

Detection of Ionospheric Anomaly with HF Direction Finding

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Evening enhancement or prereversal enhancement is a phenomenon that increases upward ExB drift velocity during one to two hours just before the reversal of drift direction from up to down around dusk terminator. This phenomenon is known to have large day-to-day variabilities, and is strongly connected with onsets of equatorial plasma bubbles. NICT has a project to detect ionospheric irregularities for early warning against advanced utilities of satellite positioning system since 2002. In this project we deployed HF direction finding system at Oarai test field. We will discuss the observational results in this presentation. The direction finding system can detect the ionospheric irregularities with measuring non-great-circle propagation of Australian radio broadcast signals, and has an advantage that can observe ionospheric irregularities with high time-resolution and low cost.

It is well known that there are seasonal and solar activity dependence of the feature of evening enhancement. In addition, we found similar but more significant non-great-circle propagation near the morning terminator.

In this presentation we discuss the development of analysis method and case studies.