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The EC Horizon 2020 project SWAMI: Space Weather Atmosphere Model and Indices

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In the framework of the H2020 project SWAMI, which started in January 2018, a new whole atmosphere model (0-1500 km) will be developed that can be used for launch operations, re-entry computations, orbit prediction, as well as aeronomy and space weather studies. Such a model is currently not available in Europe, whereas models in the US and Japan have irreconcilable limits for users.
The model will be constructed by blending two existing models, the Drag Temperature Model (DTM) and the Unified Model (UM). The CNES thermosphere specification model DTM2013, which was developed in the FP7 project ATMOP, will first be improved by assimilating more density data to drive down remaining biases as a function of solar activity and seasons mainly. Secondly, a new high cadence Kp geomagnetic index, which will be developed as part of the project, will be used in order to improve storm-time performance. Compared to the progress made in solar activity proxy research, geomagnetic index development and forecasting is lagging; SWAMI will focus on improving the geomagnetic index as well as its forecast. The Met Office UM will be extended to the lower thermosphere in order to have an overlap with DTM. Then, the average of a multi-year run and the inter-annual variability are computed, representing climatology and weather, respectively. UM and DTM will then be blended in the 120-160 km altitude region to create a whole atmosphere model, which will be made available in a user-friendly package in 2020.