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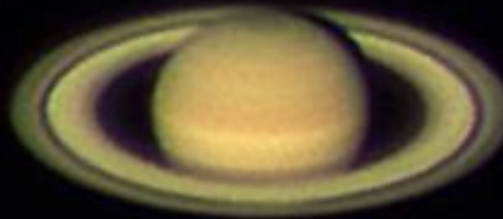
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FEATURE IMAGE THIS ISSUE



On March 15, James was able to image the ringed planet, and what a wonderful image it is, showing the rings and Saturn's shadow on the rings. More info on page 51. © James Kevin Ty

CLUB NEWS

March Monthly Meeting

Last March 7, the ALP held its monthly meeting at the Emerald Garden Restaurant at Roxas Blvd. Members who attended were ALP President James Kevin Ty and son Kendrick Cole (KC); Treasurer Andrew Ian Chan; Secretary Christopher Louie Lu; director Peter Benedict Tubalinal; Iah Serna; Shubhashish Banerjee; Saju Pillai; and, Maria Sobina Yu.



The meeting started at around 8:15 p.m. with Peter discussing the upcoming 2015 ALP Messier Marathon Open. This will be held under the dark skies of Caliraya, Laguna. This was followed by James and Andrew discussing the planned ALP activities for March and April.

It was agreed that the monthly meeting will include an update on the current month's astro events, a basic astronomy topic, and an advanced astronomy topic. Full details will be presented in the days to come.

The meeting ended at around 11:00 p.m. - James Kevin Ty

Earth Hour

On March 28, ALP and Exploreum joined hands to celebrate Earth Hour with Stargazing Session at SM By The Bay (SMBY) at SM Mall of Asia, Pasay City. Members who attended were ALP President James Kevin Ty and son Kendrick Cole (KC); VP Jett Aguilar; Treasurer Andrew Ian Chan; Secretary Christopher Louie Lu; PRO Edge Lat; directors Peter Benedict Tubalinal, Arnel Campos, Ronald Sison and Rich Pijuan; Shubhashish Banerjee; Norman Marigza; Adriel Lim; Justine Garcia; Per Edman; Miguel Cajita; Mark Ian Singson; and, Michael John Cunanan.

ALPERS and Exploreum staff started to set up their telescopes at SMBY as early as 4:00 p.m. ALPERS helped set up 4 big telescopes at the Exploreum - a Celestron CPC8 8" f/10 Schmidt-Cassegrain Telescope (SCT), CPC11 11" f/10 SCT, C14 14" f/10 SCT on CGE-Pro equatorial mount and Skywatcher 10" f/5 Newtonian reflector on HEQ6 mount.

Earth Hour 2015 touched on climate change as well as showing the public how much we are wasting electricity and adding to light pollution. At SMBY, lights were put off from 8:30-9:30 p.m. and they used this opportunity to show how much light pollution can destroy the beauty of the universe.

During the lights off period, deep sky objects such as the Orion Nebula and Pleiades were clearly seen compared to when the lights were powered back after the end of the 1-hour shutdown. Also shown to the public that evening were the gas giant Jupiter and its moons and the waxing gibbous Moon.



The event got started at around 7:30 p.m. after a great fireworks show. Afterwards, more than 1000+ people queued up on the 4 big telescopes from 7:30 - 10:30 p.m. It was a very successful event.

ALPERS then took their traditional group shot (above) before calling it a night (⇒ p. 48).



Earth Hour, 8:43 PM PST, March 28, 2015 over Manila Bay, Philippines by Jett Aguilar, Canon 7D with a Sigma 8 mm lens, 16 sec, ISO 800, f/9



Post Earth Hour, 9:32 PM PST, March 28, 2015 over Manila Bay, Philippines by Jett Aguilar, Canon 7D with a Sigma 8 mm lens, 16 sec, ISO 800, f/9

Above are images of the urban sky over Manila Bay during Earth Hour (8:43 p.m., above left) and shortly after when the lights were turned on again (above right), taken by Dr. Jett Aguilar. - James Kevin Ty; Images by James Kevin Ty and Dr. Jett Aguilar

Observing Reports

Halo Displays

Spring brought a number of atmospheric optics displays as the cold Arctic winds clashed with warmer air coming from the south.

Mar 8. The sky started turning milky from high thin clouds in the afternoon, leading to a nice halo display that then became more complex with sun dogs (parhelia) and a circumzenithal arc towards sunset.



22-degree halo and sundog at right



Circumzenithal arc - the colored "smile" high in the sky.

Mar. 15. The sky had these peculiar wavy clouds going toward sunset, and then the ice crystals in the clouds created a nice halo display.



22-degree halo with sundogs on either side. Note each sundog had "tails".



Left sundog



Right sundog



Upper tangent arc

Mar. 21. Another afternoon near sunset, and the sky once again had a nice 22-degree halo display complete with sundogs on both the left and right sides of the Sun. The upper portion of the halo later showed a brightening.



Halo display



What was interesting was an anomalous cloud that seemed to be twisting inside itself (above).

Mar. 31. While driving during the early evening, I looked out and saw a brightening on a cloud that was an upper tangent arc.



It was a fleeting display, as after a few minutes, it faded as the high thin cloud that formed it moved on. The clouds were quite nice that evening, as the Sun continued on its steady climb down toward the western horizon. - Jun Lao, Mason, Ohio

Conjunctions

Mar. 22. On the night of March 22, the crescent Moon joined the brilliant planet Venus in the early evening sky. This made for a wonderful bright conjunction low in the western sky.



The pair was captured using a Nikon D7000 with a 16-300 mm Tamron lens. - Jun Lao, Mason, Ohio

Moon

Mar. 3. Peek through your windows and say hello to Mr. Moonlight - my first successful lunar imaging using Fuji HS50 at 1000mm f/8 and ISO 2.



Imaged with a Nikon D3100 on Sky-Watcher Explorer 150 PL

Mar. 7



- Norman Marigza

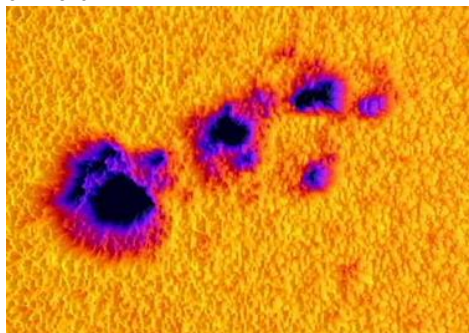
Mar. 5. The sky this evening was clear and the Full Moon was also at its farthest distance to Earth, called an Apogee Full Moon or jokingly referred to as a Mini Moon.



The distance between the Moon and Earth was 406,384 kms away. I used my Canon EOS 500D DSLR with EF 100-400mm f/4.5-5.6 IS L lens set at 400 mm f/8 to image the Moon at 1/500 sec at ISO 100. I will also try to image the Full Moon again this coming September 27, 2015 when the Moon is closest to the Earth (Perigee Full Moon or Super Moon) at 356,877 kms distance. - James Kevin Ty

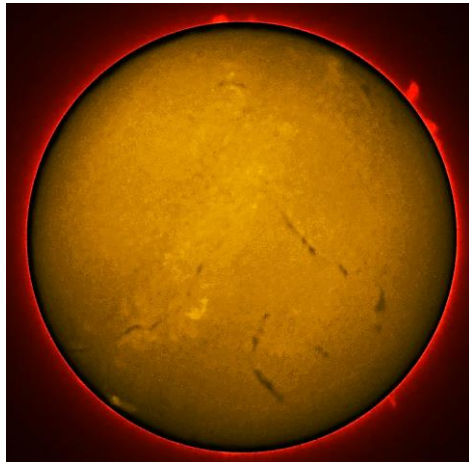
Sun

Mar. 12. Below is a 3D render of sunspot group AR2297. It was a Dkc class sunspot group which released five M-class solar flares on March 11.

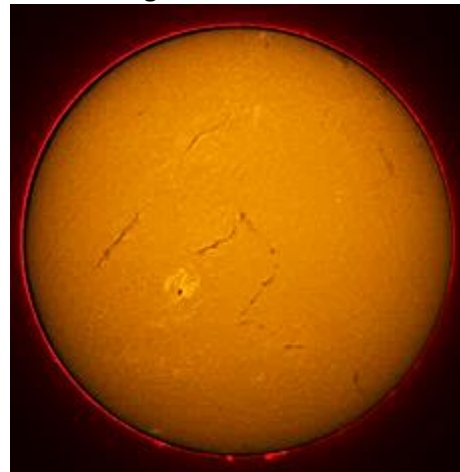


Imaged with a Nikon D3100 on Sky-Watcher Explorer 150PL with Baader filter. - Norman Marigza

Mar. 6. Seeing wasn't good but it was still easy to see that the Sun sported a number of dark filaments.



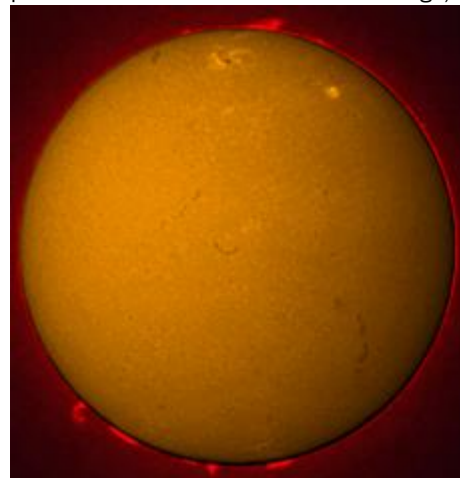
Mar. 11. Seeing was quite good as it was easier to distinguish features on the solar disk. What was also nice was active region AR 2297, off center, which was quite distinct and bright in the light of H-alpha, and which might be experiencing a flare, especially with the enhanced brightness.



One of the other amazing things that day was this very long dark filament that seemed to form a shortened dipper, with the end near AR 2297.

This was on top of other long dark filaments on the face of the Sun - the Sun had a lot of activity!

Mar. 17. St. Patrick's Day, and I was pleasantly surprised to see what looked like ol' Nessie - the Loch Ness monster, on the limb of the Sun, formed by two prominences - one a hook prominence forming Nessie's head and neck, and another large, wide, hedgerow prominence that formed the hump of the body above the lake waters (the prominences on the lower left of the image).



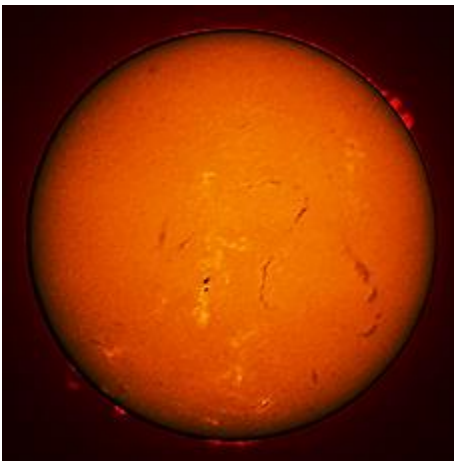
AR 2297 was moving toward the limb, and a bright spot (on its right) nearby, marked AR 2302.

Mar. 21. The skies opened up in the afternoon and the temperature was mild, but seeing wasn't as good as I would have wanted (⇒ p. 50).

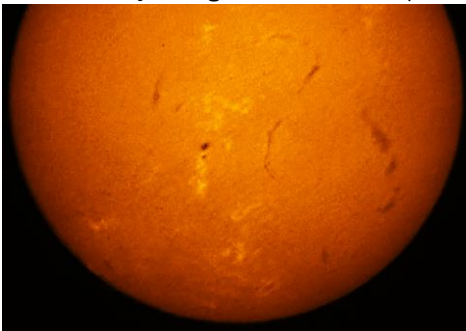


Despite that, the Sun was quite active with so many dark filaments on the Sun's disk. There were only a few small prominences on the Sun's limb.

Mar. 25. The Sun had an amazing set of brushy prominences at the 2 o'clock position, while there was a floating, detached prominence opposite it. In addition, there was a snaky dark filament that looked like a stretched version of the large dark filament on the 11th.



Sunspot group AR2305 was quite prominent, having a pair of dark spots in H alpha. In addition, there was also a very 3D dark filament that showed depth or height showing that it wasn't just edge-on from our viewpoint.



Mar. 28. The Sun had a number of dark filaments criss-crossing its surface, but resolution wasn't as good as the Sun's elevation was getting low.

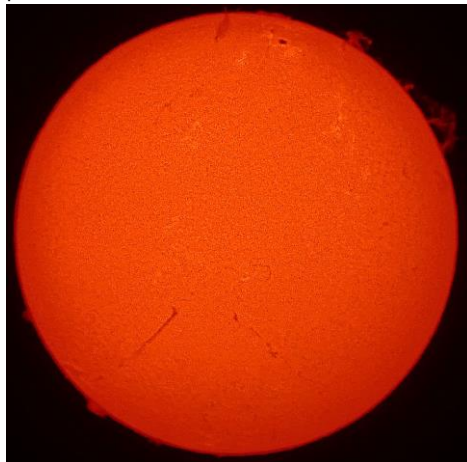


There were a number of active regions on the Sun's disk, as could be evidenced by the brighter regions scattered along the Sun's disk, and a somewhat intense bright spot near the Sun's limb at the 1 o'clock position.

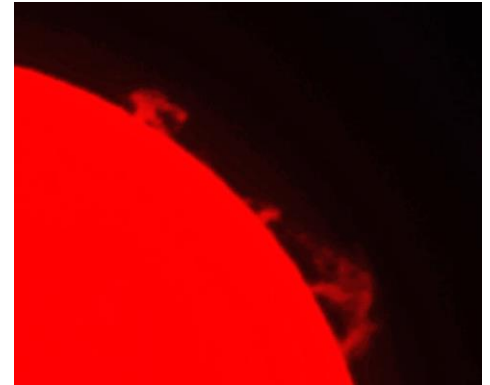
Mar. 29. The Sun had two large dark filaments on opposing sides. One was a long straight dark filament while the opposing one had a more 3D structure to it and appeared to have a wavy structure, showing the prominence more on a slanted side view.



Mar. 31. There was an amazing set of large prominences on the Sun's limb!



Seeing was excellent that early evening, leading to great resolution in imaging. I wonder if the large prominences on the limb were the same large dark filaments visible near the center of the Sun's disk about a week before.



Sunspot group AR 2305 was still prominent even as it was about to head toward the limb. In addition to the sunspot group, there was a fila-prom to its left - a dark filament whose upper region was now becoming visible as a bright prominence against the backdrop of space. If all these features were not enough, there was also a long, straight dark filament next to a long, thin dark filament on the Sun's disk. - Jun Lao, Mason, Ohio

Mar. 8. The sky this morning was clear and seeing condition was fair. There was a new large sunspot group designated AR2297 coming out of the eastern limb. It also showed an active X flare inside its structure.



Sunspot group AR2297 with huge dark filament break-up remnants. Imaged with a ZWO ASI120MM webcam on double-stacked Coronado PST H α /SM-40 with 2x Barlow lens.



Some long dark filaments (\Rightarrow p. 51).

There was also a beautiful huge dark filament breakup remnant on the southeast quadrant. A nice group of eruptive prominences were also visible along the limb.



Dark filaments and eruptive prominences



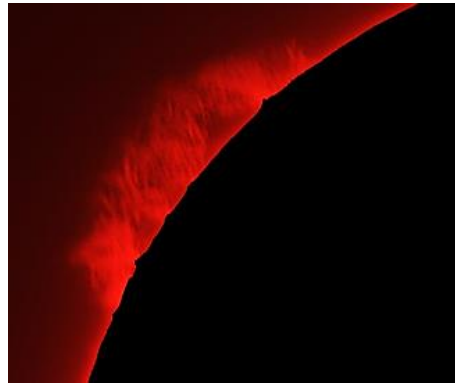
AR2293 with eruptive prominences

Mar. 27. The sky this morning was partly cloudy and I had a hard time imaging. Seeing condition was also not good. It had been almost 3 weeks since I did any solar imaging. With my plan to return the SM40 after a few month's testing, I decided to use the Coronado PST-H α on its own once again and true enough, I think the results gave me some confidence to do it again after a few months of double stacking the PST-H α with SM40.



AR2305

There was a huge hedgerow prominence in the northeast limb while moderate-sized AR2305 had a twisting huge dark filament surrounding the group. I had to wait more than 2.5 hours before I got a small hole in the clouds to do a fast image before I got clouded out again. As they say, Astronomy teaches us to be humble and patient.



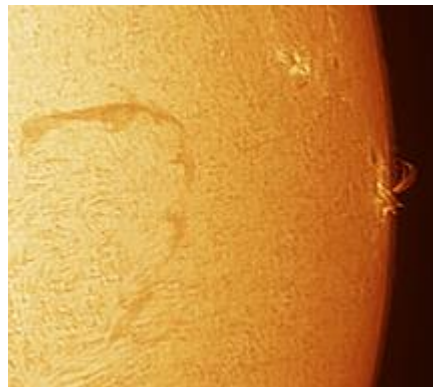
Huge hedgerow prominence

Mar. 28. The sky this morning was partly cloudy but I was surprised to see the Sun through the window in the morning! That's great, as I can do regular solar imaging again from 7:30-8:30 a.m. The seeing condition was fair but I was only able to image AR2305 as clouds started to cover the Sun after I took an image. The huge hedgerow prominence visible in the northeast limb was gone. Although I was able to see another large hedgerow prominence in the southeast limb, I couldn't manage to image it as I got clouded out and was later obstructed by the building once again.



Image taken with a stock Coronado PST-H α with 2x Barlow lens with ZWO ASI120MM webcam.

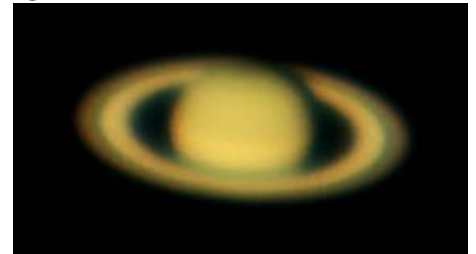
A consolation shot for me was the inclusion of a nice moderate-size looped prominence in the northwest limb.



AR2305 was a beauty as it was swarming with numerous large twisted dark filaments surrounding the area. I had to lighten my processing a bit for this image so as not to dim out the looped prominence. - James Kevin Ty

Saturn

Mar. 2. The sky this early morning was clear. Seeing condition was fair. I attempted to image the beautiful ringed planet once again.



Imaged with a ZWO ASI120MM with Meade 8" f/10 SCT with 2X Barlow lens.

Mar. 15. The sky this early morning was surprisingly clear with very good seeing condition. I used a Meade 8" f/10 SCT with ZWO ASI120MM webcam and 2x Barlow.



It's thus far the best of my Saturn images since using a monochrome camera. I hope to improve my skills more with practice. - James Kevin Ty

Galaxies

Here is a 4.8 hour exposure of NGC2903, a spiral galaxy in Leo with active HII star forming regions.



From Wikipedia: NGC 2903 is a barred spiral galaxy about 30 million light-years away in the constellation Leo. It was discovered by William Herschel who cataloged it on November 16, 1784.

NGC 2905 is a bright star cloud within this galaxy. NGC 2903 has a very high speed of creating new stars in the central region. - John Nassr, Baguio



Images by ESO/IDA/Danish 1.5 m/R. Gendler, C. C. Thöne, C. Féron, and J.-E. Ovaldsen (L), of the giant star-forming Tarantula Nebula in the Large Magellanic Cloud; NASA, ESA, and E. Sabbi (ESA/STScI), with acknowledgment to R. O'Connell (University of Virginia) and the Wide Field Camera 3 Science Oversight Committee (R), of the central merging star cluster NGC 2070, containing the enormous R136a1 at the center.



Is the Most Massive Star Still Alive?

- Ethan Siegel

The brilliant specks of light twinkling in the night sky, with more and more visible under darker skies and with larger telescope apertures, each have their own story to tell. In general, a star's color correlates very well with its mass and its total lifetime, with the bluest stars representing the hottest, most massive and shortest-lived stars in the universe.

Even though they contain the most fuel overall, their cores achieve incredibly high temperatures, meaning they burn through their fuel the fastest, in only a few million years instead of roughly ten billion like our sun.

Because of this, it's only the youngest of all star clusters that contain the hottest, bluest stars, and so if we want to find the most massive stars in the universe, we have to look to the largest regions of space that are actively forming them right now.

In our local group of galaxies, that region doesn't belong to the giants, the Milky Way or Andromeda, but to the Large Magellanic Cloud (LMC), a small, satellite galaxy (and fourth-largest in the local group) located 170,000 light years distant.

Despite containing only one percent of the mass of our galaxy, the LMC contains the Tarantula Nebula (30 Doradus), a star-forming nebula approximately 1,000 light years in size, or roughly seven percent of the galaxy itself. You'll have to be south of the Tropic of Cancer to observe it, but if you can locate it, its center contains the super star cluster NGC 2070, holding more than 500,000 unique stars, including many hundreds of spectacular, bright blue ones. With a maximum age of two million years, the stars in this cluster are some of the youngest and most massive ever found.

At the center of NGC 2070 is a very compact concentration of stars known as R136, which is responsible for most of the light illuminating the entire Tarantula Nebula.

Consisting of no less than 72 O-class and Wolf-Rayet stars within just 20 arc seconds of one another, the most massive is R136a1, with 260 times the sun's mass and a luminosity that outshines us by a factor of seven million. Since the light has to travel 170,000 light years to reach us, it's quite possible that this star has already died in a spectacular supernova, and might not even exist any longer! The next time you get a good glimpse of the southern skies, look for the most massive star in the universe, and ponder that it might not even still be alive.

The Sky

May is normally a challenge for observing, as the hot, humid days change over to hot, humid nights, often with thunderstorms as the heat and humidity of the day condense into towering clouds and thunderstorms as the water vapor reaches the colder, upper parts of the atmosphere.

If the skies are open after sunset, then at least the consolation is that there are a lot of planets for viewing in the evening sky. As the Sun sets, Mercury pops up for one of its best evening apparitions this year - it can be found to the lower right of Venus. Venus has a lot of bright stars for company, as the bright gems of the "winter" sky accompany Venus as the sky moves westward.

The most brilliant planet visible from Earth, our sister planet (at least in size), Venus, shines at its highest this month. It will navigate the skies from Taurus to Gemini.

Mars is sliding further toward the Sun, and would not be visible.

Jupiter is the contender for Venus as the brightest planet in the evening sky. One sure way to distinguish the two - Venus has a yellowish-white color, while Jupiter shines with an almost pure white light.

The last of the five classical planets is missing in the early evening sky - Saturn, which is located above Antares in the constellation Scorpius. Look for Saturn late in the evening, and higher up in the sky as before sunrise.