

The Initial Results of Coherent Beacon Radio Receiving Systems of Transit Satellites for Low-Latitude Scintillation in Taiwan

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A radio signal traversing the ionosphere will be modified by irregularities. When received at an antenna, these signals present random temporal fluctuations in both amplitude and phase. Scintillations are particularly severe in the tropical regions around the equinoxes during the evenings. The scintillation measurements of the beacon satellites in this study for three specific low-latitude locations were spaced approximately 350 km north (25.1360N, 121.5390E)-middle (23.9810N, 120.6970E)-south (22.7250N, 120.5440E) of the tropical region. The coherent beacon receiving systems receive the radio signal from the transit satellites include 150/400MHz Navy Navigational Satellite Systems. In this study, we chose a strong Sporadic E effect time in the evening, and calculated the location of the E region and F region when the radio signals traveled through them, where they were subsequently compared with the results of the Chung-Li dynasonde (MF/HF radar).