Project Details

ROSES ID: NNH06ZDA001N
Selection Year: 2007
Program Element: Focused Science Topic

Topic: Predict Emergence of Solar Active Regions Before they are Visible

Project Title:
Detection of Emerging Active Regions and Forecast of Their Evolution and Activity by Time-Distance Helioseismology

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Summary:
We propose to develop time-distance helioseismology techniques for the application of detecting emerging active regions before they become visible. Techniques will also be developed for predicting active region growth, decay and maximum activity stage. The work will include development of deep-focus time-distance data analysis methods for imaging weak and rapidly evolving sound-speed structures and mass flows associated with new emerging magnetic flux in the convection zone, monitoring and predicting the growth and complexity of the subsurface structures, and also a search for the deep nests of long-living complexes of activity ("active longitudes") and their relationship to the global circulation of the Sun.

An important goal of this investigation is to develop and deliver software for deep-focus time-distance analysis and inversions of Solar-B and SDO data.

Publication References:

Summary: no summary

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Reference: