Relative Error (RE), but the values are quite small. Fourth, considering CC and RE together, 1600 and 1700 photospheric UV line images, which have quite similar structures to the corresponding magnetogram, have the best results compared to other lines. This methodology can be applicable to many scientific fields that use several different filter images.

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[포 SS-04] Global Mapping of Saturnian Haze

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Recent analyses of spectro-images of Saturn observed by Visual and Infrared Mapping Spectrometer (VIMS)/Cassini revealed altitudinal distributions of the spectral structure of haze in Saturn's south-polar regions (Kim et al., 2018) and at 55°N latitude (Kim et al., 2012). However, other regions of Saturn still have not been investigated. We derived series of high-spatial resolution VIMS images of Saturn's limb at various latitudes. Using our developed code, the altitudinal intensity profiles of 3.3-μm emission and H3+ through different latitudes were plotted. Then we obtained the averaged vertical spectra of 3.3-μm emission which is all blended with fluorescent methane and hydrocarbon haze. The vertically-resolved spectra were measured from the limb of Saturn in 50km intervals to see altitudinal variance. We will present a comparison of spectral structures of 3.3-μm emission with different latitudes. Further investigation using radiative transfer to extract adjacent fluorescent CH4, C2H6, and H3+ is needed to derive spectral structure of pure haze. We look forward to a better understanding of aging process in a global view.

[포 SS-05] COronal Diagnostic EXperiment (CODEX)

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Korea Astronomy and Space Science Institute (KASI), in collaboration with the NASA Goddard Sparce Flight Center (GSFC), will develop a next generation coronagraph for the International Space Station (ISS). COronal Diagnostic EXperiment (CODEX) uses multiple filters to obtain simultaneous measurements of electron density, temperature, and velocity within a single instrument. CODEX's regular, systematic, comprehensive dataset will test theories of solar wind acceleration and source, as well as serve to validate and enable improvement of space-weather/operational models in the crucial source region of the solar wind. CODEX subsystems include the coronagraph, pointing system, command and data handling (C&DH) electronics, and power distribution unit. CODEX is integrated onto a standard interface which provides power and communication. All full resolution images are telemeters to the ground, where data from multiple images and sequences are co-added, spatially binned, and ratioed as needed for analysis.

[포 SS-06] GENERATION OF FUTURE MAGNETOGRAMS FROM PREVIOUS SDO/HMI DATA USING DEEP LEARNING

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In this study, we generate future full disk magnetograms in 12, 24, 36 and 48 hours advance from SDO/HMI images using deep learning. To perform this generation, we apply the convolutional generative adversarial network (cGAN) algorithm to a series of SDO/HMI magnetograms. We use SDO/HMI data from 2011 to 2016 for training four models. The models make AI-generated images for 2017 HMI data and compare them with the actual HMI magnetograms for evaluation. The AI-generated images by each model are very similar to the actual images. The average correlation coefficient between the two images for about 600 data sets are about 0.85 for four models. We are examining hundreds of active regions for more detail comparison. In the future we will use pix2pix HD and video2video translation networks for image prediction.

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