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Poster
Recent work has shown that small-scale short-lived variation in the solar corona is statistically indicative of upcoming flare activity (Leka et al. 2023), even while studies based on static images or low spatial resolution images from the Chromosphere, Transition-Region, and Coronal (CTRC) regime has not yet proven any significant insights to this question. Long-held knowledge of the photospheric magnetic field has thus far guided most efforts into identifying flare-imminent magnetic field configurations, but evidence for the role of the upper atmosphere is both expected (in terms of energy storage, possible trigger mechanisms) and elusive. To that end, we now investigate the question of distinguishing flare-imminent active regions by evaluating both magnetic characteristics from the Solar Dynamics Observator/Helioseismic and Magnetic Imager (beyond the SHARP parameters, see accompanying poster) as compared to, and combined with, the characteristics of the CTRC regime as parameterized using SDO/AIA Active Region Patches (Dissauer et al. 2023). To gain physical insight from a large-sample analysis, we use the NWRA Classification Infrastructure (NCI), a facility based on nonparametric discriminant analysis, which enables a quantitative evaluation of which descriptions can best distinguish regions in imminent likelihood of flaring. We present a summary of physical insights from this expanded analysis.

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