

Space Weather Forecasting at NOAA/SWPC with the Operational Geospace Model

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The Space Weather Prediction Center (SWPC) is part of the US National Weather Service and has a Space Weather Operations Center that provides 24/7 support for customers in a range of industries that includes electric power, aviation, navigation, oil/mineral exploration, and agriculture. SWPC forecasters rely on guidance from a collection of different models that span the space between Sun and Earth. This presentation provides an overview of the Geospace model, the newest addition to the SWPC operational modeling suite. The Geospace model, which was first transitioned into real-time operations in October 2016, uses components of the Space Weather Modeling Framework (SWMF) developed at the University of Michigan. The model simulates the full time-dependent 3D Geospace environment (Earth's magnetosphere, ring current and ionosphere) and predicts regional and global space weather parameters such as induced magnetic perturbations in space and on the surface of the Earth. In the operational mode, the Geospace model runs continually using real-time solar wind data from a satellite at L1, currently either DSCOVR or ACE. We discuss current geospace modeling activities and anticipated improvements associated with future model upgrades.

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