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IRI STORM validation over Europe

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The International Reference Ionosphere (IRI) model includes an empirical Storm-Time Ionospheric Correction Model (STORM) extension to account for storm-time changes of the F layer peak electron density (NmF2) during increased geomagnetic activity. This model extension is driven by past history values of the geomagnetic index ap (The magnetic index applied is the integral of ap over the previous 33 hours with a weighting function deduced from physically based modeling) and it adjusts the quiet-time F layer peak electron density (NmF2) to account for storm-time changes in the ionosphere. In this investigation manually scaled hourly values of NmF2 measured during the main and recovery phases of selected storms for the maximum solar activity period of the current solar cycle are compared with the predicted IRI-2012 NmF2 over European ionospheric stations using the STORM model option. Based on the comparison a subsequent performance evaluation of the STORM option during this period is quantified.