EAA observing (Full Moon edition) – Friday 12/13/2024 @ Big WoodChuck Observatory

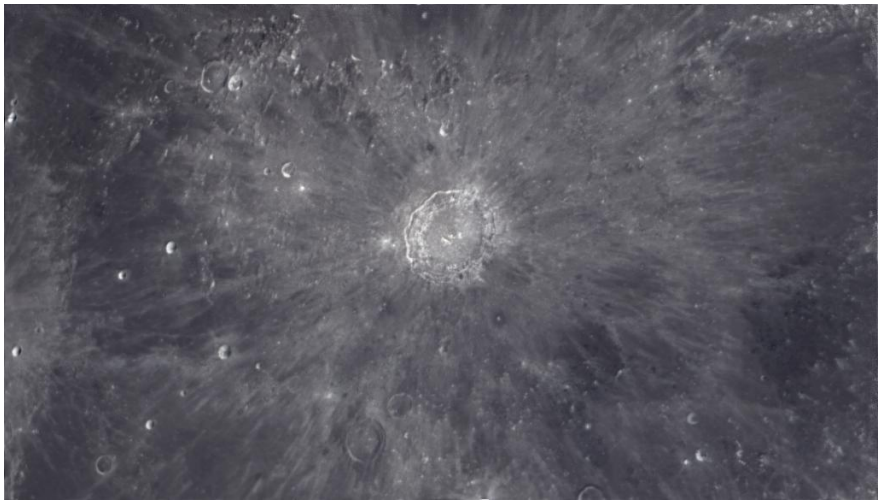
Hi all,

After seeing a photo of the near Full Moon (98%) that Dean S posted in a chat early Friday evening, that inspired me around 8:30pm to throw on heavier clothes and head out into the 28 deg moonlit backyard for another session of planetary EAA observing. First thing I did once inside the observatory was fire-up the propane heater. Even with the heater set to high, the inside of the observatory never warmed up past 55 deg. Probably didn't help that the outdoor temps quickly dropped down to 23 deg. Burrr!

I opened the observatory clamshell roof exposing the Meade LX200GPS to the icy night sky. I then powered on the scope, switched the ASI290MC camera to the 80mm Kson f5 refractor riding piggyback on the 8" Meade, slewed the main scope to the Moon, and focused the 80mm. Touching the cold metal of the equipment nearly numbed my fingers. LOL. The image of the Moon slightly overflowed the 80mm's FOV, and after unsuccessfully trying an old focal reducer, decided it was too cold to experiment and went with what the 80mm was showing and livestacked that in Sharpcap. After tweaking and adjusting level sliders, here's my EAA Observation:

80mm f5 refractor, camera resolution=1936x1096, 1.5ms exposure, gain=20, IR filter used, 500 frames stacked.

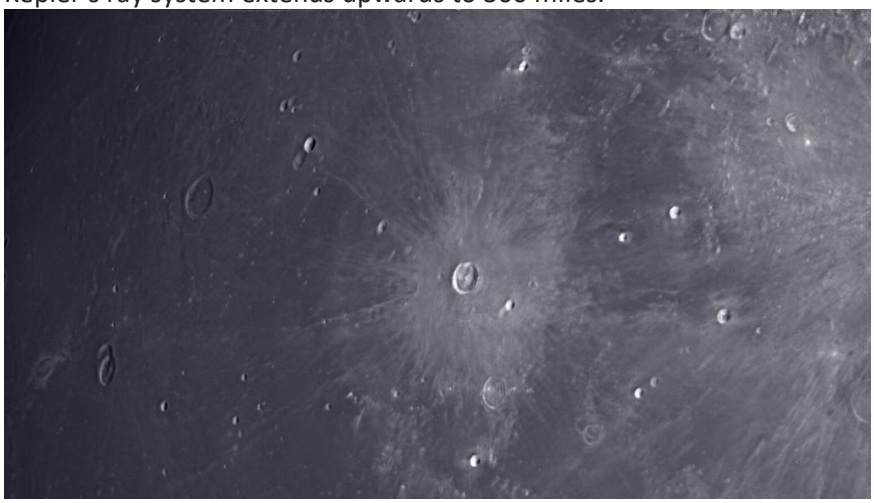
I then moved the ASI290MC camera back to the Meade 8" SCT and refocused.
Being near Full, most of the fine lunar detail normally visible near the terminator line, was blurred out on much of the lunar disk. But the ray systems of several craters displayed nicely. Here's an observation of Copernicus:



Meade 8" SCT f10, camera resolution=1936x1096, 10ms exposure, gain=20, IR filter used, 500 frames stacked.

Using Sharpcap's planetary livestack to enhance and freeze the image, and using the zoom feature, the camera displayed the crater details. The crater Copernicus is about 58 miles in diameter and 12,335 feet deep, with three central mountain peaks rising to 3,937 ft in height from the deep crater floor. (now that's a rebound!) Along the crater rim, (which rises nearly 3,000 ft above the surface of Mare Imbrium), multiple bright terraces are visible where the crater rim slumped/slid down towards the interior of the crater. Also visible was the large ejecta debris field showing where the impact scoured the lunar surface, along with ray structures visible for some distance.

Next was the nearby crater Kepler, with its bright ray system looking like a big mud splatter.
Kepler is about 20 miles in diameter, 8.4k feet deep, and contains several small hills on an uneven floor.
Kepler's ray system extends upwards to 300 miles.



8" SCT f10, camera resolution=1936x1096, 10ms exposure, gain=20, IR filter used, 500 frames stacked.

Last, but not least of the rayed craters, is the crater Tyco:

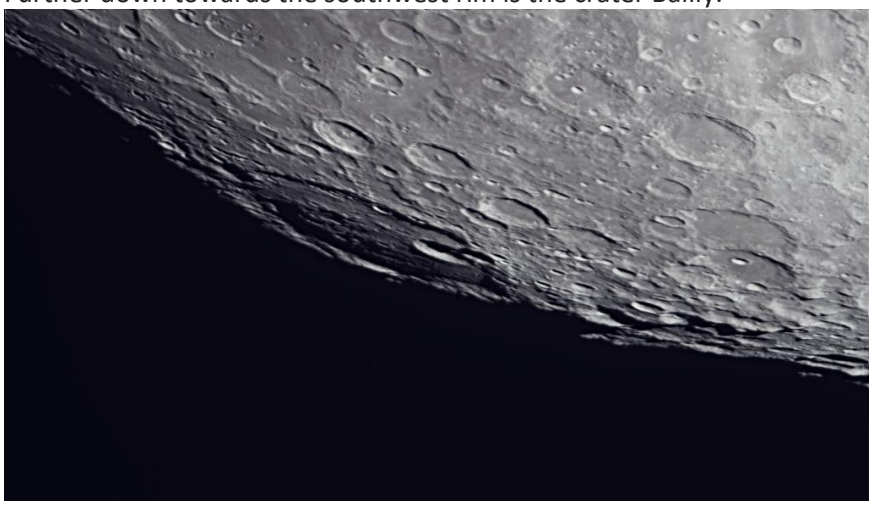
8" SCT f10, camera resolution=1936x1096, 10ms exposure, gain=20, IR filter used, 500 frames stacked.

Tyco is about 53 miles round, showing terraced walls, and 16k deep. The interior of the crater is rough with a central peak rising to about 5.2k in height. Tyco is one of the youngest craters, estimated to be about 108 million years old. It has an extensive ray system with several stretching over 1,500 miles in length.

While taking a quick break outside the observatory to stretch my legs, I looked up and caught a beautiful Lunar Halo, encircling both the Moon and Jupiter.

Back inside, I continued my lunar exploration.
There were a few locations along the western lunar disk that still displayed sunrise terminator shadows. Among those were the crater Darwin, to the west of Mare Humorum. Darwin is an oblong structure due to its line-of-sight and is about 75 miles in diameter. You can see several smaller craters on its rim and interior including a bright-rimed one called Darwin-C that is about 10 miles in diameter.
Here's the EAA observation: 8" SCT f10, camera resolution=1936x1096, 10ms exposure, gain=20, IR filter used, 500 frames stacked.

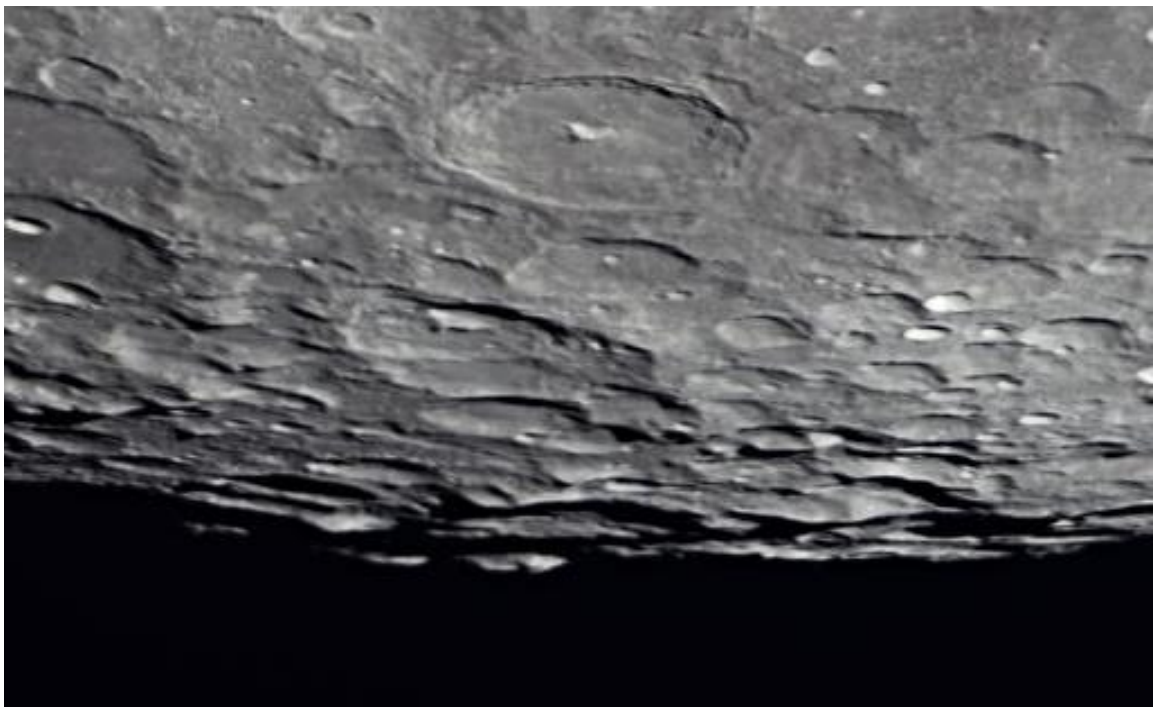
Further down towards the southwest rim is the crater Bailly.



Bailly is another crater with a distorted oblique view. The oval shape is actually one of the largest craters visible on the lunar nearside, coming in around 188 miles in diameter. The crater has a rough interior with no central mount peaks but does contain several smaller younger impact craters such as the double craters Bailly-A & B, with the larger of the two (the bright rimed one in this observation), being about 39 miles in diameter.
Above Bailly, you can find three similar sized oval craters, (~41 miles diameter, ~3 miles deep), starting with Zucchius on the left, Bettinus in the middle, and Kircher on the right. Zucchius and Bettinus have small peaks visible, while Kircher shows a fairly smooth flooded interior.

Finally, along the southern rim, just above the Lunar South Pole, are the craters Moretus and Short.
Moretus is about 77 miles in diameter, 3 miles deep, with a relatively smooth floor and a bright central peak about 1.8 miles high. Several terraces were visible along the eastern and western crater rim, while the northern still held some traces of shadow.
Crater Short is about 44 miles in diameter, and about 3.5 miles deep. There is no central mountain visible and except for a small crater the floor appears smooth.

Directly south and slightly east of crater Short, along the edge of the lunar disk, we enter the land of Luna Incognito, containing the extremely oblique view and heavily shadowed crater Malapert. Not much further is the South Pole of the Moon. To the left rises a 3.7 mile part of the crater rim, unofficially known as Malapert Mountain. This is the region of perpetual shadow, where permanent water-ice may exist. (I looked but I didn't see any,,, ☺). Malapert has also been proposed as the location of future optical and radio telescopes.



With the thought of lunar ice reminding me of my half-frozen finger-tips, I decided to end my exploration of Luna and finish out the night with one last observation – Jupiter!

Jupiter's large North and South Equatorial Belts were prominent, along with several of the northern & southern Temperate Belts. A number of dark spots, festoons, and white ovals were visible within the belts.

With the sky becoming overcast, I parked and shutdown the telescope, closed the observatory roof, copied my EAA observations to a jump-drive, warmed my hands up one last time, and then headed for the house.
Another good night of Shallow-Sky observing!

Larry (looking forward to Spring).