

PRESENTATION OF THE PROJECT “ERUPTIONS, FLOWS AND WAVES IN SOLAR ATMOSPHERE AND THEIR ROLE IN SPACE WEATHER”

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Outline

We outline a new collaborative project between scientists from the Bulgarian Academy of Sciences (BAS), Bulgaria and the Department of Physics, Kumaun University, Nainital, India. The goal of this project is to investigate the solar eruptions from small-to-large scales and the generation of various types of waves/flows in the solar atmosphere. (<http://195.96.236.245/>)



Team:

Bulgaria: Bulgarian Academy of Sciences:

Space Research and Technology Institute;

Institute of Astronomy and National Astronomical Observatory

India: Department of Physics DSB Campus, Kumaun University;

Aryabhata Research Institute of Observational Sciences (ARIES)



WORK PACKAGES:

WP1: Analysis of eruptive solar prominences and Coronal Mass Ejections (CMEs)

A detailed analysis of eruptions precursors. Investigation of specific morphological and kinematic properties of eruptions and their time evolution. Analysis of the processes leading to destabilization and eruption.

WP 2: Solar flares analysis

Identification of solar flares related to prominence eruptions (from WP1). Obtaining light curves for different wavelengths. Determination of flare loops kinematics in the chromosphere.

WP3: Waves in solar atmosphere and their role in space weather

Calculations of the steady-state waves dispersion law and critical velocity of the flow for occurrence of instability.

WP 4: Space weather: The influence of solar eruptions, flows and waves

Based on the events identified in the other WPs, here an analysis on the occurrence of geomagnetic disturbance, together with determination of the effects in the terrestrial ionosphere and the characteristics of in situ observed solar energetic particles are planned.

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