Tectonic implications on the 2018 Hualien Earthquake

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SUPPLEMENT

The damped values that we tested in our velocity inversion was determined by following the approach proposed by Eberhart-Phillips (1986) and Wu et al. (2007). The damped values of 20 for Vp and 10 for Vp/Vs ratio were selected carefully by calculating with a range of damped values to investigate the tradeoff between data residuals and model variances (Eberhart-Phillips 1986; Wu et al. 2007; Huang et al. 2014). The damping and smoothing parameters were selected according to the gird search method to obtain sensible results in our inversion.

In this study, a trial and error method was also adapted to choose multiple sets of damping parameters that later can be employed into the inversion procedure to obtain appropriate velocity value. Since the primary aim of this approach is to find a damping value with minimum RMS residual. By numerous attempts (see Fig. S1), the values of 20 and 10 were selected as the optimal combination of damping parameters for Vp and Vp/Vs ratio respectively. We concluded that the damped parameters we chose are relatively stable in obtaining rational checkerboard, and more importantly to attain well resolved Vp and Vp/Vs images.

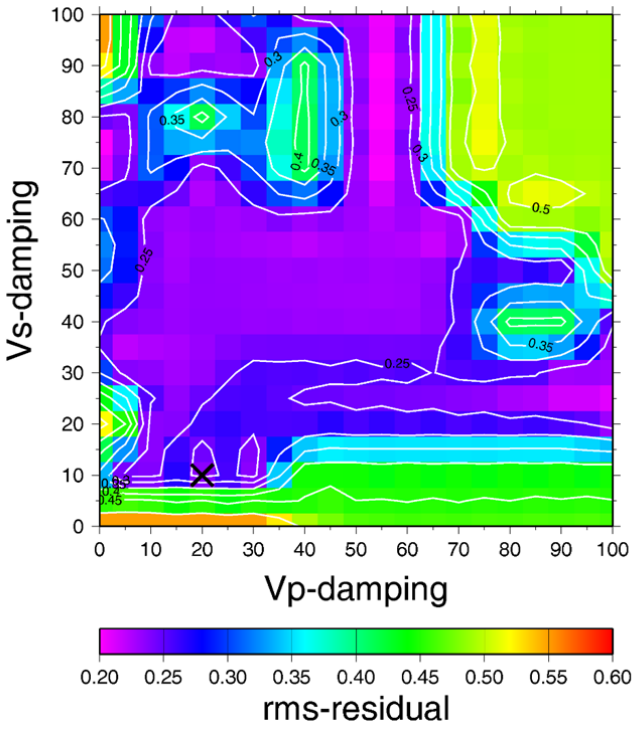

Fig. S1. The plot of the Vp, Vp/Vs ratio damping parameters and the RMS residual with the contour.

REFERENCE

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