

Mathematical methods of obtaining fault-slip data from borehole cores oriented by reference grooves or bedding attitudes

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We describes the mathematical methods of conversion from the fault-slip data measured from a core with an arbitrary attitude in a laboratory to the data with the attitude of the rock before the core was drilled.

Faults or shear fractures are sometimes observed in borehole cores. Fault-slip data from those samples can be used to understand (paleo) stress states at depths. The data conversion uses a rotation matrix from the laboratory data to the in-situ ones, where the matrix is determined from the orientation of the core axis and attitude of the reference groove of an oriented core or from the orientation and bedding attitude in the sampling horizon and that in an unoriented core.