Reasons for pIDC Mislocations: A View from the ISC

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The prototype IDC (Arlington,USA) provides a rapid first determination of seismic events to aid in the swift identification of suspected non-natural events and publishes the Revised Event Bulletin (REB). The REB is also of great value to non-explosion seismology, including it's contribution to the ISC Bulletin. Although the pIDC network was incomplete, discrepancies between ISC and REB locations provide insight into the utility of data from the higher density of stations reporting to the ISC.

Nearly two years of the ISC Bulletin are now available for comparison with the REB. Differences greater than 1 degree are rare. They occur most often when an REB epicentre is supported by only a few stations in a limited azimuth range. Another common cause of large discrepancies is identification of depth phases as primary waves in the REB, resulting in phantom events quickly following some deep earthquakes. Both of these problems could be excluded based on a careful selection from the REB alone. Another cause of discrepancies is REB locations computed from phases that additional data available to the ISC show to come from two different origins. Mislocations of this type might be especially difficult to spot based on even the most careful review of REB data alone.