

## The ionospheric wave peak structures in the low latitude region and their seasonal, and solar activity dependence based on Global Ionosphere Maps

\*Hau-Kun Jhuang<sup>1</sup>, Tsung-Che Tsai<sup>2,3</sup>, Lou-Chuang Lee<sup>1,4,5</sup>, Yi-Ying Ho<sup>4</sup>

1. Department of Geosciences, National Taiwan University, Taipei, Taiwan, 2. National Center for High-performance Computing, National Applied Research Laboratories, Hsinchu, Taiwan, 3. Department of Civil Engineering, National Chiao Tung University, Hsinchu, Taiwan, 4. Institute of Earth Science, Academia Sinica, Nankang, Taipei, Taiwan, 5. Institute of Space Science, National Central University, Jhongli, Taiwan

The total electron content (TEC) data from Global Ionosphere Maps (GIM) are used to obtain the wave modes in both UT (universal time) and LT (local time) frames through the Fourier transform. The summation of contributing wave modes at a given local time provides the longitudinal variation of the wave peak structure. The phases of wave modes lead to a constructive or destructive interference of contributing wave modes, which gives different wave peak structure at different local time. The dependence of the wave peak structures on latitudinal, seasonal, and solar activity is studied.

Keywords: Global Ionosphere Maps, Ionospheric tides, Atmosphere Ionosphere coupling