



## **Location of earthquakes in Greece and the surrounding areas using absolute and differential arrival times and a 3D velocity model**

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Precise absolute or relative earthquake locations are needed for seismological research and applications. In fact, improved precision has led to completely new applications. As existing catalogs do not fully satisfy the need for precision, they must be revised by more advanced location methods. In this study we used a modified version of the double-difference algorithm in order to locate a set of earthquakes that occurred in Greece and the surrounding areas in the period 1981-2004. The modified version of the algorithm takes in to account absolute arrival times as well as differential arrival times and makes use of a 3D ray tracing algorithm and a 3D velocity model, which has been determined by earlier tomographic studies. All available ISC arrival time data for the area, together with data from the archives of the seismological network of the University of Thessaloniki were merged into a single phase arrival list and a single preliminary catalog was calculated. The events in the preliminary catalog were then relocated using the modified double-difference algorithm. The distribution of seismicity shows, in most cases, sharper features than the ones obtained by the original catalog.