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The modern plot and use of the regional pattern of damage (intensity) of 6 May 1976

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We homogeneized the Italian, Austrian and Slovenian macroseismic catalogs of the main shock, and obtained a data set of 1796 point intensities (including degree I and the "felt"). 23 data are statistical outliers and were therefore excluded from the set. The intermediate values, as VI-VII, were rounded to the higher value to respect the concept of the macroseismic scale, which is built in steps corresponding to integer degrees. We then contoured the data with the technique of n-n isoseismals, which uses the concept of the natural neighbors. The result is a picture - without filters or interpretations - quite different from the isoseismals hand-drawn in 1976. The image shows areas with intensity a bit higher or lower than an isotropic attenuation; hypothetically, these anomalies may be due to source, path or site effects. Then, we performed the automatic geophysical inversion (with the KF-NGA technique) of all point intensities within the distance of 90 km from the epicenter. Thus, it is supposed that body waves (treated by the KF model) prevail. We are of course aware that there are many reliable fault-plane solutions already available, based on instrumental measurements. We did this exercise especially to understand how the KF-NGA technique behaves in the case of a relatively modern earthquake, with intensities containing presumably some local effects. The best solution has a fit of 534 (sum of squared residuals on 833 data processed) and shows an Alpine style, with a strike nearly east-west (266°), with a dip of 53° toward the north and a predominantly dip-slip mechanism. The angle of rake has a strike-slip dextral component (71° rake). We know of course that the earthquake had a reverse mechanism, but the KF-NGA technique has a $\pm$ 180 ° intrinsic ambiguity. The second solution has a fit of 555, strike 80°, dip 38°, rake 80° $\pm$ 180°. In the KF-NGA inversions, only when the rake = 90°, there is also perfect ambiguity between the two auxiliary planes. In our case, the rake is 71°, and then there is NO ambiguity with the best solution. But we comment that the second solution is not far away from the auxiliary plane of the Alpine fault plane. The plane auxiliary to that with strike 266° and dip 53° (with unconstrained rake) has in fact strike 80°, dip 37° and 85° rake (that are close to the second solution). But, in the present test, the rake of the first solution ought to be 85°, that is quite different from the value catched by inversion. In conclusion, if the experiment was conducted on data from a pre-instrumental earthquake, the KF-NGA inversion would have allowed at least to understand that the fault had been of Alpine type. In the light of the reference values known from instruments, the other source parameters obtained by the inversion are inaccurate, but not completely unpacked. Probably, in the case of Friuli it would be necessary to scale the empirical data for the site effects.