; Andrew Ian his Skywatcher 80ED refractor on EQ-1 mount; Edgar his Orion XT6 Dobsonian reflector; Armando his Apex 127 Maksutov-Cassegrain on EQ-1 mount and 10" Dobsonian reflector; and, Sun East Asia's staff brought along 4 units of Galileo Scopes as well.



All the telescopes were deployed along the stretch of Roxas Boulevard, across the Sulayman Park facing the seawall side. As the scopes were set up, people started to fall in line to observe the Quarter Moon, beautiful ringed planet Saturn, and Sirius.



Andrew Ian Chan and his sister Bernice look through their telescope at the Moon.

It was almost a dream come true for most of the people as it was their first time to observe the Moon and Saturn through a telescope. The usual "Ohhhhs" and "Ahhhs" were clearly heard in the background as they peeked at the eyepiece. The magnificent Moon was shown by ALP members through different magnifications that ranged from low power full disk observation to high power close up views of the craters near the terminator! Saturn was viewed ranging from low power view, which included its moon Titan, to close up views of the ringed planet that looked like a "squid ball on a stick!" (⇒ p. 50).



The ALP and friends at the 100 Hours of Astronomy (100HA) event at the Boardwalk take their traditional group picture (above), while a smaller group did the 100HA daytime event with solar viewing near the Oceanarium the following day (right)



ALP Ladies beside Galileo Scopes - (L-R) Rich Pijuan, Angie Tan, Sun East Asia's Jojo Doliente & staff member and Lea Visaya.

People kept lining up at the telescopes the whole 4 hours and safe estimates on the total people that were able to view through all the scopes can be placed at around 1000+. ALPers continued to let the public view the celestial sights till 10:00 p.m. before they called it a night. They had their traditional group shot taken before they packed up and some of them went to Aristocrat Restaurant to have a late dinner while others opted to head home.

On April 5, ALPers (James Kevin Ty, Jett Aguilar, Edgar Ang, Dennis Buenviaje & girlfriend Juneseven Estoloso, ISAN [International Sidewalk Astronomers Network] 100 HA Philippine Coordinator Armando Lee, wife Mia and son Jason), as well as 100 HA IYA 2009 Philippine Coordinator Bamm Gabriela and Astro Camp members Benci Lee & girlfriend Sandra, and Wilbert Palma and girlfriend, went to Boardwalk, Luneta beside the parking lot of Manila Oceanarium at around 2 p.m. to promote the 100 Hours of Astronomy's SUN-Day free public solar observation.



James brought an Orion ST80 refractor with Baader Solar Filter for white light viewing and Coronado Personal Solar Telescope (PST) for H-Alpha viewing on Vixen GP-D mount (above); Jett brought his Celestron Nexstar 5i SCT (white light), Takahashi TSA-

102 refractor (white light), and Stellarvue AT1010 refractor equipped with Coronado SolarMax 40 H-Alpha filter (for H-Alpha viewing) on Vixen GPD mount; and, Armando brought an Apex 127 Maksutov-Cassegrain fitted with Thousand Oaks Glass Filter (white light) on ASGT mount.



100 HA IYA Philippine Coordinator Bamm Gabriela and International Sidewalk Astronomers Network (ISAN) 100 HA Philippine Coordinator Armando Lee posed beside one of the several solar scopes set up at the site (⇒ p. 51).

More than 40 people braved the hot sweaty afternoon, which reached as high as 37° C from 2:30 - 3:00 p.m., to get a chance to observe the Sun through both types of solar telescopes. Although the Sun was blank (no sunspot groups), the Sun was alive at the H-alpha wavelength and one large eruptive prominence was easily visible. The group concluded the free public solar observation at around 4:00 p.m. - *James Kevin Ty*

Cebu

It started cloudy in the afternoon and satellite images did not look encouraging, but at around 6 p.m., the sky started to clear. Our group, composed of the University of San Carlos (USC) Physics Department, Rodeon Herrera and Jeffrey Canton's group, the University of the Philippines (UP) High School Astrosoc, and Tomio Akutsu, had our 100HA at the Terraces of the Ayala Center, Cebu.



Chris training Tomio's scope to Saturn

There were 6 telescopes, physics demos, lectures and videos for the evening. The event went on from 6 to 11 p.m. Around 1,000 people were able to view Saturn and the Moon. - *Chris Go, Cebu; images by Jeffrey Canton and MJ Dianne Camilon, Cebu*

Washington, D.C.

The US Naval Observatory (USNO) had an open house on April 4, 2009 to celebrate the IYA 2009 100 Hours of Astronomy. It is normally hard to get into the grounds of the USNO since you have to set an appointment to get in, and it is normally opened to the public on Monday nights only. Security is tight, as the USNO grounds is also where the residence of the US Vice-President is located. I took Friday afternoon off from work and drove 9 hours from Cincinnati, Ohio to Washington, D.C. for this event, and to attend the Cherry Blossom Festival to see the parade and the Japanese cherry blossoms, which were in full bloom that weekend.



Chris setting up his C8 (above); the crowd at Ayala Center Cebu (below)



Rodion instructing a little girl how to view objects through the telescope



Crowd lining up to view the Moon in the daytime (above) and Alex's setup with binoculars (below), with view of the USNO main building with the 12" telescope.



Even before the sky got dark, the visitors were already lined up on every telescope and binoculars in the field. The visitors kept on coming non-stop until the closing time at 10 p.m. The official count was close to 9,000 attendees. It was a gratifying but tiring experience. - *Jun Lao and Alex Lim (above)*

Additional coverage of 100HA in Palawan can be seen on page 62.





MS Astronomy

Dr. Armando Lee will be the 1st person to earn the MS Astronomy degree at Rizal Technological University (RTU). Congratulations to our own Dr. Lee! This is an excerpt from an article from the Manila Bulletin: In time for the celebration of the 2009 International Year of Astronomy, the first Filipino student to finish a Master of Science (MS) in Astronomy in the country will be graduating this year.

RTU Vice President for Academic Affairs and Department of Astronomy chairman Dr. Jesus Rodrigo Torres said Dr. Armand Lee, an RTU senior taking up MS Astronomy, will be the first Filipino to graduate in a masteral astronomy program in the country. RTU is the sole local university offering a Bachelor of Science degree in Astronomy Technology as well as a Master of Science in Astronomy.

"The program is taking off quite smoothly," said Torres, adding that 11 students are currently enrolled in the MS Astronomy program while less than 20 are taking up BS Astronomy Technology, the first batch of which are still on their sophomore year. He said BS Astronomy Technology is a cross-fertilized program with engineering. "Any graduate (of this course) will have more job opportunities," Torres said, citing possible careers at the National Aeronautics and Space Administration (NASA). Aside from the bachelor and masteral courses, Torres said they have also started offering a Diploma Course in the field.

PJA Maiden Issue Launched

The ALP has made another first – launching the Philippine Journal of Astronomy (PJA), the first regular technical astronomical journal in the country.

The PJA is being led by managing editor Raymund Ang, with the first issue coming out in March 2009. The front page cover of the inaugural issue of the PJA is shown above middle.



Messier Marathon 2009

Last March 28, 2009, members of the ALP went to Caliraya, Laguna to observe and image, as well as participate, in the annual Philippine Messier Marathon Open. Present were James Kevin Ty, Dr. Jett Aguilar, Henry So, Angie Tan, Peter Benedict Tubalinal, Dr. Armando Lee, Vincent Lao, Dennis Buenviaje, Tommy Tan, Antoinette Icot, Rosalyn Penol, Marc Anthony Honrade, and Irving Raymundo. RTU students Frank Kelvin Martinez, Ma. Angela Lourdes Lequiron, Pauline Pearl M. Divinagracia & Miguel M. Artificio and MS Astro student Cris Ayaton and guest Jesse Nuque, were also there.

This year's 3rd Philippine Messier Marathon Open participants were ALPers Peter Benedict Tubalinal, Vincent Lao, Mark Anthony Honrade, Rosalyn Penol, and Antoinette Icot. RTU BS Astro Tech students Frank Kelvin Martinez, Ma. Angela Lourdes Lequiron, Pauline Pearl Divinagracia and Miguel Artificio joined Antoinette, while MS Astro's Cris Ayaton was joined by fellow classmates Rosalyn Penol & Mark Anthony Honrade as well as guest Jesse Nuque. The MS Astronomy students decided to join forces for the Messier Marathon.



M51, the Whirlpool Galaxy, in Ursa Major imaged by Dr. Armando Lee during the Messier Marathon 2009



Vincent Lao (with Dennis Buenviaje, below) imaged the young, day-old Moon (above)



Right after the sun had set, ALPers who arrived early took time to view and image the beautiful one-day old moon. ALPers who brought their telescopes were James Kevin Ty with his TV-101 refractor on GP-DX mount; Jett Aguilar with his huge Celestron C11 SCT and Takahashi TSA-102 refractor on GP-DX mount; Armando Lee with his Celestron C80ED refractor on ASGT mount; Peter Tubalinal with Jett's Stellarvue AT1010 refractor on Telepod mount; Tommy Tan with his Apex 127 on Porta mount; Angie Tan with her Orion ST-80 refractor on tripod; Vincent Lao with his Orion Starblast 130 Newtonian reflector on EQ-1 mount; and, Henry So with his Zenithstar 80ED refractor on tripod.

The place was divided into groups. One area was for the marathoners, and the other was for the imagers. The marathoners started early after sunset with Messier Marathon Chairman Peter Benedict Tubalinal leading the rest of the participants in trying to observe all the 100 Messier objects in one night.

Astrophotographers James Kevin Ty, Jett Aguilar, and Armando Lee set up their telescopes for imaging that evening. Some of the objects that they were able to image (⇒ p. 53).



Unguided 101-second exposure of Eta Carinae area using Canon EOS350D on Celestron C80ED and at ISO 1600, taken by Dr. Armando Lee (above). The summer Milky Way in the Sagittarius/Scorpius region, imaged by James Kevin Ty (right).



Jett Aguilar beside his Tak TSA102 refractor with fellow ALPers Irving Raymundo & Peter Benedict Tubalinal (above). Messier Marathon 2009 participants (right).



included open star clusters M6 & M7; Globulars M4 & Omega Centauri; Eta Carinae Nebula; galaxies M51, 81, 82; and the summer Milky Way. After midnight, the summer Milky Way was a sight to behold as it stretched from Scorpius to Cygnus. As always, with good transparency comes heavy dewing, so Jett and James had their dew heaters turned on at high mode.

They observed and imaged till around 5 a.m. They all then rested and took a short nap before packing up. As for the Messier Marathon results, Peter Benedict O. Tubalinal was able to spot all 110 Messier objects for the second time. The first time was in 2007. Here are the results:

- Peter Benedict O. Tubalinal - 110
- Vincent Lao - 55
- Frank Kelvin S. Martinez - 33
- Ma. Angela Lourdes Lequiron - 29
- Pauline Pearl M. Divinagracia - 28
- Antonette Icot - 26
- Miguel M. Artificio - 23

All participants (except Peter and Vincent) were from the Rizal Technological University. Three more participants who came from RTU who made a group effort in the marathon were Cris L. Ayaton, Mark Anthony A. Honrade, and Rosalyn A. PeÑol. They spotted 50 Messier objects (group effort in a Messier marathon is allowed but they will not be entitled for individual certificates). Congratulations to the Messier Marathoners! - James Kevin Ty & Peter Benedict Tubalinal; Images by James Kevin Ty , Armando Lee & Vincent Lao

The magnetosphere is a region of space around Mercury enveloped by the planet's magnetic field. Gusty solar wind buffeting the global bubble of magnetism can potentially trigger magnetic storms and other space weather-related phenomena.

During the first flyby, MESSENGER measured relatively calm dipole-like magnetic fields close to the planet. Scientists didn't detect any dynamic features other than some Kelvin-Helmholtz waves, but the second flyby was a totally different situation. MESSENGER observed a highly dynamic magnetosphere with "magnetic reconnection" events taking place at a rate 10 times greater than what is observed at Earth during its most active intervals. The high rate of solar wind energy input was evident in the great amplitude of the plasma waves and the large magnetic structures measured by the spacecraft's magnetometer throughout the encounter.

Another exciting result is the discovery of a previously unknown large impact basin (⇒ p. 54).

BREAKING NEWS

Mercury
A NASA spacecraft, MESSENGER, gliding over the surface of Mercury, has revealed that the planet's atmosphere, magnetosphere, and its geological past display greater levels of activity than scientists first suspected. The probe also discovered a large impact basin named "Rembrandt" measuring about 700 kilometers in diameter.

Rembrandt formed about 3.9 billion years ago, near the end of the period of heavy bombardment of the inner Solar System, and is significant, not only because it is big, but also because it is giving researchers a peek beneath the surface of Mercury that other basins have not.

This is the first time we've seen terrain exposed on the floor of an impact basin on Mercury that is preserved from when it formed. Landforms such as those revealed on the floor of Rembrandt are usually completely buried by volcanic flows.

At right is an artist's concept of Mercury's surprisingly active magnetosphere. Image by NASA/Goddard Space Flight Center/Johns Hopkins University Applied Physics Laboratory//Carnegie Institution of Washington.

Half of Mercury was unknown until a little more than a year ago. Globes of the planet were blank on one side. Spacecraft images have since revealed 90 percent of the planet's surface at high resolution. This near-global coverage is showing, for the first time, how Mercury's crust was formed.

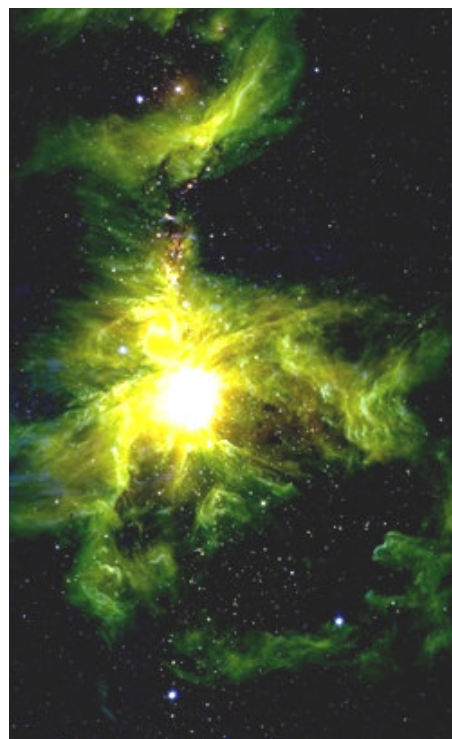
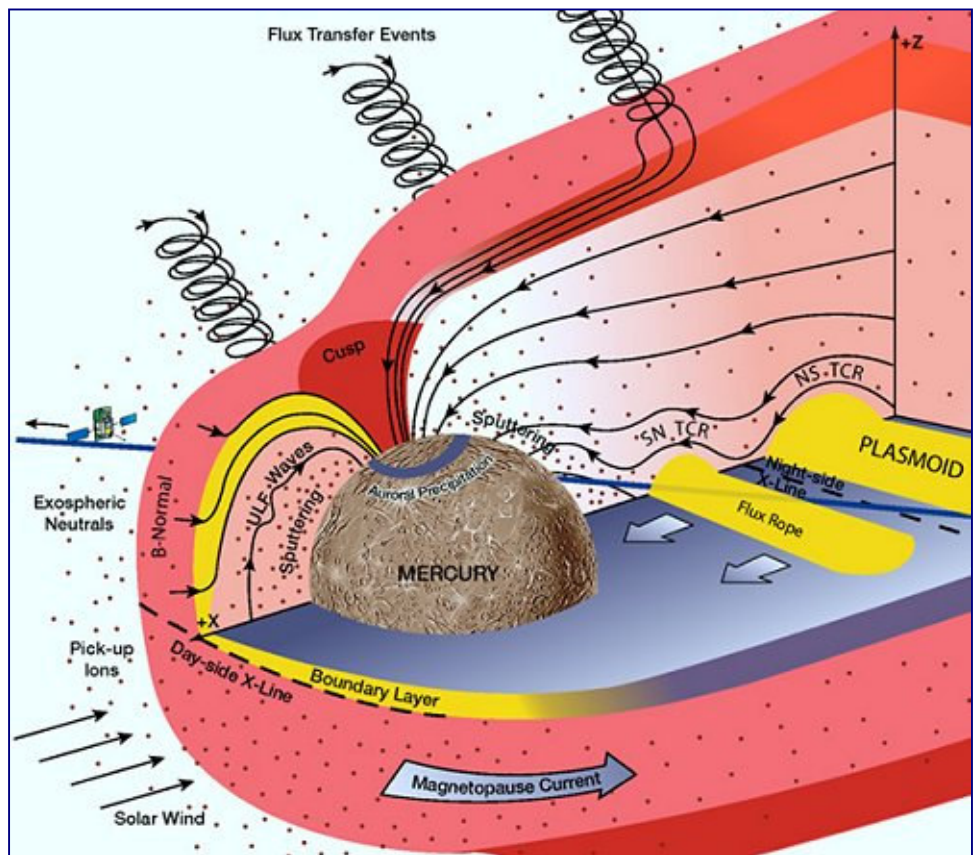
Another finding of the flyby is the first detection of magnesium in Mercury's exosphere. The exosphere is an ultrathin atmosphere where the molecules are so far apart they are more likely to collide with the surface than with each other. Material in the exosphere comes mainly from the surface of Mercury itself, knocked aloft by solar radiation, solar wind bombardment and meteoroid vaporization:

The probe's Mercury Atmospheric and Surface Composition Spectrometer instrument detected the magnesium. Finding magnesium was not surprising to scientists, but the abundance was unexpected. The instrument also measured other exospheric constituents including calcium and sodium. Researchers believe that big day-to-day changes in Mercury's thin atmosphere may be caused by the variable shielding of Mercury's active magnetosphere.

The third Mercury flyby [coming up on Sept. 29th] is the final dress rehearsal for the mission, which is the insertion of the probe into orbit around Mercury in March 2011. - [Science/AAAS](#)

Orion's Stellar Nursery

Astronomers, using the United Kingdom Infrared Telescope (UKIRT), the IRAM Millimeter-wave Telescope, and the Spitzer Space Telescope in orbit above Earth, have completed the most wide-ranging census ever produced of dynamical star formation in and around the well-known Orion Nebula (M42).



This image of the Orion Molecular Cloud combines observations from the United Kingdom Infrared Telescope (UKIRT) and the Spitzer Space Telescope. It shows just a small portion of the region surveyed. In this figure, nearby stars are illuminating parts of the Orion Molecular Cloud, which causes the cloud to glow an eerie green color.

The jets punch through the cloud and can be seen as a multitude of tiny pink-purple arcs, knots, and filaments. The young stars that drive the jets are usually found along each jet and appear golden-orange. © UKIRT/JAC, Spitzer Telescope

They have found this stellar nursery to be a lively and somewhat overcrowded place, with young stars emitting gas jets in all directions and creating quite a chaotic picture. There is much more going on in Orion than previously thought. The research team comprises more than a dozen astronomers from the United States, the United Kingdom, and a number of other European countries.

Take a look at the constellation Orion at night. With the naked eye, you see only the brightest stars, such as Betelgeuse (Alpha [α] Orionis) and Rigel (Beta [β] Orionis) at the shoulder and knee of the constellation, or perhaps the Orion Nebula as a vaguely fuzzy patch around the sword. What your eye does not see is an enormous cloud of molecules and dust particles that hides a vast region where young stars are being born. In the sky, the region — known to astronomers as the Orion Molecular Cloud — is more than 20 times the angular size of the Full Moon, spanning from far above the Hunter's head to far below his feet. It is one of the most intense regions of star formation in the local Milky Way and has been the subject of many small-scale studies over the years (⇒ p. 55).

However, the current work is the first to present such a complete study of the young stars, the cloud of gas and dust from which they are being born, and the spectacular supersonic jets of hydrogen molecules being launched from the poles of each star. Most of the "action" is hidden from view in visible light because the molecular cloud is thick and opaque. Only the Orion Nebula, which is really just a blister on the surface of the cloud, gives an indication of what is really happening within. To see through the cloud, we need to observe at wavelengths beyond the reach of the human eye. The longer (or "redder") the wavelength, the better. Thus, the team has used UKIRT, Spitzer — which works at even longer "mid-infrared" wavelengths — and the IRAM radio telescope, which operates beyond the infrared at short radio wavelengths.



This close-up view shows a jet (seen in red) popping out of a busy region of star formation in Orion. All of the red wisps, knots, and filaments are in fact associated with jets from young stars, which in this figure appear orange. These data were acquired with the Wide Field Camera (WFCAM) at the United Kingdom Infrared Telescope. © UKIRT/JAC

The key to the success of this project was the combination of data from all three facilities. Inspired by the richness of his images from UKIRT, Chris Davis contacted colleagues in Europe and on the United States mainland. Tom Megeath, an astronomer from the University of Toledo in Ohio, provided a catalogue of the positions of the very youngest stars — sources revealed only recently by Spitzer. Thomas Stanke, a researcher based at the European Southern Observatory in Garching, Germany, then provided extensive IRAM maps of the molecular gas and dust across the Orion cloud. Dirk Froebrich, a lecturer at the University of Kent in the United Kingdom, later used archival images from the Calar Alto Observatory in Spain (data acquired by Stanke some 10 years ago) to measure the speeds and directions of a large number of jets by comparing them with their positions in the new images.

Armed with these data, Davis was able to match the jets up to the young stars that drive them, as well as to density peaks within the cloud — the natal cores from which each star is being created.

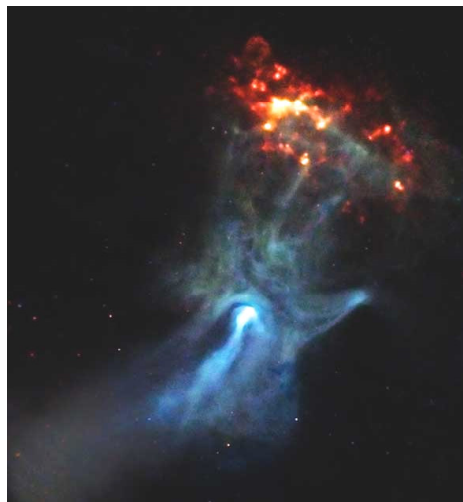
"Regions like these are usually referred to as stellar nurseries," Davis said, "but we have shown that this one is not being well run: It is chaotic and seriously overcrowded. Using UKIRT's wide field camera (WFCAM), we now know of more than 110 individual jets from this one region of the Milky Way. Each jet is traveling at tens or even hundreds of kms. per second; the jets extend across many trillions of kilometers of interstellar space. Even so, we have been able to pinpoint the young stars that drive most of them."

Froebrich mentioned that "measuring the speeds and directions of the jets is essential to pinpoint the driving sources, especially in such crowded regions as M42 in Orion."

Megeath added: "With such a large number of young stars, we can study the 'demographics' of star birth. This study will give us an idea of how long it takes baby stars to bulk up by pulling in gas from the surrounding cloud, what ultimately stops a star from growing bigger, and how a star's birth is influenced by other stars in the stellar nursery." - [Joint Astronomy Centre](#)

Cosmic Hand

Tiny and dying but still-powerful stars called pulsars spin like crazy and light up their surroundings, often with ghostly glows. So it is with PSR B1509-58, which long ago collapsed into a sphere just 19 kms. in diameter after running out of fuel. And what a strange scene this one has created.



In a new image (above) from NASA's Chandra X-ray Observatory, high-energy X-rays emanating from the nebula around PSR B1509-58 have been colored blue to reveal a structure resembling a hand reaching for some eternal red cosmic light.

The star now spins around at the dizzying pace of seven times every second - as pulsars do - spewing energy into space that creates the scene. Strong magnetic fields, 15 trillion times stronger than Earth's, are thought to be involved, too. The combination drives an energetic wind of electrons and ions away from the dying star. As the electrons move through the magnetized nebula, they radiate away their energy as X-rays. The red light is actually a neighboring gas cloud, RCW 89, energized into glowing by the fingers of the PSR B1509-58 nebula. The scene, which spans 150 light-years, is about 17,000 light years away. - [Space.com](#)

Extrasolar Planets

In the search for Earth-like planets, astronomers zeroed in on two places that look awfully familiar to home. One is close to the right size. The other is in the right place. European researchers said they not only found the smallest exoplanet ever, called Gliese 581 e, but realized that a neighboring planet discovered earlier, Gliese 581 d, was in the prime habitable zone for potential life.

Gliese 581 e is only 1.9 times the size of Earth — while previous planets found outside our solar system are closer to the size of massive Jupiter, which could swallow more than 1,000 Earths. Gliese 581 e sits close to the nearest star, making it too hot to support life. Still, its discovery in a solar system 20 1/2 light years away from Earth is a good example that we are progressing in the detection of Earth-like planets.

Scientists also discovered that the orbit of planet Gliese 581 d, which was found in 2007, was located within the "habitable zone" — a region around a sun-like star that would allow water to be liquid on the planet's surface. Gliese 581 d is probably too large to be made only of rocky material, and it was possible the planet had a "large and deep" ocean.

Mayor's main planet-hunting competitor, Geoff Marcy of the University of California, Berkeley, praised the find of Gliese 581 e as "the most exciting discovery" so far of exoplanets — planets outside our solar system. While Gliese 581 e is too hot for life, it shows that nature makes such small planets, probably in large numbers. Nearly 350 planets have been found outside our solar system, but so far nearly every one of them was found to be extremely unlikely to harbor life.

Most were too close or too far from their sun, making them too hot or too cold for life. Others were too big and likely to be uninhabitable gas giants like Jupiter. Those that are too small are highly difficult to detect in the first place (⇒ p.56).

Both Gliese 581 d and Gliese 581 e are located in the constellation Libra and orbit around Gliese 581. Like other planets circling that star — scientists have discovered four so far — Gliese 581 e was found using the European Southern Observatory's telescope in La Silla, Chile.

The telescope has a special instrument, which splits light to find wobbles in different wavelengths. Those wobbles can reveal the existence of other worlds. It shows the potential of this detection method. — [Jennifer Quinn and Seth Borenstein, Associated Press](#)

Reports



Iridescent Clouds

Saw these iridescent or mother-of-pearl clouds - it might be a common atmospheric phenomenon, but it was the first time I saw one in the early morning. — [Vincent Lao](#)

Moon

I just wanted to share this moon photo (*below*) that I took last April 5, 2009 at Candaba. Just a single shot using WO Zenith 80 II ED on canon EOS 1000D prime focus. — [Henry So](#)



As I was not able to observe or image the grazing occultation of Venus by a thin crescent Moon the morning of April 22, due to needing to be at work, I was able to catch the even thinner (3.8%) crescent Moon the morning after the event.



I used a 2x tele-extender on a 75-300 mm lens set at 300 mm, and a setting of 1000 ISO. — [Jun Lao, Mason, Ohio](#)



Crescent Venus having emerged from crescent Moon, imaged at 9:59 a.m. EDT on April 22, 2009 with TMB 130 SS and Canon Digital Rebel XTi operating at ISO 100

Venus Occultation

At mid-morning on April 22, 2009, the Moon occulted Venus as seen from most of western North America. As seen from our home in West Chester, Ohio, it was a grazing occultation. It had been a while since I last attempted following and imaging an occultation, so I thought I'd give it a try. The morning started off really iffy, with the sun rising to an overcast sky. Still, I was seeing sucker holes in the clouds, so I thought I'd stick to my guns. Occultation time was about 8:55 a.m. EDT; around 8:30, it was still cloudy. I opened our observatory and fired up our mount anyway out of sheer optimism (and more like pure hope).

I was concerned about finding the two objects because the mount was last initialized and synch'ed on the wrong scope for the job, but I thought maybe I'll be able to find them.

I ordered the mount to slew to the Moon, and it dutifully pointed our Mewlon 210 to a patch of clouds (this was the scope I "didn't" want to use, as I wanted to catch the full disk of the Moon and Venus).

Peering into the scope's eyepiece, I saw... a bright crescent! I switched over to the scope I had hoped to image the pair with (a TMB 130SS mounted in tandem to but not aligned with the Mewlon), and saw... clouds.

Occultation time was fast approaching, and I could not locate either the Moon or Venus slewing around and looking through the TMB. Thank goodness GOTO's back to the Moon pointed the Mewlon back. So we (my wife had joined me by then) were able to have a close-in view of the two.

Intermittent clouds were still making a mess of the view (neither object was visible naked eye, and iffy at times even through the Mewlon). Still, at one point I looked up at the clouds to the east. Then I glanced west: perfectly clear! Hopefully the clearing was moving east?

I had hoped to shoot the occultation widefield with the TMB and a DSLR. Since I was unable to acquire the targets with the TMB, I switched to plan B and set up an (⇒ p. 57).

Olympus point-and-shoot for afocal photography with the Mewlon in addition to the DSLR (why oh why didn't I think to plug the DSLR into the Mewlon instead?!?). As I feared, afocal imaging with the Mewlon was frustrating at that point (rushing wasn't helping!) - I could not see Venus through the tiny field of view. I made repeated attempts at composing the shot, and must have threaded and unthreaded the eyepiece I was using from the camera's adapter repeatedly. Even worse, the eyepiece views through the Mewlon showed the occultation in progress!

All of a sudden, pieces of glass and metal flew around. My wife and I looked at each other in disbelief: the 20mm Plossl we were using for afocal imaging had fallen apart! The lens elements and spacers had somehow fallen out of the eyepiece's barrel, and were now lying all over our observatory floor!

I was dumbfounded and dismayed at how this little disaster had happened, but also now realized that it was do or die with the DSLR. I was pessimistic at this point, but I thought to try the TMB's red dot finder to locate the Moon (I had failed with that finder earlier with the clouds there). Fortunately, it had cleared at this point, and lo and behold the Moon's crescent was visible! I finally centered the Moon in the finder, and bingo! It was in the TMB's field of view!

I fired off a series of images. The occultation was over, but the camera viewfinder now showed a nice pairing of two crescents, which was what I really wanted to shoot anyway.

When all was said and done, my wife and I picked one shot that we both liked. I processed it a bit in Photoshop to tame the bright blue sky (actually, I darkened the image a lot to bring out the Moon's crescent), and submitted it to Sky & Telescope's web site, among others. We were pleasantly surprised when we checked S&T's site last night and found that image had been selected as an Editors' Choice!

As for the eyepiece? Fortunately, the floor of our observatory is padded with rubber tiles (maybe I should pad the walls after this adventure), and we were able to recover the pieces pretty much intact. Now I've got to figure out how to put it all back together. - [Eric Africa, Westchester, Ohio](#)

Triple M Conjunction

On the night of April 26, the 5% lit crescent Moon was somewhat above the Pleiades (M45), while the pair was above the elusive planet Mercury (the Moon was 8% lit when it occulted Venus on the morning of April 22).



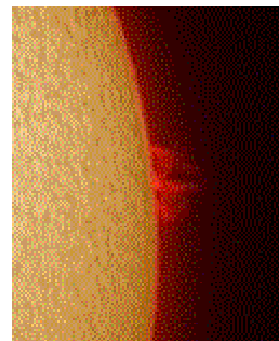
Thin crescent Moon imaged with the ETX-125 and a Nikon D80, set at ISO 1000 (*top*). Moon with Earthshine, M45 – the Pleiades, and below them, Mercury, shining above the treetops (*above*).

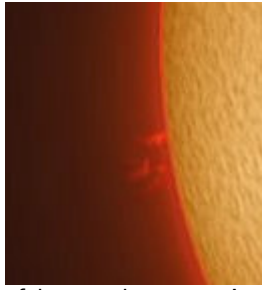
We were blessed with clear enough skies to be able to see a triple M conjunction. I had to wait until about 9 p.m. for the sky to be sufficiently dark to show the Pleiades (just missed closest approach or even occultation, which probably happened over the Atlantic Ocean). - [Jun Lao, Mason, Ohio](#)

Sun

[April 4](#). Finally! After a long dry solar imaging spell because of a busy schedule as well as bad weather, I was able to do some solar H α

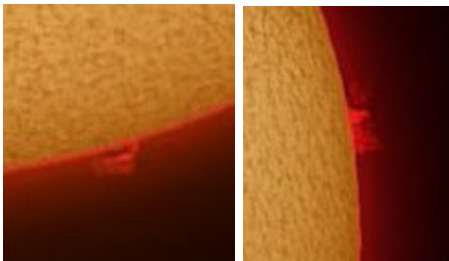
this morning. The seeing was ok and I quickly set up the Personal Solar Telescope (PST) to look at the Sun. I was initially able to see 1 large prominence but when I set up already for imaging, I was surprised to see 2 big fainter prominences (*one below*)!



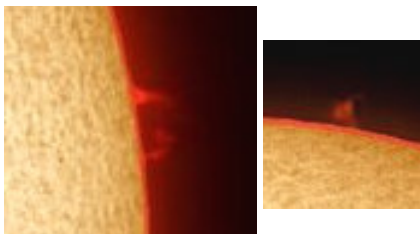


The other faint prominence on April 4.

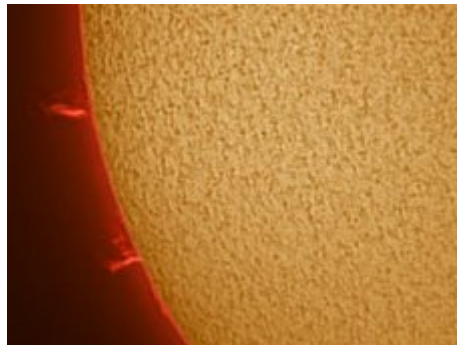
[April 5](#). I continued to monitor the 3 large prominences (*below*) that I saw and imaged yesterday. Seeing was not that good but still ok. The 3 large prominences have shrunk in size. I also noticed a possible active region developing near the eastern limb beside one of the eruptive prominences.



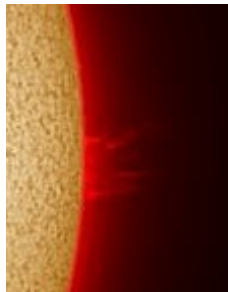
[April 9](#). Today is Maundy Thursday and the sky was not that clear, unlike yesterday. The Sun is still visible through passing clouds and there were a few prominences visible on the limb. I was able to quickly image 2 nice prominences before clouds and roof obstruction ended my imaging session. Seeing was poor at 1/5.



[April 11](#). The Sun is visible this morning with some clouds passing in front. Seeing was poor again today at around 1/5. There were several groups of small to medium prominences (*below*) that were visible through the PST at 32x.

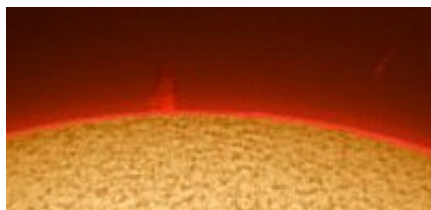


[April 12](#). Although the sky this morning was cloudy, I was able to get a small window to image the Sun. There were 2 nice eruptive prominences that were clearly visible even at the eyepiece view of my PST (*above*). There was another much fainter prominence that I was able to see too, but image details were too faint.

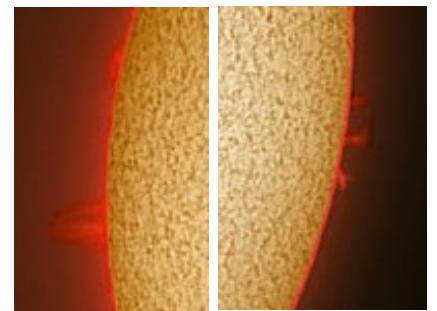


[April 17](#). After arriving from my provincial trip and also a bout of food poisoning from the food that I ate from the bus stop, I still put up some energy and determination to try observing and imaging the Sun this morning. Much to my surprise, the Sun was a bit active with several large eruptive prominences around the solar limb (*above*). Seeing was good this morning.

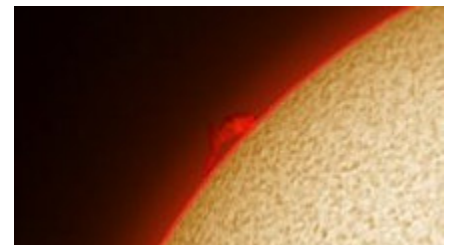
[April 19](#). The sky was very cloudy early this morning so virtually impossible to even see the Sun, but just before lunchtime, there were some breaks in the clouds that allowed me to image the Sun through the cloud openings.



The prominences were boring, except for one small detached eruptive prominence residual that can still be seen floating away from the solar limb (*above*).



[April 25](#). Seeing this morning was not good but there was an interesting large eruptive prominence that can be faintly viewed amid the bad seeing. Aside from the large prominence, I was also able to image two more small groups of prominences (*above*).



[April 26](#). I woke up this morning to see the sky a bit hazy but since the Sun had already shifted to the northeast, I had to wait for lunchtime to observe and image the Sun. Nevertheless, the seeing was surprisingly steady and I was also able to see a nice large loop prominence (*above*). - [James Kevin Ty](#)

Jupiter



[April 22](#). I'm using a low-tech, low-cost system:

Scope: Orion Starblast 4.5" reflector (450mm FL)

Eyepiece: 17mm Orion Explorer II (Kellner) + Orion 3x barlow (for planetary image)

Mount: Orion EQ-1 with astrotrack drive

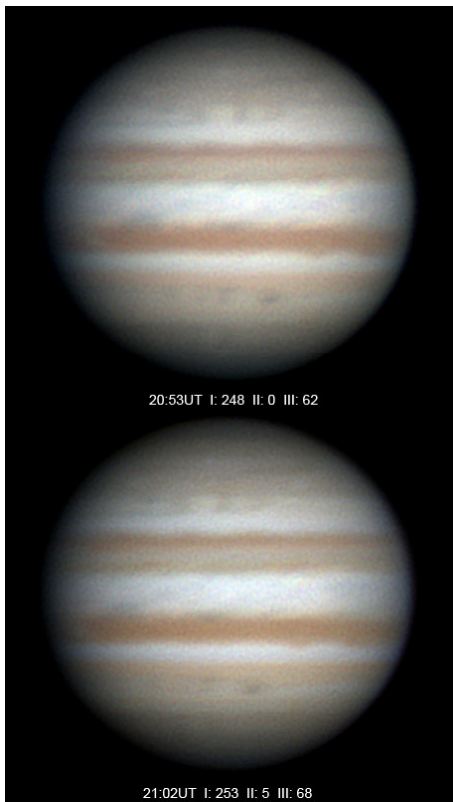
Camera: Canon Powershot A540 with homemade afocal adapter

Softwares (all freeware):

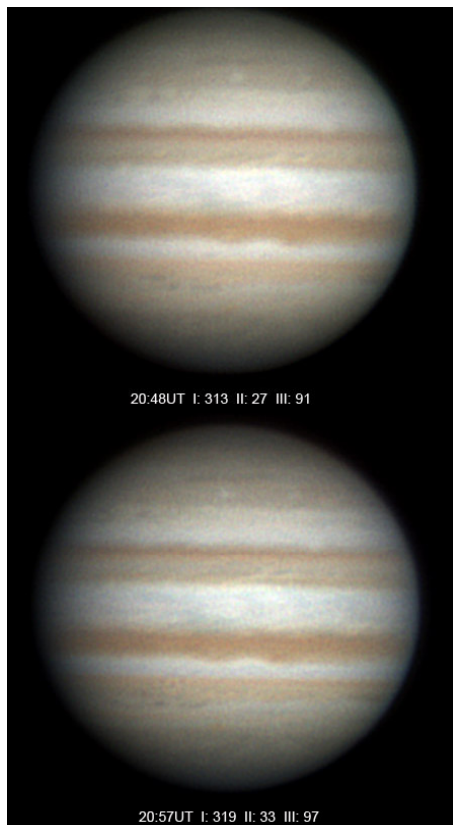
VirtualDub - for video conversion from compressed to uncompressed

- [Vincent Lao](#)

[April 2](#). Seeing was poor this morning. I did not have time to cool my optical tube assembly (see *next page* - *page 59*).

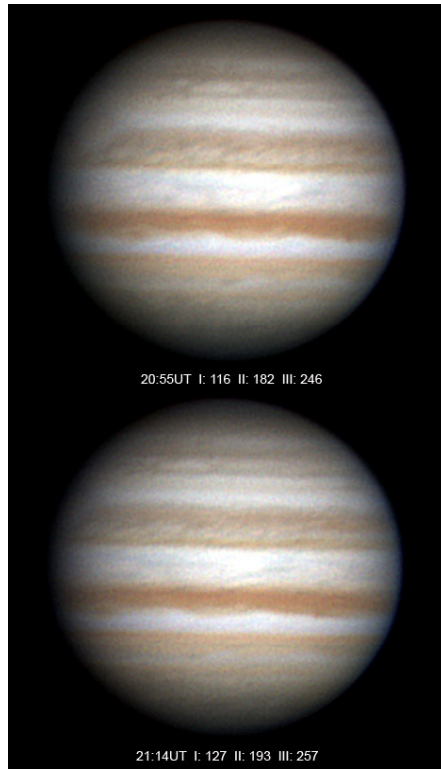


Oval BA is visible close to the Central Meridian (CM). It is rather pale and with only a hint of redness. There is a rift in the North Equatorial Belt (NEB) on the left side. There are also some interesting dark features north of the North Temperate Belt (NTB) at the CM.



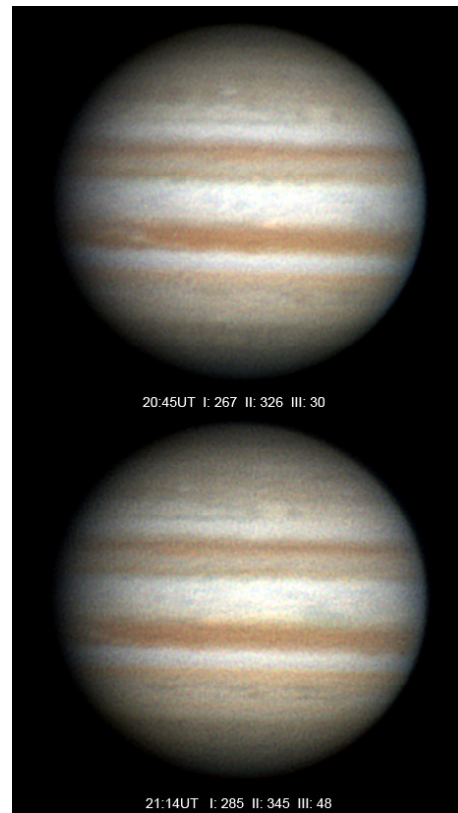
April 7. Seeing was better this morning. Oval BA is setting on the left (*left bottom*). It looks white now compared to its reddish color in the past 3 years. The South Equatorial Belt (SEBs) looks dark red while the mid-SEB looks busy with a lot of dark features. Note the prominent oval at the South South Temperate Belt (SSTB) on the CM. The NEB is very dark red. Note the large White Oval Z at the NEBn at the CM. This oval seems to be growing. There are a lot of dark features at the NEBn. The Equatorial Zone (EZ) has some prominent dark features.

April 8. Seeing was excellent this morning. Considering Jupiter is only 35° above the horizon when I took these images, these are pretty good. A huge Folded Filamentary Region (FFR) can be seen on the SSTB just after the CM. This is the sausage-shaped feature between the two white ovals.

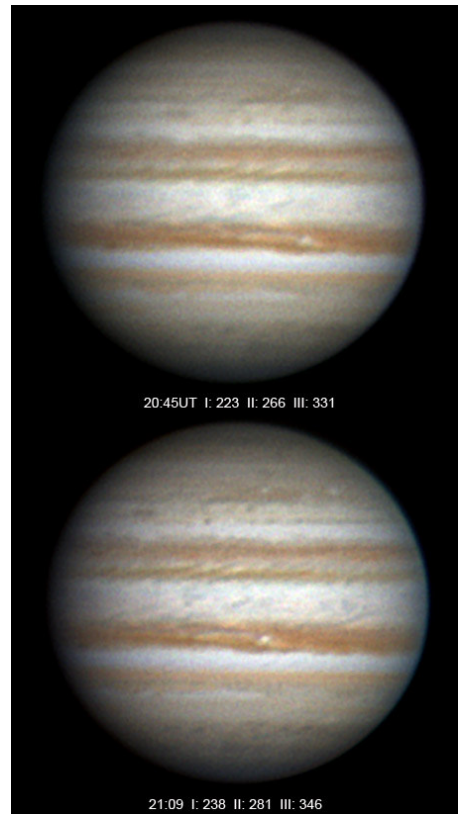


The Great Red Spot (GRS) can be seen on the left setting. The mid-SEB is quite busy with outbreak wakes visible. The EZ looks quiet. The NEBn has a lot of activity. Note the two huge white ovals close to the CM. Note also the large red dark oval setting on the left. The NNTB Little Red Spot (LRS) can be seen faintly in the image (*above*).

April 9. Jupiter is still below 40° above the horizon. Seeing was okay for the altitude. Oval BA is getting close to the CM in this image. It still has an orange color so it hasn't really reverted back to white. The SEBs is very dark, while the mid-SEB looks very busy. There is a large dark festoon on the EZ. The NEB is very dark.



Note the rift on the left (*above*). The area north of the NTB has a lot of dark features.



April 11. I finally got good conditions today! Jupiter was around 40° above the horizon when I took these images. Note the outbreaks on the SEB and NEB (*above*). (⇒ p. 60).

The mid-SEB outbreak seems to be associated with the dark feature on the mid-SEB, while the NEB outbreak is associated with a rift system. The STB looks a bit busy. Note the dark area surrounding the SSTB white spot close to the CM. The NTB looks faint in this area. Note the irregular white band north of the NTB. - *Chris Go, Cebu*

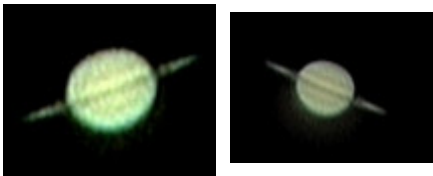
The ring is getting wider now. Note the curve in the Cassini division. The ring is also getting more dull.

It seems this spot is prominent on the Red image close to the CM on the last image.

Saturn

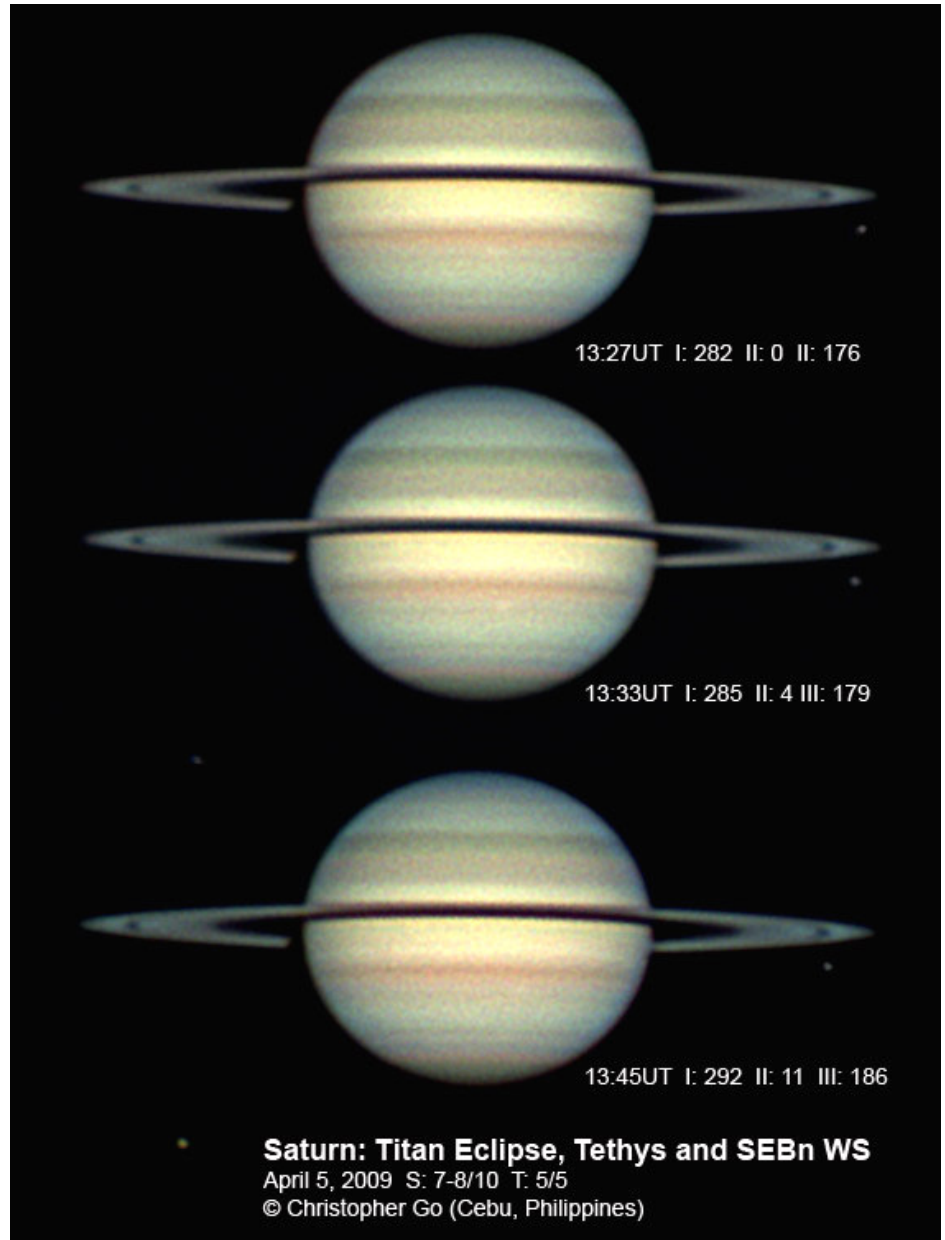


March 8. The gas giant on March 8 taken afocal with Canon Powershot A540 on Orion Starblast..



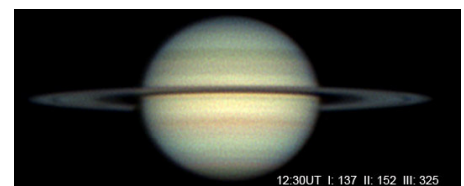
April 5. Got a chance to image Saturn again (above). The seeing is better than last time. Afocal photographs taken on an Orion Starblast with a 17mm eyepiece + 3X barlow and a Canon Powershot A540. - *Vincent Lao*

April 1. Seeing was good this evening, but thin clouds reduced transparency to only 3. There is an interesting bulge north of Saturn's SEB at the CM on the last image. Note the white streaks just north of the SEB. The northern hemisphere is still very pale (below).



April 5. Seeing was good this evening and transparency was perfect! This is the reason why the contrast of these images are very good. Saturn was practically overhead when I took this image (above).

One can also see a faint spot at the SSTZ at the CM. Is this the dragon disturbance?

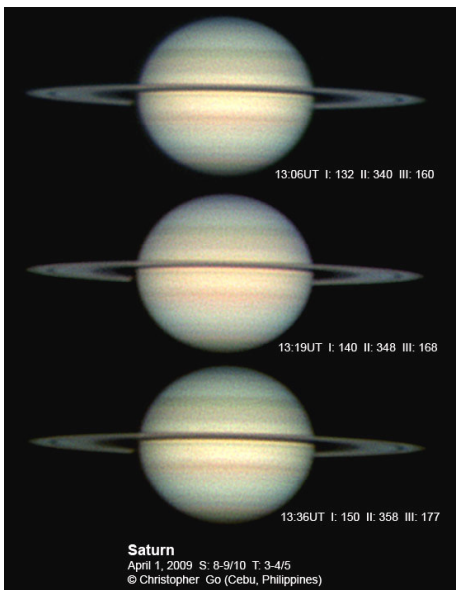


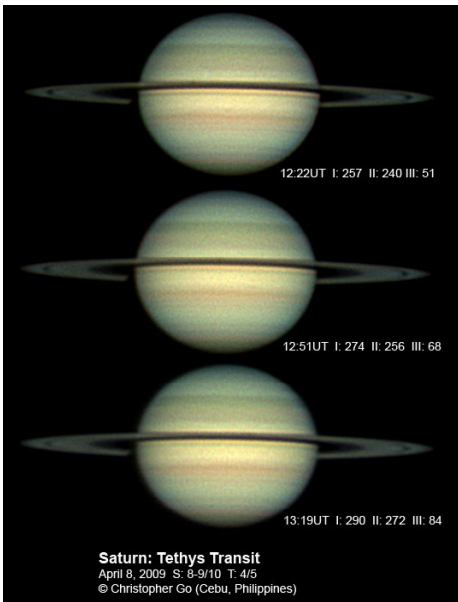
The white band north of the SEB is very prominent.

April 8. Seeing and transparency were excellent this evening. There was a Tethys transit this evening. You can see Tethys skimming just north of the ring (→ p. 61).

Lots of things going on in Saturn. Titan is emerging from an eclipse by Saturn's shadow. Tethys is on the right, skimming the south of the ring. On Saturn's disk, there is a faint white spot just south of the SEB at the CM. The band details of these images are excellent!

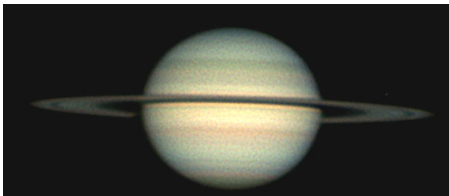
April 7. Another night of superb seeing and transparency. I tried to image the EZn bed spot. It can be seen on the last image.





There is also a dark barge on the SEBn. Note also the white band north of the SEB.

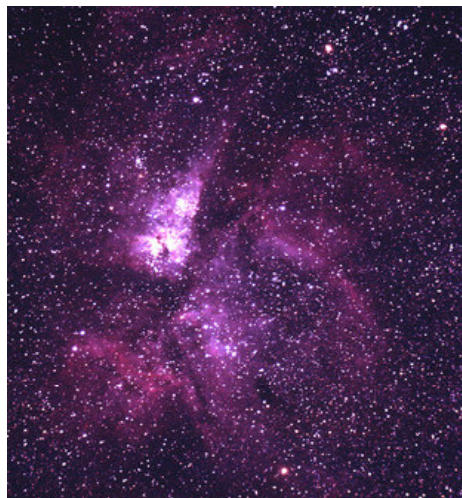
April 10. Seeing and transparency were average this evening. I was only able to salvage one image as seeing deteriorated after I took this image below:



Tethys can be seen above Saturn's ring. Nothing really interesting in Saturn's disk.

April 13. It was cloudy early this evening. It slowly cleared up but transparency was very low. Seeing was average but improved as Saturn got higher (*right*). Titan's shadow is exiting Saturn's disk. There are some artifacts on the shadow because seeing was poor when I started imaging. Other than the shadow, nothing much on Saturn's disk. -

Chris Go, Cebu



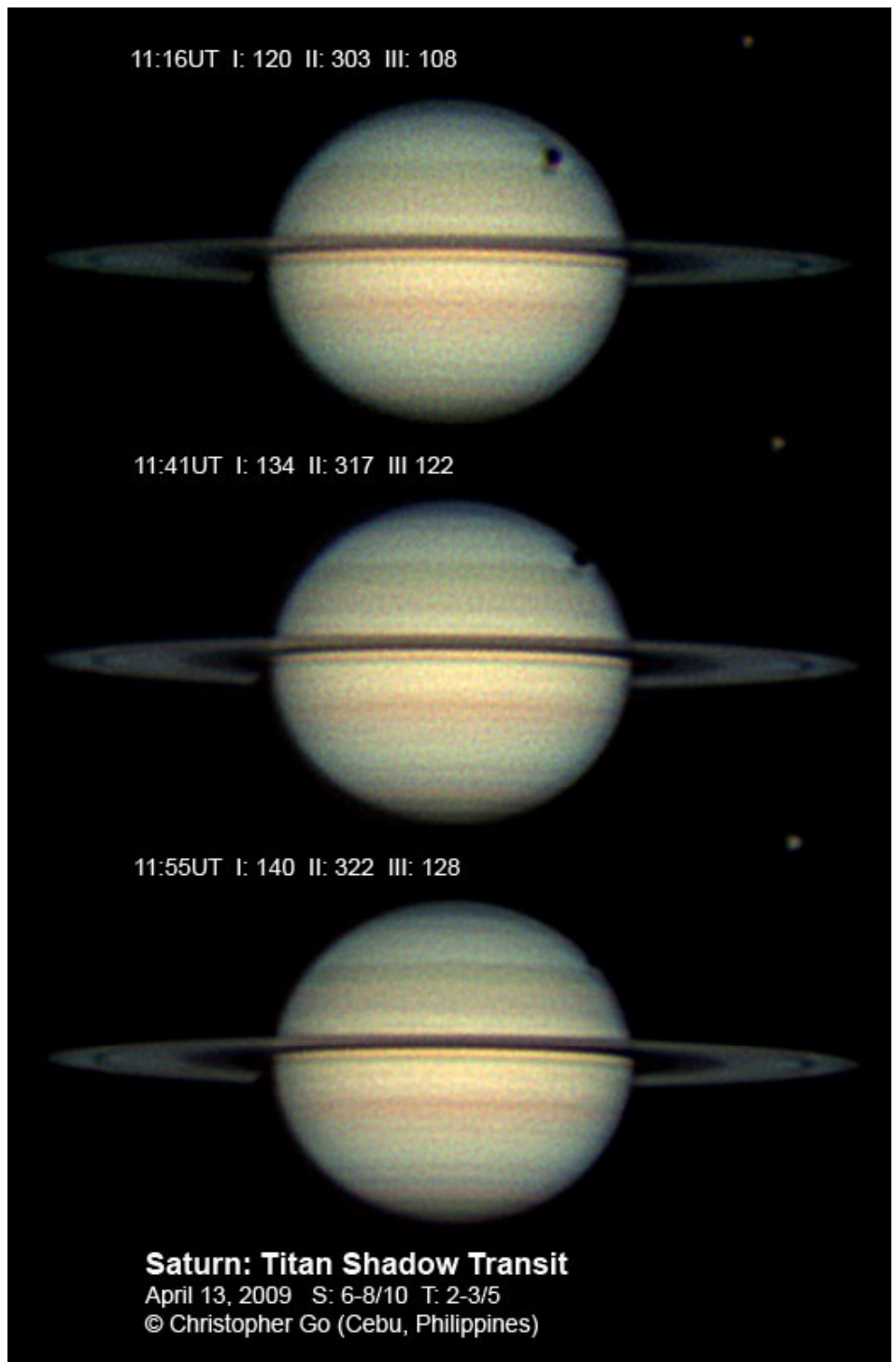
Eta Carinae

At left is an unguided shot taken from windsurfing capital, Caliraya. Winds were so strong I had to lighten the load on the mount by abandoning my Vixen cat and just work on one scope, the much smaller Megrez 72FD - 11 mins. at ISO 1600, unguided. That worked out well but at the expense of guiding capability. Noisy, a bit on the purple side and core is burnt out. I'm still fiddling with the processing. This whole astrophotography thingy is one big learning process - and that's fun! - *Joel Munoz*

Thor's Helmet

NGC 2359 is aptly called "Thor's Helmet" because of its striking resemblance to the Norse God's winged headgear (*see image on following page*). The filamentary network of this stellar bubble is blown and lit up by a central Wolf Rayet star adorning the front part of the cap.

This nebula in the constellation Canis Major glows distinctly blue-green with oxygen atoms in its gas clouds. - *John Nassr, Baguio*





"Thor's Helmet" imaged Feb 25 - Mar 16, 2009 using Astrophysics 5" Starfire f/8, Atik 16HR camera and exposure of 12.5 hours with Baader LRGB filters at 30, 15, 15, 15 x 10 mins.



NGC 4762, the galaxy to the left (above), is especially interesting with its edge-on view and faint outreaching arms. Weeks of cloudy skies allowed me to only make a total of 2.6 hours of exposures. – *John Nassr, Baguio*

Sky Calendar

May skies are typically cloudy at night and quite muggy as the high humidity is a lot of times due to the clouds preventing the heat from the ground from rapidly dissipating into space. If you should happen to find clear skies, there are the planets to see.



Horsehead Nebula

Here's a Horsehead (above, work still in progress) taken with an even smaller Borg 77ED, Atik 16HR cooled astrocamera, and an H α filter. Subs were 3x10 minutes. – *John Nassr, Baguio*

Lenticular Pair

I thought I would explore a pair of lenticular galaxies that I first noticed in a Palomar Observatory Sky Survey (POSS) plate. Galaxies NGC 4762 and NGC 4754 are located in the constellation Virgo due west of the 2.8 magnitude star, Vindemiatrix.

Evening.

In the evening sky after sunset, it is the kingdom of the Lord of the Rings – Saturn. On May 13, the rings reach their temporary maximum in tilt, 4°, before starting to close again.

Early Morning

The two brightest planets, Jupiter and Venus, lord it over the early morning sky. On May 20, 5th magnitude Mu Capricorni joins the Galilean satellites of Jupiter. On May 27, Neptune is just 0.4° away from Jupiter – and can be viewed in the same telescopic field.

The Sky

DAY	HR	EVENT
May 2009		
05	15:24	Eta Aquarids Meteor Shower Peak
07	14:13	Moon 2.9° S of Spica
09	12:00	FULL MOON
11	06:42	Moon 0.2° N of Antares
17	15:25	LAST QUARTER
18	18:01	Mercury at Inferior Conjunction
24	16:14	Moon 0.5° N of Pleiades cluster
24	20:10	NEW MOON
29	04:38	Moon 2.7° S of Beehive cluster
31	11:22	FIRST QUARTER

June 2009

06	04:32	Venus Greatest Elongation 46° W
07	11:35	Moon 0.7° N of Antares
08	02:11	FULL MOON
13	19:42	Mercury Greatest Elong. 23° W
14	00:13	Jupiter 2.8° S of Moon
16	06:14	LAST QUARTER
19	22:11	Venus 2.0° S of Mars
21	00:13	Moon 0.2° S of Pleiades
21	13:44	Summer Solstice
23	03:34	NEW MOON
25	12:59	Moon 2.2° S of Beehive cluster
29	19:28	FIRST QUARTER



100HA in Palawan

In addition to the main activities, ALPer Alice Villa-real was in Puerto Princesa in Palawan during their celebration of the 100HA on April 2-4. For three straight days, an estimated 3,500 people (including children) lined up and peered through 3 telescopes to get spectacular views of the Moon, Saturn and the Great Orion Nebula! The Celestial Quest, together with Beans & Pages Coffee Shop, the city government and Ms. Alice Villa-Real, provided an astro walk-thru that presented an explanation of lunar phases, the different mythologies behind the constellations, the myths behind the Palawan constellations (ethno-astronomy) with shadow puppetry and much more. An astronomy-related video presentation went on for several hours as hundreds of people lined-up. The walk-thru opened at 7 p.m., but people would start coming at 2 p.m. onwards to wait. – *Alice Villa-real*

