[구SS-09] A Multi-wavelength Observational Study of Eruption Processes of Two Prominences in the Solar Active Region NOAA 11261

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To better understand the physics underlying the eruption of prominences in solar active regions, we studied eruption processes of two active prominences located in the active region NOAA 11261 using multi-wavelength observational data with high temporal and spatial resolution. Specifically, we examined (1) the temporal variation of morphology and plasma properties of the two active prominences, (2) magnetic fields and their evolution on the photospheric surface underneath the prominences, and (3) the time profiles and locations of radio, EUV, and soft/hard X-ray emissions produced by the M9.3 flare related to the prominence eruption. As a result, we found that: (1) a prominence F1 began to erupt and expand as the abrupt and intense EUV brightening occurred in the localized region underneath the western part of F1 at 03:45 UT prior to the peak time of the M9.3 flare, (2) F1 split into two parts: i.e., the western part asymmetrically erupted by producing the M9.3 flare with microwave source motions along the magnetic polarity inversion line between the two flare ribbons, while the eastern part coalesced into a pre-existing prominence F2, (3) F2 became unstable due to the coalescence with the eastern part of F1, and then it partially erupted with clockwise untwisting motions.

[구SS-10] A Study of Solar Eruption : The Case of 2011 Sep. 29 Event

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Filament eruptions are one of the energetic phenomena on the solar surface with flares and coronal mass ejections (CMEs). We observed the whole process of filament eruption that occurred in AR 11305 in association with a C5.6 flare on 2011 September 29th using the Fast Imaging Solar Spectrograph (FISS) and the Solar Dynamics Observatory (SDO). The eruption consists of a slow phase with a transverse speed of ~10 km s^{-1} in 16 minutes and a fast phase with a transverse speed of ~200 km s^{-1} in 3 minutes. Near the beginning of slow phase eruption, preflare brightening occurred beneath the filament in Hα and some EUV images. The preflare brightening region is associated with a blue-shifted Hα feature with a speed of ~60 km s^{-1}. It appears that this is the outflow from magnetic reconnection which may have occurred at relatively low atmosphere. Our result support the notion that the preflare brightening is a process of magnetic reconnection playing an important role in triggering the filament eruption by deformative the magnetic field lines under the eruptive filament.