

Project Details

ROSES ID: NNH06ZDA001N

Selection Year: 2007

Program Element: Focused Science Topic

Topic: Understand how Flares Accelerate Particles near the Sun (i.e., through Shocks and/or Reconnection) and how they Contribute to Large SEP Events

Project Title:

Comparison of Accelerated Particle Populations at 1 AU and at the Sun

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Summary:

We propose to study the flare-accelerated particle population at the Sun using gamma-ray observations from RHESSI, Yohkoh, CGRO, and SMM. These can be compared to particle-acceleration models and to particle measurements in space and at Earth. This is a key element in determining the contribution of flare-accelerated particles to large gradual SEP events, a goal of the LWS-TR&T in preparing for the Sentinels Mission. As an example of this study we discuss a recent RHESSI analysis of the 2005 January 20 event that revealed two distinct accelerated-particle components at the Sun: 1) an 'impulsive' release lasting ~10 minutes with a power-law index of ~3 observed in a compact region on the Sun and 2) an associated release of much higher energy particles with index