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Multiple geodetic data combination to obtain 3D displacement fields: the 1999 Hector Mine earthquake case.

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Spatially quasi-continuous three-dimensional surface deformation mapping can not be retrieved using only a single geodetic technique. Using the excellent dataset spanning the 1999 Mw7.1 Hector Mine earthquake (California, USA), we calculated deformation measurements with almost every current modern available geodetic technique. Then, we have performed a weighted adjustment of the 5 different deformation datasets to obtain a near spatially continuous co-seismic three-dimensional surface deformation field due to the earthquake. Finally, we evaluated the resolvability of the different and the jointed dataset in terms of co-seismic distributed slip models.