First Joint Analyses of both IDC and ISC Bulletins

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The Comprehensive Nuclear-Test-Ban Treaty (CTBT) prohibits to carry out any nuclear explosion at any place under jurisdiction or control of the Member States. To monitor the compliance with the Treaty obligations the International Monitoring System is being established. By the end of 2002 data from XX seismic (including XX seismic arrays), XX hydro and XX infrasound IMS stations contributed to the Reviewed Event Bulletins (REB) produced by the International Data Centre (IDC). The IMS seismoacoustic network is still growing and eventually will comprise 50 primary seismic, 120 auxiliary seismic, 60 infrasound and 11 hydroacoustic stations.

The International Seismological Centre (ISC) is charged with production of the final global bulletin of seismic events based on the station readings and hypocentre solutions reported by national and international seismological data centres and observatories.

In February 2002 Preparatory Commission to the CTBT provided ISC with REB for the years 2000 and 2001. This bulletin includes seismic phase arrival measurements made by the IDC in the course of its analysis and event hypocentres computed by the IDC. Recently the REB data for 2002 were also provided.

The IDC reports constitute almost a quarter of the total station readings and about a half of all amplitude readings contributed to the ISC. The IDC bulletin is almost the sole source of weak to moderate events in poorly monitored regions like mid-oceanic ridges. In turn the ISC bulletin, being based on much denser seismic network and presenting a joint result of many seismological organization's effort is an excellent benchmark for the IDC bulletin quality control. We compare two bulletins for the period from March to December 2000. Firstly, we study events which were located by both IDC and ISC. The discrepancy in position and depth, reliability of the depth phase picking and magnitude estimation is our prime interest. Secondly, we study the peculiarities of events, which were located by either IDC or ISC only. In this regard we identify certain weak points in analysis procedures of both centres and consider ways of their improvement.

Continuation of this work on a regular basis will serve to the benefit of scientific community interested in more accurate seismic event locations.