



# Statistics of Solar Flare Activity for Space Weather Predictions

## **Fact Sheet**

**Project Information** 

PREDICTING FLARES

Grant agreement ID: 237645

Project closed

Start date 1 January 2010 3<sup>-</sup>

End date 31 December 2011

#### **Funded under**

Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost No data

**EU contribution** € 168 055,05

Coordinated by THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER MEMBERS OF BOARD, OF THE COLLEGE OF THE HOLY & UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN

### **Objective**

Solar flares are spectacular demonstrations of solar activity, releasing large amounts

of energy from the complex magnetic fields of sunspot groups. Along with coronal mass ejections, solar flares are a major contributor to space weather - the interaction of solar magnetic fields and particles with the Earth's magnetosphere and upper atmosphere. Knowledge of the processes that drive this interaction is of importance not just to solar physics but also to human space endeavour, because space-based technological systems can suffer interruptions, damage, or terminal failure. Understanding the fundamental physics of solar flares is thus of importance in developing accurate and reliable space-weather forecasts. I propose to investigate the statistics of solar X-ray flares as a function of the physical properties of the sunspot groups from which they originate, thus improving our understanding of the physical conditions required for flare activity. These sunspot group flaring distributions will then be developed into a near-realtime flare-prediction tool using Bayesian techniques, providing novel physically motivated probability measures for future flare events. This represents a unique approach to understanding and interpreting the precise physical conditions that result in flare energy release. This work is vital to the European Community as highlighted by the recent Pathfinder Initiative to make sense of complexity and extreme events and ESA's proposed Space Weather Programme. During the fellowship, I envisage developing my grantwriting, student supervision, lecturing, and conference-organising skills. This will diversify and extend my knowledge to a level of professional maturity whereby I can apply for and successfully obtain a tenure track academic post at a European research institute.

### Fields of science (EuroSciVoc) 3

natural sciences > earth and related environmental sciences > atmospheric sciences > meteorology natural sciences > physical sciences > astronomy > galactic astronomy > solar physics

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#### **Programme(s)**

<u>FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)</u>

### Topic(s)

FP7-PEOPLE-IEF-2008 - Marie Curie Action: "Intra-European Fellowships for Career Development"

#### **Call for proposal**

FP7-PEOPLE-IEF-2008 See other projects for this call

#### **Funding Scheme**

MC-IEF - Intra-European Fellowships (IEF)

#### Coordinator

#### THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER MEMBERS OF BOARD, OF THE COLLEGE OF THE HOLY & UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN

EU contribution

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Total cost

No data

Address

## COLLEGE GREEN TRINITY COLLEGE D02 CX56 Dublin

Region

Ireland > Eastern and Midland > Dublin

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation C Website C Participation in EU R&I programmes C HORIZON collaboration network

Last update: 16 July 2019

Permalink: https://cordis.europa.eu/project/id/237645