

## New database of active faults of Eurasia

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### Abstract

Active faults are those that demonstrate records of tectonic movements in the Late Pleistocene and Holocene. The authors have finished compiling of new database of active faults of Eurasia (NDAF) in 2019. The NDAF accumulates the data of many researchers in a uniform format and includes more than 20,000 objects (faults, fault zones, and associated structural forms) that can be shown in scale 1:500,000. The NDAF contains justifying and estimated attributes of each object. The justifying attributes are: the object's name, morphology, kinematics, magnitudes of displacement for different periods of time, displacement rates estimated from the amplitudes, age of the latest records of activity, data on seismicity and paleoseismicity, sources of information, and other obtained data on the faults. The estimated attributes are represented by a system of indexes reflecting the fault kinematics according to the structural geology classification, three ranks of the Late Quaternary movement rates and four degrees of reliability of identifying the structures as active ones. With reference to the indexes, the objects can be compared with each other and correlated with any other digitized information in any GIS software. The NDAF format allows addition of new information, as well as update and revision.

Principles, methods and tasks of using the NDAF computer processing for neotectonic and geodynamic tasks are discussed. As the examples, some results of this processing are represented. The comparative analysis of active faults of different tectonic provinces of the Caucasus-Anatolian segment of the Alpine-Himalayan Mobile Belt gives a possibility to revise the Late Cenozoic kinematics of the provinces. For the whole central Alpine-Himalayan Belt, variations of directions of axes and values of lateral lengthening and shortening are calculated for estimation of peculiarities of tectonic flow of the upper crust. The distribution of shear deformation is calculated for estimation of parameters of rotation of crustal blocks. The NDAF and results of its processing are important for seismic hazard assessment.

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