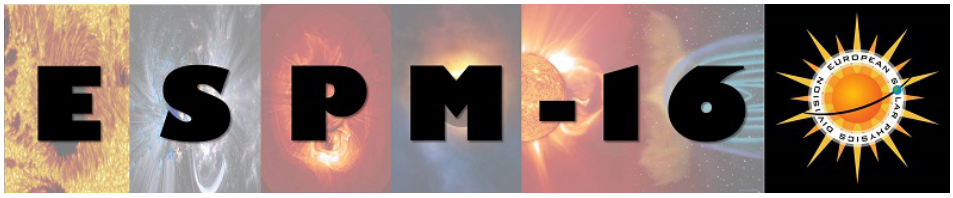

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A study of plasma β in Quiet Sun: multi-instrument view

Wednesday, 8 September 2021 09:39 (13 minutes)

A joint campaign of various space-borne and ground-based observatories, comprising the Hinode-SOT, IRIS, EIS (HOP 381, 10 –22 October 2019), and the GREGOR Solar Telescope, investigated Quiet Sun regions for inferring the plasma β at photosphere, transition region, and corona. This campaign provided co-spatial and co-temporal observations, which can provide values of the magnetic field, temperature, and density in the solar atmosphere. They can help us to complete a more detailed depiction of the plasma β with height. We present the preliminary results of coordinated multiwavelength observations. Temperature estimates in the photosphere were obtained using High-resolution Fast Imager (HIFI at GREGOR) in blue continuum and G-band wavelengths. In the transition region, density diagnostics were obtained through the emissivity ratio method on OIV and SIV lines of the Interface Region Imaging Spectrograph (IRIS). Finally, coronal density estimates were derived from the line pair Fe XII 186/195 of the Extreme-ultraviolet Imaging Spectrometer (Hinode-EIS) and coronal temperatures from differential emission measure (DEM) using Atmospheric Imaging Assembly (AIA-SDO) datasets.

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