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Ionospheric Predictions with the International Reference ionosphere: Recent Improvements

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The International Reference Ionosphere (IRI) is a widely used tool for the many space weather related application that involve the propagation of electromagnetic waves through the ionosphere and therefore require correction for the retarding and refractive effect the ionosphere has on these waves. IRI is acknowledged as the data-based ionospheric standard by many international organizations (COSPAR, URSI, ISO, ECSS). This presentation will report on the latest improvements of the IRI model with special emphasis on the accurate description of variations with solar activity. Efforts are underway to improve the IRI electron density and ion composition models for very low solar activities similar to the levels experienced during the recent extended solar minimum. First results will be presented and discussed including comparisons with TOPEX-Jason Vertical Ionospheric Electron Content (VIEC) data and the variation of the data-model difference over the solar cycle.