



Contribution ID: 44

Type: **Poster**

Multi-height study of the chromospheric inverse Evershed flow and its association with photospheric flows

We analyzed the inverse Evershed flow (IEF) around a sunspot (NOAA 13131) using line scan observations in the Fe I 6173 Å and Ca II 8542 Å lines. The line scan observations were acquired using a narrow band imager of the Multi-Aperture Solar Telescope (MAST), Udaipur, and were complemented with the data products of HMI onboard SDO. The line-of-sight velocities for different layers of the photosphere and chromosphere were obtained from bi-sector levels in both spectral lines. Additionally, the Ca II 8542 Å spectra were inverted using the NICOLE inversion code to retrieve the temperature and velocity stratification over different layers of the photosphere and the chromosphere. The IEF was observed to evolve dynamically in time and with height in the solar atmosphere. The strength of the flow decreased with decreasing height, almost vanishing in the upper photosphere and lower chromosphere. The overall appearance of the flow along the IEF channels seemed consistent with a siphon flow model. We also investigated the association of the IEF with the photospheric Evershed flow (EF), but no obvious connection was found in our analysis. We find that the IEF and EF are aligned along magnetic field lines, which are independent of each other. We also analyzed the effect of the IEF on moving magnetic features, but no obvious association was found in our analysis.

Contribution Type

Theme

Solar Magnetism in High-Resolution

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