

# **Observation of Ionospheric Disturbances with CADI ionosonde**

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Ionospheric disturbances are a common feature of the ionosphere, and have been observed by using a variety of techniques. In these methods, the Doppler frequency shift of radio echoes reflected from the ionosphere can be used to measure ionospheric movements or disturbances. In this paper, a new ionospheric disturbance mode with high accurate Doppler ionogram on CADI (Canadian Advanced Digital Ionosonde) ionosonde have been developed. This mode is implemented by a series of procedure, such as doing some important improvement and development in code technique and signal processing, designing new practical pulse combination and analysis in time and frequency domain. The experiments reveal that the multi-frequency Doppler information and temporal and height evolution of traveling ionospheric disturbances could be acquired from ionospheric disturbance mode of CADI ionosonde. Obviously, this method will improve greatly the capability of ionospheric disturbance sounding by digital ionosonde, and provide an economical and efficient way to observe and study ionosphere disturbances.