

Abstract Submitted
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Predictability of Solar Flares PETER MARES¹, Cornell University, K.S. BALASUBRAMANIAM, USAF/Air Force Research Laboratory, Sunspot, NM 88349 — Solar flares are significant drivers of space weather. With the availability of high cadence solar chromospheric and photospheric data from the USAF's Optical Solar PATrol Network (OSPAN; photosphere and chromosphere imaging) Telescope and the Global Oscillations Network Group (GONG; photosphere magnetic imaging), at the National Solar Observatory, we have gained insights into potential uses of the data for solar flare prediction. We apply the Principal Component Analysis (PCA) to parameterize the flaring system and extract consistent observables at solar chromospheric and photospheric layers that indicate a viable recognition of flaring activity. Rather than limiting ourselves to a few known indicators of solar activity, PCA helps us to characterize the entire system using several tens of variables for each observed layer. The components of the Eigen vectors derived from PCA help us recognize and quantify innate characteristics of solar flares and compare them. We will present an analysis of these results to explore the viability of PCA to assist in predicting solar flares.

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