

Project Details

ROSES ID: NRA-NNH04ZSS001N

Selection Year: 2005

Program Element: Independent Investigation

Project Title:

The Non-Potential Structure of Active Regions

PI Name: Edward DeLuca

PI Email: edeluca@cfa.harvard.edu

Affiliation: Smithsonian Astrophysical Observatory

Project Member(s):

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Summary:

Longitudinal and vector magnetic field measurements will be combined with coronal images to provide a three-dimensional look at magnetic structure and evolution of active regions. Using archival and new observations with TRACE, ASP and IVM we will apply recently developed magnetic field extrapolation codes and advanced image processing techniques to construct 3-D non-linear force free models of active regions that fit observed coronal structures. Filament channels and flux ropes will be included in such models and compared with observations. The topological properties of the coronal magnetic field are key to understanding the dynamics and stability of the plasma. Our approach offers a comprehensive solution to the active region topology problem with quantitative measurements of the "goodness of fit". Applications to currently available datasets will allow us to develop this technique before the launch of Solar-B and SDO.

Publication References:

no references