

Preliminary study of equatorial ionization anomaly characteristic from GRBR chain in southeast Asia

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To study the equatorial ionization anomaly (EIA) characteristic, comparison of total electron content (TEC) obtained from the GNU Radio Beacon Receiver (GRBR) network in southeast Asia with the data from SEALION ionosonde network, Equatorial Atmosphere Radar (EAR), and the SAMI2 model are employed. Five GNU Radio Beacon Receivers (GRBRs) were aligned along 100 degree geographic longitude. Their observations started in March 2012 to enable monitoring the ionosphere during the high solar activity. The GRBR network in southeast Asia is a unique observation network of which the field of view covers ± 20 degree magnetic latitude including the magnetic equator to capture the ionospheric irregularities including the EIA. As a preliminary result, the day-to-day variability of the EIA was captured by GRBR chain. The asymmetry of the EIA was investigated. As generally known, the neutral wind is a primary source of the EIA asymmetry, while the zonal electric field is the secondary one. Using the GRBR network, the EIA asymmetry is compared with the data from SEALION ionosonde network and from SAMI2 model to clarify the source mechanism of the EIA asymmetry.

Keywords: GRBR, EIA symmetry, Equatorial, Ionosphere, Ionosonde, SAMI2 model