

The Discriminant Analysis Flare Forecasting System ("DAFFS")

*Leka, K. D. (1), leka@cora.nwra.com; G. Barnes (1); D. C. Braun (1); and E. L. Wagner (1).
(1) NorthWest Research Associates, Boulder, CO, USA*

Forecasting solar flares is a challenge from various scientific perspectives; major solar flares are inherently rare events, and all observations available with which to evaluate the flare-readiness of the Sun are remote, with inferences about the physical state rather than direct measurements. We report on the efforts to improve flare forecasts, using data from the Helioseismic and Magnetic Imager on the Solar Dynamics Observatory to characterize the photospheric vector magnetic field, the sub-surface helioseismic activity, and the coronal magnetic connectivity. We employ Discriminant Analysis as the statistical method by which historical data are evaluated and new forecasts are produced. The performance of the Discriminant Analysis Flare Forecasting System ("DAFFS") is evaluated against that of the NOAA Space Weather Prediction Center using standard skill scores.

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