

Project Details

ROSES ID: NRA-03-OSS-01

Selection Year: 2004

Program Element: Independent Investigation: LWS

Project Title:

Local Seismology of Solar Dynamics: From MDI to HMI

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Summary:

The Solar Dynamics Observatory (SDO) is the first major mission in NASA's Living With a Star Program, and is scheduled for launch in 2008. One of the major science investigations on board SDO is the Helioseismic and Magnetic Imager (HMI), designed to understand the structure and dynamics of the Sun's interior, especially the variation of magnetic activity, from helioseismic analyses. In this project, we are interested in addressing the following fundamental questions: 1) What is the nature of supergranulation?, 2) What is the subsurface nature of meridional circulation and how does it vary with time?, 3) What is the nature of other large-scale flows and how do they correlate with magnetic activity?, 4) what are the local acoustic properties of the tachocline and how do they vary with time? and 5) what are the local acoustic properties of the solar poles and how do they vary with time? To address these questions, we propose to apply a variety of diagnostic utilities in seismic holography to existing data from the Michelson Doppler Imager (MDI) with the goal of preparing for their routine use with data from HMI/SDO. The goals of this proposed project are designed to further our understanding and predictive capabilities of the solar magnetic variability that influence life and technological systems on Earth.

Publication References:

Summary: "

Reference: Douglas Braun / NorthWest Research Associates, Inc.- Local Seismology of Solar Dynamics: From MDI to HMI