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PEM32-P20 Room:Convention Hall Time:May 23 17:15-18:15

Height estimation of ionospheric irregularities with amplitude scintillations of closely-spaced GEO

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We have been developing the estimation method of ionospheric disturbance heights by using amplitude scintillations observed by two closely-spaced satellites[1]. The mehod depends on the comparison between the geometrical difference and on the Fresnel cutoff frequency of amplitude scintillations of 1.5GHz-band navigation signals transmitted from the two closely spaced geostationary satellites, ETS-VIII (146 deg E) and MTSAT-2 (145 deg E). The horizontal moving speeds required for the height estimation are provided by the three 60-m spaced antennas at Sugadaira Space Observatory, the University of Electro-Communications, in Nagano, by considering the patten shapes.

As the result of the analysis of the 10 scintillation events obtained in 2010, we have shown that the estimated disturbace heights are identified within about 50 km by the two processes. It is therefore concluded that the estimation of disturbce heights can be used for continuous observation of structures and movements of ionospheric disturbances.

Keywords: height of ionospheric irregularities, amplitude scintillation, closely-spaced geostationary satellite