GREGOR Flare Observations

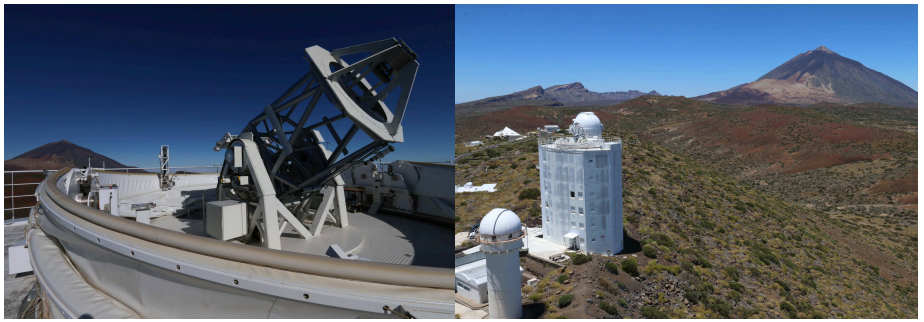
Lucia Kleint

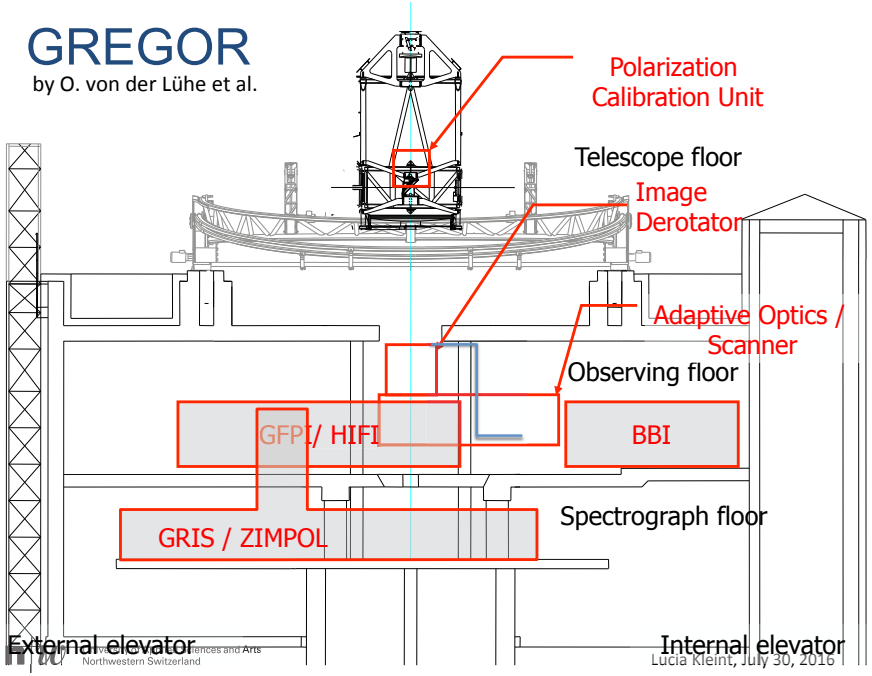
University of Applied Sciences and Arts Northwestern Switzerland

in collaboration with C. Kuckein and M. Kuhar

GREGOR Overview

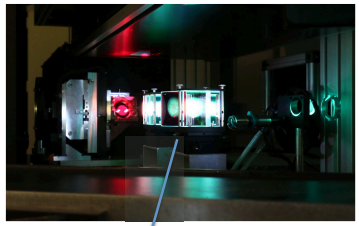
- 1.5 m mirror (largest European solar telescope)
- FOV: ~150 arcsec (=large active region)
- foldable dome
- Three instruments
- Many, many mirrors (throughput…)

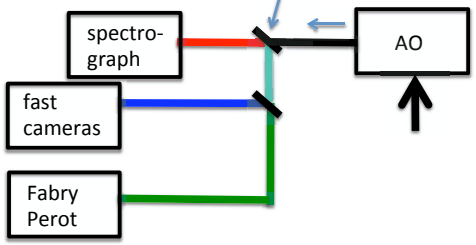




Three GREGOR Instruments

- GRIS: spectrograph
  => Infrared (656 nm and above)
  => H-α slitjaw, He 10830 spectra
- GFPI: Fabry Perot imager
  => visible (~500-650 nm)
  => e.g. Na I 5890
- BBI / HIFI: fast imaging
  => blue (<500 nm)
  => e.g. blue continuum, Ca K+H

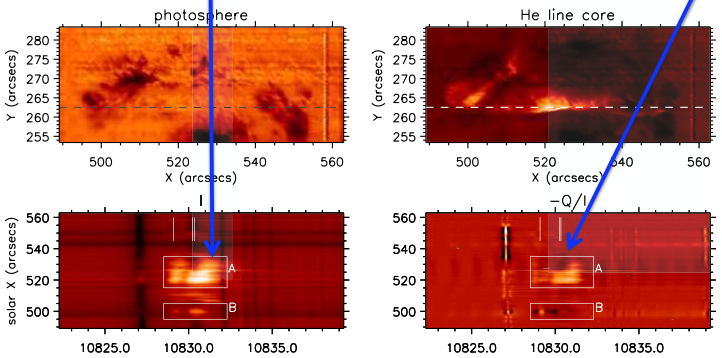




GREGOR and Flares

- GRIS: spectrograph => Infrared (656 nm and above)

Raster to construct images.
Can investigate line emission (temperature, optical depth), polarization (impact polarization, anisotropy), loops, …

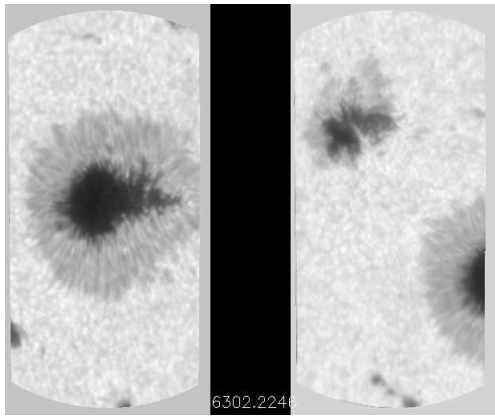


Data from FIRS instrument at Dunn Solar Telescope (X1-flare 20140329)

GREGOR and Flares

- GFPI: Fabry Perot imager
  => visible (~500-650 nm)
  => e.g. Na I 5890

- BBI / BIC: fast imaging
  => blue (<500 nm)
  => e.g. blue continuum, Ca K+H



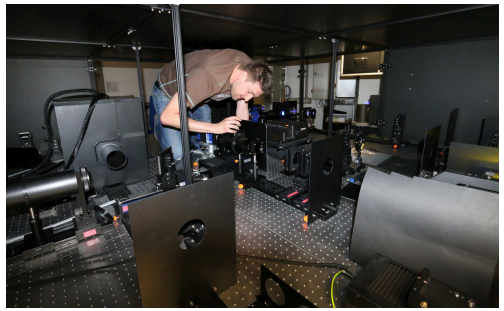
Scan through photosphere and chromosphere (630.2, 854.2 nm) for two different solar regions
Data from IBIS at Dunn Solar Telescope

GREGOR and Flares

Why have I shown data from the Dunn Solar Telescope?

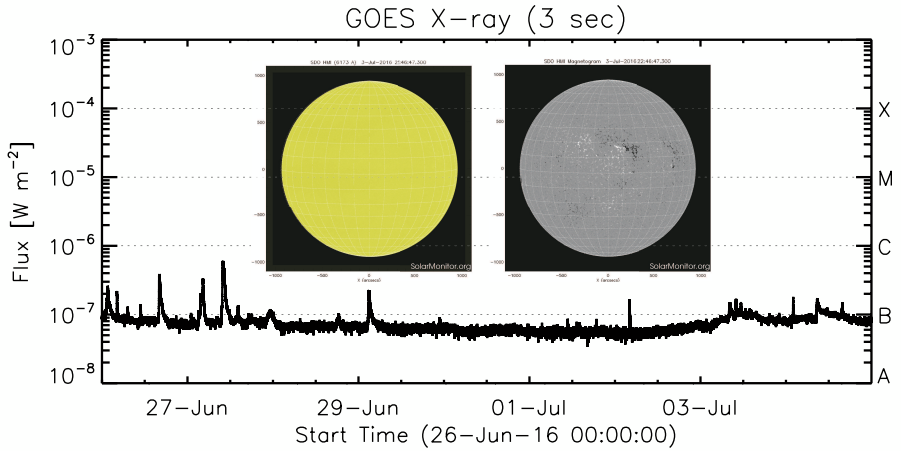
⇒ GREGOR observing run 26.6.2016 - 5.7.2016

hands-on telescope! One gets to climb around on an optical table.

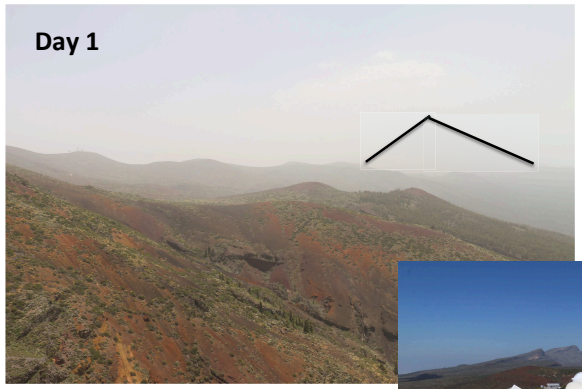


GREGOR observing run

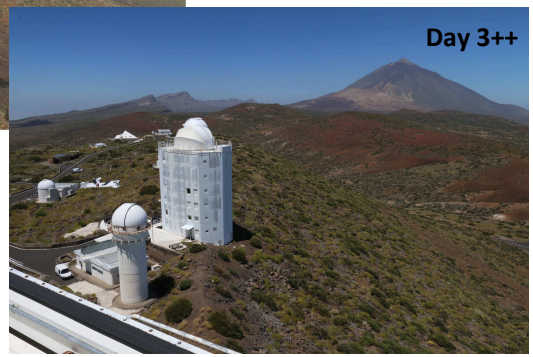
Our observing run… no real flares



GREGOR observing run

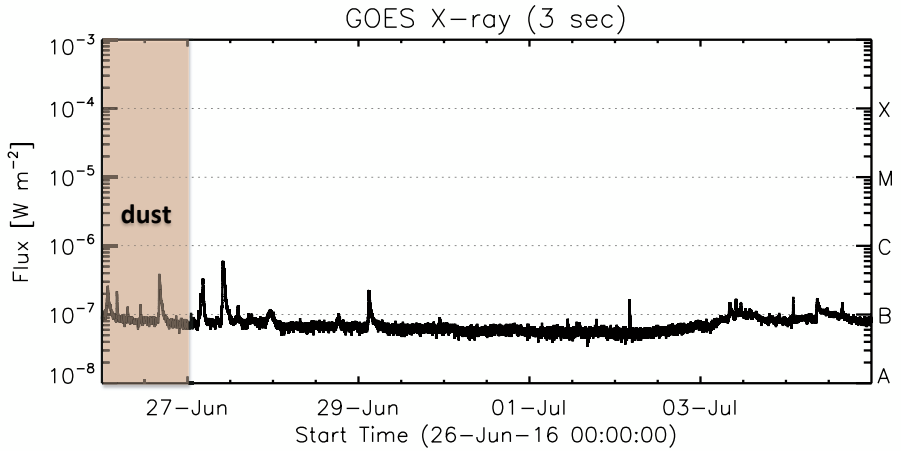


calima
(dust from the sahara)

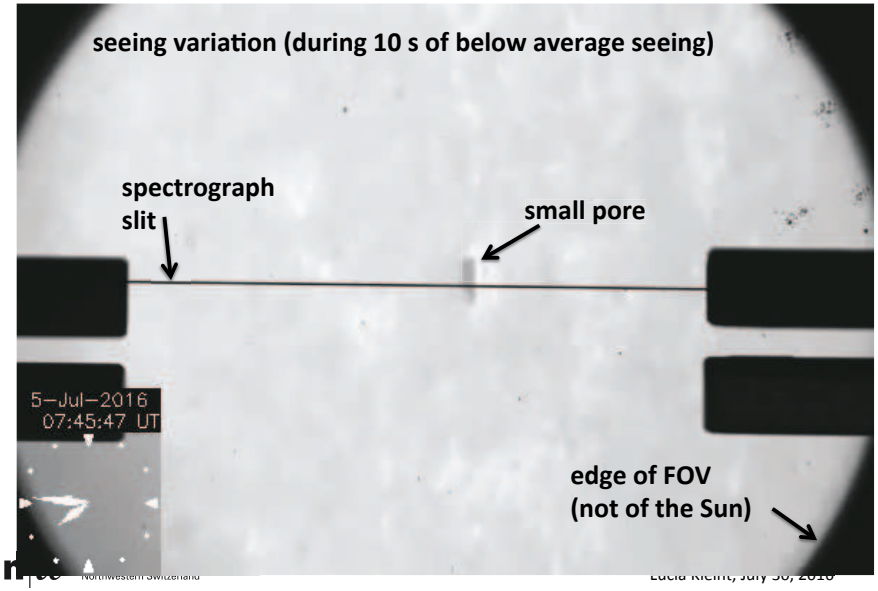


GREGOR observing run

Our observing run… no real flares



GREGOR: seeing variations



GREGOR observing run

Our observing run… no real flares