

A New Solar Imaging System for Observing High Speed Eruptions: Solar Dynamics Doppler Imager (SDDI)

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A new solar imaging system was installed at Hida Observatory to observe the dynamics of flares and filament eruptions. The system (Solar Dynamics Doppler Imager; SDDI) takes full disk solar images with a field of view of $2520'' \times 2520''$ at multiple wavelengths around the H-alpha line at 6562Å. Regular operation was started in May 2016, in which images at 73 wavelength positions spanning from H-alpha -9Å to H-alpha +9Å are obtained every 15 seconds. The large dynamic range of the line-of-sight velocity measurements (± 400 km/s) allows us to determine the real motions of erupting filaments in 3D space. It is expected that SDDI provides unprecedented data sets to study the relation between the kinematics of filament eruptions and coronal mass ejections (CME), and to contribute to the real time prediction of the occurrence of CMEs that cause a significant impact on the space environment of the Earth.

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