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The International Reference Ionosphere: Model Update 2016

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The International Reference Ionosphere (IRI) is recognized as the official standard for the ionosphere (COSPAR, URSI, ISO) and is widely used for a multitude of different applications as evidenced by the many papers in science and engineering journals that acknowledge the use of IRI (e.g., about 11% of all Radio Science papers each year). One of the shortcomings of the model has been the dependence of the F2 peak height modeling on the propagation factor M(3000)F2. With the 2016 version of IRI, two new models will be introduced for hmF2 that were developed directly based on hmF2 measurements by ionosondes [Altadill et al., 2013] and by COSMIC radio occultation [Shubin, 2015], respectively. In addition IRI-2016 will include an improved representation of the ionosphere during the very low solar activities that were reached during the last solar minimum in 2008/2009. This presentation will review these and other improvements that are being implemented with the 2016 version of the IRI model. We will also discuss recent IRI workshops and their findings and results. One of the most exciting new projects is the development of the Real-Time IRI [Galkin et al., 2012]. We will discuss the current status and plans for the future.

Altadill, D., S. Magdaleno, J.M. Torta, E. Blanch (2013), Global empirical models of the density peak height and of the equivalent scale height for quiet conditions, Advances in Space Research 52, 1756–1769, doi:10.1016/j.asr.2012.11.018.

Galkin, I.A., B.W. Reinisch, X. Huang, and D. Bilitza (2012), Assimilation of GIRO Data into a Real-Time IRI, Radio Science, 47, RS0L07, doi:10.1029/2011RS004952.

Shubin V.N. (2015), Global median model of the F2-layer peak height based on ionospheric radio-occultation and ground-based Digisonde observations, Advances in Space Research 56, 916–928, doi:10.1016/j.asr.2015.05.029.