[SO07] A study of preflare activity using Hinode XRT: Comparison with the previous study using Yohkoh SXT

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We examined a preflare activity of a C3.3 flare using data from X-Ray Telescope (XRT) onboard Hinode (Solar-B), TRACE, SOHO/MDI, and GOES. This flare occurred in the active region AR 10923 on 2006 Nov. 12. We found a weak X-ray enhancement (preflare brightening) before the start of the main flare. A series of Hinode/XRT images show a sigmoidal loop before the preflare activity, its loop brightening at the preflare time, and a main flaring at the same position. The TRACE 171A images also show the sigmoidal loop, which is located on the polarity inversion line seen in the SOHO/MDI image. Around the preflare time, we found four EUV jets that may be caused by magnetic reconnection. We found that the present case has the following features in common with the preflare activity of an M1.2 flare observed by Yohkoh SXT and TRACE: (1) the small X-ray sigmoid pattern, (2) the preflare activity on the sheared polarity inversion line, (3) the preflare brightening co-spatial with the main flaring region. and (4) the association with small scale eruptions or jets. The similarity of the two cases suggests that preflare activities may be in general smaller scale eruptive events involving magnetic reconnection.

[SO08] Comparison of SOHO UVCS and MLSO MK4 densities

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We have compared the coronal density of a helmet streamer using SOHO UltraViolet Coronagraph Spectrometer (UVCS) and Mauna Loa Solar Observatory (MLSO) MK4 coronameter. This is the first attempt to compare coronal densities from both instruments. The streamer was simultaneously observed from 2003 April 28 23:28 UT to April 29 01:27 UT during which no CME was observed. The slit of UVCS was tangential to the solar limb, at a distance of about 1.75 $R_{\odot}$ and position angle 55°. We used two emission lines (O VI 1032 Å and 1037.6 Å), which all have both radiative and collisional components. The coronal number density was determined from the ratio of these two components. The MK4 coronameter has a field of view from 1.08 to 2.85 solar radii. We determined the coronal density by inverting MLSO MK4 polarization maps. The mean number densities for 27 measurements are $(1.58\pm0.29)\times10^{7}\ cm^{-3}$ for UVCS and $(1.61\pm0.16)\times10^{7}\ cm^{-3}$ for MK4, respectively, which are quite consistent with each other. This result demonstrates that MK4 can provides us with coronal densities for a large field of view with about three minute temporal resolution. We are going to compare UVCS and MK4 densities for other coronal structures. We also expect that the MK 4 density can be used to compare coronal shock heights for given position angles and CME heights, as demonstrated by Cho et al.(2007).