Inversion of helioseismic travel times

J. Jackiewicz

Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany
(jackiewicz@mps.mpg.de)

Travel-time measurements of solar seismic waves contain information about subsurface inhomogeneities such as flows. Time-distance helioseismology is a tool to interpret these travel times using forward and inverse modeling. We will present a fully-consistent method for measuring travel times of high-resolution solar Doppler data, computing finite-frequency travel-time sensitivity kernels, and finally inverting the travel times to obtain near-surface maps of three-dimensional flows. An important component of this multi-step procedure is the accurate estimation of both the spatial resolution and the noise levels in the resulting flow maps.