

ISC Data for Earthquake Statistics

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The International Seismological Centre (ISC) is charged with production of the ISC Bulletin –the definitive summary of the global seismicity covering the entire period of instrumental recordings between 1904 and 2016. It is based on the reviewed seismic bulletin reports from over 130 seismic networks worldwide and includes a total of 5.8 million seismic events with 1.9 millions of them reviewed by the ISC analysts. The main purpose of this huge dataset is to include as many seismic events around the globe as possible to provide the most complete and comprehensive list of earthquakes and other seismic events in a homogeneous way. In fact, there are considerable temporal and region-to-region variations in the magnitude completeness and hypocentre location accuracy of reports from local and regional seismic networks and observatories. These variations are dictated by the distribution and quality of local seismic networks, waveform processing procedures as well as administrative and political decisions that control reporting bulletin data to the ISC. The content of local bulletin reports have also changed dramatically through the period of instrumental recordings thus affecting the content of the ISC Bulletin as a whole. Statistical studies of seismicity patterns, b-value, earthquake rate are also subject to an accurate identification of anthropogenic events or events caused by anthropogenic activities. These studies often require the removal of aftershocks series. This presentation lays out major principles of building the ISC Bulletin, describes the complexity of event information, and provides recommendations for practical use of the enclosed information.

In addition to the Bulletin as its flagship product, the ISC is maintaining a set of specialized products that both narrow down and extend the information from the ISC Bulletin to serve the purpose of specific groups of geoscientists. Thus we prepared and continue extending the ISC-GEM Global Instrumental Earthquake Catalogue widely used for estimation of global and regional earthquake hazard. The ISC-EHB dataset is maintained for users interested in less complete list of events with considerably higher accuracy of event epicenter and depth determination. It is used in global and regional studies of tectonics, surface geology and inner structure of the Earth. Other datasets include the GT bulletin, CTBTO Link, Event Bibliography and Seismological Contacts.

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