Improving global shear-wave tomography by employing a three-dimensional ray tracing algorithm

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An attempt to improve whole mantle shear-wave tomography has been conducted by using a three-dimensional ray tracing algorithm and a global arrival-time data set with high quality (Engdahl et al., 1998).

The three-dimensional ray tracing code used in this study is based on a 'pseudo-bending' approach developed by Koketsu and Sekine (1998).

At first glance, the resulting model looks similar to a model derived by employing one-dimensional ray tracing (Widiyantoro et al., 1998).

Some differences develop in the lowermost mantle due to bending of rays resulting from the three-dimensional ray tracing.

Detailed comparisons of these models along with the results of resolution tests will be presented at this meeting.

Most of the existing three-dimensional global models based on arrival-time tomographic imaging have been derived by employing one-dimensional ray tracing algorithms.

Here, an attempt to improve whole mantle shear-wave tomography has been conducted by using a three-dimensional ray tracing algorithm and a global arrival-time data set with high quality (Engdahl et al., 1998).The three-dimensional ray tracing code usd in this study is based on a 'pseudo-bending' approach developed by Koketsu and Sekine (1998).

A long wavelength shear model (the SAW12D model developed by Li and Romanowicz, 1996) has been used as a starting model for the three-dimensional ray tracing.

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Detailed comparisons of these models along with the results of resolution tests will be presented at this meeting.