

## 関東地方と東北地方南部におけるP波 $t^*$ の推定

### Spatial Variations of P wave $t^*$ in the Kanto and southern Tohoku regions

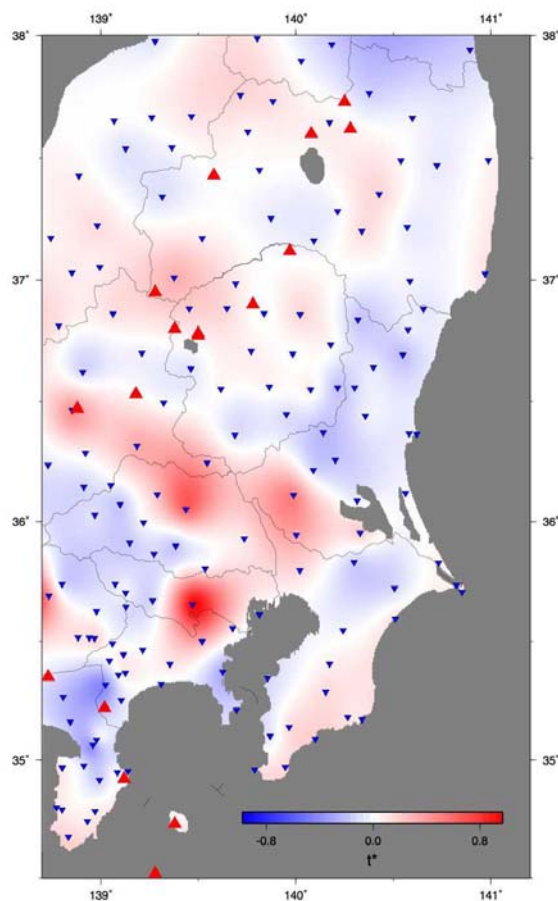
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We estimated the spatial variations of the seismic parameter  $t^*$  using teleseismic (epicentral distances between  $30^\circ$  and  $90^\circ$ ) P wave spectra for 15 deep (focal depths  $> 200$  km) earthquakes recorded at 154 Hi-net stations in the Kanto and southern Tohoku regions, Japan. We closely followed the approach of Hwang et al. (2009). The good-quality vertical-component seismograms were selected by visual inspection, whose P phases were hand-picked and Fourier-transformed. We thus determined the relative P wave spectral ratios up to 1 Hz for all the station pairs with high signal-to-noise ratios, which were inverted for  $t^*$  by least squares inversion. The inversion was carried out with the constraint that the average of  $t^*$  is zero. It is shown (see Figure) that high  $t^*$  (high attenuation) is partly correlated to the active volcanic areas. Localized high  $t^*$  areas are also found in the central part of Kanto, whereas low  $t^*$  dominates in the eastern parts of Kanto and southern Tohoku. This  $t^*$  pattern seems consistent with  $Q^{-1}$  structures proposed by previous researches based on local event data, such as the result of Sekine (2005) for high-frequency (around 5 Hz) P wave  $Q^{-1}$  at depths of around 40 and 65 km.



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#### References:

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Sekine (2005), Rep. Nat. Res. Inst. Earth Sci. Disast. Prev., 68, 137-174.

Figure: Variation of  $t^*$ . Red and blue colors denote positive and negative  $t^*$  (sec), respectively. Red triangles and blue reverse triangles indicate active volcanoes and the Hi-net stations, respectively.

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