Griffin
Goodwin
Georgia State University
Dustin Kempton, Georgia State University
Reet Gupta, Georgia State University
Poster
The Space Weather Analytics for Solar Flares (SWAN-SF) benchmark dataset has proven to be an invaluable resource to the flare forecasting community. Containing carefully cross-checked HMI magnetogram data for over 4,000 active regions and 10,000 flaring events, SWAN-SF has enabled researchers to efficiently train, test, and validate their predictive models with confidence. However, since its release in 2020, the dataset has seen no significant updates. As a result, the goal of this work is threefold: first, we plan to temporally expand the existing dataset through 2025 to include the most recently available HMI active region patches (HARPs); second, we aim to incorporate shear angle-weighted HMI parameters, which emphasize magnetically stressed regions, potentially offering additional predictive capabilities beyond the existing parameters; and third, we intend to integrate texture-based parameters derived from extreme ultraviolet images taken by SDO/AIA to provide a complementary perspective to the magnetogram features. The purpose of these updates is to enable researchers to investigate how flare forecasting is impacted across two solar cycles and to improve prediction accuracy near the limbs. This pipeline establishes the framework for a continuously updated SWAN-SF dataset. Our methodology, along with some preliminary results, will be presented here.
Poster session day
Tuesday, April 28, 2026
Poster location
13
Meeting homepage
2026 Space Weather Workshop
Download to PDF