

**Thirteen Years of Progress in Ionospheric Forecasting Captured in
Space Weather Journal
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ABSTRACT

The American Geophysical Union's Space Weather Journal has been publishing space weather related manuscripts for roughly 13 years. More than 360 (~ half) of these manuscripts address and or mention the ionosphere. In this presentation I will outline the progress during that time in terms of characterizing and modeling the ionosphere and its interaction with the surrounding medium from a space weather perspective. Three trends in particular are notable: Use of global navigation satellite system data, advances in neural network forecasting, and advances in ensemble forecasting. Additionally, the relative calm of the most recent solar minimum allowed a new perspective on how much forcing the ionosphere experiences from below. I will highlight this fact as a new element of space weather forecasting.

Key words: Space Weather, Ionosphere, GNSS, Neural Networks, Ensemble Forecasting.