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## **IMPROVEMENT OF EARTHQUAKE LOCATIONS IN NORTHEASTERN SICILY**

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In the present study we relocated the earthquakes recorded in Northeastern Sicily during 1994-2002 using the double-difference earthquake algorithm by Waldhauser and Hellsworth (2000) and the program HypoDD (Waldhauser, 2001). Many studies have shown that hypocentral locations can be improved significantly by the use of location methods which compensate for lateral variation of velocity in areas with complex three dimensional velocity structure and/or in which the velocity structure is poorly known. The double-difference algorithm minimizes the residuals between observed and calculated travel time difference for pairs of earthquakes at common stations by iteratively adjusting the vector difference between the hypocenters.

A comparison has been made between the hypocenter results obtained using the HY-POELLIPSE program and the double-difference algorithm, HypoDD. The same arrival time picks were used in both cases. The results are discussed taking also into account the hypocenter locations obtained using the Neri et al.'s (2002) 3D velocity model.