Rs, respectively. Our results firstly demonstrate that LASCO-C2 blobs form the heights from about 1.7 to 2.0 Rs and they are generated by the tearing mode instability near the tips of current sheets.

[구 SS-06] The Excitation of Waves Associated with a Collapsing Granule in the Photosphere and Chromosphere

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We investigate a collapsing granule event and the associated excitation of waves in the photosphere and chromosphere. Our observations were carried out by using the Fast Imaging Solar Spectrograph and the TiO 7057Å Broadband Filter Imager of the 1.6 meter Goode Solar Telescope of Big Bear Solar Observatory. During our observations, we found a granule which became significantly darker than neighboring granules. The edge of the granule collapsed within several minutes. After the collapse, transient oscillations occurred in the photospheric and chromospheric layers. The dominant period of the oscillations is close to 4.5 minutes in the photosphere and 4 minutes in the chromosphere. Moreover, in the Ca II-0.5Å raster image, we observed brightenings which are considered as the manifestation of shock waves. Based on our results, we suggest that the impulsive collapse of a granule can generate upward-propagating acoustic waves in the solar quiet region that ultimately develop into shocks.

[초 SS-07] Toward Next Generation Solar Coronagraph: Diagnostic Coronagraph Experiment

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Korea Astronomy and Space Science Institute (KASI) has been developing a next-generation coronagraph (NGC) in cooperation with NASA to measure the coronal electron density, temperature, and speed using four different filters around 400 nm. To demonstrate technology for the measurement through the 2017 total solar eclipse across the USA, KASI organized an expedition team to demonstrate the coronagraph measurement scheme and the instrumental technology. The observation site was in Jackson Hole, Wyoming, USA. We built an eclipse observation system, so-called Diagnostic Coronal Experiment (DICE), which is composed of two identical telescopes to improve a signal to noise ratio. The observation was conducted with 4 wavelengths and 3 linear polarization directions according to the planned schedule in a limited total eclipse time of about 140 seconds.Polarization information of corona from the data was successfully obtained but we failed to get the coronal electron temperature and speed information due to a low signal-to-noise ratio of the optical system. In this study, we report the development of DICE and observation results. TSE observation and analysis by using our own developed instrument gave an important lesson that a coronagraph should be carefully designed to archive the scientific purpose. This experience through TSE observation will be very useful for a success of NASA-KASI joint missions called the Balloon-borne Investigation of the Temperature and Speed of Electrons in the Corona (BITSE) and COronal Diagnostic EXperiment (CODEX).

[구 SS-08] Image Translation of SDO/AIA Multi-Channel Solar UV Images into Another Single-Channel Image by Deep Learning

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We translate Solar Dynamics Observatory/Atmospheric Imaging Assembly (AIA) ultraviolet (UV) multi-channel images into another UV single-channel image using a deep learning algorithm based on conditional generative adversarial networks (cGANs). The base input channel, which has the highest correlation coefficient (CC) between UV channels of AIA, is 193 Å. To complement this channel, we choose two channels, 1600 and 304 Å, which represent upper photosphere and chromosphere, respectively. Input channels for three models are single (193 Å), dual (193+1600 Å), and triple (193+1600+304 Å), respectively. Quantitative comparisons are made for test data sets. Main results from this study are as follows. First, the single model successfully produce other coronal channel images but less successful for chromospheric channel (304 Å) and much less successful for two photospheric channels (1600 and 1700 Å). Second, the dual model shows a noticeable improvement of the CC between the model outputs and Ground truths for 1700 Å. Third, the triple model can generate all