

Solar Studies in Japan during CAWSES program

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I will briefly report the future plan of solar studies in Japan in relation to CAWSES activity.

The biggest solar project in Japan in coming years is the Solar B mission project. The solar B satellite is the international collaboration project between Japan, USA, and UK, and will be launched in the Japanese fiscal year of 2006 (during Apr 2006 – Mar 2007). The Solar B will carry three telescopes into space, (1) SOT (Solar Optical Telescope), (2) XRT (X-ray Telescope), and (3) EIS (EUV Imaging Spectrometer). The unprecedented high spatial resolution observations of vector magnetic field in the photosphere will be done with SOT in almost continuous time cadense, with the simultaneous observations of coronal velocity field with EIS and the highest soft X-ray imaging observations with XRT. The purpose is to resolve the coronal heating mechanism and the basic MHD processes in the corona such as magnetic reconnection.

The SMART (Solar Magnetic Activity Research Telescope) at Hida Observatory of Kyoto University is now going to observe the full Sun vector magnetic field in the photosphere and the full Sun H alpha velocity field both at 1 minute cadense. The Purpose of the SMART is to resolve the energy storage and the triggering mechanisms of flares and /or coronal mass ejections (CMEs) in collaborating with Solar B.

The more CAWSES related program is being proposed, i.e., the international coordinated H alpha observations. The ground based H alpha full Sun observations (especially velocity field observations) are important for space weather prediction to detect filament eruptions and Moreton waves (shock waves). The international collaboration of this type of observations (i.e., whole Earth observations) should be developed during CAWSES period.

Finally, future plan of other solar observatories in Japan(Mitaka, Norikura, Nobeyama, Hiraiso) and the development of solar data base, analysis software, and computer simulations will also be discussed, including possible international collaboration.

Keywords: Solar Physics; Japan; space weather; CAWSES.