



An attempt to enhance the availability of earthquake source mechanisms in the Reviewed ISC Bulletin

Konstantinos Lentas

International Seismological Centre, Thatcham, United Kingdom (kostas@isc.ac.uk)

The International Seismological Centre (ISC) offers the most comprehensive Bulletin of global seismicity in terms of hypocentre solutions, associated seismic phase arrival data, magnitude computations and earthquake mechanisms, as it combines all the available parametric data that are routinely reported by ~150 national and global agencies. Even though the availability of reported hypocentre, phase and magnitude information is systematic, source mechanisms are only routinely reported on the global scale for earthquakes with magnitude larger than 5.5, and therefore, a gap is gradually present for earthquakes with magnitude lower than this. To overcome this limitation the ISC investigates the possibility of calculating earthquake focal mechanisms in a routine and systematic way based on P-wave first motion polarities. Any available parametric data in the ISC database is being used, as well as auto-picked polarities from waveform data up to teleseismic epicentral distances (90°) for stations that are not reported to the ISC. The determination of the earthquake mechanisms is carried out with a modified version of the HASH algorithm that is compatible with a wide range of epicentral distances and takes into account the ellipsoids defined by the ISC location errors, and the Earth's structure uncertainties. This current technique has been applied so far to a small set of earthquakes from the reviewed ISC bulletin where 62 earthquakes (with no previously reported source mechanisms) have been successfully obtained. Following necessary tests, the ISC plans to extend this work and make the obtained source mechanisms available as part of standard operations.