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Study of neutral-plasma coupling and equatorial plasma fountain based upon geomagnetic conjugate observations

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The Solar-Terrestrial Environment Laboratory, Nagoya University, and the National Institute of Information and Communications Technology are conducting ground-based network observations of the neutral-plasma coupling and equatorial plasma fountain in the low-latitude ionosphere in collaboration with the Research Institute for Sustainable Humanosphere, Kyoto University. The network covers Indonesia, Thailand, Vietnam, Australia, and Japan, using optical instruments, ionospheric radars, satellite beacon receivers, meteor radars, and GPS receivers. Particularly, we install Fabry-Perot interferometers in two pairs of geomagnetic conjugate stations, Shigaraki (Japan) - Darwin (Australia) and Chiang Mai (Thailand) - Kototabang (Indonesia), in 2010 to measure thermospheric neutral wind pattern in the low-latitude region. These network observations give fruitful dataset to investigate the neutral-plasma coupling and plasma fountain processes in the equatorial thermosphere and ionosphere.

Keywords: equatorial fountain, neutral-plasma coupling, conjugate observation, Fabry-Perot interferometer