

A parallelization method for travel time tomography

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A scheme of parallel computation for travel-time tomography is proposed. The efficiency of the scheme is proved by the examination using synthetic data.

The local tomography using the Ichigenka(JMA) travel-time data provide the background image of velocity structure for denser surveys. The number of hypocenters per station and the total number of available pair of the hypocenter for Double-Difference method have increased. I developed a scheme of the parallel calculation which has the following property for much amount of both absolute and relative travel-time data.

(1) The calculation of ray belonging common station is defined as an unit for the parallelization. Therefore, the DD matrix is also calculated in parallel.

(2) Fast Marching Method(Sethian and Popovici, 2001) is used for the ray-tracing.

The detail of examination and the result will be presented in the poster.