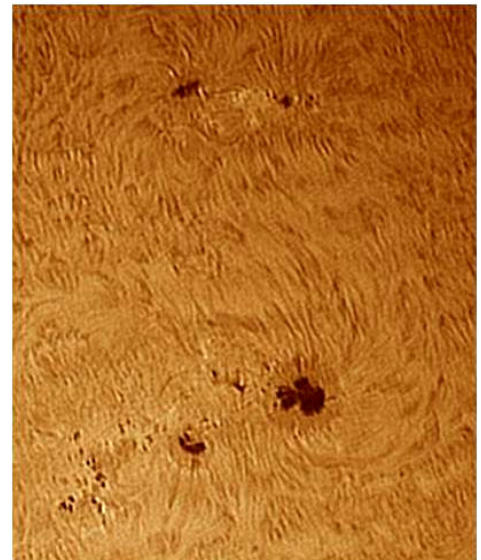
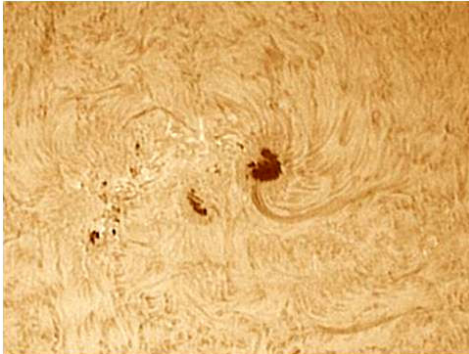


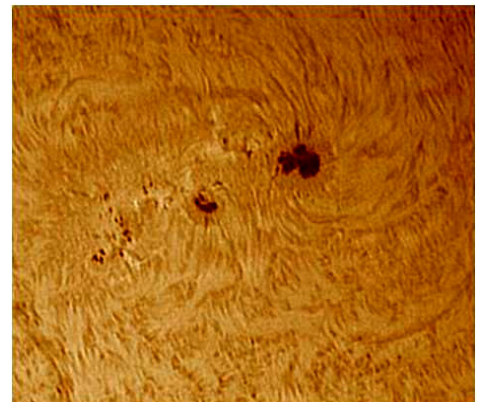
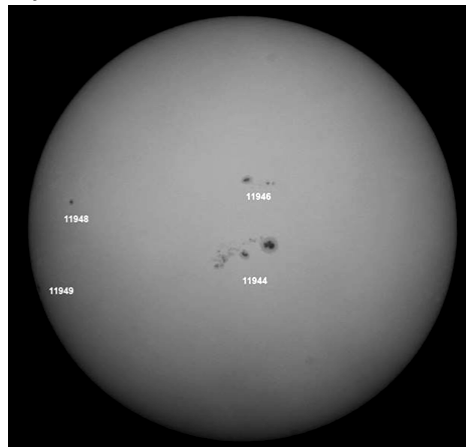
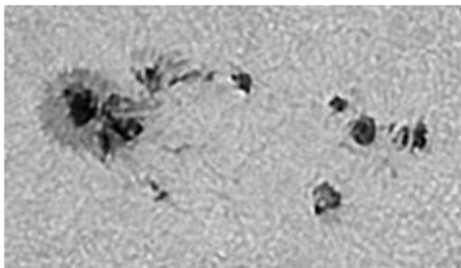
Just before I was about to leave house for work, there were 5 minutes of clear sky to image AR11944 (above) before getting clouded out again. Despite the bad weather, I was quite shocked to be able to image AR11944 in almost perfect seeing condition. I was also able to get another shot of the Sun's full disk after 15 minutes, but the seeing condition suddenly become poor again. I wasn't able to do any H α wavelength imaging due to cloudy sky after my white light imaging session.



AR11944 and AR11946

Giant naked eye sunspot group AR11944 (white light, top, and H α , above) was a joy to look at, with safe solar filter or glasses. It was now starting to stretch in length, so I was having a hard time putting the entire sunspot group inside my camera's field of view!

Jan. 8. The sky this morning was hazy but seeing continued to be good for the past 2 days.

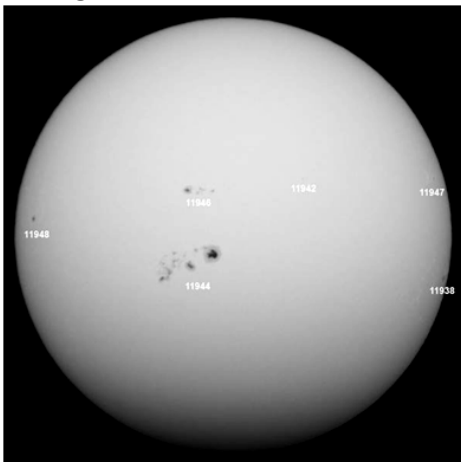


AR11944

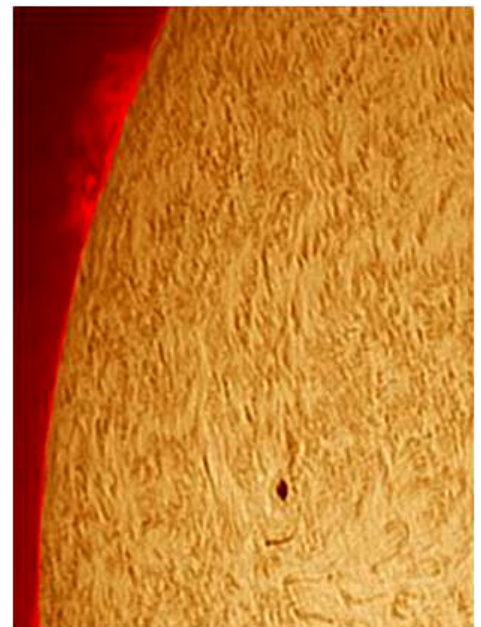
AR11946 (above) was also starting to grow in size. In H α , I only got to image AR11944 before I got totally clouded out.

Jan. 7. The sky this morning was cloudy and I thought I wouldn't be able to image this morning.

Giant AR11944 (below) was now in the central meridian, which meant it was facing the Earth's direction, and according to Spaceweather.com, it had unleashed an X1-class explosion in the sunspot's magnetic canopy and hurled a Coronal Mass Ejection (CME) in our direction.

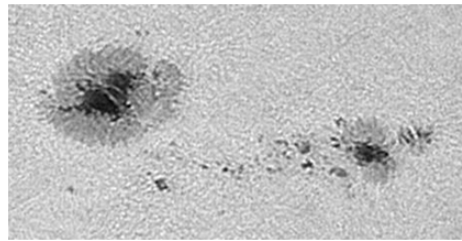
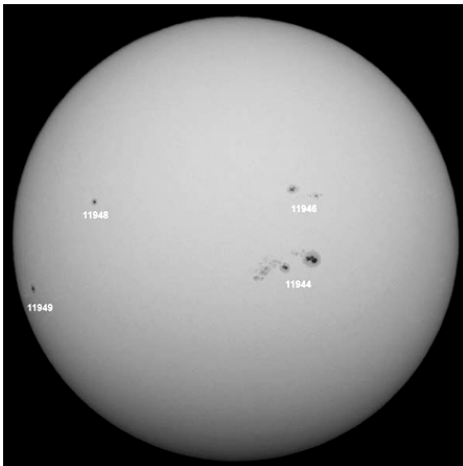


AR11946 was also getting larger. In H α wavelength, AR11944 continued to stretch in size as it was now at the center of the Sun's disk. There was a large hedgerow prominence in the northeast limb.



AR11948

Jan. 9. The sky this morning was slightly hazy with fair seeing condition (\Rightarrow p. 30).

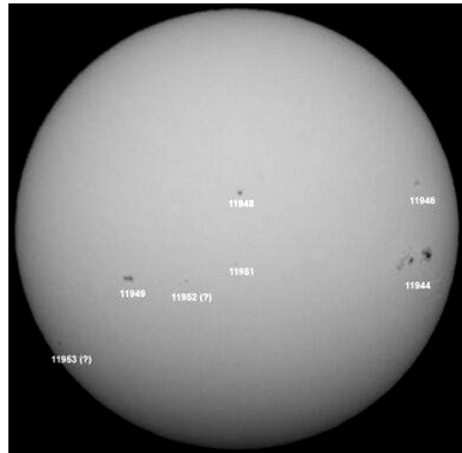
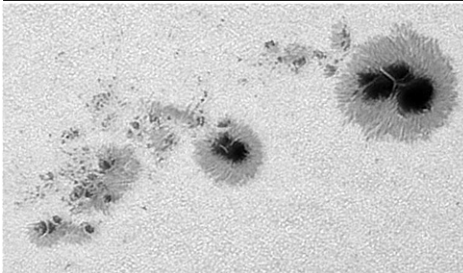


AR11946

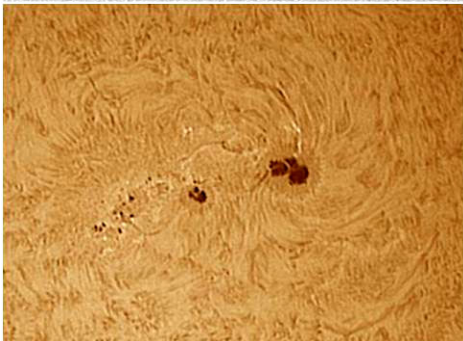
There was a large hedgerow prominence near the limb beside AR11944. Another large eruptive prominence could be seen (bottom, middle) in the northwest limb.



AR11944



AR11949

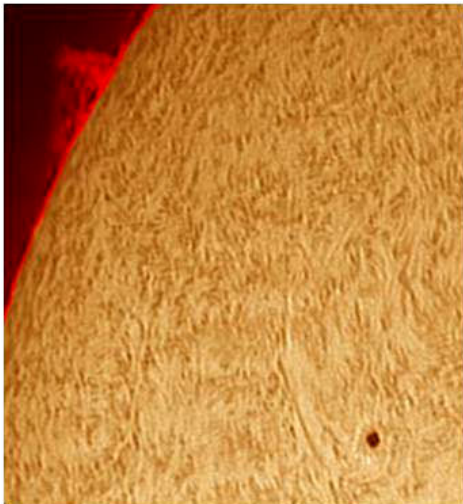


Giant AR11944's (white light and H α above) second main umbra was starting to decay but its rear section was starting to grow.



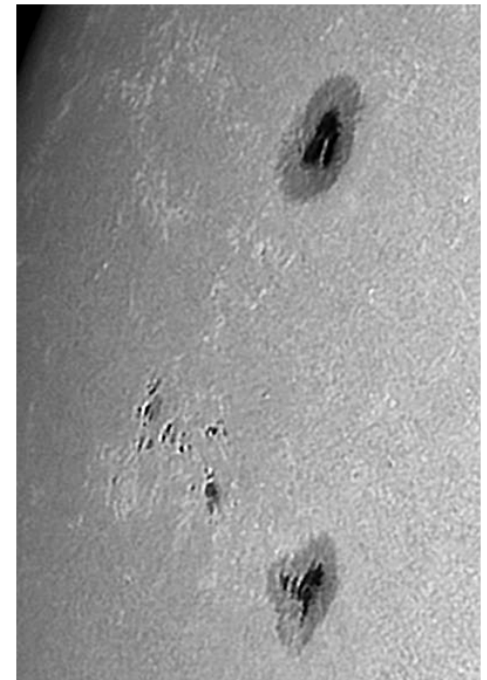
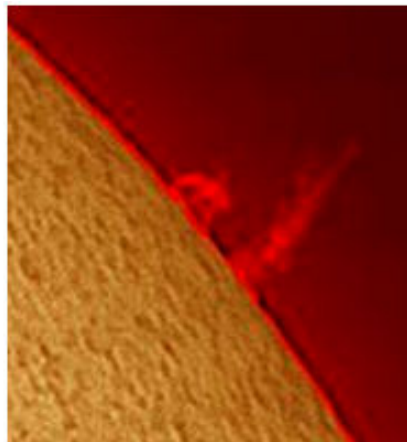
Jan. 20. The sky this morning was hazy but seeing condition was fair. 2 large sunspot groups - AR11959 & 11960 - were coming out from the eastern limb and looked promising.

Not much solar activity except for a large hedgerow prominence visible in the southwest limb.

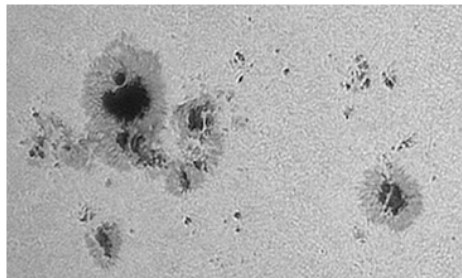
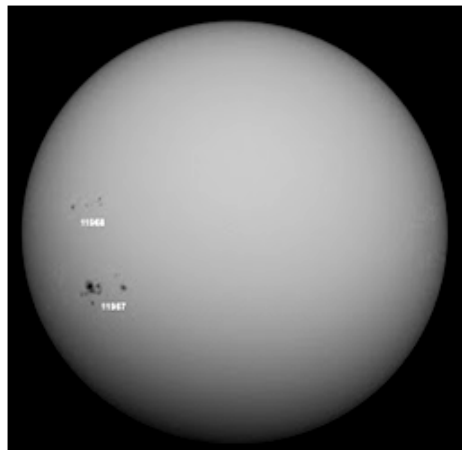


AR11946 (above) did not have much change in appearance. In H α , AR11944 was starting to calm down in terms of solar activity inside its core. There was also a large hedgerow prominence in the northeast limb.

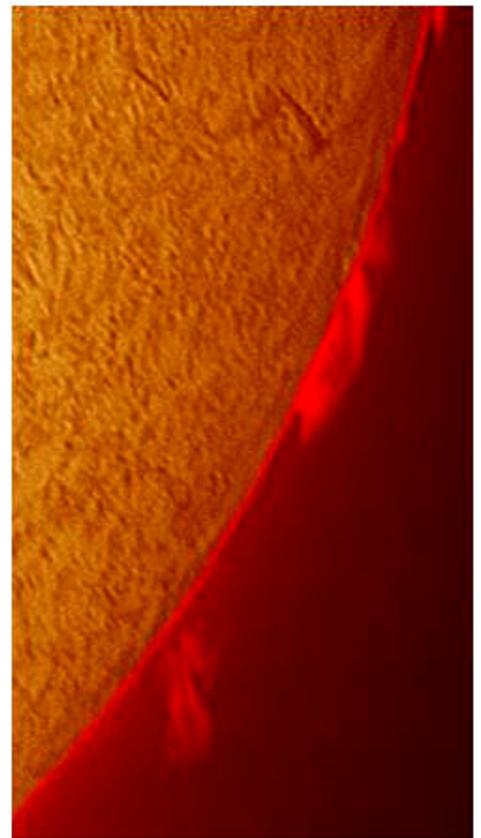
Giant AR11944 (above) was now nearing the western limb and will exit the limb in 2 days. AR11949 was starting to grow in size. In H α , AR11944 was a joy to view with activity inside its core structure.



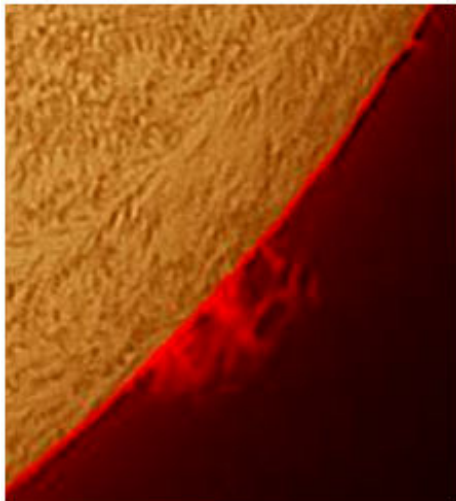
AR11959 and AR11960
(\Rightarrow p. 31).



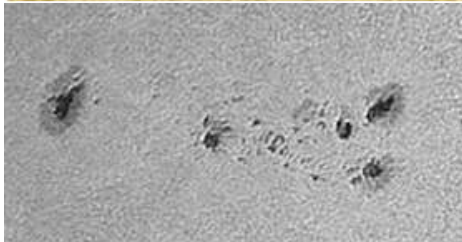
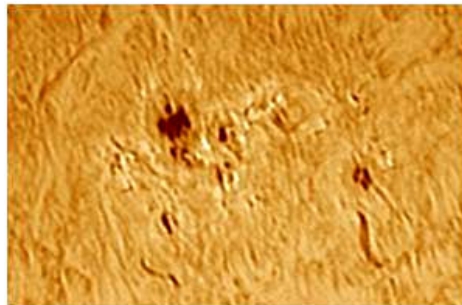
AR11967 in white light (above) and H α (below)



Large eruptive prominence
- James Kevin Ty



Large hedgerow prominence

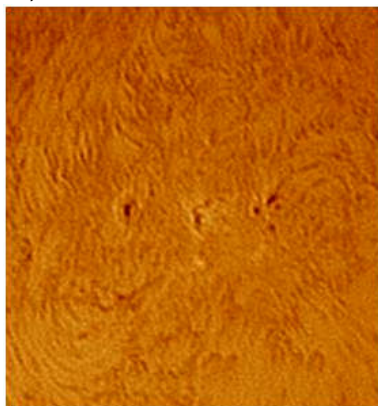


AR11968 in white light (above) and H α (below)

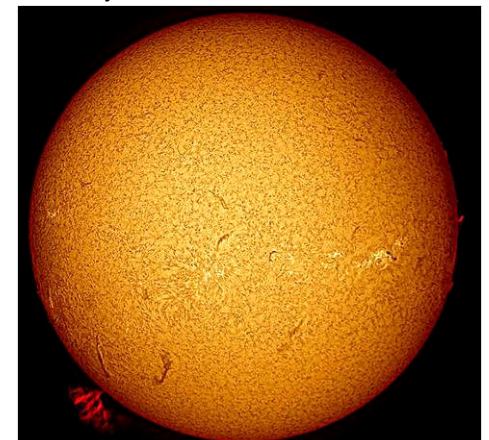
Jan. 31. The sky this morning was hazy and seeing condition was fair. Old huge AR11944 had returned after 2 weeks rotation around the Sun and was now renamed AR11967. It was still huge in size and was a nice sight despite the fair seeing condition.

AR11968 was nice and large and might still grow some more in the days to come. In H α , both sunspot groups were silent in terms of solar activity inside their cores.

There were also two large eruptive prominences in the southwest limb.

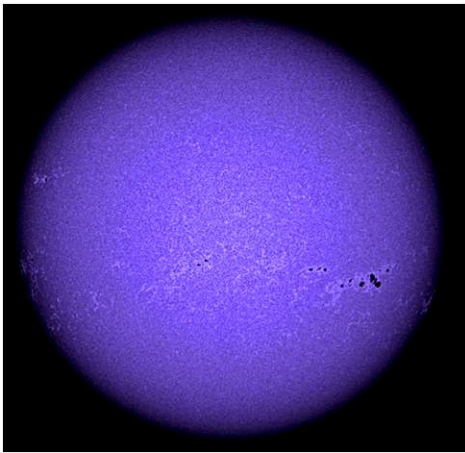


Jan. 1. Spaceweather.com reported an M-9 class solar flare eruption of AR1936 on New Year's day. The sun was really full of activity and I was lucky to image one of the largest and most beautiful solar prominences I have ever seen. The sun seemed to be celebrating the new year with its own fireworks show!

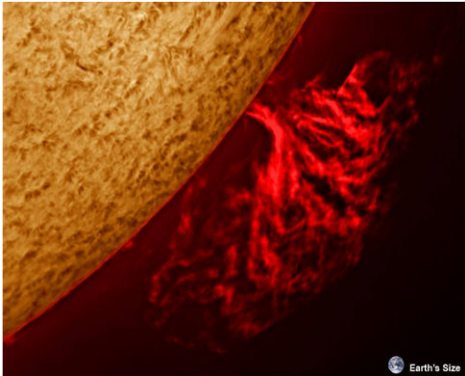


Whole disk Sun in Hydrogen alpha, imaged with a Lunt 100mm/B1800 and DMK51AU02.AS and 0.5x reducer

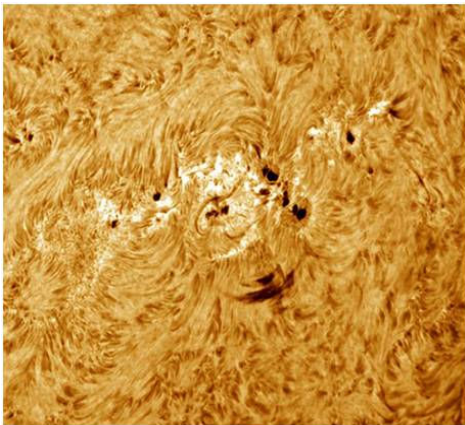
On the next page is a Calcium-K image via a Megrez 90, Baader Herschel Wedge, Baader Calcium-K line filter, DMK51AU02.AS camera, and 0.5x reducer (\Rightarrow p. 32).



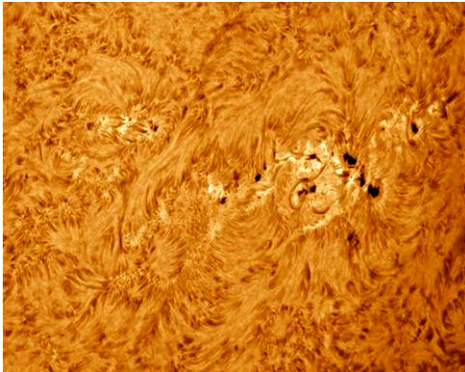
Calcium-K image



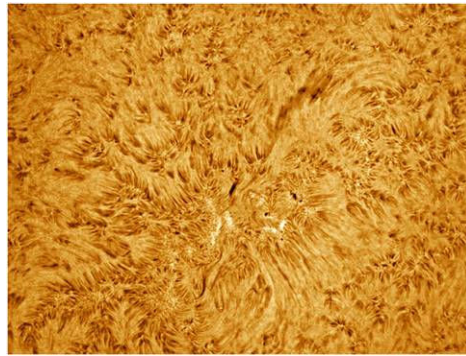
Giant southeastern prominence, imaged with the H α setup with 2.5x Powermate Barlow and DMK31AU03.



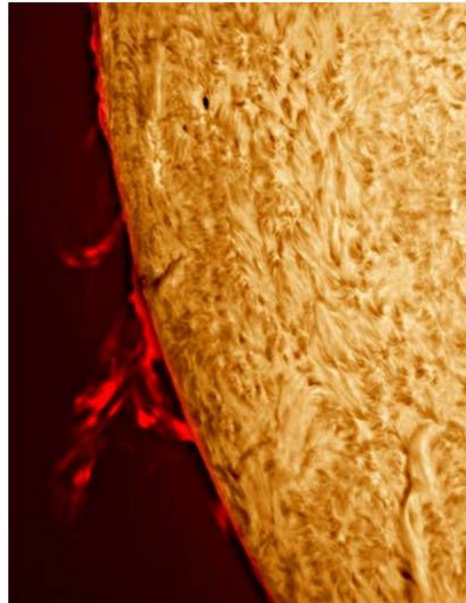
AR1936, AR1941, and AR1940



AR1936, AR1941, and AR1940

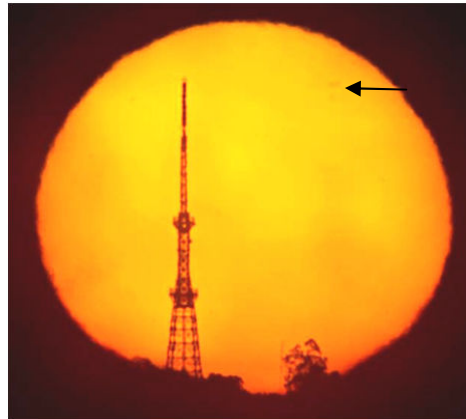


AR1938



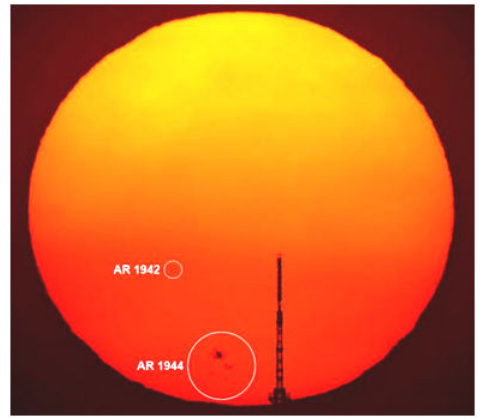
Southeast prominence

Jan. 2. Here was the morning's sunrise over the Sierra Madre mountains, taken at 06:30:57 a.m. PST.

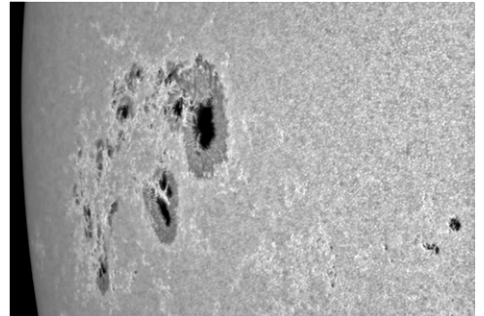


Active Region (sunspot) AR1936 was visible as a smudge at the 1 o'clock position.

Jan. 3. At sunrise this morning, I imaged the rising Sun with a huge sunspot at its eastern limb, AR1944. The next image showed a high resolution image of AR1944 taken yesterday morning.

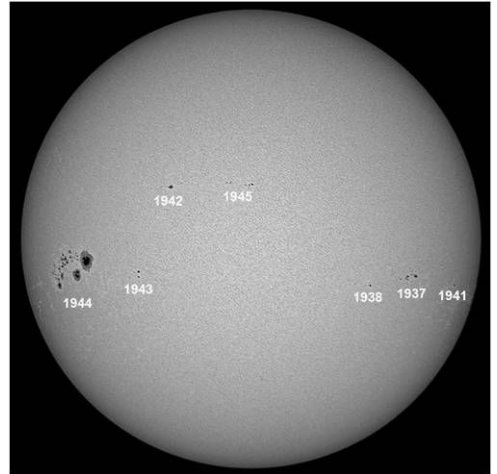


Imaged with a Canon 50D with 100-400 mm EFL lens (unfiltered) at 400 mm, 2x extender. 1/800 second at f/14 and ISO 100.



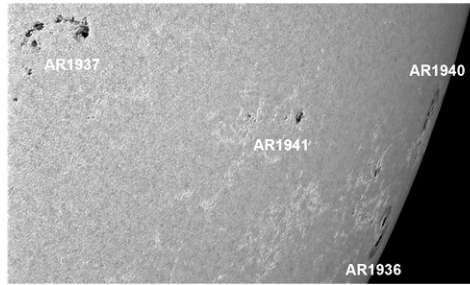
AR1944 and AR1943 imaged with the DMK31AU03 on Baader Herschel Wedge, 3x Televue Barlow, and Takahashi TSA102.

Jan. 4. I was able to image the giant sunspot AR1944 in 3 wavelengths - white light, hydrogen alpha and Calcium-K line.

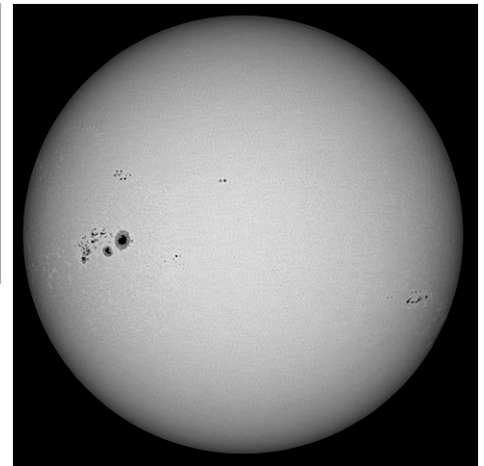


The Sun in white light. The Sun in hydrogen alpha and Calcium-K line are presented on the following page.

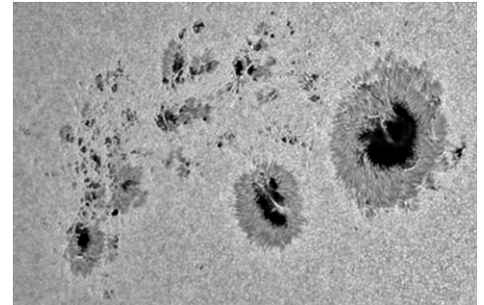
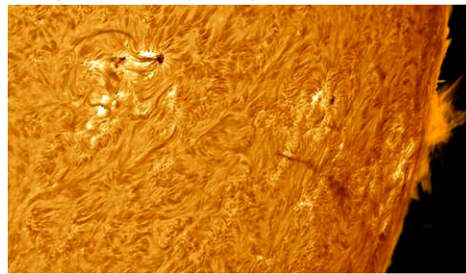
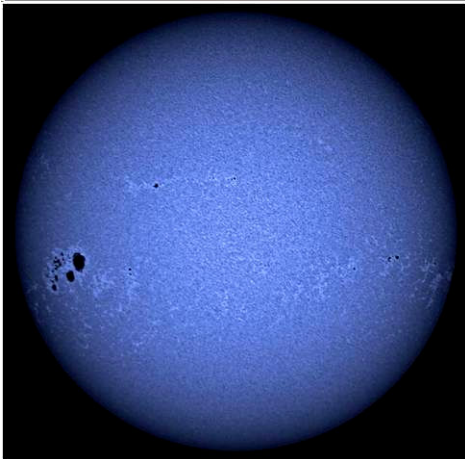
AR1944 was a beautiful sight to behold both in high resolution and in whole disk images. There was also a nice prominence at the southeast limb as well as at the western limb with the outgoing AR 1940 and AR1936 (\Rightarrow p. 33).



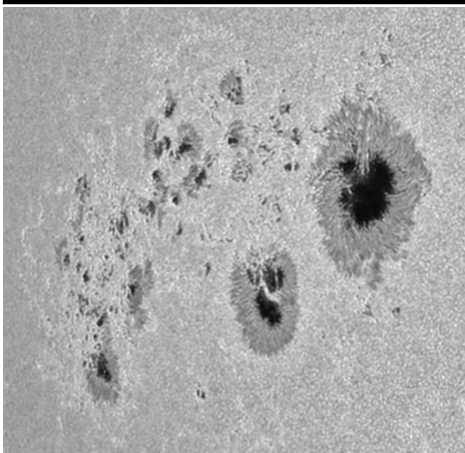
Sunspots AR1937, AR1941, AR1940, and AR1936 in white light (above) and in H-alpha with prominence (below).



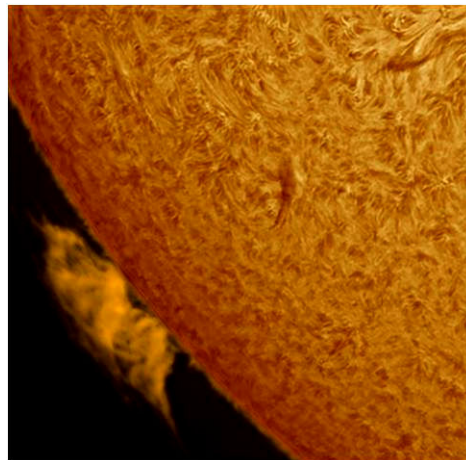
Full disk white light image



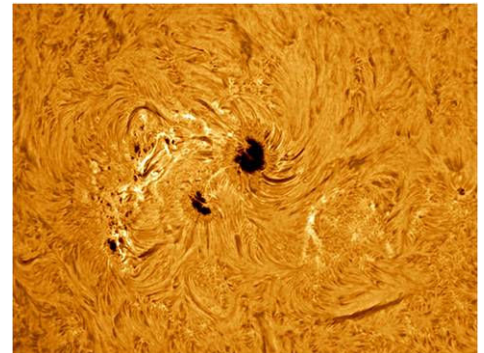
AR1944 in white light (above) and H α (below)



AR1944 in white light (above) and H α (below)

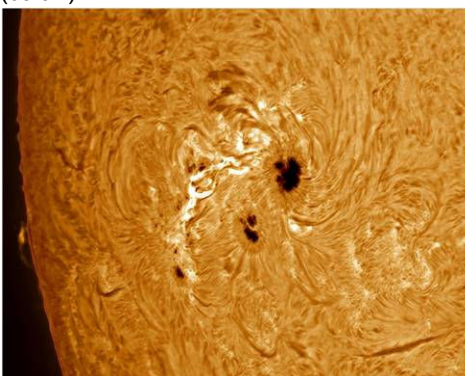


Southeast prominence

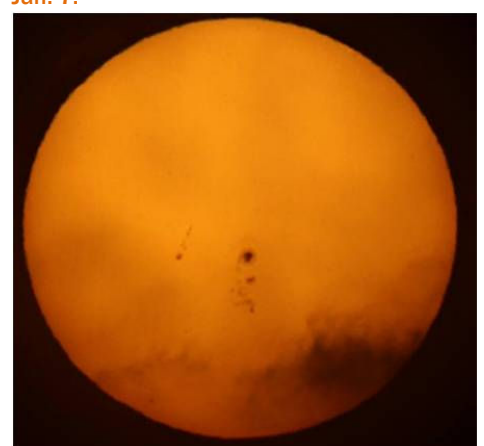


Jan. 5. This is my image of the giant sunspot AR1944 in white light and hydrogen alpha. AR1944 was a real beauty!

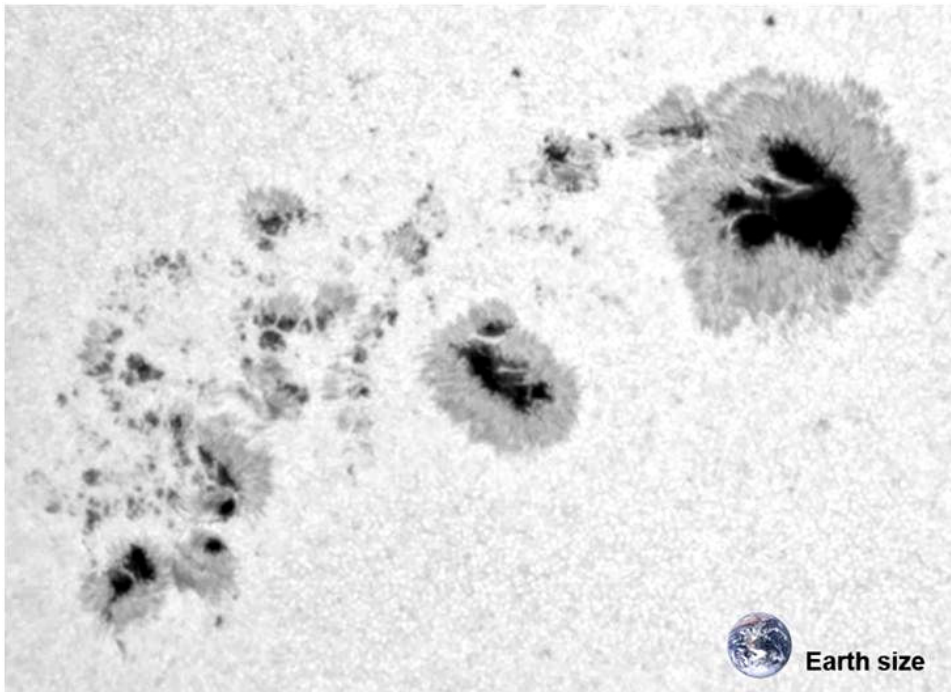
Jan. 7.



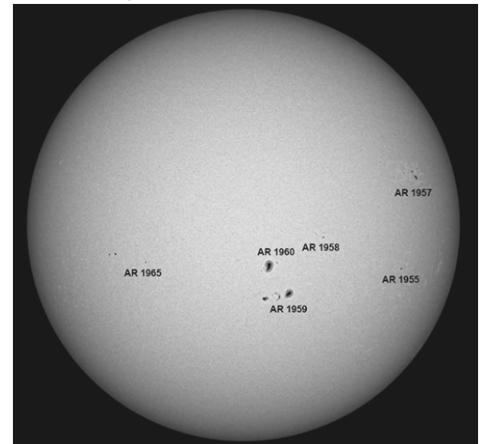
Sunrise with huge sunspot AR1944 imaged with a Canon 50D with 100-400 mm EFS lens (unfiltered) at 400 mm and 2x Canon extender. 1/8000 second at ISO 100 and f/81.



It was mostly cloudy in Quezon City, but I was still able to take images of the magnificent sunspot AR1944. AR1944 was so huge that it barely fit into my high resolution image field of view (\Rightarrow p. 34).

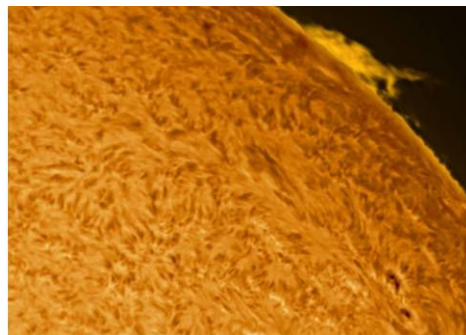


Sunspot groups AR 1959 and AR 1960 showed some activity and there were also some limb prominences as well.

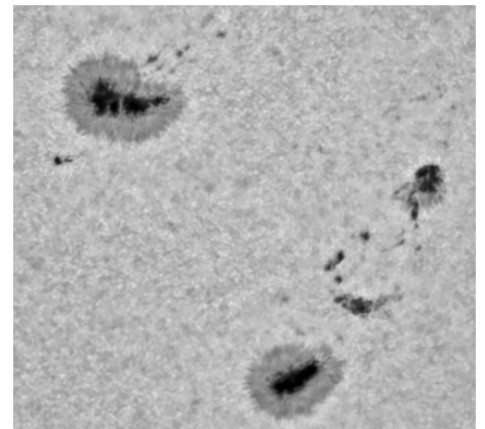


It was something I had not encountered before in my previous sunspot images. I included an image of the earth drawn to scale for comparison and one can see that this giant sunspot really dwarfed our planet!

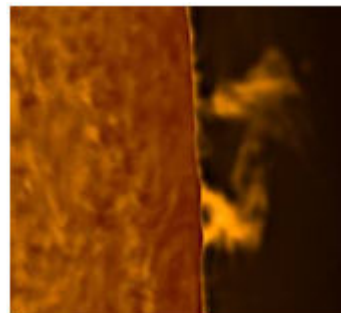
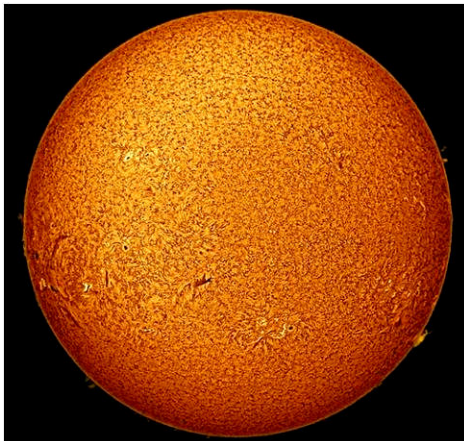
Jan. 19. My hydrogen alpha solar images during a brief window thru the clouds. Seeing and transparency were very poor.



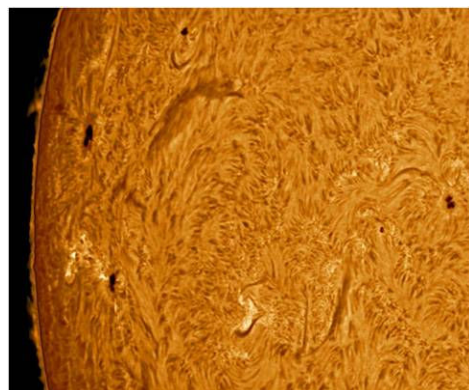
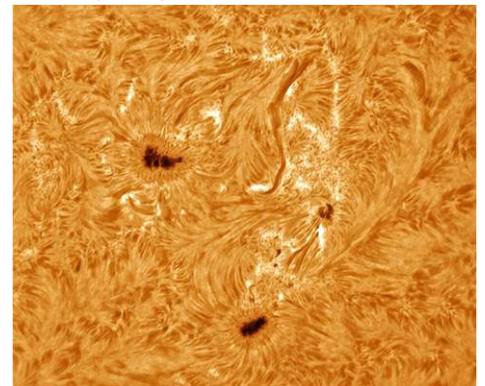
Southwest prominence with AR1949



AR1960 and AR1959 in white light (above) and H α (below)

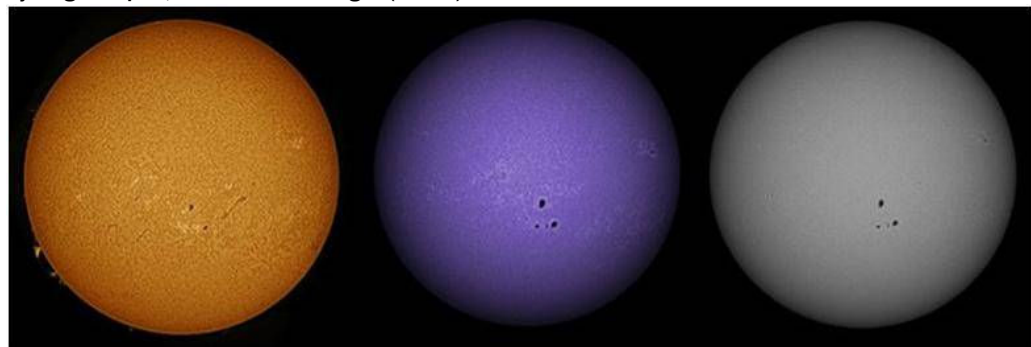


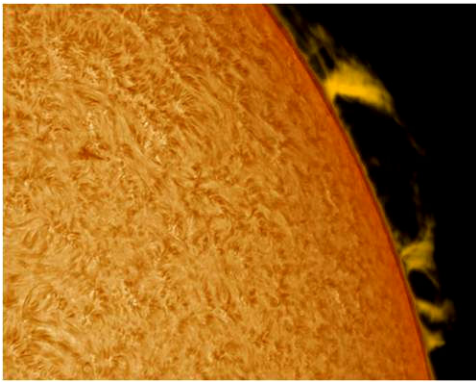
Northwest prominence



AR1955, AR1958, AR1959, and AR1960 with numerous dark filaments

Jan. 25. I imaged the sun in 3 wavelengths - hydrogen alpha, Ca-K and white light (below). (⇒ p. 35)





Southeast prominences
- Dr. Jett Aguilar



Jan. 10. Here is the sun as captured this morning. Sky was a bit hazy.



Jan. 24. Yesterday evening was a busy night of imaging at my home observatory with the sky finally clearing up after several weeks of cloudy weather. My first object for the night was the king of the planets, which was having a shadow transit with one of its Galilean moons, Io, which appeared as a dark dot over the South Equatorial Belt. Also visible in the image was oval BA (Red Spot Jr.) at the South Temperate Belt. Unfortunately seeing conditions were atrociously poor as usual, hence the fuzzy image.

Jan. 2. Eye of Sauron? First sunset shot of the year. That is sunspot AR1944 on the upper left side of the sun's disk.



That sunspot had the potential to disrupt transmission/reception of radio signals on that foreground antenna.

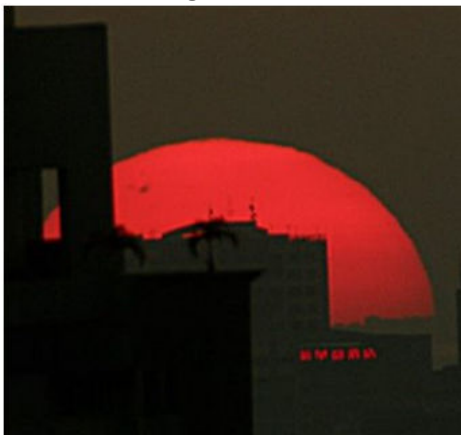


Jan. 24. Sunset - Mock Mirage Green Flash with complete separation/"Pinch off" on top of the sun's disk.



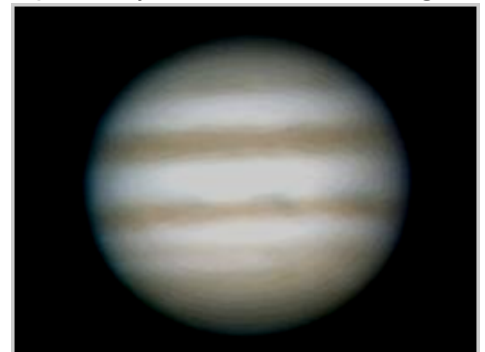
Imaged with a Celestron C11 with 3x Barlow and ImagingSource DBK 21AU04. - Dr. Jett Aguilar

Jan. 4. Can you spot the sunspot (AR1944) behind the building ?



- Raymund Sarmiento

Jan. 25. Experimented on shooting Jupiter with two 2x Barlows stacked on top of each other with the Philips SPC900NC and the GSO 8-inch astrograph. I was trying to capture Ganymede, so it's a little too bright.



- Gary Andreassen

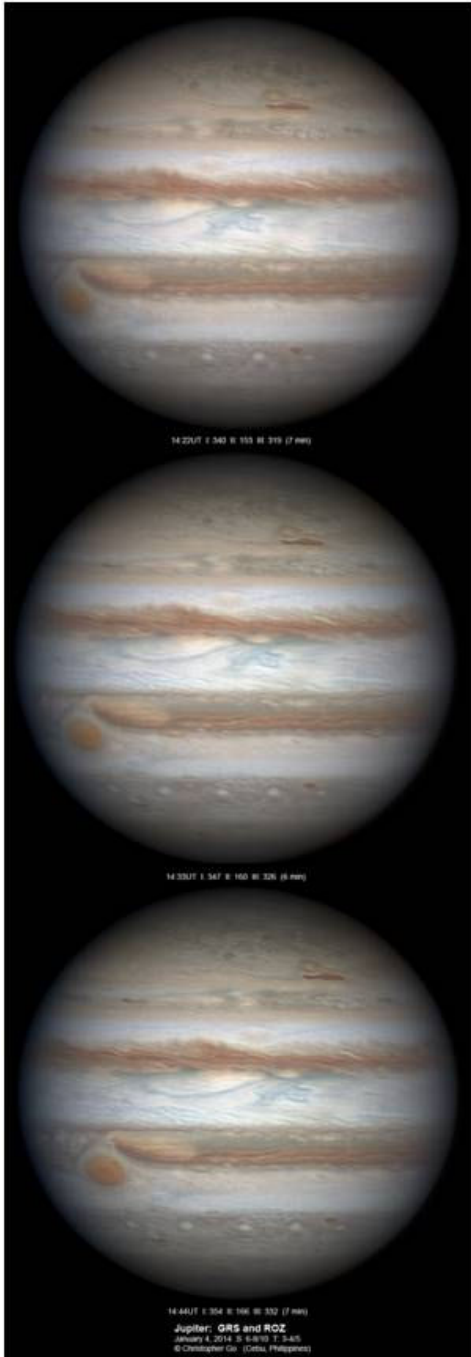
Jan. 9. This morning's AR1944 sunspot capture. Captured using a Canon 600D + 1100 mm lens with a Solar Baader Filter.

Jupiter

Dec. 31. Jupiter and the Great Red Spot. I took the opportunity to image the Jovian planet before the fireworks.

I had to relearn Jupiter imaging again with my C11 and I was hoping to get at least some decent seeing conditions and a good image by opposition time. The image I got was fuzzy due to the very poor seeing but the Great Red Spot was there.

Jan. 4. This was my first image this year and a few hours before Jupiter opposition. Seeing was unstable and I had to stop because of clouds. The Great Red Spot (GRS) was very prominent rising on the left. Note the chaotic area preceding the GRS. Note the bluish feature interacting with the reddish outflow that seems to be emanating from the GRS, pushing its way to the South Tropical Zone (STRZ).



The North Equatorial Belt (NEB) was very active with rift activity. Red Oval Z (ROZ) still retained its faint reddish coloration. ROZ was very bright in methane band, much brighter than the North North Temperate Zone Little Red Spot (NNTZ LRS). The North Temperate Belt (NTB) looked very active.

Note the White Anticyclonic Oval seemed to be squashed as it approached the cyclonic feature just south of it.

Note the complex wake of this interaction. The NNTZ LRS was very prominent. Note the deep red barge just south of this red oval.

Jan. 22. We had a long lingering low pressure system and a cold front which gave us cold, cloudy and wet weather. Seeing was terrible this evening and it was also very windy.



Oval BA was rising on the left. The South Equatorial Belt (SEB) was dark in IR. This was the area of the wake of the GRS.

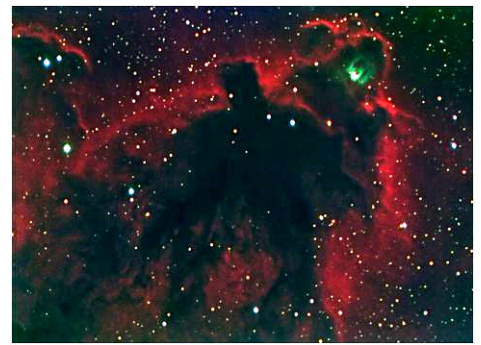
Jan. 24. Seeing was still unstable this evening. I did a stupid thing - I deleted my data this evening. Unfortunately, I had set my Recycle Bin to a low number. I lost a lot of my data!



The GRS was prominent in this image. Note that the area of the SEB preceding the GRS looked very red. The wake was very complex. The NEB was very dark. - Christopher Go, Cebu

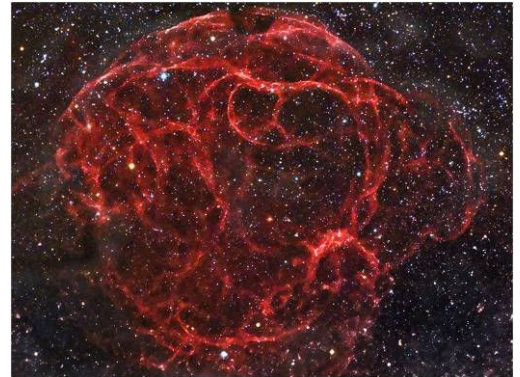
Nebulae

LDN1622. Beverly Lynd's catalog of dark nebulae includes this interesting specimen in Orion as LDN1622. It is an emission nebula surrounding a young energetic star that glows greenish-blue through obscuring intergalactic dust.



The dark nebula was quite faint and required 13 hours of total exposure to reveal its intricate details. - John Nassr, Baguio

Simeis 147 Supernova Remnant. This is what remains of a star that exploded about 30,000 years ago. It is so ancient that the expanding debris has expanded so much, making it one of the faintest objects in the night sky.



The image is approximately 7 "full moons" in apparent diameter. It is so huge that it would not fit in the field of view of most telescopes in one go, so I tried the FL200 mm lens. It was also the "first light" of my STF-8300M and the first time to use 10-minute long subs. It was also the first time I headed out to an astro site without testing my equipment, so as expected, multiple surprises (read "problems") arose. Anyway, the intention was just to capture Simeis 147. Hoping in the near future I can do justice to this beautiful object. - Nathaniel Custodio

Galaxies

Andromeda Galaxy / Messier 31



2 minutes on a 300 mm lens. This was a long exposure done on a Vixen Polaris. - Raymund Sarmiento

This image is a total exposure of more than 1 hour, quite unsure of the exact number as I don't know where to look for the total exposure time of the stacked images in IRIS.



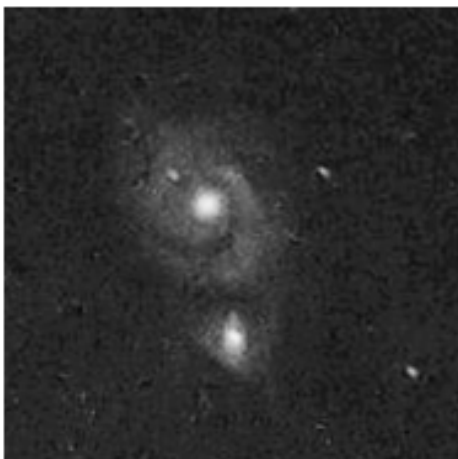
Taken with a Pentax *ist DS and a Pentax K-x DSLR

As most people were enjoying the view brought by the lunar halo last night, I was busy trying out IRIS for image stacking.

What's nice about IRIS is the fact that images from different instruments can be stacked (unlike in DSS), hence I was able to stack my M31 subexposures taken via my old Pentax DSLR and the current one that I'm using.

M51/Whirlpool Galaxy

The image below was a single 2-minute exposure taken at ISO 1600 with a Pentax K-x DSLR and a 50 0mm f/8 mirror lens mounted on a Vixen Polaris star tracker. Taken on January 11, 2014.

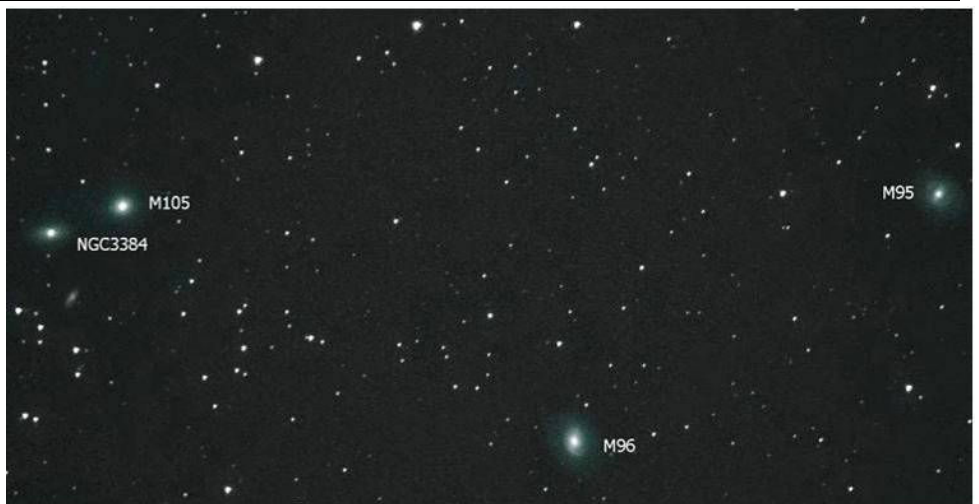


This image was taken while I was testing the 10-meter USB extension cable for tethered photography purposes.

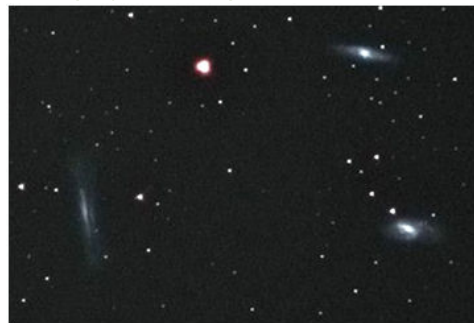
Thankfully it works. Now I can really leave my imaging setup and let it capture images.

M96 Group in Leo

Total exposure of 12 minutes and 51 seconds. Taken on January 3 with a Pentax K-x dslr and an Orion ST80 refractor telescope mounted on a Meade LXD55.



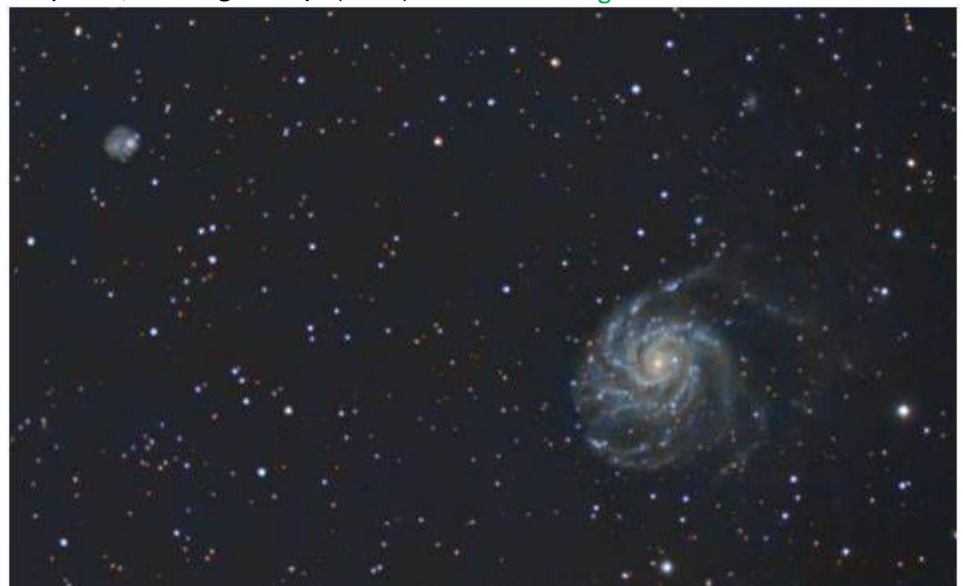
Leo Triplet/M66 Group in Leo



The galaxies are M65 (*top right*), M66 (*bottom right*) and NGC 3628 (*left*). Total exposure of 14 minutes 32 seconds, taken Jan. 3, with a Pentax K-x dslr and an Orion ST80 refractor mounted on a Meade LXD55. **Oliver Abrigo de Guzman**

M101 Galaxy and companion

Located about 21 million light years, M101 gravitationally interacts with its smaller companion, distorting its shape (*below*).



Along with Simeis 147 SNR, this was the second target on that chilly night of January 2nd. I need to revisit these objects as soon as I fine-tune my imaging set-up (and the sky permits!). Total exposure is 1.5 hours. - **Nathaniel Custodio**

M82 Supernova



Single 2-minute exposure at ISO 1600 taken on January 24 with a Pentax K-x DSLR and a 200 mm f/4 lens + 2x teleconverter mounted on a Vixen Polaris star tracker. - **Oliver Abrigo de Guzman**

Jan. 24. I was able to image the newly discovered supernova in the strange shaped galaxy M82, or the Cigar Galaxy, in the constellation Ursa Major (see cover, detail below).



This supernova (mag +11.7) was just recently discovered on January 21 and was a mere 11.4 million light years away.

It now makes a very nice target for backyard astronomers and is expected to brighten at least for the rest of this month.

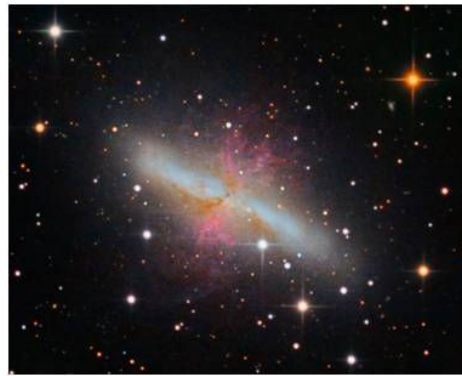
I used my Takahashi TSA 102 refractor and a Canon 50D DSLR at prime focus to capture both M81 and M82, with 22 2.5 min subs stacked in DeepSkyStacker software. - [Dr. Jett Aguilar](#)

I was able to capture the supernova in M82 and the other galaxies of the M81 group as well.

Captured using a Canon 600D mounted on a Vixen Polaris, 500 mm mirror lens, 15 subs at ISO1600, 90 seconds exposure for each sub.



- [Raymund Sarmiento](#)



Here's my take on the supernova in M82. I decided to forego taking a deep image and captured and processed just one night's worth of data. I cheated a bit by darkening the background a little more extremely than I normally do to hide the warts.

M82, also known as the Cigar Galaxy from its distinct shape, forms the smaller half of the "Galactic Waltz" image I shot back in 2011.

According to Wikipedia, M82 is the archetypal "starburst galaxy", which is a galaxy undergoing a higher-than-normal rate of star formation, most likely triggered from interactions, if not an actual collision with M8 several million years ago.

M82 was originally thought to be an irregular galaxy, but the discovery of spiral arms in near-infrared images taken in 2005 now identify it as an edge-on spiral galaxy. The red filaments emanating from the galaxy are believed to be clouds of ionized hydrogen gas possibly expelled by supernova explosions in the past.

M82 can easily be seen with a small telescope.

Even from our light-polluted backyard in West Chester, Ohio, I have not only seen M82 visually, I could begin to see some granular textures in the galaxy's faint, elongated smudge through an 8" Schmidt-Cassegrain telescope. Views of this through a bigger telescope at a dark sky are likely to be spectacular! The relative ease of this galaxy to see is not only from its relative closeness to us (12 million light years), it is also because M82 is about five times brighter than our own Milky Way galaxy!

This image is not as deep nor as thoroughly-processed as I would like it, as this is more of a "News Flash!" image. A supernova was detected in this galaxy January 21, 2014. Now designated SN 2014J, this supernova was (as of this writing - January 26) still developing and could brighten enough in the next week or two to be visible to small backyard telescopes and big binoculars. This supernova is stirring excitement among astronomers, both amateur and professional, as this is the closest supernova visible since 1993! Hopefully I can update this image over the next few weeks. If not, at least I got it!

Object: M82

Constellation: Ursa Major

When Visible: January - July

Distance: 12 Million Light-years

Date taken: January 25, 2014

Location: Rancho Hidalgo, New Mexico

Exposure Details:

L: 9 x 10 Minutes, binned 1x1

R: 6 x 10 minutes, binned 1x1

G: 6 x 10 minutes, binned 1x1

B: 6 x 10 minutes, binned 1x1

4.5 hours total exposure

Equipment Used: 12.5" PlaneWave CDK on a Software Bisque Paramount ME mount.

SBIG STL-6303 camera with 5-position filter wheel and Astrodon LRGB filters

Acquisition Software: MaximDL 5, CCDAutopilot 5

Processing Software: MaximDL, Adobe Photoshop CS5 Gradient Xterminator, Carboni Tools, IrFanView

- [Eric Africa, West Chester, Ohio](#)

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www.astroleaguephilis.org

to participate in the activities to spread the love and science of astronomy with your fellow citizens of the universe!