The Global Ionospheric Radio Observatory GIRO

Abstract:
The Global Ionospheric Radio Observatory (GIRO), http://giro.uml.edu, acquires and disseminates HF ionospheric sounding data from 64 Digisonde locations in 27 countries. GIRO publishes its 30+ million record holdings over the Internet, provides an interactive read/write environment to experts of data interpretation, and forwards real-time data for measurement assimilation and radio propagation and space weather forecast. Of importance to the ionospheric community are the long-term data holdings of manually validated electron density profiles for modeling purposes, studies of the autoscaling uncertainty, and validation of alternative measurement techniques. Real-time GIRO feeds will be used to build an assimilative International Reference Ionosphere model.
http://ieeexplore.ieee.org/document/6050896/?reload=true

GLOBAL IONOSPHERE RADIO OBSERVATORY

Digisonde ionospheric sounders installed at 80+ locations in the world have gradually evolved their generally independent existence into a Global Ionospheric Radio Observatory (GIRO) portal. Today GIRO provides public access to 30+ million records of ionospheric measurements collected at 64 locations, of which 42 provide real-time feeds, publishing their measurement data within several minutes from their completion. GIRO databases holding ionogram and Doppler skymap records of high-frequency ionospheric soundings have registered connections from 123 organizations in 33 countries. Easy access to the global state of the ionospheric plasma distribution given in accurate and fine detail by the ionosonde measurements has inspired a number of studies of the ionospheric response to space weather events. Availability of GIRO data with minimal latency allows for the assimilation of the ionogram-derived data in real-time models such as the real-time extension planned for the International Reference Ionosphere.

_GIRO [accessed Sep 23, 2017].

https://www.researchgate.net/publication/258490318_Global_Ionospheric_Radio_Observatory_GIRO

Abstract
The electron density of the topside ionosphere and the plasmasphere contributes essentially to the overall Total Electron Content (TEC) budget affecting Global Navigation Satellite Systems (GNSS) signals. The plasmasphere can cause half or even more of the GNSS range error budget due to ionospheric propagation errors. This paper presents a comparative study of different plasmasphere and topside ionosphere data aiming at establishing an appropriate database for plasmasphere modelling. We analyze electron density profiles along the geomagnetic field lines derived from the Imager for Magnetopause-to-Aurora Global Exploration (IMAGE) satellite / Radio Plasma Imager (RPI) records of remote plasma sounding with radio waves. We compare these RPI profiles with 2D reconstructions of the topside ionosphere and plasmasphere electron density derived from GNSS based TEC measurements onboard the Challenging Minisatellite Payload (CHAMP) satellite. Most of the coincidences between IMAGE profiles and CHAMP reconstructions are detected in the region with L-shell between 2 and 5. In general the CHAMP reconstructed electron densities are below the IMAGE profile densities, with median of the CHAMP minus IMAGE residuals around -588 . Additionally, a comparison is made with electron densities derived from passive radio wave RPI measurements onboard the IMAGE satellite. Over the available 2001-2005 period of IMAGE measurements, the considered combined data from the active and passive RPI operations cover the region within a latitude range of 60°N, all longitudes, and an L-shell ranging from 1.2 to 15. In the coincidence regions (mainly), we check the agreement between available active and passive RPI data. The comparison shows that the measurements are well correlated, with a median residual of 52 . The RMS and STD values of the relative residuals are around 22% and 21% resp. In summary, the results encourage the application of IMAGE RPI data for plasmasphere and plasmapause modeling.

Analysis of the IMAGE RPI electron density data and CHAMP plasmasphere electron density reconstructions with focus on plasmasphere modelling. Available from: https://www.researchgate.net/publication/303505688_Analysis_of_the_IMAGE_RPI_electron_density_data_and_CHAMP_plasmasphere_electron_density_reconstructions_with_focus_on_plasmasphere_modelling [accessed Sep 23, 2017].

https://www.researchgate.net/publication/303505688_Analysis_of_the_IMAGE_RPI_electron_density_data_and_CHAMP_plasmasphere_electron_density_reconstructions_with_focus_on_

plasmasphere_modelling

2011 XXXth URSI General Assembly and Scientific Symposium
http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6036397

Stations By Location
http://ulcar.uml.edu/stationlist.html