VIRGO Science Proposal C4
Facular and p-mode sensitivity of LOI guiding pixels

Main Investigator

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Co-Investigators

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Objectives

Study the effect of faculae and other solar structures rotating over the guiding pixels to evaluate the effect on the p- and g-mode studies with the LOI. Possibly also study the oscillatory modes from the apparent variation of the "radius measurements".

Scientific rationale

The transition of solar structures, especially faculae and sunspots, will influence the guiding pixels and thereby shift the solar image. This effect has to be evaluated to understand the possible effect on the uses of the LOI.

The oscillatory modes will influence both the solar radius and the limb darkening function, this effect will introduce a cross talk to the modes observed with the other pixels of the LOI. This effect has to be evaluated.

Even with the non-optimal sampling of the guiding pixels it may be possible to deduce information about a number of higher degree l-modes than what is directly observable with the other LOI pixels.

The study of the guiding pixel behaviour may probably be used to clarify the question about the claims of mode identification based on the SCLERA observations.

Work plan

The time variation of the signal will be compared with the magnetic maps provided by MDI. In addition the time variation of the polar pixels (with longer rotational transition times) will be compared to the equatorial pixels.

Problem areas

The low resolution of the pixels may make it difficult to discern the effects from specific surface structures.

Responsibilities

T. Appourchaux will provide time series of the guiding pixels. B. Andersen will do the time series analysis and tracing of active regions (with student?).