
Spectral observations of filament activation

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Abstract

Activation of the quiescent filament fragment and the EUV events associated with the latter are investigated. As of 2012 June 14, the filament fragment was located at e11n27. The time sequence of spectra in range of the $H\beta$ λ 486.1 nm line (obtained with the Horizontal Solar Telescope at the Sayan Solar Observatory), the EUV/AIA images, and magnetograms from the SDO data are used for analysis. The wavelet analysis is applied for the Doppler velocities in the filament and in the photosphere under the latter before the filament activation. The correlation between the upward motion velocity of filament during activation and the EUV events inside and around the filament is studied. The ~ 5 min Doppler velocity oscillations increase in the entire filament before its activation. The velocity of the disturbance removing from the photosphere to the filament region is about 180 km/s. Bright points at the filament channel edges and emission loops above the filament in the AIA bands appear a few minutes after the filament upward motion start. The increase in the filament upward motion velocity had a impulse character, and the maximal velocity reached 110 km/s.

Keywords: based data, oscillations, filament destabilization

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