

The Effect of Station Density on Completeness of Worldwide Earthquake Monitoring

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A poster in Sunday morning session S71A, "[Tools of Seismology: Instruments, Networks and the Internet](#)"

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Readings from well over 2000 seismic stations each year help to ensure reliability of the ISC Bulletin, but the density of reporting stations varies widely. It can be hard to distinguish between true changes in seismicity and artifacts from changes among reporting stations, especially without magnitude for some events. The capability can be characterised in a general way by the distance beyond which one must go to find stations making an secondary azimuthal gap less than 180° . Since smaller earthquakes usually can be detected only at nearer distances, the maps of this statistic suggest where smaller earthquakes are most likely to be missing from the ISC Bulletin.

Unsurprisingly, detection at teleseismic distances is required to reliably locate events in the oceans. But island stations have been effective and essential to monitor seismicity off shore from some extensive continental networks. Coverage is understandably sparse in parts of some continents where large earthquakes occur infrequently, such as eastern South America and Saharan Africa. In addition, however, reporting stations have sometimes been insufficient for good coverage in parts of western South America, northernmost Africa, and much of central Asia.