Hinode/EIS - SDO/AIA study of a filament eruption

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Abstract

On 5 January 2012 Hinode/EIS observed in scanning mode during a filament eruption which took place close to disk center. The filament was located along the NE external boundary of AR 11389, where it interfaced with a coronal hole. We combine the EIS observations with high temporal resolution observations from SDO/AIA to show details of the filament eruption. We present a detailed spectroscopic study (Doppler velocity, including its non-thermal component, temperature, density, FIP bias) from pre- to post-eruption evolution of the active region-filament-coronal hole complex, including that of a small anemone active region in the coronal hole as a potential trigger of the filament eruption. Hinode/EIS rasters capture the highly dynamic nature of the evolution including multiple jets, coronal hole boundary shift and depletion of high FIP bias plasma from the source region of the filament eruption.

Keywords: active region, coronal hole, anemone, filament, FIP bias, spectroscopy

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