

Project Details

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Project Title:

A Comparison of Flare Forecasting Methods

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Summary:

Recently, the number of published approaches to flare forecasting has proliferated, with widely varying claims about how well each works. Because of the different analysis techniques and data sets, it is essentially impossible to compare the results from the literature. We propose to host two workshops in which researchers will be invited to compute their own forecasting parameters for common data sets. The performance of the parameters will be judged in a consistent fashion, with a focus on all-clear forecasts. In the first workshop, we will use existing data bases of photospheric magnetic field observations, one from the MDI instrument on SOHO, and one from the Imaging Vector Magnetograph. These data sets are complimentary, and will allow us to settle on the best analysis techniques for producing forecasts. In the second workshop, the emphasis will shift to analysis of time series, using data from the HMI instrument on SDO, if sufficient data are available, or using MDI data to investigate the evolution of parameters, in preparation for HMI data. Where needed, we will develop analysis code to support the workshops, including more robust approaches to producing all-clear forecasts and ways to incorporate the evolution of the magnetic field into the forecasts. Standardized datasets and merit criteria will be supplied to the community for testing forecasting approaches developed in the future. The ultimate goal is to determine the best empirical flare forecasting method for use with the data anticipated from the HMI instrument on SDO.

Publication References:

Summary: no summary

Reference: Barnes, G.; Leka, K. D.; (2008), Evaluating the Performance of Solar Flare Forecasting Methods, The Astrophysical Journal Letters, Volume 688, Issue 2, article id. L107, pp, doi: 10.1086/595550