

## Tomographic imaging of the upper mantle structure beneath the Japanese Islands

Junichi Nakajima<sup>1\*</sup>

<sup>1</sup>Tohoku University

Since late 1990s, a dense nationwide seismograph network has been constructed in the Japanese Islands with an average station separation of  $\sim 20$  km, which has produced the highest quality data in the world and contributed to enhance the understanding of seismotectonics and volcanotectonics there. Travel-time tomography using such high-quality data has the upper mantle structure beneath the Japanese Islands. Nakajima et al. (2001) revealed the existence of an inclined low-velocity zone in the mantle wedge of NED Japan, which is distributed sub-parallel to the down-dip direction of the Pacific slab. Later, Hasegawa and Nakajima (2004) pointed out a spatial correlation of the distribution of Quaternary volcanoes with the mantle upwelling flow and proposed a model of arc magmatism based on the seismological observations. A large upwelling in the upper mantle was revealed in the Chugoku district and it is considered to be the origin of Quaternary volcanism there (Nakajima and Hasegawa, 2007). This upwelling can explain high  $^3\text{He}/^4\text{He}$  observed in the Kii peninsula and along the coastline of the Japan Sea.