[구SE-05] The Off-Axis Properties of Solar X-Ray Telescopes: I. Evaluation of the Vignetting Effect

Junho Shin[1], Takashi Sakurai[2]
[1]*School of Space Research, Kyung Hee University*
[2]*National Astronomical Observatory of Japan*

The solar X-ray telescopes, the Yohkoh SXT and the Hinode XRT, have observed for a couple of decades a variety of coronal structures in the range of wide field-of-view (FOV) covering the full solar disk. It has been emphasized that the optical structure of solar telescopes should be designed with care for improving the uniformity over the full FOV. The vignetting effect is one of the important optical characteristics for describing the performance of a telescope, which reflects the ability of collecting the incoming light at different locations and different photon energies. The correction of this vignetting effect would be an important calibration step that should be performed in advance, especially when the observed images are to be used for photometric purposes. Since the vignetting effect of solar X-ray telescopes shows wavelength dependence, a special care should be taken when, for example, performing the temperature analyses with thin and thick filters for flaring activities observed at the periphery of the full FOV. The results of analysis of pre-launch calibration data for the evaluation of vignetting effect will be introduced in detail.

[구SE-06] Study of a coronal jet observed by Hinode, SDO, and STEREO

이경선[1], Davina Innes[2], 문용재[3]
[1]*경희대학교 우주과학과,* [2]*Max Plank Institute for Solar System Research,*
[3]*경희대학교 우주탐사학과*

We have investigated a coronal jet near the limb on 2010 June 27 by Hinode/X-Ray Telescope (XRT), EUV Imaging Spectrograph (EIS), SDO/Atmospheric Imaging Assembly (AIA), and STEREO. From EUV (AIA and EIS) and soft X-ray (XRT) images we identify the erupting jet feature in cool and hot temperatures. Using the high temporal and multi wavelength AIA images, we found that the hot jet preceded its associated cool jet and their structures are well consistent with the numerical simulation of the emerging flux-reconnection model. From the spectroscopic analysis, we found that the jet structure changes from blue shift to red one with time, which may indicate the helical structure of the jet. The STEREO observation, which enables us to observe this jet on the disk, shows that there was a dim loop associated with the jet. On the other hand, we found that the structure of its associated active region seen in STEREO is similar to that in AIA observed 5 days before. Based on this fact, we compared the jet morphology on the limb with the magnectic fields extrapolated from a HMI vector magnetogram of this active region observed on the disk. Interestingly, the comparison shows that the open and closed magnetic field configuration correspond to the jet and the dim loop, respectively, as the Shibata's jet model predicted.