

## Study of coupling processes in the solar-terrestrial system

\*Mamoru Yamamoto<sup>1</sup>, Hiroyuki Hashiguchi<sup>1</sup>, Hiroshi Miyaoka<sup>2</sup>, Yasunobu Ogawa<sup>2</sup>, Kazuo Shiokawa<sup>3</sup>, Satonori Nozawa<sup>3</sup>, Akimasa Yoshikawa<sup>4</sup>, Toshitaka Tsuda<sup>5</sup>

1. Research Institute for Sustainable Humanosphere, Kyoto University, 2. National Institute of Polar Research, 3. Institute for Space-Earth Environmental Research, Nagoya University, 4. Graduate School of Science, Kyushu University, 5. Research Organization of Information and Systems

Energy from the sun is divided into radiation and solar wind (high-speed particles), which are maximum at the equatorial and polar regions, respectively. We study the flow of the energy and materials in the whole atmosphere by establishing two large atmospheric radars at these singular points, and global observation network. We elucidate energy and plasma flow from the Sun to the Earth, response of the Earth's atmosphere, ionosphere and magnetosphere to short/long period variability of the Sun, and coupling processes between these regions, which leads us quantitative understanding of the solar-terrestrial environment as a whole system.

Keywords: Large research project, Coupling processes in the solar-terrestrial system, Atmospheric and ionospheric radar