Supplement of Nat. Hazards Earth Syst. Sci., 26, 651–673, 2026
https://doi.org/10.5194/nhess-26-651-2026-supplement

Natural Hazards and Earth System Sciences
Open Access

Supplement of

Coseismic surface rupture probabilities from earthquake cycle simulations: influence of fault geometry

Octavi Gómez-Novell et al.

Correspondence to: Octavi Gómez-Novell (ogomez.novell@igme.es)

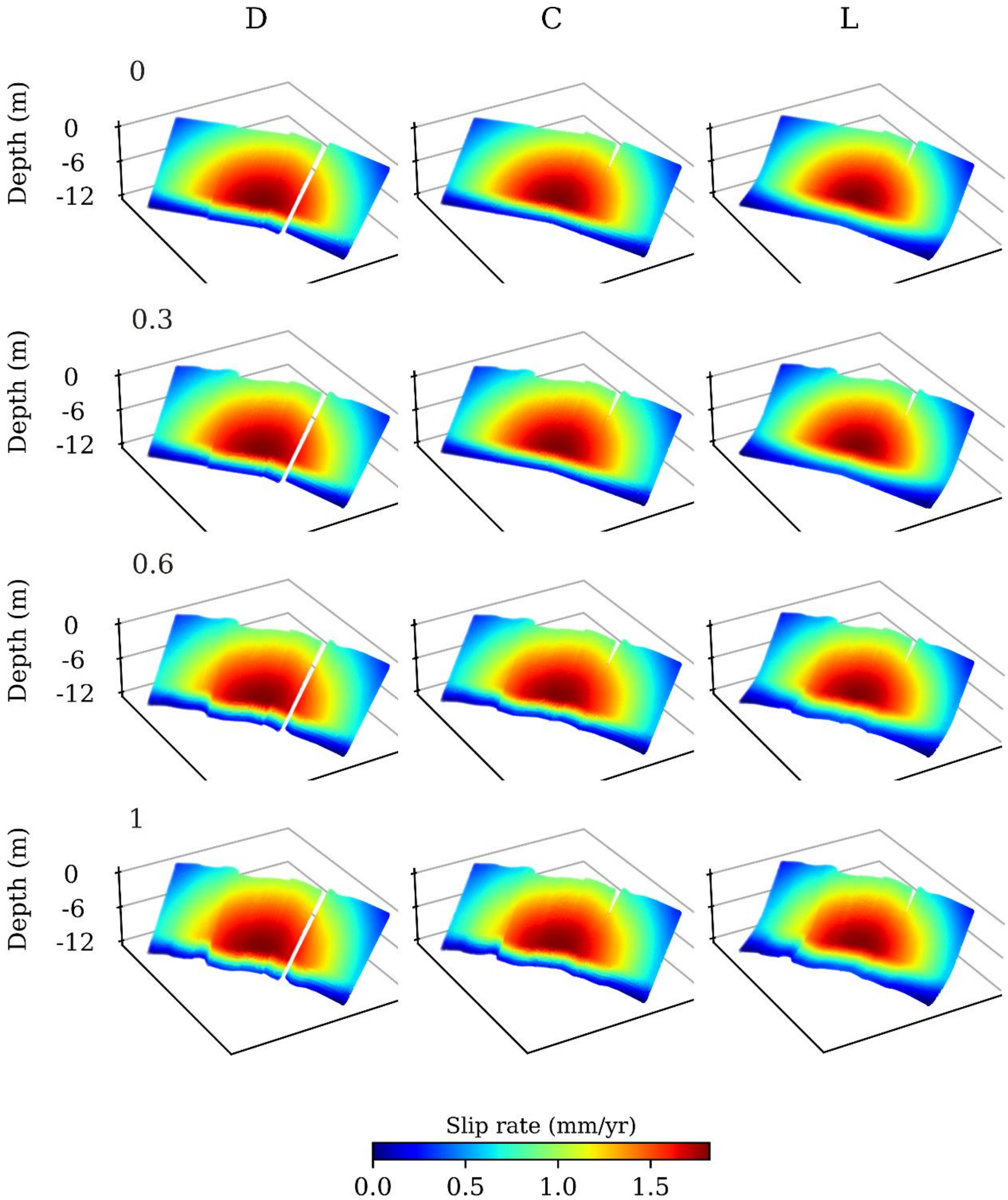

Figure S1. Same as figure 3a of the article (slip rate distribution on the fault) but for all models explored in the study. Columns group models with the same depth connectivity level and dip, and rows group models with the same trace sinuosity level.

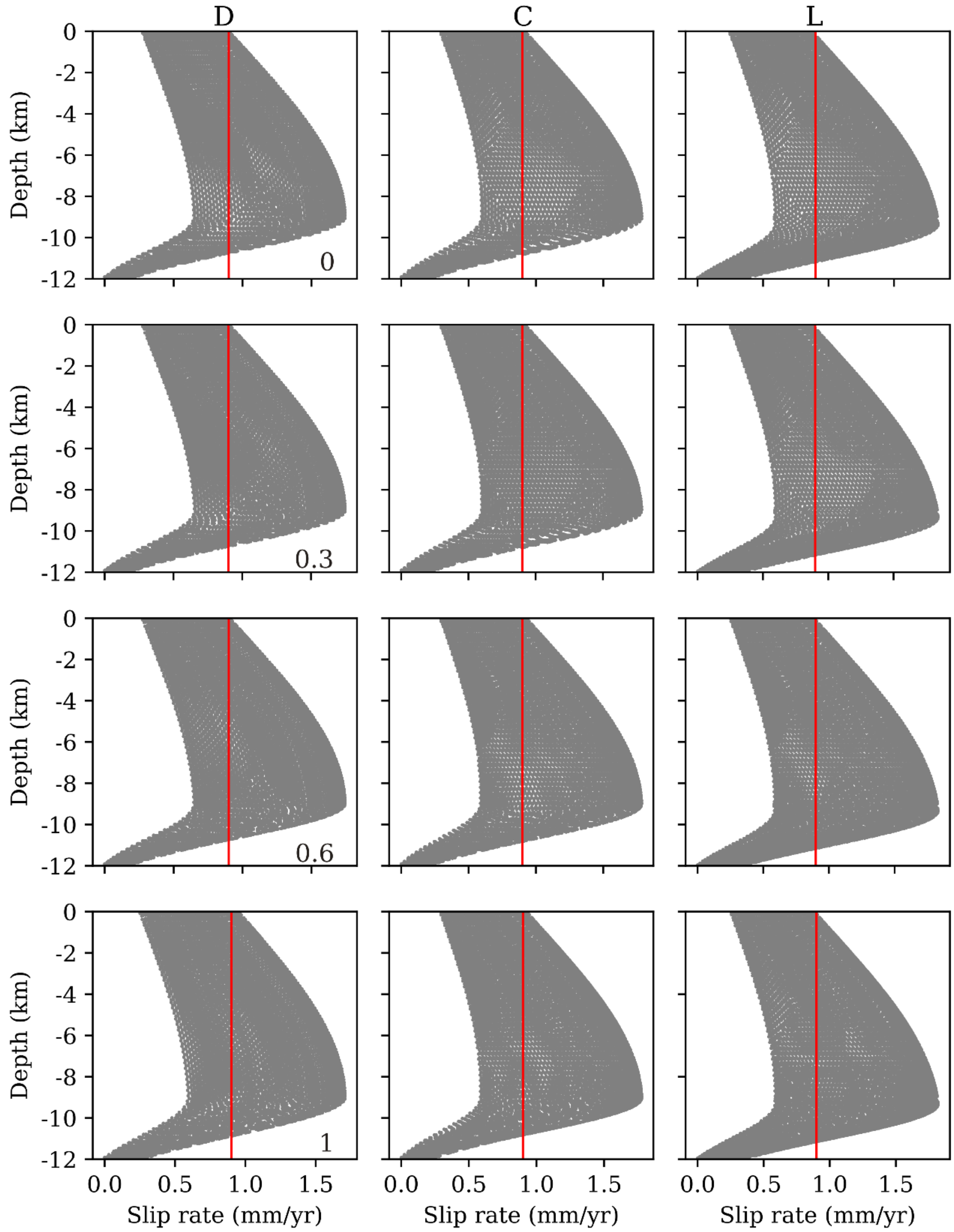

Figure S2. Same as figure 3b of the article (down-dip slip rate distribution) but for all models explored in the study. The column-row configuration is the same as in figure S1.

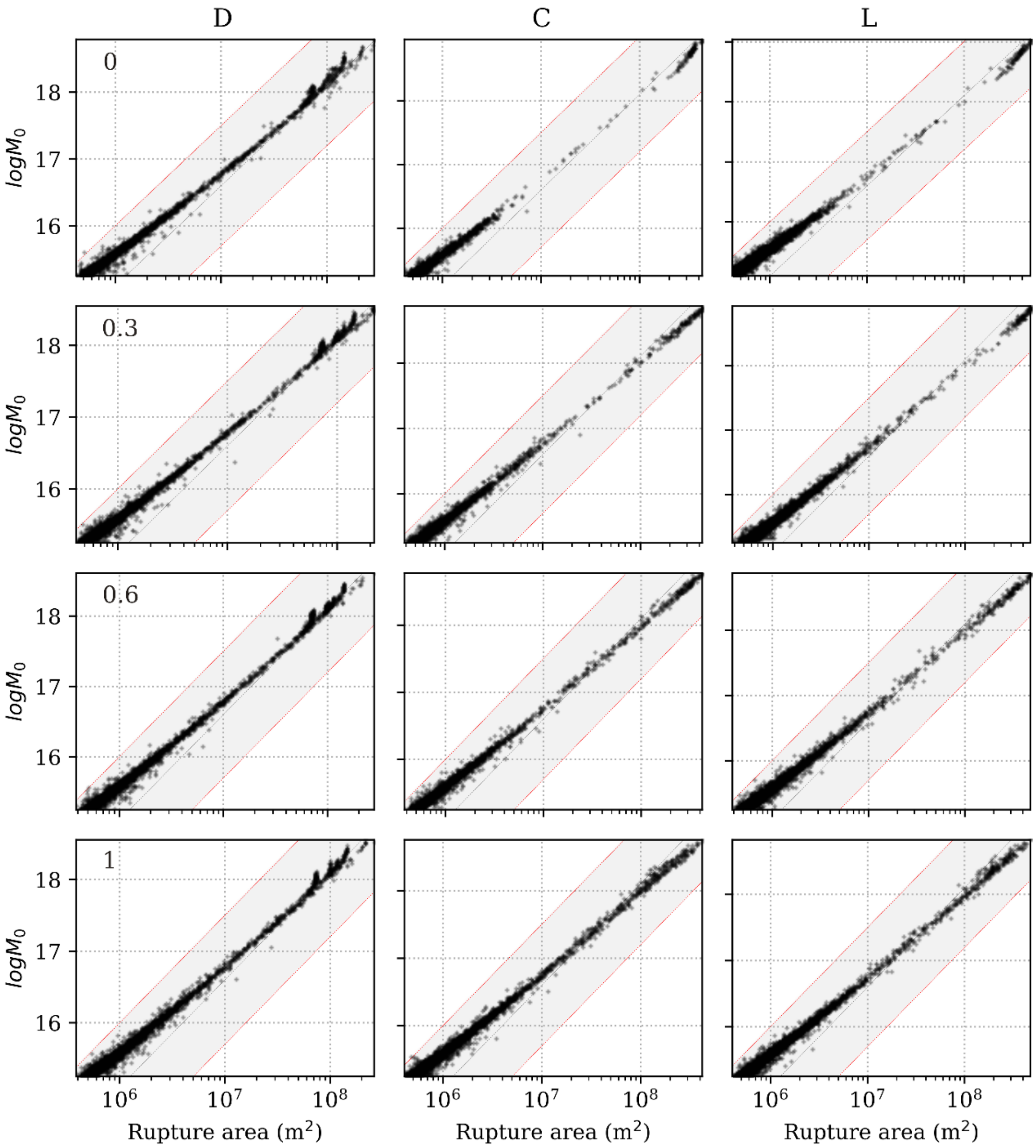

Figure S3. Same as figure 5 of the article but for all models explored in the study. The column-row configuration is the same as for figures S1 and S2.

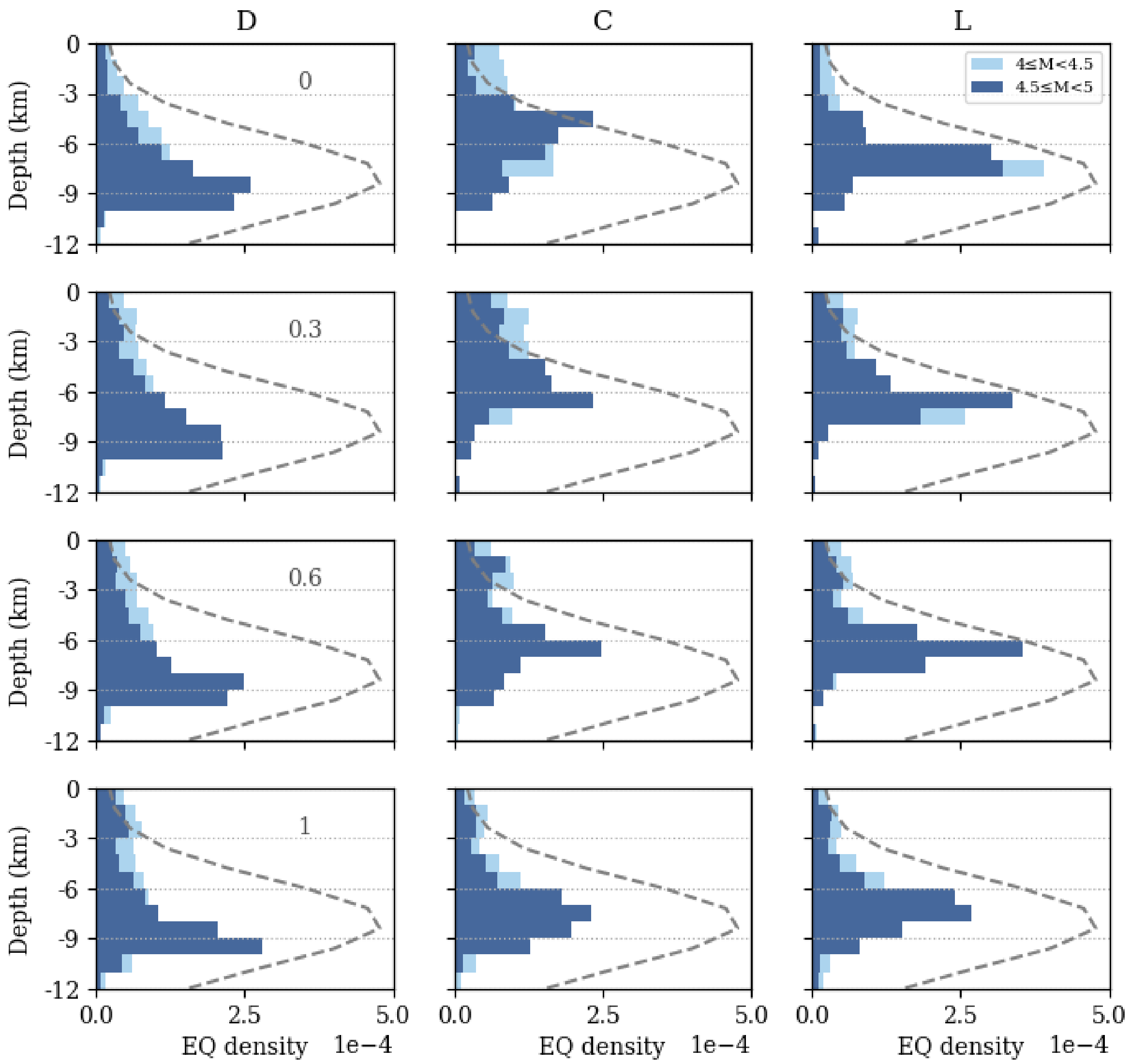

Figure S4. Same as figure 6 of the article but for Mw between 4 and 5. The column-row configuration is the same as for figures S1 and S2.

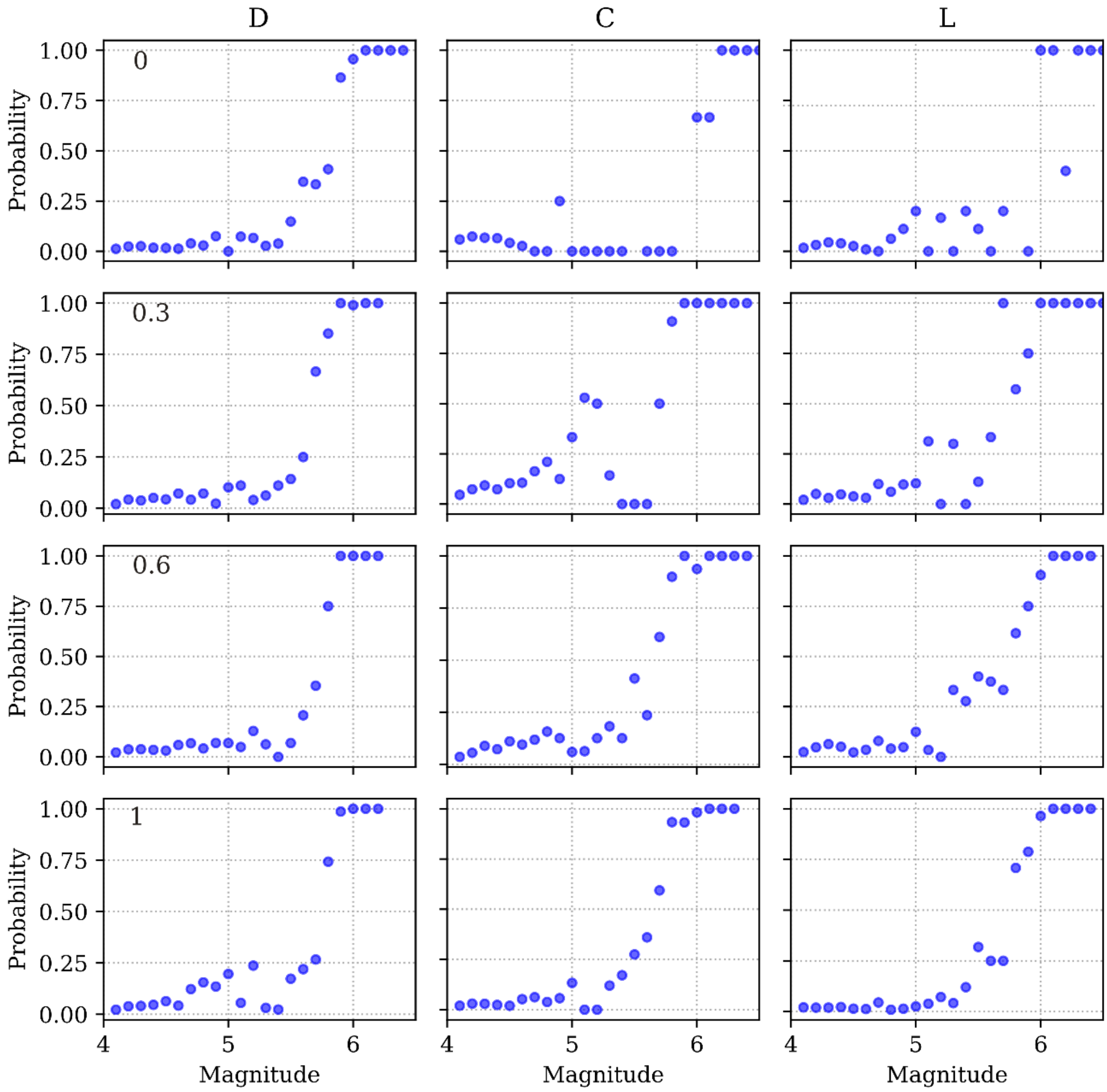

Figure S5. Magnitude-dependent surface rupture probability data for each model used to fit the logistic regressions shown in figure 9 of the article and figure S5 of this document. The column-row configuration is the same as for the previous figures

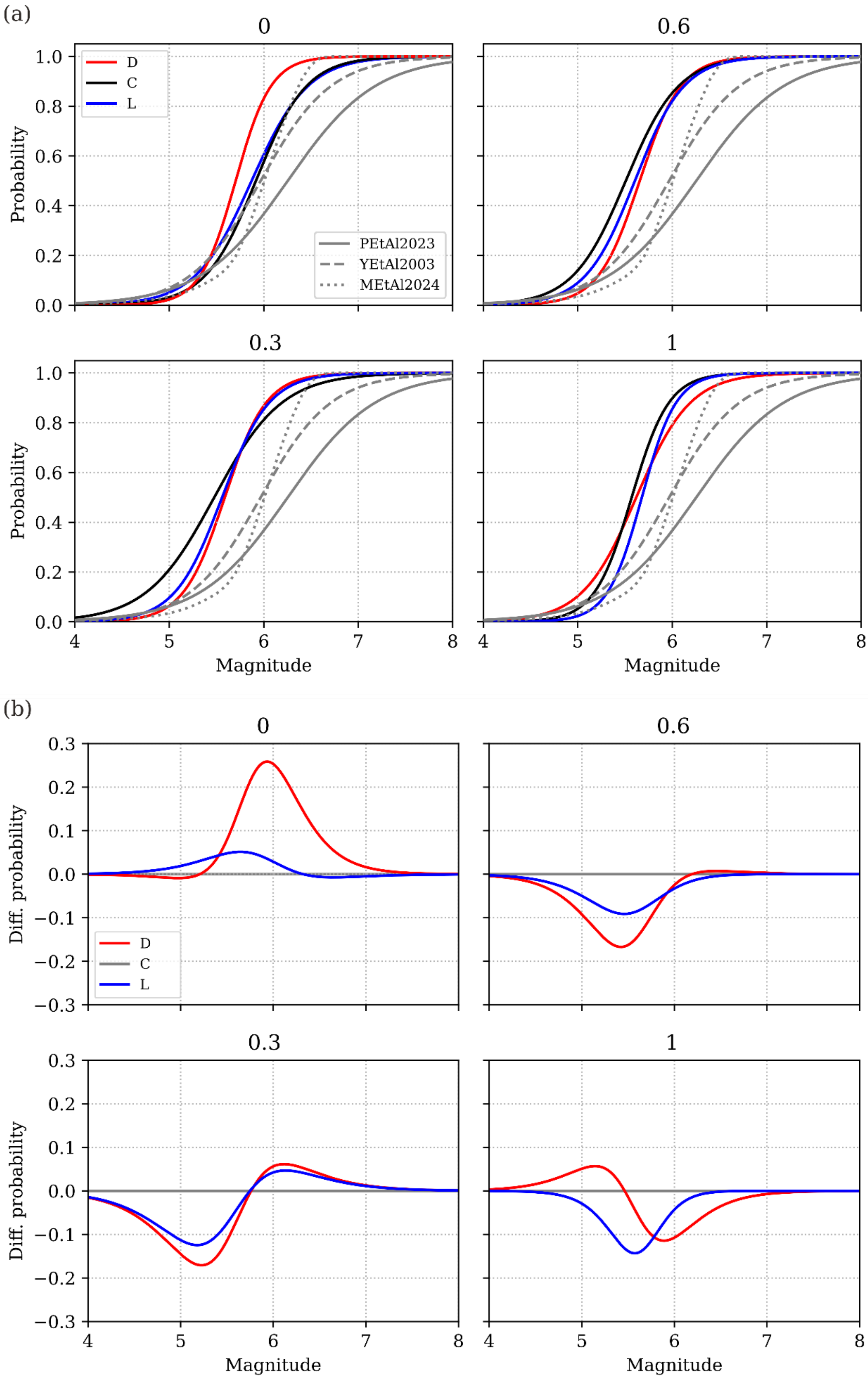

Figure S6. Same as figure 9 of the article but the models are grouped by same sinuosity level and differences are computed taking the connected constant model as reference.

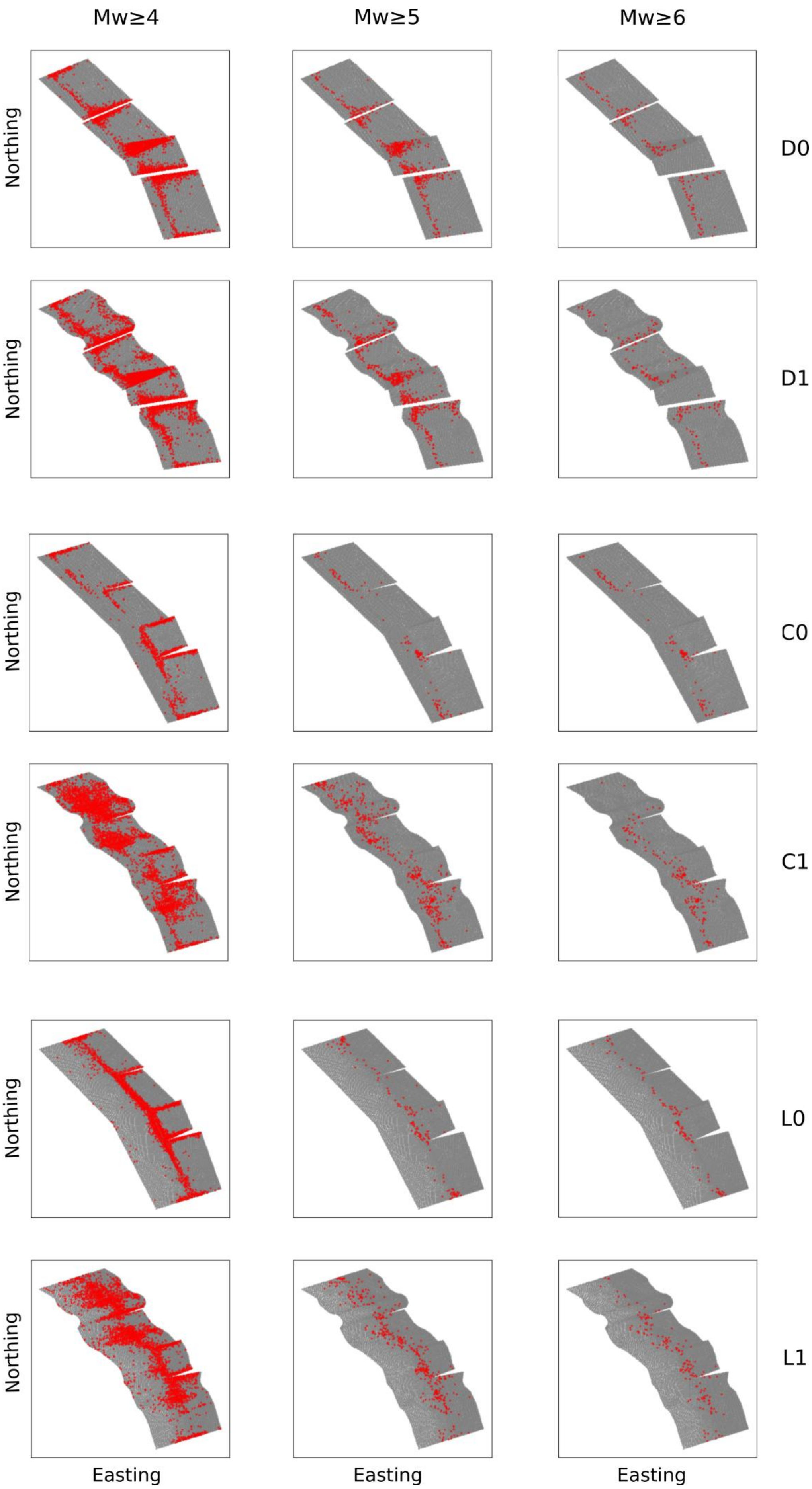

Figure S7. Earthquake hypocenter locations (red dots) on the fault plane surface projections of the two end sinuosity models of each connectivity model (D, C and L), for three different magnitude thresholds (Mw≥4, ≥5 and ≥6).

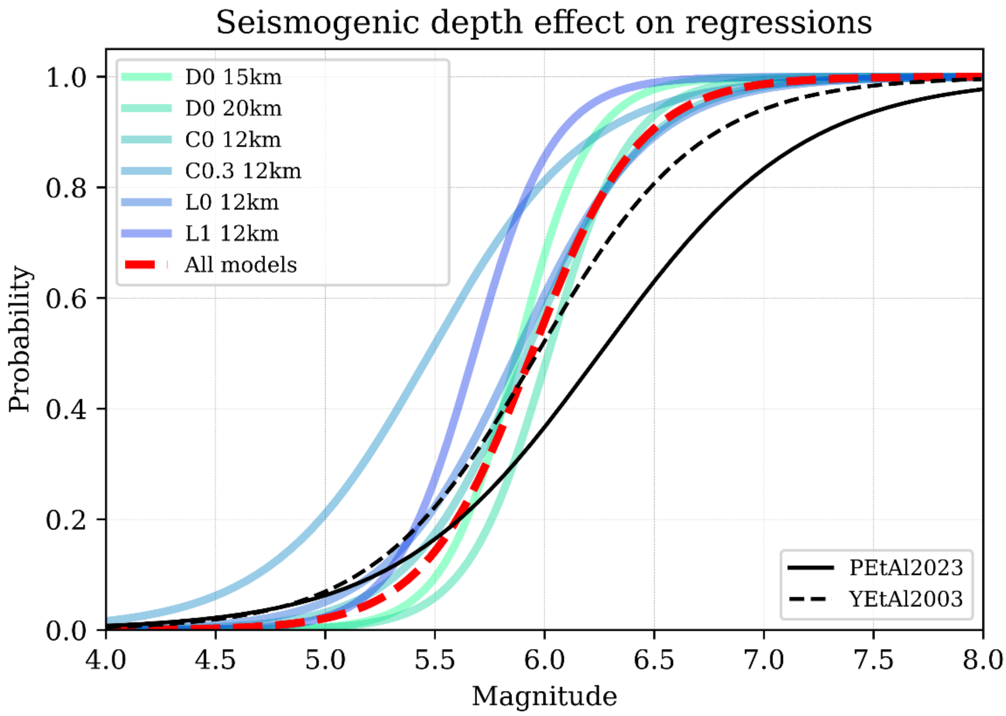

Figure S8. Regressions of surface rupture probability of models with different geometric assumptions and seismogenic depth values. We also show the regression from a pooled catalogue dataset of all models to approximate large-scale empirical analyses. These regressions are confronted with empirical regressions by Pizza et al. (2023) (PEtAl2023) and Youngs et al. (2003) (YEtAl2003).

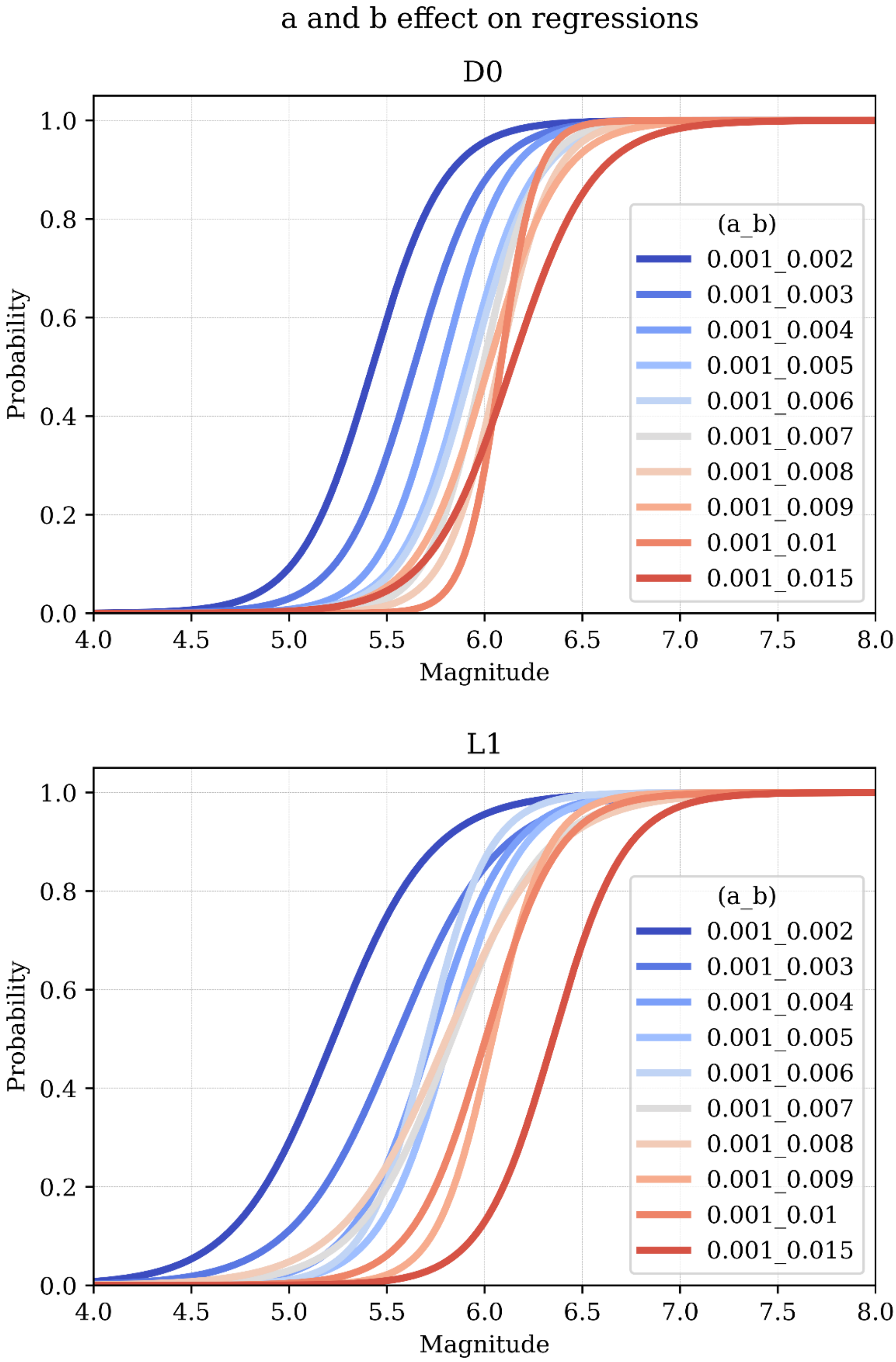

Figure S9. Regressions of surface rupture probability of the two-end member models of fault connectivity and sinuosity explored in the study considering different values of the rate and state coefficients *a* and *b*.