

Analyses of structure and movement of the Es disturbance by using multi station observations of satellites scintillation

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We have already estimated that the observation results of the intensity scintillation (ISN) using geostationary satellite and the HF Doppler traces (HFD) can be identified as the waveform structure moving in northward for the intense daytime Es on June 9, 2008[1]. But more observational evidence are requested to reveal the relationship. We showed the provisional results concerning the direct identification of the horizontal structures between GPS-ISN based on the GEONET 1-sec dataset and HFD [2].

In this paper, we have extended the search area to the wide range from Kinki to Touhoku, and to all GNS satellites in the range. We cut out the 1-hour portion in the wide area from the ENRI dataset of the GEONET 1-sec observations with the duration time of the ISN approximately 20 sec, as similar fluctuation waveforms and locate ionospheric disturbances on the map. As a result, we find that all of the detected positions were confined to a part of the observation range, i.e. the Es disturbance were limited phenomenon, and that the wave front moved in the north at a speed of 50m/s as the same of the observation of geostationary satellite. We also find the good correlation of the Es frontal disturbance estimated both by ISN and by HFD.

[1] I. Tomizawa and T. Uchiyama: Estimation of Es structure using scintillation at intense Es occurred in day-time on June 9, 2008SGEPSS, May B005-39, 2008.

[2]I. Tomizawa, S. Gotoh, K. Imai, S. Saitoh and T. Uchiyama: Structure and movement of wavefront of intense daytime Es on June 9, 2008 estimated by satellite scintillations and HF Doppler, SGEPS 2009 Fall Meeting, B005-30, 2009.

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