Shooting the Moon in bright daylight with a Celestron SkyRis 445 M camera through a standard C14 SCT in prime focus using a Baader IR Pass-filter

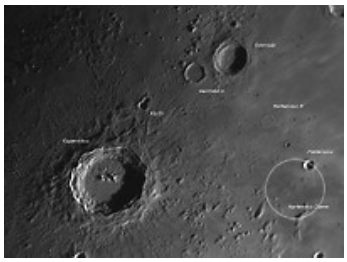
When I returned to Namibia this spring, I found my favorite planetary Celestron 14 SCT-OTA in a real catastrophic condition. The Schmidt-corrector-plate was looking just plain filthy since someone had omitted to properly close the dust cap during all the rainy season.

Image one does show what I saw.

So I had to thoroughly clean all this mess. I did choose Baader Optical Wonder Fluid for this operation and it worked quite well. You really have to go some length, to catch the idea of checking the result of a freshly cleaned optics by shooting the moon overhead in bright daylight – but the Moon was hanging right there - so it came upon me quite spontaneously.

On a crisp and clear morning, contrast at the lunar surface is still so very good that the resulting images constitute a real reference, to demonstrate what an optical tube can do with proper IR-filtering, when it is completely free of haze caused by the usual assortment of dust or pollen - plus improper cleaning attempts.

The instrument used is a Celestron C14 SCT at the Onjala Lodge/Namibia. The Camera was a SKYRIS 445Mono. The raw AVI files (1200 frames) were taken on April 23rd 2014 from 8:30 to 9:30 UT with the Sun ~45 degree above the horizon. The first image shows volcanic domes near the crater Hortensius which are quite difficult to observe owing to their moderate height.



The image shows the large crater "Kopernikus" and the volcanic Hortensius domes H1 to H6. Their diameters range from 7.6 up to 12.5 km. Crater summits measure about 1 to 2 km in diameter but only 190 to 390 m in height.

Having these fine structures become visible so strikingly in bright daylight requires a clean, very well collimated optics and especially an effective IR-pass-filter. With even the slightest amount of haze or straylight - or with any residue from the cleaning fluid left on the corrector, these results would have remained unobtainable.

With a IR Pass-filter Sky background turns to black and high contrast of moon details seems to be smoother than at night time. So one is able to take moon images at illumination settings not available at night time.

The following images show more examples in bright daylight at the same day. From left to right: Kepler and Encke, Bullialdus, Lacus Tomoris and Hainzel. Right outside - due to perfect libration conditions - two difficult to observe large craters: Bailly and at the lunar limb Hausen

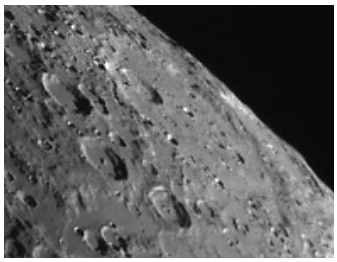


Image details: Celestron SkyRis Camera 445 M, Standard C14 in prime focus with Baader IR Pass-filter. Stacking each 144/1.200 frames with AviStack 1.8. Sharpening with Wavelet filter was also done with AviStack 1.8. Final image processed with Photoshop CS2.