

Future direction of satellite-ground beacon experiment

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We have been successfully conducted observations of total-electron content (TEC) of the ionosphere by the satellite-ground beacon experiment. We developed an unique dual-band (150/400MHz) digital receiver GRBR (GNU Radio Beacon Receiver) and deployed that to large area including Japan, Southeast Asia, and etc. Data from the GRBR network were useful to investigate variety of ionospheric studies. We have found mid-latitude summer nighttime anomaly (MSNA) over Japan, which is summer nighttime TEC enhancement at higher latitudes. Longitudinal "large-scale wave structures (LSWS)" in the low latitude were studied in detail as a source of equatorial Spread-F (ESF) events. Recently we are also successful to measure the equatorial ionospheric anomaly (EIA) near 100E longitude in large latitudinal extent of at most +/-20 degrees around the geomagnetic equator. The technique is utilized for sounding rocket-ground experiment as well. We now have large amount of data that should be used for statistical analysis. It is known that there are two projects of low-inclination orbit satellites with tri-band beacon transmitters. The beacon frequencies may be different from the current system. In this paper we would like to discuss development of the GRBR experiment database, and its use for studies. Also we would like to touch possible new receiver system that fits to the new beacon satellite series.