

Study of Coupling Processes in the Solar-Terrestrial System

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We propose a project to study coupling processes in the solar-terrestrial system, focusing on the solar energy inputs into Earth's environment, and the response of the magnetosphere, ionosphere and atmosphere to these inputs. The solar energy can mainly be divided into two categories, the solar radiation, and the solar wind. The former, maximizes at the equator, generating various disturbances over a wide height range, while the electro-magnetic energy associated with the solar wind converges into the polar region. We propose to establish a large atmospheric radar with active phased array antenna, called the Equatorial Middle and Upper atmosphere (EMU) radar, in west Sumatra, under international collaboration with the Indonesian research institute. We will also participate in the construction of the EISCAT_3D radar in northern Scandinavia. In addition, we will develop a global observation network of radio and optical remote-sensing equipment from the equator to polar regions.

Keywords: Solar-Terrestrial coupling process, Equatorial MU Radar , EISCAT-3D Radar, global observation network