

World Ionospheric foF2 Map (updated every 15minutes)

Application

The above map can be used as a guide to NVIS ionospheric frequency support and to generate real time HF predictions (eg Hourly HAP charts) to assist the HF radio communicator.

A feature of the ionosphere is its ability to reflect radio waves. However, only radio waves within a certain frequency range will be reflected and this range varies with a number of factors.

The most widely used instrument for ionospheric measurement is the ionosonde. The ionosonde is essentially a high frequency radar which sends short pulses of radio energy into the ionosphere. If the radio frequency is not too high, the pulses are reflected back to earth.

The ionosonde records the time delay between transmission and reception of the pulses. By varying the frequency of the pulses (typically 1-22MHz), a record is obtained of the time delay at different frequencies. This record is referred to as an ionogram.

The highest (see note) frequency which the ionosphere will reflect vertically is called foF2. These foF2 measurements from various sites can be used to create a map of foF2.

Note: The geomagnetic field splits a radio wave in the ionosphere into two separate components, termed the ordinary (o) and extraordinary (x) waves. It is the o-wave which is routinely scaled from ionograms.

The data presented in this page are derived from the automated interpretation of ionograms from around the world. Regional data are obtained from the Space Weather Network (SWN), formerly known as IPSNET, (Australia Pacific Region). Global data are obtained from the NICT Space Weather Information Centre of Japan (Japanese region), the Space Physics Group at Rhodes University's Hermanus Magnetic Observatory (South African region), the Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy (Italian Region), the Facultad Regional Tucumán, Universidad Tecnológica Nacional, Argentina, (South American Region), the Global Ionospheric Radio Observatory (GIRO), and the United States of America Space Weather Prediction Centre (SWPC). The ionospheric data available from the SWPC and GIRO are contributed by the International Space Environment Service's (ISES) Regional Warning Centres (RWCs) located around the globe, the United States Air Force (USAF) and several research institutes.