MULTI-WAVELENGTH INVESTIGATION OF ENERGY RELEASE AND TRANSPORT IN THE 16 AUGUST 2004 FLARE

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The current contribution investigates the solar flare of 16th August 2004 with the multi-wavelength observations including high temporal resolution from RHESSI, Large Solar Vacuum Telescope (LSVT), Hiraiso Solar observatory, Nobeyama Radiohelio-graph (NoRH, 17 and 34 GHz) and Siberian Solar Radio Telescope (SSRT, 5.7 GHz). The main flare was preceded by a pre-flare event with a very short energy release time. The observations of the main flare reveal a close temporal correlation between the H-alpha intensity observed with LSVT and those in hard and soft X-ray emissions observed with RHESSI, and in microwave fluxes observed with NoRH and SSRT. This close temporal correlation can be only associated with high-energy particles. The role of energetic particles in energy transport and non-thermal excitation and ionization on Hα emission during the pre-flare and pre-flare event is investigated with full non-LTE approach and possible agents and scenarios of energy transport are discussed.