What Is the Best Source of Data for Studies of Global Seismology?

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There are three main sources of data for studies of global seismicity. These are IDC (International Data Center, USA), NEIC (National Earthquake Information Center, USA), and ISC (International Seismological Centre, UK). These agencies differ in their function and main purpose, and the order in which they are listed reflects in general the length of elapsed time before publication, the amount of data available, and the attention devoted to the analysis.

IDC produces locations within a few days, based on readings from relatively few high-quality digital stations and with a high degree of automation in the analysis. NEIC takes longer to publish locations, but includes readings from a larger number of stations and monitors each event. ISC deliberately waits about two years before starting analysis, to ensure it has available the maximum amount of data, including origin and phase data from additional national and regional networks, and attempts to devote appropriate effort to the analysis of each event. The IDC data set is available to NEIC and ISC, and the data set of NEIC to ISC.

This paper presents examples, going back several years, comparing locations by the various agencies and pointing out how discrepancies can arise. For the reasons given above, it seems that ISC, with its larger data set, generally gives the most reliable determinations of origin parameters and therefore should be the preferred source of data for studies of seismicity on a global scale.