

Supplementary Material Legend

Table S1 Detailed descriptions about the permanent GPS stations.

Fig.S1. The absolute errors of NN VTEC from GPS VTEC for the specific times of the day during 2015 over KURU station.

Fig.S2. The absolute errors of NN VTEC from GPS VTEC for the specific times of the day during 2015 over ANMU station.

Fig.S3. The relative errors of NN VTEC from GPS VTEC for the specific times of the day during 2015 over KURU stations.

Fig.S4. The relative errors of NN VTEC from GPS VTEC for the specific times of the day during 2015 over ANMU station.

Fig.S5. The absolute errors of the NN VTEC and the IRI2016 VTEC from the GPS VTEC for the seasonal comparison over KURU station.

Fig.S6. The absolute errors of the NN VTEC and the IRI2016 VTEC from the GPS VTEC for the seasonal comparison over ANMU station.