# Solar astronomy in the physics department at QCC-CUNY

Thomas Haeberle

Mentor: Prof. R. Armendariz

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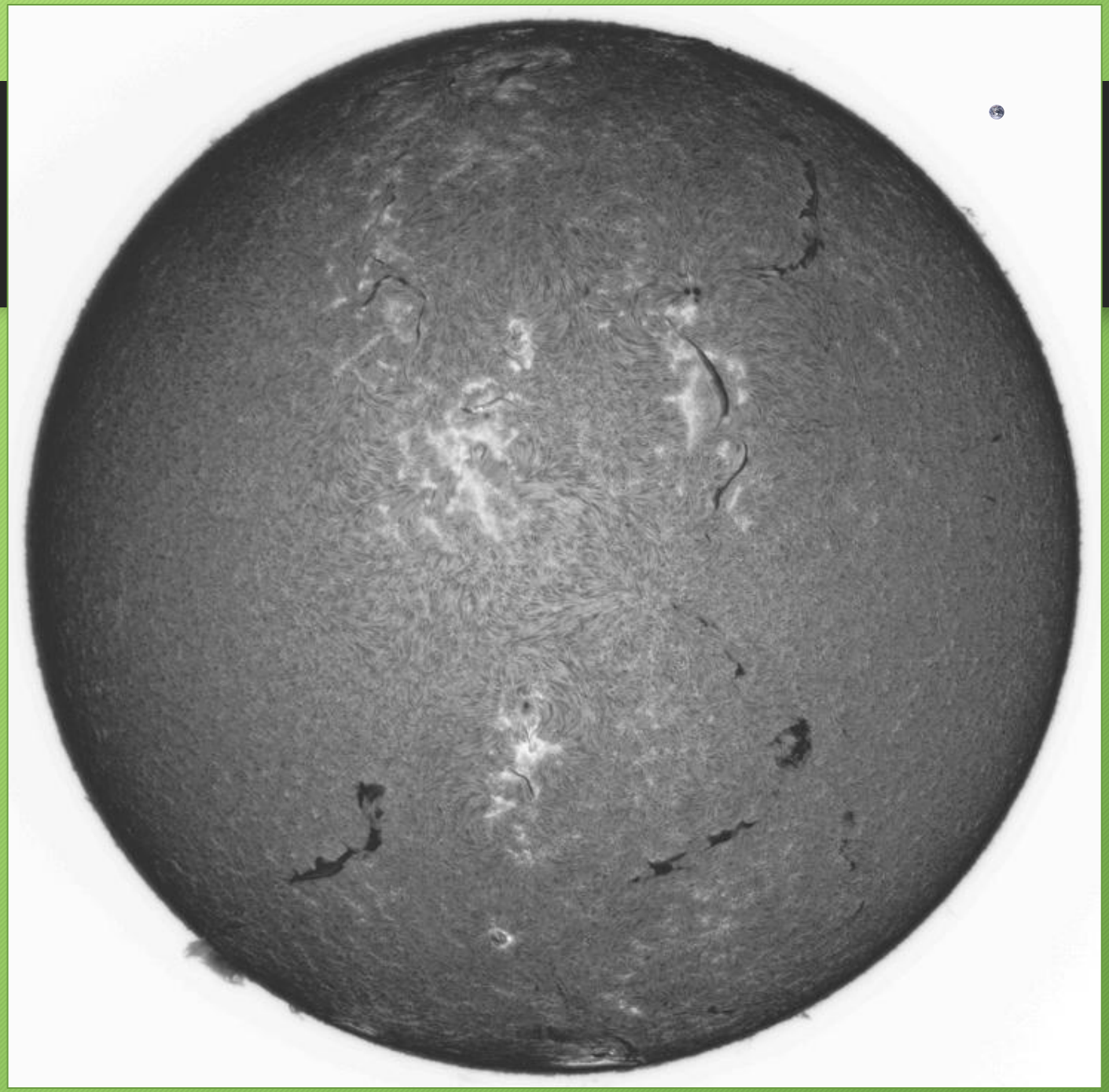
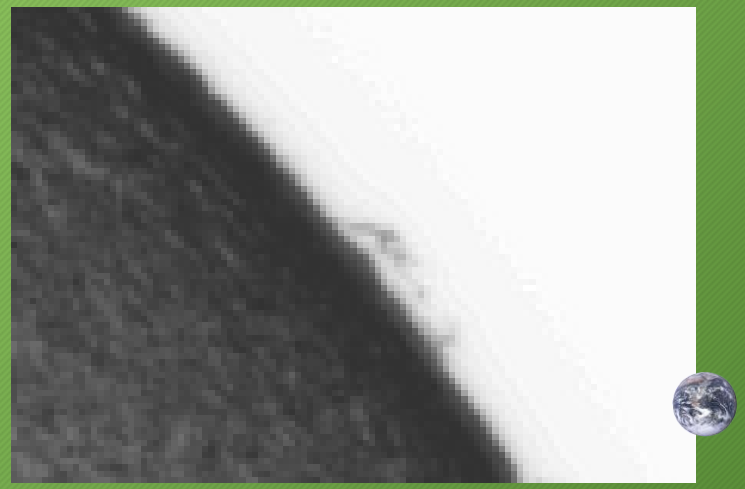
# Hydrogen-Alpha Telescope & Apollo-M camera




Vega
Capella
Meridian
Pollux
Mercury
Jupiter
Arcturus
Sun
Regulus
Procyon
Venus
Spica
Sirius
Antares
SE
S
SW
Meridian
1.VII
10.VII
20.VII
20.VI
10.VIII
20.VIII
1.IX
10.IX
20.IX
1.X
10.X
20.X
1.XI
10.XI
20.XI
1.XII
10.XII
FOV 143°
14.2 FPS
2026-08-04 16:08:24 UTC-04:00

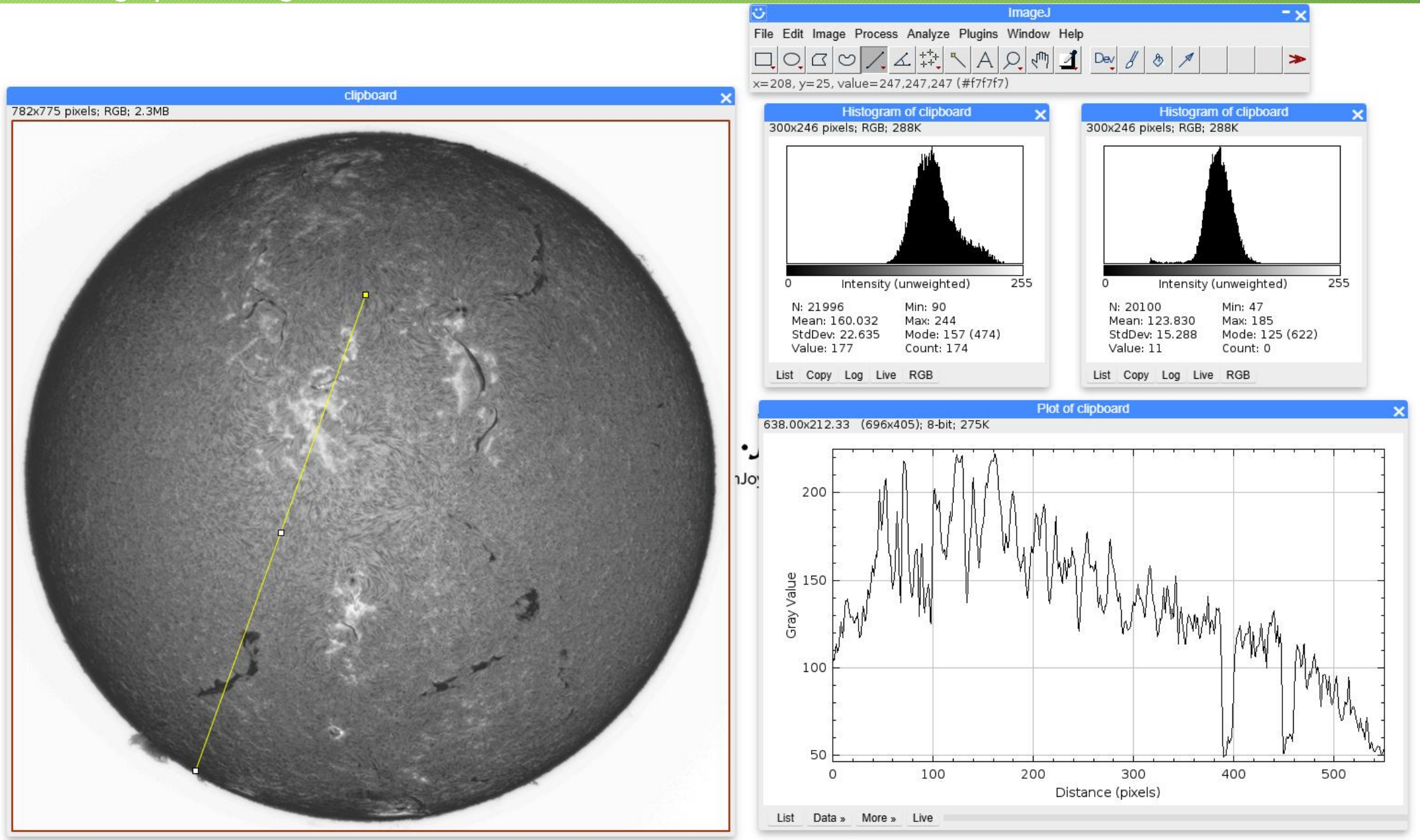

Vega
Capella
Pollux
Mercury
Jupiter
Arcturus
Regulus
Procyon
Venus
Spica
Sirius
Antares
SE
S
SW
1.VI
10.VI
20.VI
1.VII
10.VII
20.VII
1.VIII
10.VIII
20.VIII
1.IX
10.IX
20.IX
1.X
10.X
20.X
1.XI
10.XI
20.XI
1.XII
10.XII

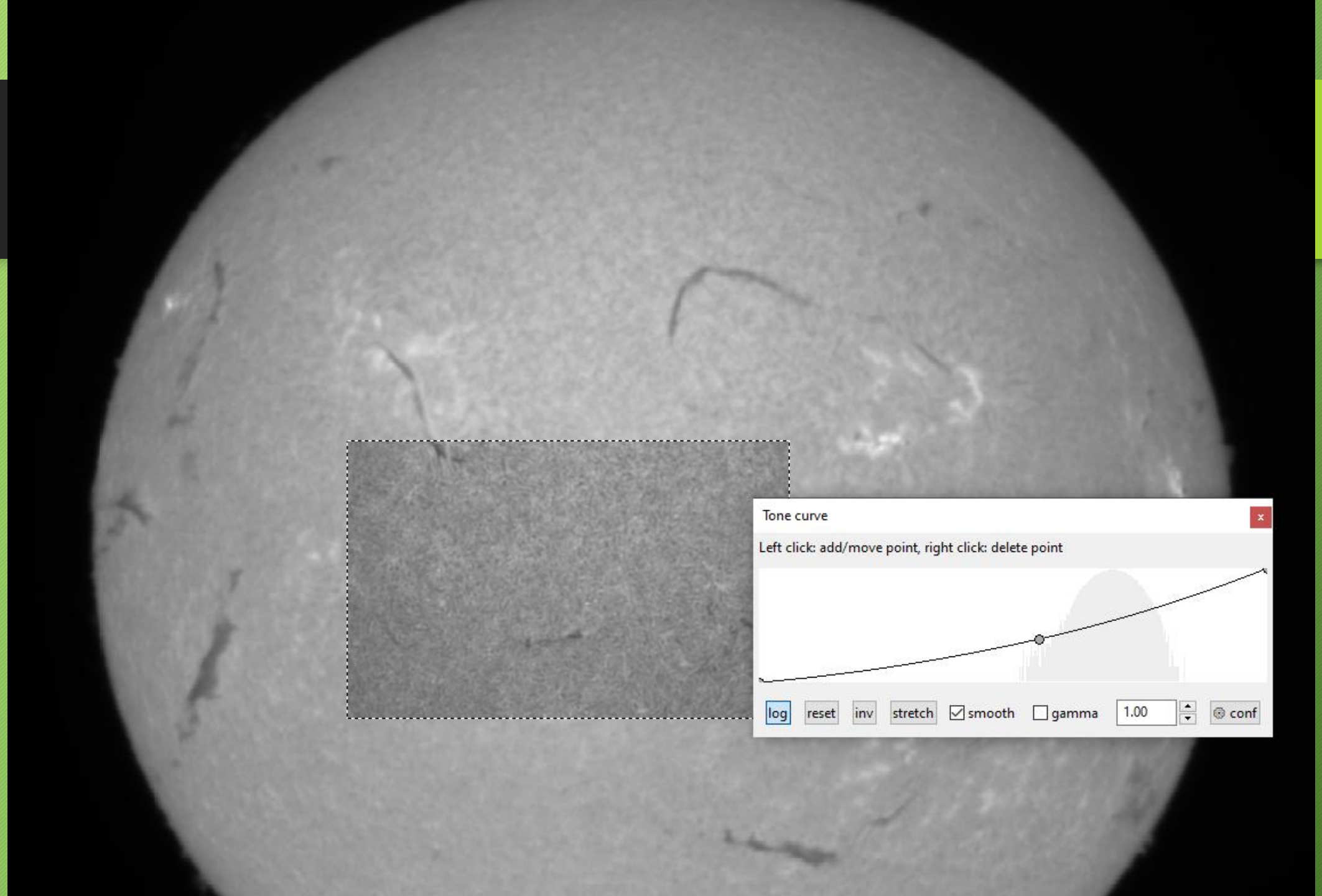




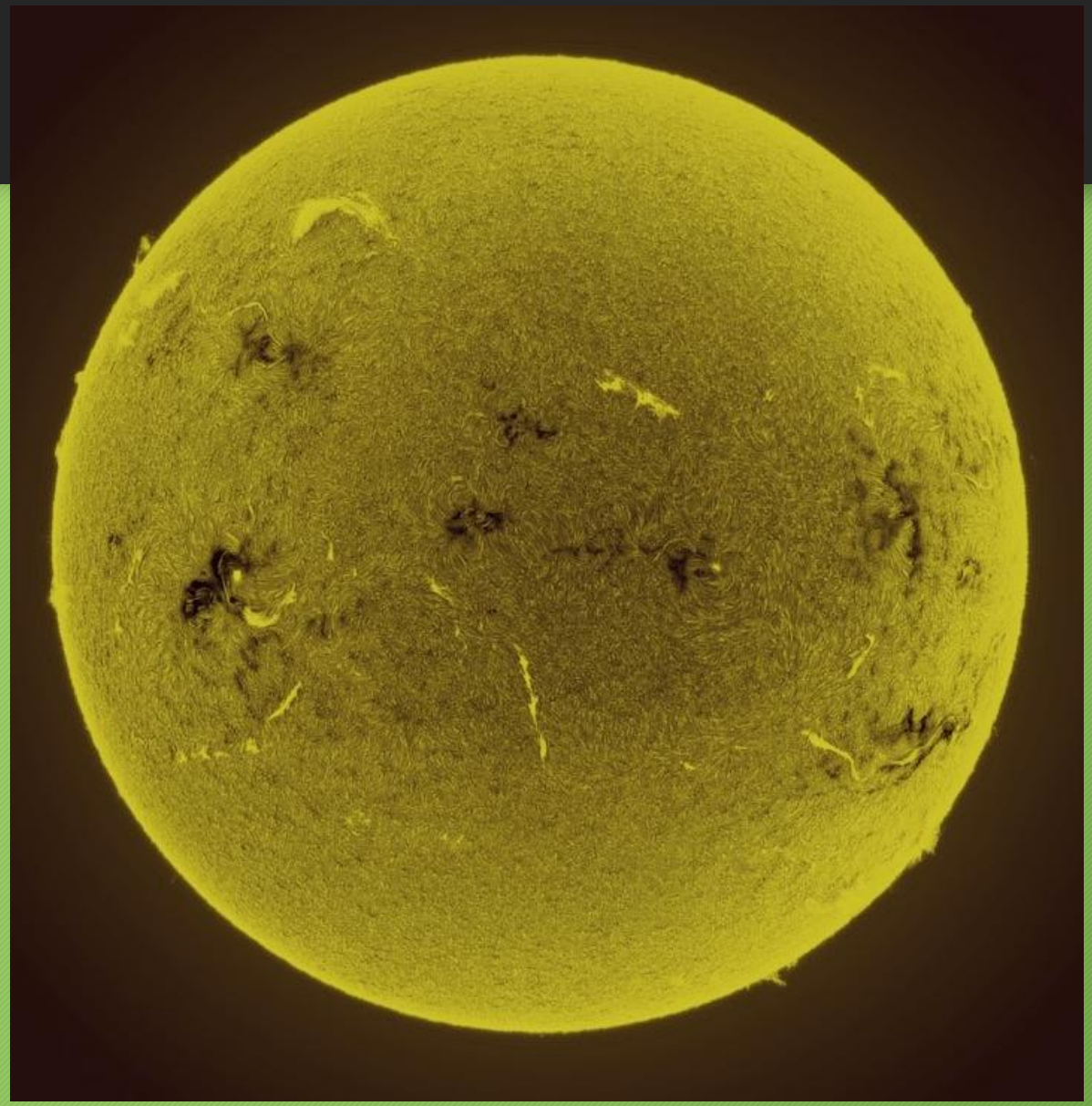
Pictures taken from lab S309 window

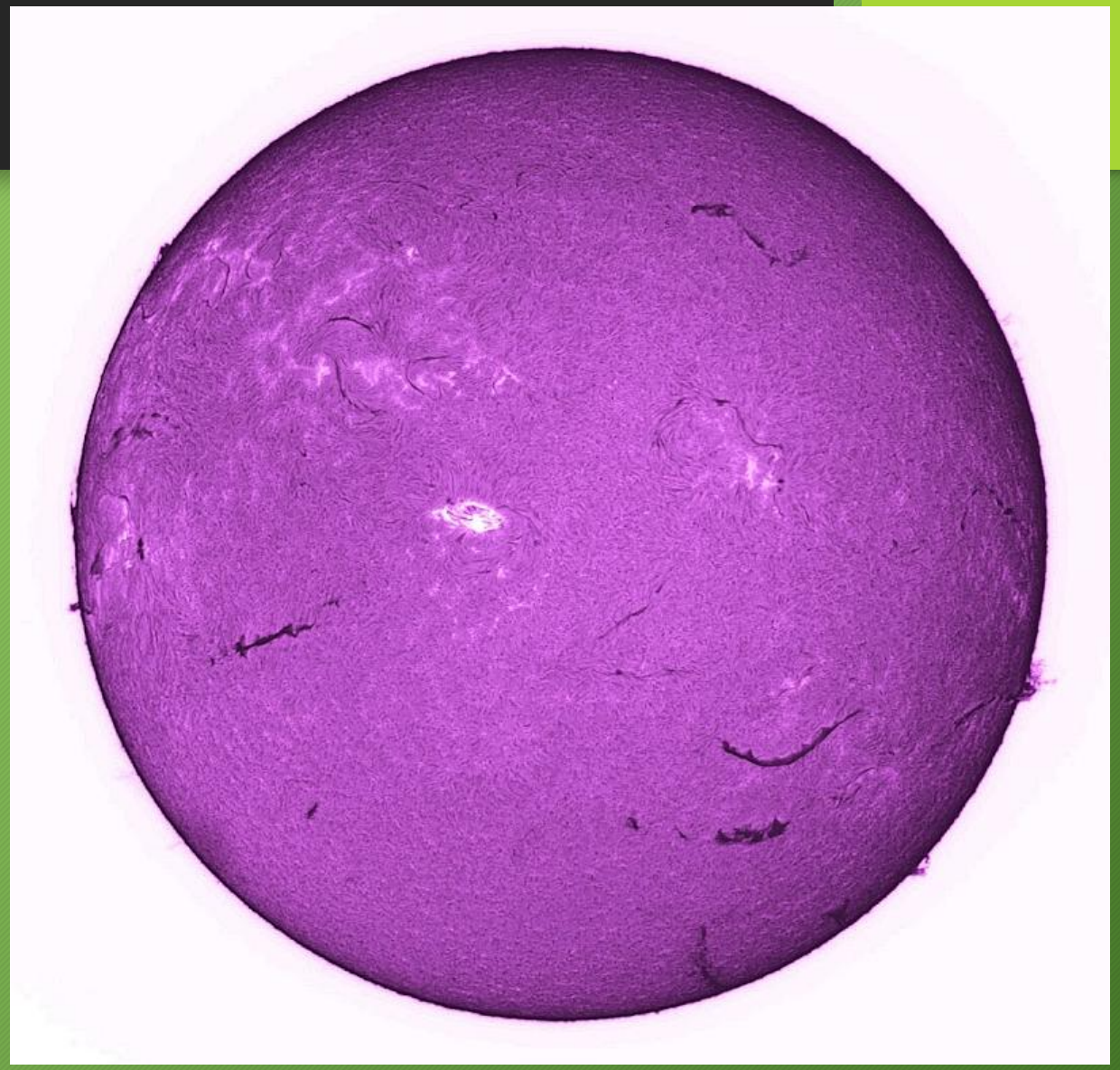
# Image processing results




Tone curve
Left click: add/move point, right click: delete point
log
reset
inv
stretch
smooth
gamma
1.00
conf

# Image processing results





# The Sun: Formation of Sunspots and Flares

Thomas Haeberle
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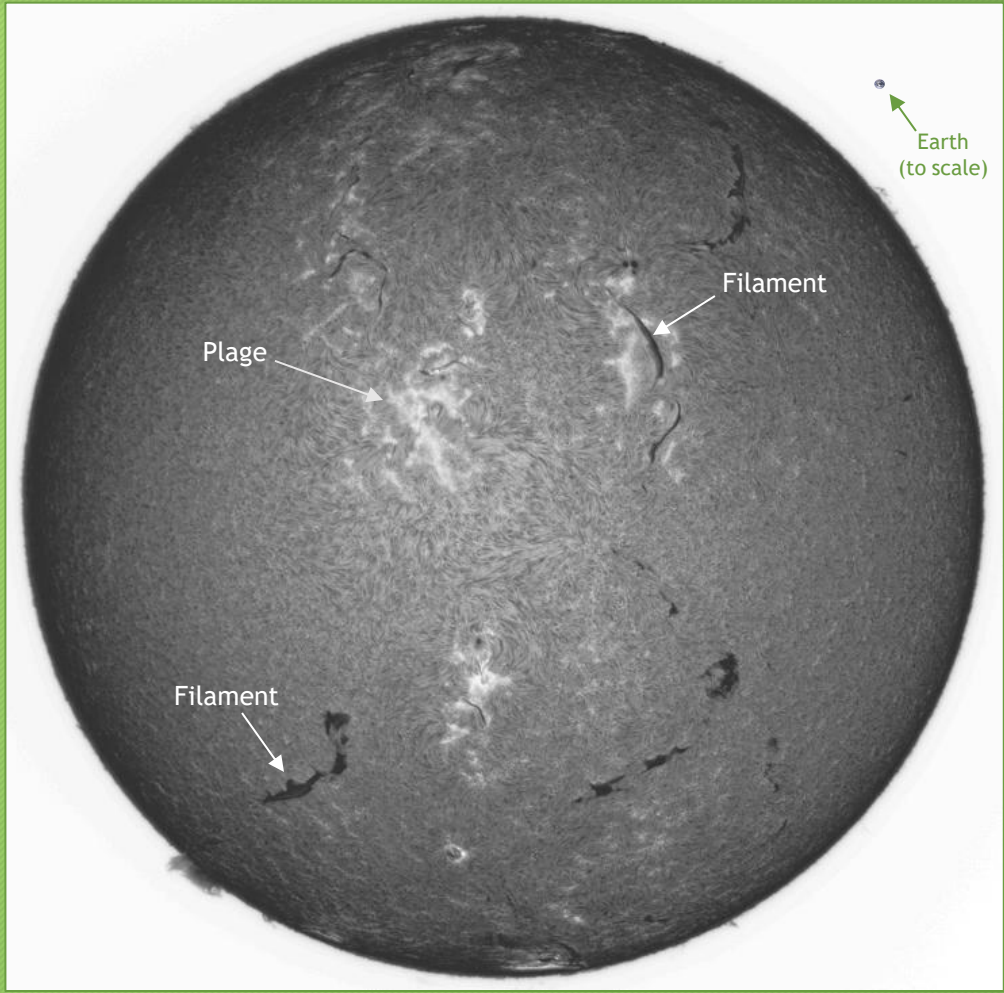
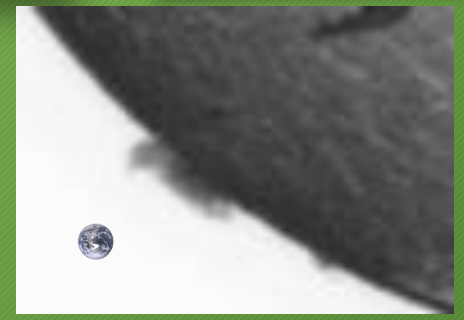
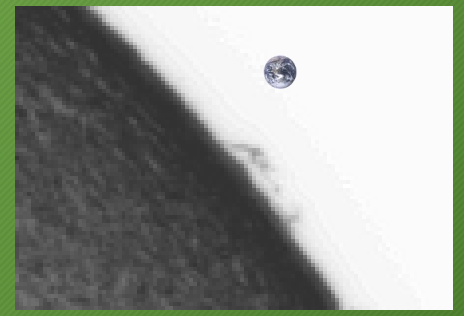
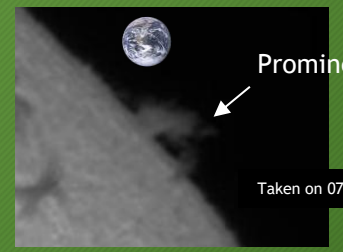



- All photos here were taken in the Hydrogen Alpha emission line (~6563 Angstroms)
- This wavelength highlights many features on the Sun's chromosphere
  - Filaments and prominences are the same features observed at different angles. They are dense clouds of material above the surface of the Sun and are formed when the magnetic field of the Sun gets twisted in its differential rotation such that it loops in that pattern. Filaments are somewhat cooler than the surface of the Sun hence their darker appearance.
  - A solar flare is an electromagnetic eruption caused by parts of the solar magnetic field reconnecting. They come in different "classes" or sizes and some are so strong they can effect electronics on Earth. None appear to be visible in these photos.
  - Plage are bright regions surrounding sunspots, where parts of the Sun's magnetic field concentrate.

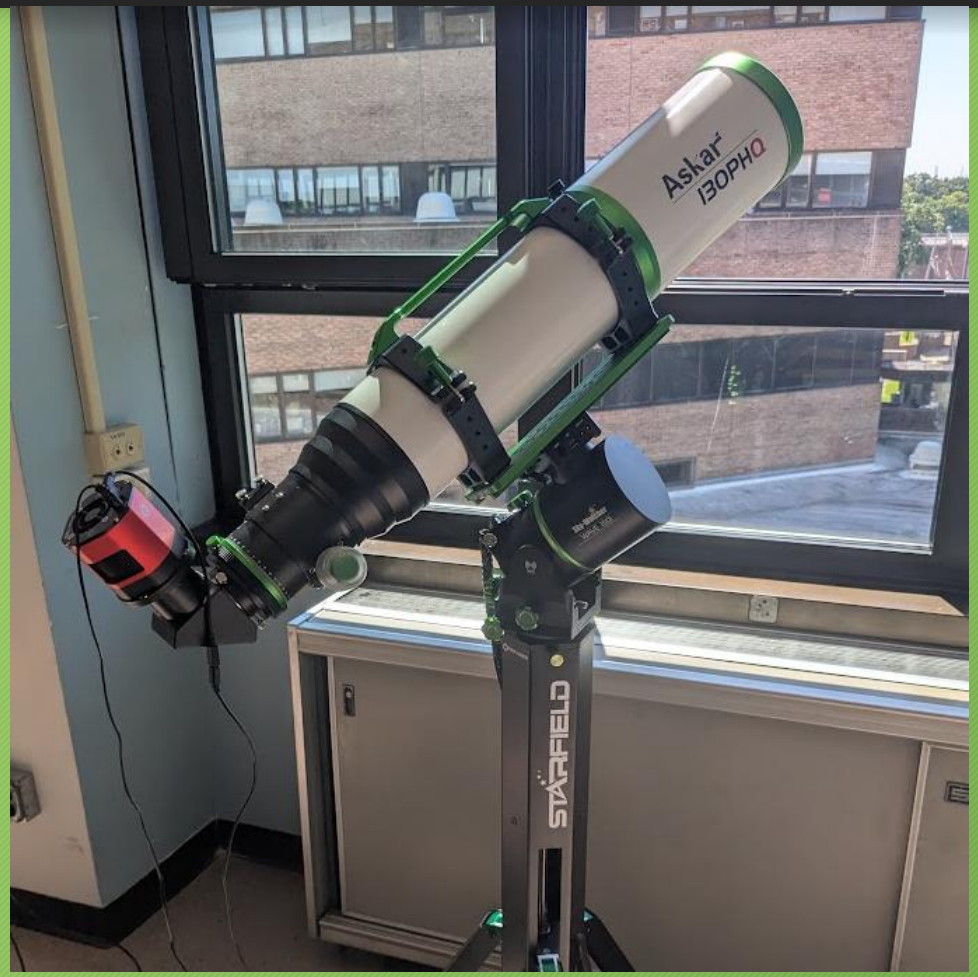




Pictures taken in S-309 on 07/27/2026 on the SkyWatcher 76 H-Alpha Telescope



# The department’s new 130 mm reflecting telescope




# Thank You!