

Initial results from EIS onboard Hinode

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Extreme ultraviolet Imaging Spectrometer (EIS) onboard Hinode is a high resolution spectrometer aimed at studying dynamic phenomena in the corona. EIS has two spectral ranges, 17-21nm and 25-29nm, which include emission lines from the transition region, the corona, and solar flares. EIS was designed to achieve high resolution and sensitivity in order to study coronal activity in detail. After its first light on October 28, 2006, EIS has been working perfectly.

We review the data obtained with EIS in the initial operation phase. Extreme ultraviolet (EUV) spectra were obtained during a flare whose peak GOES X-ray flux reached X class. During its impulsive phase, spectra indicated significant Doppler shifts in a wide temperature range which suggests upward plasma motion caused by flare. In the event of limb flare, Doppler velocity along the coronal loop was detected. It indicates plasma flow along the loop. Many brightenings were found in polar coronal hole. They appeared as small loops in coronal hole. Doppler shift measurement indicates the existence of outflowing plasma from the bright points. Bright points inside coronal hole tends to show larger Doppler shifts than those outside of coronal hole. High cadence slot observaiton shows temporal evolution of several jets. They are important for understanding energy and mass transports in the quiet Sun. Their relationship with X-ray jets, which were observed with XRT, is also discussed.