

M45a **Connection between explosive events and magnetic fields**

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Connection between explosive events in the transition region and photospheric magnetic fields are studied by using EUV Imaging Spectrometer (EIS) and Solar Optical Telescope (SOT) observations. Previous studies suggest that explosive events are occurring preferably near the network structure in the quiet region, where magnetic fluxes are concentrated. However, the relationship between explosive events and magnetic flux in the photosphere has not been established yet. Our objective is to study the spatial distribution of explosive events and the evolution of photospheric magnetic fields by means of Hinode observations.

The EIS performed raster scans and obtained He II spectra in a quiet region at disk center. A lot of line broadenings have been found in He II, which are regarded as bi-directional flows caused by magnetic reconnections in the transition region. The SOT provided four-hour time series of magnetogram in Na I with one minute cadence, which traces the evolution of tiny magnetic features in the quiet region. Detailed analysis indicates that explosive events occurred in converging region of meso-granular flows, where (i) magnetic fluxes of the same polarity merged and formed a pair of larger flux, or (ii) opposite polarities collided and disappeared. This result implies that the converging motion of magnetic fields led to the interaction of fields in the transition region. In addition, some explosive events were accompanied by a pair of brightenings in Ca II H image. They coincided with a pair of magnetic fields, which are interpreted as magnetic foot points of explosive events.