Fault parameters of outer-rise faults in the Japan Trench

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This database contains 33 fault parameters for outer-rise faults in the Japan Trench created by research of JSPS KAKENHI Grants JP15H05718 and published by Baba et al. (2020, https://doi.org/10.1029/2020JB020060). In a directory named "FaultParameters", you find ten directories in Table 1 that include 33 basic fault models and these derived models.

Table 1. Contained fault parameters.

Directory name	Content
fault_basic:	Basic fault models, single rectangular shape with dip of 60º, uniform slip amount
fault_dip45	Derived model 1, the dip angle was set at 45º.
fault_dip75	Derived model 2, the dip angle was set at 75º.
fault_dip75-45	Derived model 3, the fault consisted of an upper half with a 75º dip and a lower half with a 45º dip.
fault_sf	Derived model 4, a set of small subfaults approximately 40-50km long
fault_scale2	Derived model 7, other earthquake scaling law 2
fault_scale3	Derived model 8, other earthquake scaling law 3
fault_htr1	Derived model 9, heterogeneous slip model 1
fault_htr2	Derived model 10, heterogeneous slip model 2
fault_htr3	Derived model 11, heterogenous slip model 3

Please refer to Baba et al. (2020) for detailed explanations of the faults.

Fault parameters are formatted by JAGURS input, such as

38.170822 144.027648 0.100000 45.846741 45.846741 60.000000 180.243560 270.000000 0.419974

The columns are defined by:

Column 1:   Lat   ... fault reference point in latitude

Column 2:   Lon   ... fault reference point in longitude

Column 3:   Depth   ... depth from surface (km)

Column 4:   Length   ... length of fault (km)

Column 5:   Width   ... width of fault (km)

Column 6:   Dip   ... angle (º)

Column 7:   Strike   ... direction (º)

Column 8:   Rake   ... slip angle (º)

Column 9:   Slip   ... amount of slip (m)

The fault origin is one of the two shallow endpoints of a rectangular fault. When we look at the strike direction from the fault origin, the fault declines to the right.

In a directory named "FaultMapsForBasicModels", you find images that project the 33 basic faults on maps.

We could not all data used in Baba et al. (2020) because of limited disk space. But we are happy to share all products, both input and output dataset, with you. Please contact us if you are interested in the study.