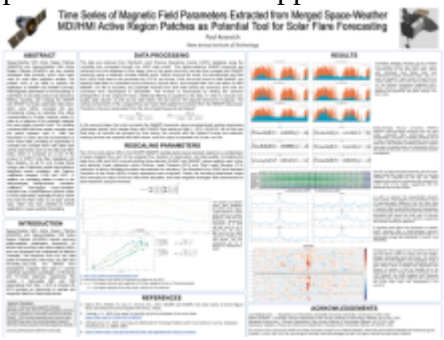
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Poster
Space-Weather MDI Active Region Patches (SMARPs) and Space-Weather HMI Active Region Patches (SHARPs) are two recently developed data products, which have been used for solar flare prediction studies. The present work is an effort to expand the application of SMARP and SHARP summary heliomagnetic parameters to the forecasting of solar flares. A new data product was derived by filtering, rescaling, and merging the SMARP and SHARP summary parameter data series, which were further converted into two-dimensional arrays by selecting time slices corresponding to R-value maxima, where R-value is a measure of the unsigned magnetic flux near polarity inversion lines. The resulting combined MDI-HMI time series currently span the period between April 4, 1996 and December 13, 2022, and can be extended to a more recent date, providing an opportunity to correlate and compare them with other solar activity parameters, such as the daily solar flare index, which is computed as a sum of the product of GOES X-ray flare magnitude and flare duration, for all M- and X-class flares during a day. Preliminary results demonstrate a significant overall correlation, with Pearson coefficients between 0.339 and 0.627. In addition, an oscillating pattern is seen in the daily-averaged sliding-window correlation coefficient. Time-lagged cross-correlation indicates that a leader-follower dynamic exists in some parameters, especially R-value, where they lead the flare index by at least several days, which may have potential for further application in space weather forecasting.


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