Improved resolution of the multiple inverse method by the regularity/singularity test of the subsets from the fault-slip data

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The multiple inverse method (Yamaji, 2000) is a numerical technique designed to separate stresses from heterogeneous fault-slip data. The method is one of the resampling methods based on the pattern recognition. Plotting solutions determined from k-fault subset into the parameter space, we have clusters representing significant stresses for the dataset. Otsubo and Yamaji (2006) presents a technique to improve the resolution of stress for the method. The regularity/singularity test of the subsets taken from the fault-slip data is the key for this purpose. The resolution and accuracy of the method are improved by eliminating erroneous stresses or artifacts that were yielded by the method. The performances of the method are demonstrated with a variety of artificial datasets.