

GREGOR Inauguration 2012

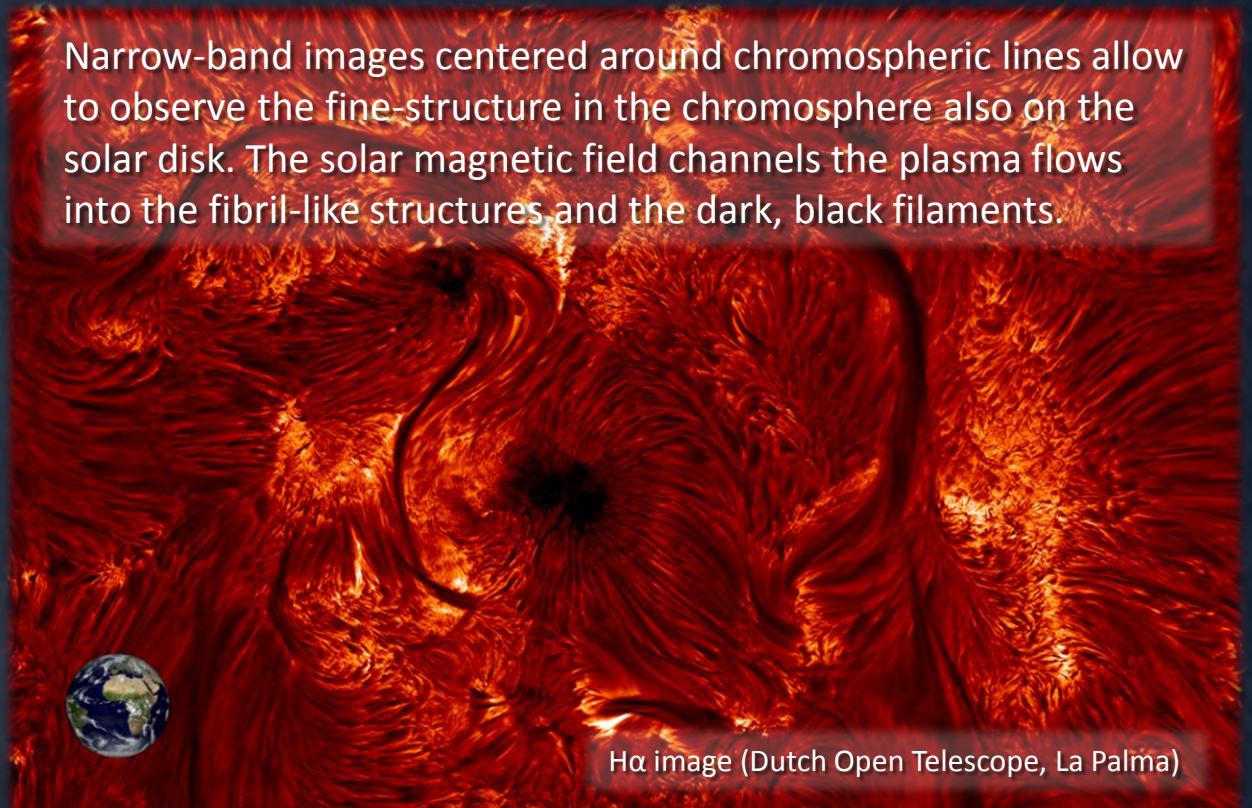
The Solar Chromosphere with GREGOR

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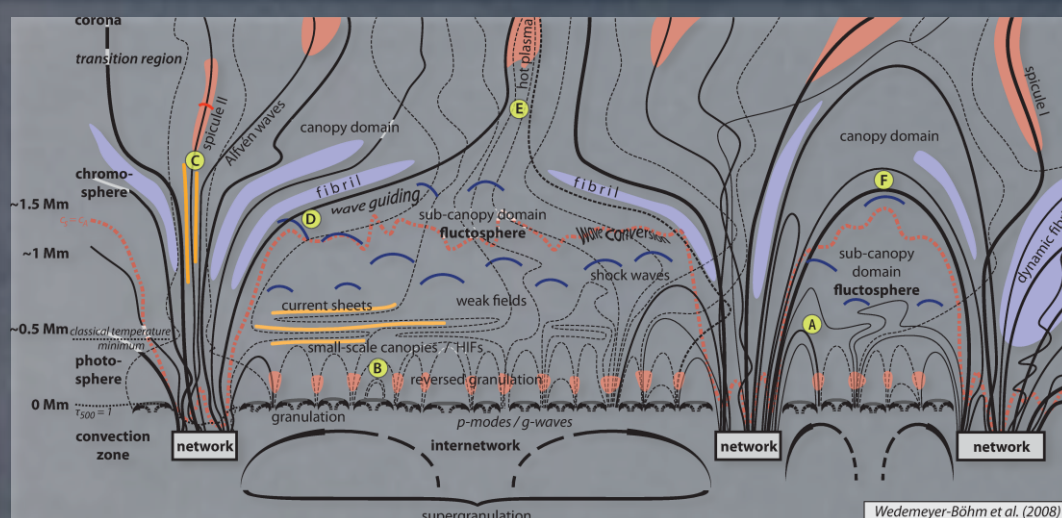
Background image: The Chromosphere observed during a total solar eclipse: Only when the moon blocks the light from the solar disk, the faint emission from the low density chromospheric plasma becomes visible to the naked eye. The red color stems from the strongest emission line H α ($\lambda=657.3$ nm).

Image courtesy: Miloslav Druckmüller, Úpice Observatory Brno University of Technology

Narrow-band images centered around chromospheric lines allow to observe the fine-structure in the chromosphere also on the solar disk. The solar magnetic field channels the plasma flows into the fibril-like structures and the dark, black filaments.



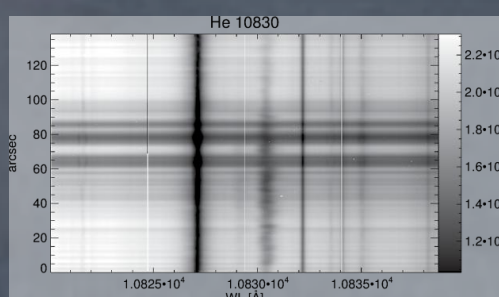
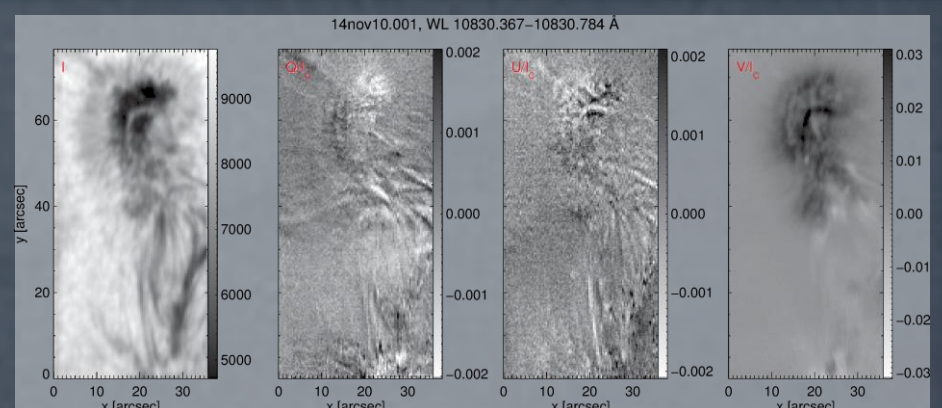
H α image (Dutch Open Telescope, La Palma)



This sketch illustrates the complexity of the coupling between the solar surface (photosphere, bottom of the image) and the corona.

Measurements of the intermediate layer, the chromosphere, are essential to understand this coupling. GREGOR will provide such measurements with unprecedented resolution and accuracy.

VTT images recorded in the chromospheric He 1083 nm line allow the determination of the magnetic field vector. These images indicate the complex structure of the chromospheric magnetic field. GREGOR will enhance the level of detail by a factor of 3 and therefore give insight into the details of chromospheric magnetism.



prove that the performance of the GRIS spectrograph fulfills the high expectations.

April 22nd 2012:
First spectra recorded with GREGOR in the chromospheric He 1083 nm line

The GREGOR telescope records maps and time series with a resolution of only 70 km of

- the magnetic field and its orientation
- plasma flows
- wave phenomena
- shock events

simultaneously in the chromosphere and the photosphere.

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