Supplementary Document S1

S1. Conversion of Published Finite-Fault Models

S1.1. Common format

The eight published finite-fault models were converted into rectangular dislocations for the calculation of Sun et al. (2009). doi:10.1111/j.1365-246X.2009.04113.x.

Each dislocation was specified by nine parameters: latitude, longitude, slip, rake, depth, strike, dip, length, and width.

The units were degrees, degrees, m, degrees, km, degrees, degrees, km, and km, respectively. Latitude, longitude, and depth refer to the geometric center of each rectangular patch. Depth is positive downward.

S1.2. USGS model

Source: USGS NEIC finite-fault model, version 5; numerical data (FSP).

The model contains 465 rectangular patches (20 × 10 km) in three segments (186, 186, and 93 patches).

Patch-center coordinates, depth, slip, and rake were taken directly from the FSP data. Strike, dip, length, and width were obtained from the corresponding segment headers.

S1.3. Liu model

Source: Liu et al. (2026); Zenodo data repository.

The model contains 405 rectangular patches (25 × 15 km) in five segments.

The published patch-center coordinates, depth, strike, dip, and rake were used directly. Slip was converted from cm to m.

S1.4. Himematsu model

Source: Himematsu and Munekane (2026); numerical data; data format description.

The model contains 482 rectangular patches.

The published patch-center coordinates, strike, dip, slip, and rake were used directly. Depth was converted from negative-downward meters to positive-downward kilometers. Length and width were converted from m to km.

S1.5. Xiao model

Source: Xiao et al. (2026); Zenodo data repository.

The published coseismic slip model contains 1,120 rectangular patches (56 × 20 grid).

The published patch-center coordinates, depth, length, width, strike, dip, slip, and rake were used directly.

S1.6. Fujii model

Source: Fujii and Satake (2026); original article.

The DART-only solution was used. It contains 24 rectangular patches, each measuring 100×50 km. Strike and rake are 218° and 90°, respectively.

The published coordinates refer to the easternmost corner of the upper edge. They were converted to the geometric center of each patch using WGS84 geodesics.

From the published corner, the horizontal position was shifted by $L/2$ along strike, followed by $(W/2)\cos\delta$ in the down-dip direction (azimuth: strike +90°).

The center depth was calculated as

$$d_c = d_t + \frac{W}{2}\sin\delta, \tag{1}$$

where d_t is the upper-edge depth, W is the patch width, and δ is the dip.

This conversion was applied to obtain the patch-center coordinates required by Sun et al. (2009).

S1.7. Ishijima model

Source: Ishijima and Watada (2026); Figshare supplementary data.

The preferred unweighted solution was used.

The model uses the same 24-patch geometry (100×50 km) as Fujii and Satake (2026). The patch centers were calculated using the procedure in Section S1.6, and the published Ishijima and Watada slip values were assigned to the corresponding patches.

S1.8. Tang model

Source: Tang et al. (2026); Figshare supplementary data.

Model C was used. It contains 108 quadrilateral fault patches.

Each quadrilateral was approximated by one rectangular patch. The published center coordinates, depth, strike, dip, slip, and rake were retained.

The rectangle length was set to the mean three-dimensional length of the two along-strike edges:

$$L = \frac{L_1 + L_2}{2}. \tag{2}$$

The width was calculated from the published patch area A:

$$W = \frac{A}{L}. \tag{3}$$

This approximation was used to preserve the area and integrated slip of each patch.

The maximum area difference was 2.3×10^{-13} km^2. The maximum angular difference between an along-strike edge and the published strike was 3.23°.

S1.9. Yagi model

Source: Yagi et al. (2025); Zenodo data repository.

The main solution `results_20250804-155033` was used, with strike 218° and dip 16°.

The original slip field is defined by 22×8 spatial nodes, with spacings of 25 km along strike and 22 km down dip.

First, the final slip s and rake λ at each node were converted into strike-slip and dip-slip components:

$$s_{\text{strike}} = s \cos \lambda, \qquad s_{\text{dip}} = s \sin \lambda. \tag{4}$$

Each component was reconstructed by piecewise bilinear interpolation. Zero-valued nodes were added one node spacing outside the original grid to reproduce the published spatial tapering.

The reconstructed slip field agreed with the published high-resolution field, with a maximum sampled difference of 4.8×10^{-5} m.

The original 550×176 km fault area was divided into $55 \times 18 = 990$ rectangular patches, each measuring 10.0×9.7778 km.

For each rectangle, the two slip components were averaged over the patch area:

$$\overline{s}_{k,j} = \frac{1}{A_j} \int_{A_j} s_k(x, y) \, \mathrm{d}A. \tag{5}$$

The integral was evaluated using two-point Gauss–Legendre quadrature in each direction, splitting the integration region at the original interpolation nodes.

Area averaging was used to preserve the integrated slip-vector potency.

The averaged components were converted back to slip amplitude and rake. The center latitude, longitude, and depth were interpolated from the published high-resolution geometry.

The total strike-slip and dip-slip potencies were conserved to the reported numerical precision:

$$P_{\text{strike}} = -7.011262 \times 10^4 \text{ km}^2 \text{ m}, \tag{6}$$

$$P_{\text{dip}} = 4.183140 \times 10^5 \text{ km}^2 \text{ m}. \tag{7}$$