[포SE-05] Analysis of Solar Surface Data Obtained by Domless Solar Telescope of Hida observatory

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Ground-based solar observations have several merits such as wider field of view and higher time cadence than those of satellite observations. The Domeless Solar Telescope of Hida Observatory is designed to acquire solar surface images at the highest possible spatial resolution using two types of spectrographs: a vertical spectrograph with the highest wavelength resolution in the world, and a horizontal spectrograph that can take images of the sun in multi-wavelength over the entire visible solar spectrum. The temporal variation of fine features such as chromospheric grains in the supergranulation cells and facular points in the network region has been obtained using DST CaⅡ K lines compared with Hinode CaⅡ H lines. This analysis is expected to provide a fundamental tool for research of diverse phenomena on the solar surface.

[구SE-06] Different Types of Active Region EUV Bright Points by Hinode/EIS

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We have investigated seven Extreme-Ultraviolet (EUV) bright points in the active region (AR 10926) on 2006 December 2 by the EUV imaging spectrometer (EIS) onboard Hinode spacecraft. We determined their Doppler velocities and non-thermal velocities from 15 EUV spectral lines (log T=4.7-7.2) by fitting each line profile to a Gaussian function. We present the Doppler velocity map as a function of temperature which corresponds to a different height. As a result, these active region bright points show two different types of characteristics. Type 1 bright point shows a systematic increase of Doppler velocity from -68 km/s (blue shift) at log T=4.7 to 27 km/s (red shift) at log T=6.7, while type 2 bright points have Doppler velocities in the range of -20 km/s and 20 km/s. Using MDI magnetograms, we found that only type 1 bright point was associated with the canceling magnetic feature at the rate of 2.4×10^{18} Mx/hour. When assuming that these bright points are caused by magnetic reconnection and the Doppler shift indicates reconnection out flow, the pattern of the Doppler shift implies that type 1 bright point should be related to low atmosphere magnetic reconnection. We also determined electron densities from line ratio as well as temperatures from emission measure loci using CHIANTI atomic database. The electron densities of all bright points are comparable to typical values of active regions (log Ne=9.9-10.4). For the temperature analysis, the emission loci plots indicate that these bright points should not be isothermal though background is isothermal. The DEM analysis also show that while the background has a single peak distribution (isothermal), the EUV bright points, double peak distributions.