

## A model of backscatter ionograms

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### Abstract

In this paper we describe a model of backscatter ionograms developed by DSTO. The model is based on 2D ray-tracing through the ionosphere (modelled by IRI). Ionospheric absorption (both deviative and non-deviative), focussing / de-focussing gains / losses, ground forward and backscatter losses, and field aligned irregularity backscatter are considered in the model. We examine the modelled backscattered power as well as the number and type of modes contributing to each range-frequency cell in the ionogram. We also examine the elevation of the dominant mode of propagation.