

**COMPARISON OF IONOGRAMS OBTAINED BY IONOSONDES
INSTALLED AT THE UKRAINIAN ANTARCTIC
AKADEMIK VERNADSKY STATION**

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There are two kinds of ionosondes operating at the Ukrainian Antarctic Akademik Vernadsky station simultaneously. The first one is an upgraded IPS-42 ionosonde and the second one is a portable low-cost SDR-based ionosonde. They share a common antenna system and provide ionospheric sounding at close moments of time. The ionosondes have essential distinctions in their architecture, principles of formation, reception and processing of signals, operating mode parameters and characteristics. Nevertheless, both systems allow obtaining high quality ionograms containing reliable information about the state of ionosphere.

Taking into account distinctions in transmitting power, pulse length and compression, as well as sounding frequencies and time averaging, ionograms obtained by the ionosondes have some differences. The purpose of this work is to present a developed technique of comparison of ionograms obtained by two ionosondes located at the same position and to show differences in scaled critical frequencies and virtual height of ionosphere layers.

The required pre-processing of ionograms before their comparison consists of removing interferences, interpolating data in a specified frequency and virtual height ranges (the same for both ionosondes), and data binarization. The result of comparison is an ionogram represented in 3 colors. We used red, blue and green colors to show parts of layers' traces recorded by IPS-42, SDR-based ionosonde and both ionosondes respectively.

The results of comparison of ionograms for different seasons and times of the day can be analyzed manually or processed in batches. Comparison of ionograms obtained in 2021 is performed and discussed.