

地磁気じょう乱時のTECとNmF2の変動解析

村上 孝範 [1]; # 三宅 亙 [2]; 陣 英克 [3]
[1] 東海大・工; [2] 東海大工; [3] 情通研

Statistical analysis of variations of TEC and NmF2 over Japan during geomagnetic disturbances

Takanori Murakami[1]; # Wataru Miyake[2]; Hidekatsu Jin[3]
[1] none; [2] Tokai Univ.; [3] NICT

Ionospheric variations due to geomagnetic disturbances are one of the major subjects of space weather research. Drastic increase and decrease of ionospheric ionization density cause change of usable frequency of HF communications and propagation delay of radio signals from the satellite to the ground. We studied here statistical relationship of NmF2 and TEC over Japan to geomagnetic indices; Kp, AE, and Dst, taking into account the integrated effect of the disturbances. NmF2 and TEC usually vary with a good correlation, but TEC can be unusually higher during intense disturbances. The ionospheric variations are best correlated with Dst among the three indices. The lag time from geomagnetic disturbances to NmF2 and TEC variations is different for the three geomagnetic indices. Dst has the shortest lag time. The negative ionospheric storms generally have larger lag time than the positive one. The negative variation is generally smaller than the positive one, and is larger at higher latitude.