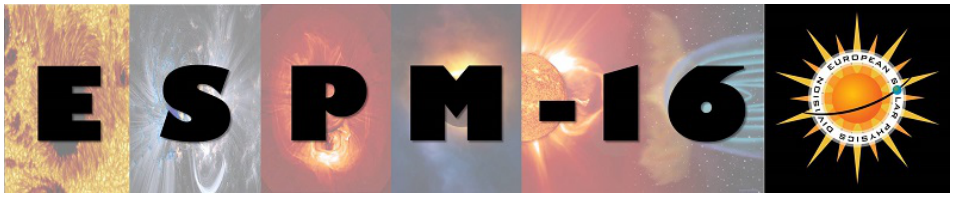

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An Overview of the European Union FLARECAST Project: Where Do We Stand and Potential Future Directions of Research

Wednesday, 8 September 2021 09:13 (13 minutes)

The European Union's Flare Likelihood and Region Eruption Forecasting (FLARECAST) project ran between January 2015 and February 2018. It comprised the synergistic, interdisciplinary work of tens of researchers active in the fields of solar physics, space weather forecasting, computer science, big data, infrastructure and science communication. The theme of the project was solar flare prediction and its three primary objectives were to, first, understand the drivers of the flare phenomenon and improve flare forecasting, second, provide a globally accessible flare forecast service scalable enough to facilitate expansion and, third, engage with space weather end users, stakeholders and the public in an effort to raise awareness and educate on the need to predict solar flares and space weather, in general. We attempt an overview of the results of accumulating more than 170 apparent flare predictors extracted by photospheric magnetic field measurements over the past solar cycle and using them as input in 14 supervised and unsupervised machine learning forecast methods. We further brief on project-supported modeling works aiming to highlight potentially promising leads toward forecasting and to link flare activity with coronal mass ejections. We also detail on the recent open availability of the project's data, codes and infrastructure in hopes of avoiding effort duplication in future forecasting efforts. The current state-of-the-art and potentially meaningful actions for the future are also discussed. The project's overview paper is available in arXiv (2105.05993). Results shown have received support by the EU Horizon 2020 FLARECAST project (grant agreement no. 640216).

Student poster?

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