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GNSS Measurements and IRI

D. Bilitza (1,2) and M Schmidt (3)

(1) Laboratory for Heliospheric Physics, GSFC, Greenbelt, Maryland, USA (dieter.bilitza-1@nasa.gov), (2) Space Weather Laboratory, George Mason University, Fairfax, Virginia, USA (dbilitza@gmu.edu), (3) Deutsches Geodaetisches Forschungsinstitut, Muenchen, Germany (schmidt@dgfi.badw.de)

The International Reference Ionosphere (IRI) is an empirical model of the most important ionospheric parameters including electron and ion densities and temperatures and the Total Electron Content (TEC). IRI is a joint project of the Committee on Space Research (COSPAR) and the International Union of Radio Science (URSI) and is based on the majority of the available ground and space data. So fare Global Navigation Satellite System (GNSS) data have not been used for the model development/improvement process. Recent comparisons between GNSS measurements and IRI have highlighted some of the areas where discrepancies are observed and where GNSS data are expected to be a significant resource for IRI modeling. We will discuss ways in which GNSS results could help the IRI improvement process in critical areas.

A number of studies have shown the use of GNSS data for updating IRI to near-real time conditions. We will review the different efforts and point out successes and shortcomings. A special IRI Workshop is being convened for early May to discuss in depth the topic of the Real-Time IRI and come up with recommendations.

Finally we will also highlight IRI's role in improving and testing the various techniques for deducing TEC from GNSS measurements.