VIRGO Science Proposal D2
Excitation and spectral properties of p modes

Main Investigator

D.O.Gough

Co-Investigators

T.Appourchaux, A.Kosovichev, T. Sekii, T.Toutain

Objectives

Time sequences of the apparent amplitudes of superpositions of p modes and possibly g modes of a given degree will be used to fit a model of stochastically generated oscillators, yielding not only accurate estimators of the gross properties of the corresponding free oscillations, but also spectral information about the turbulent forcing.

Work plan

The investigation should proceed in the following steps:

- Using at least the LOI, fit the p-mode model using maximum-likelihood estimators.
- Assess the significance of the inferred results.

Outstanding problems

The process of model fitting has not yet been developed to a point at which it can be applied to real data. Research by H-Y Chang and D O Gough is in progress to find a robust iterative scheme. Only low-pass filters of the forcing function are likely to be accessible from the data. How these relate to the actual forcing needs to be investigated.

Responsibilities and Management

T.Appourchaux and T.Toutain will be responsible for generating the time series. T. Sekii will be responsible for fitting the model. D.O.Gough, A.Kosovichev and T. Sekii will be responsible for the scientific interpretation of the data.