A Comparison of GPS-derived TEC and IRI-TEC

Yanhong Chen[(1)], Guanyi Ma[(2)] , Takashi Maruyama[(3)]

[(1)]Center for Space Science and Applied Center, The Chinese Academy of Science,. Beijing 100080, China. Email: cyh@earth.sepc.ac.cn

[(2)]Center for Space Science and Applied Center, The Chinese Academy of Science,. Beijing 100080, China. Email: guanyi_ma@earth.sepc.ac.cn

[(3)]National Institute of Information and Communications Technology, 184-8795,Japan

Abstract The comparison of GPS-TEC and IRI-TEC is made at Kokubunjii (35.71^{o}N, 139.49 ^{o}E) in Japan, during solar high activity. In spring, the difference between GPS-TEC and IRI-TEC is small in 2001,but large in 2000 and in 2002. In summer and autumn, GPS-TEC is larger than IRI-TEC at all time. In winter, the appearance of IRI-TEC peak is about 2 hours earlier than GPS-TEC's, which results GPS-TEC smaller than IRI-TEC in daytime. The characteristics of GPS-TEC and IRI-TEC under geomagnetically disturbed conditions in 2001 indicate that contributions from topside or plasmaspheric electron content, or both are significant for ionospheric positive disturbances.

Key words：ionosphere，total electron content (TEC), GPS，IRI