eruptive events using the MHD as well as the NLFFF model results.

[포 SS-02] BITSE Preliminary Results

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The Balloon-borne Investigation of Temperature and Speed of Electrons in the corona (BITSE) is a technology demonstration mission launched in 2019 to observe the solar corona from ~3 Rs to 15 Rs at four wavelengths (393.5, 405.0, 398.7, and 423.4 nm). Preliminary analysis shows that BITSE imaged the solar minimum corona with the equatorial streamers on the east and west limbs. The narrow streamers observed by BITSE are in good agreement with the geometric properties obtained by the Solar and Heliospheric Observatory (SOHO) coronagraphs in the overlapping physical domain. In spite of the small signal-to-noise ratio we were able to obtain the temperature and flow speed of the western steamer. In the heliocentric distance range 4 – 7 Rs on the western streamer, we obtained a temperature of ~ 1.0 ± 0.3 MK and a flow speed of ~ 260 km s^{-1} with a large uncertainty interval.

[포 SS-03] Can AI-generated EUV images be used for determining DEMs of solar corona?

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In this study, we determinate the differential emission measure(DEM) of solar corona using three SDO/AIA EUV channel images and three AI-generated ones. To generate the AI-generated images, we apply a deep learning model based on multi-layer perceptrons by assuming that all pixels in solar EUV images are independent of one another. For the input data, we use three SDO/AIA EUV channels (171, 193, and 211). For the target data, we use other three SDO/AIA EUV channels (94, 131, and 335). We train the model using 358 pairs of SDO/AIA EUV images at every 00:00 UT in 2011. We use SDO/AIA pixels within 1.2 solar radii to consider not only the solar disk but also above the limb. We apply our model to several brightening patches and loops in SDO/AIA images for the determination of DEMs. Our main results from this study are as follows. First, our model successfully generates three solar EUV channel images using the other three channel images. Second, the noises in the AI-generated EUV channel images are greatly reduced compared to the original target ones. Third, the estimated DEMs using three SDO/AIA images and three AI-generated ones are similar to those using three SDO/AIA images and three stacked (50 frames) ones. These results imply that our deep learning model is able to analyze temperature response functions of SDO/AIA channel images, showing a sufficient possibility that AI-generated data can be used for multi-wavelength studies of various scientific fields.

SDO: Solar Dynamics Observatory
AIA: Atmospheric Imaging Assembly
EUV: Extreme Ultra Violet
DEM: Diffrential Emission Measure

This work was supported by Institute for Information & communications Technology Promotion (IITP) grant funded by the Korea government (2018-0-01422, Study on analysis and prediction technique of solar flares).

기타

[포 HA-01] Current Status and Future Prospects of Korean VLBI Network (KVN)

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