

# Evaluation of aspherical models from an analysis of quasi-Stoneley modes of the Earth's free oscillations

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Retrieving 3-D structural anomalies in the lowermost mantle is crucial for elucidating dynamics of the Earth's interior. In this study from an analysis of global broadband seismic records by using the Sompi method (Hori et. al. 1989), we obtained complex frequencies of 4 spheroidal modes, 1S8, 1S9, 1S10 and 2S16, which are called quasi-Stoneley modes (Kumagai et al. 1992), and are primarily sensitive to the structure around the core-mantle boundary. We used VHZ channel records of 77 low-noise stations of IRIS/GSN and GEOSCOPE networks for 6 great earthquakes, and made about 100 observations for each mode except for 2S16, identification of which is now under consideration.

Firstly we compared upper and lower limits of observed frequencies with those calculated from three existing aspherical models. Observations by Kumagai et al. (1992) showed wider frequency ranges than those from the aspherical models. However, our observations are rather consistent with the aspherical mantle models M84 (Woodhouse & Dziewonski 1984) and L02.56 (Dziewonski 1984) in spite of a larger amount of data. Since our data are more reliable both quantitatively and qualitatively than those of the previous study, further analyses of complex frequencies should give us better and stronger constraints on structure of the lowermost mantle.

In the presentation, we will compare splitting functions retrieved from our data with those from recent seismological models.