

FLARECAST A Year On: European Scientists Take Focus on Solar Flares

Our modern lives depend on technology: mobile phones to keep in contact with friends and family, navigation systems to find our way around, or satellites to beam television signals into our homes. But from time to time, radiation from the Sun associated with solar flares can cause interruption in these systems. To address this, a team of European scientists has started developing an advanced flare forecasting system, called FLARECAST, to give us advanced warning of radiation bursts from the Sun.

Project web-site: flarecast.eu

Fact sheet and media information: flarecast.eu/media

Just like weather on Earth, the weather in space is not always calm and pleasant. Sometimes space weather can change for the worse, and if a large solar storm impacts the Earth, it can cause hundreds of millions of euro of damage to satellites, communications systems, and power grids.

Turbulent groups of sunspots, many times the size of the Earth, give rise to solar flares that can be potentially harmful to humans and sensitive equipment in space, and cause interferences and blackouts in radio communications and navigation systems here on Earth. Society therefore needs reliable advanced warning of these natural hazards from space.

“Like weather here on Earth, the weather in space is challenging to forecast. We brought together an expert team of solar physicists, computer scientists, machine-learning experts and disseminators from across the continent to meet this challenge head-on and deliver an accurate, reliable and appropriate flare forecasting system for Europe”, said Dr. Shaun Bloomfield, FLARECAST Project Scientist at Trinity College Dublin.

FLARECAST aims to significantly improve the state-of-the-art in predicting solar flares and deliver an online, openly-accessible flare forecasting service with the most accurate forecasts currently available. The project will assemble and evaluate virtually every flare predictor proposed in the past 20 years, pursuing the most eligible combinations as optimal flare predictors. Since the project’s kick-off in January 2015, the team has built a high performance computer cluster to process live streams of solar data from a fleet of NASA and ESA satellites. In parallel, software developers and machine-learning experts are now testing forecasting algorithms that use the latest artificial intelligence

techniques, while solar physicists are making strides to understand how to extract information from solar images that will help improve our ability to more accurately forecast flares of all sizes.

According to the Project Coordinator, Dr. Manolis K. Georgoulis of the Academy of Athens, “We need diverse expertise and ways of thinking to advance solar flare prediction. Focused, targeted diversity is what FLARECAST is all about.”

The FLARECAST project consortium is funded by a €2.4 million award from the European Commission’s Horizon 2020 Programme to develop an advanced flare forecasting system. The consortium includes teams from the Academy of Athens (Greece), that coordinates the project, Trinity College Dublin (Ireland), that oversees the science, the Università Degli Studi di Genova and the Consiglio Nazionale delle Ricerche (Italy), the Centre National de la Recherche Scientifique and the Université Paris-Sud (France), Fachhochschule Nordwestschweiz (Switzerland), and the Met Office (UK).

Media Contact:

Dr. Manolis K. Georgoulis

Senior Researcher, Academy of Athens, Greece.

E-mail: manolis.georgoulis@academyofathens.gr

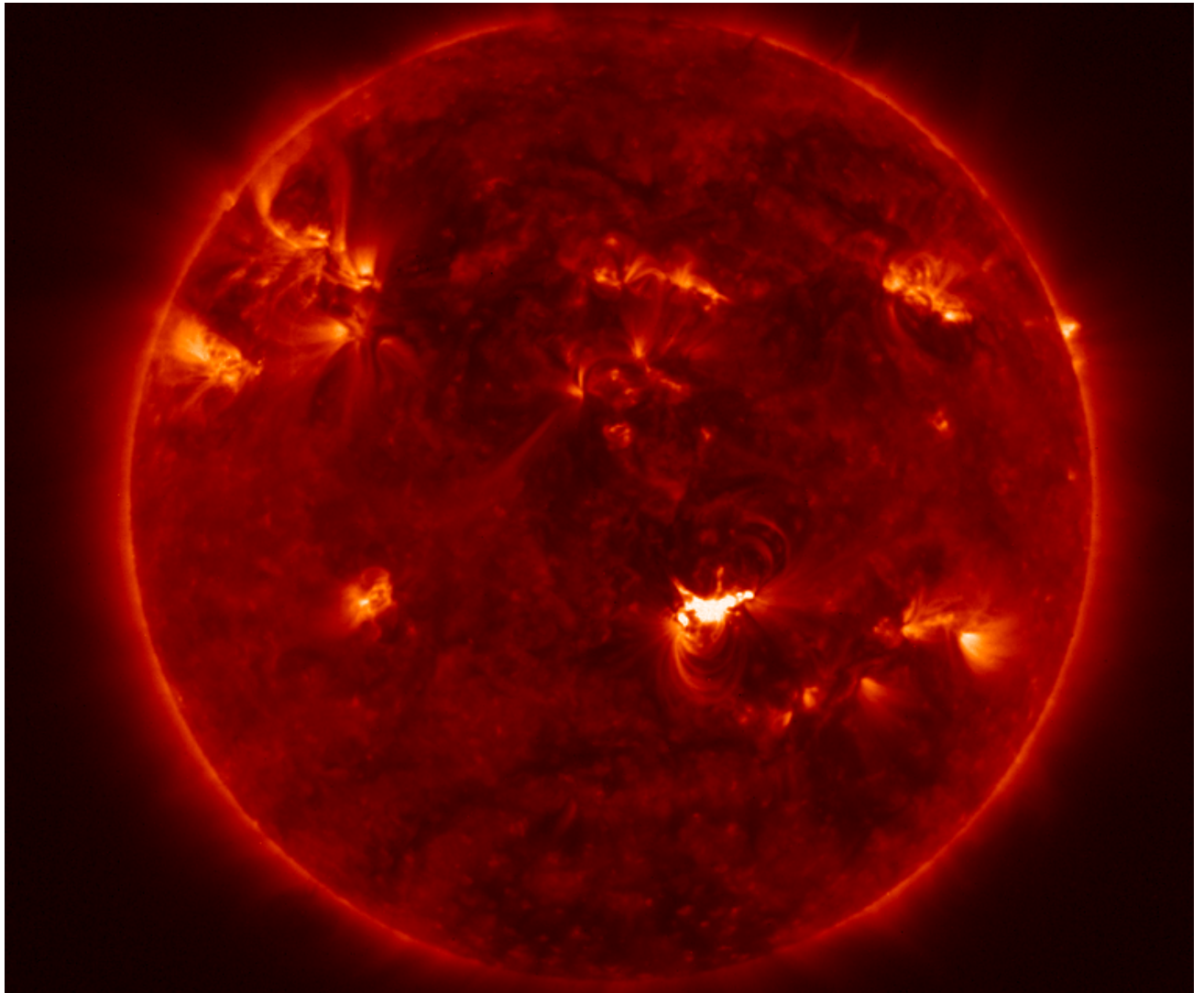
Tel: +30 210 6597103

Dr. D. Shaun Bloomfield,

Senior Research Fellow, Trinity College Dublin, Ireland

E-mail: shaun.bloomfield@tcd.ie

Tel: +353-1-896-3281



Caption: An ultraviolet image of a solar flare observed by ESA's PROBA2 spacecraft. FLARECAST will enable us to forecast when, where, and what size of solar flares will occur on the Sun.