

Potential civil and scientific applications

The International Monitoring System uses seismic, hydroacoustic, infrasound and radionuclide monitoring technologies capable of detecting evidence of nuclear explosions in underground, in water and in the atmosphere in order to monitor compliance with the Comprehensive Nuclear-Test-Ban. These verification technologies, together with the data, technologies and products of the International Data Centre, have potential civil and scientific applications which can provide significant benefits to States and the international scientific community.

How IMS seismic data can support earthquake research

Access to IMS seismic data is one of the principal civil benefits available to Member States. The data, from a globally distributed network of modern seismic stations, could be used to improve the accuracy and timeliness of reports on potentially damaging seismic events, especially in countries lacking a national seismic network.



EARTHQUAKE AFTERSHOCK MONITORING MAP, IZMIT (TURKEY), AUGUST 1999

IDC bulletins can provide reports of the location and magnitude of large earthquakes rapidly and could also be used to support emergency response and relief efforts. IDC products can also be used to compute statistics on the

aftershocks following large earthquakes, and to provide estimates of the size and frequency of further aftershocks.

For example, the IDC has estimated the locations and magnitudes of several aftershocks that followed the main shock of the very destructive earthquake that took place near Izmit, Turkey, in August 1999. More recently, the IDC prepared special event analyses for 19 earthquakes that occurred over a six day period in January 2002 around Goma in the Democratic Republic of the Congo. These earthquakes were probably related to the volcanic activity observed during the same time period.



EARTHQUAKE AFTERSHOCK MONITORING MAP, GOMA (DEMOCRATIC REPUBLIC OF THE CONGO), JANUARY 2002

Studies of the earthquake process and studies of the structure and properties of the interior of the earth are the two principal fields of seismological research, and IMS seismic data may also contribute significantly to this field. High quality seismic data is required to study the distribution of stresses active at the earthquake source and the geometry and orientation of the causal fault. In addition, much of what is known about the structure and properties of the interior of the earth has come from studies of seismic waves passing through the earth. The IMS seismic stations provide thousands of seismic waves signals per day that have traversed all parts of the solid earth. This vast source of data can be used by scientists to improve our understanding of the earth's interior. ■

Vienna seminar

A seminar on the potential civil and scientific applications of the four IMS verification technologies, sponsored by the Permanent Missions of Australia, Japan, the Netherlands and the United Kingdom, took place at the Vienna International Centre on 15 October 2002. The seminar focused on the technologies' potential to assist national authorities and researchers in diverse scientific and civil fields, and was a follow-up to the senior experts' discussion on civil and scientific applications of the CTBT verification technologies held in London, 9-10 May 2002. Fifteen senior experts and scientists from thirteen States representing all six geographical regions of the Treaty had participated in the London discussion.



PRESENTATION BY PETER MARSHALL AT THE VIENNA SEMINAR, VIENNA INTERNATIONAL CENTRE, 15 OCTOBER 2002

Peter Marshall, a United Kingdom seismology expert and chairman of the London seminar, presented an overview of potential IMS technology applications in the fields of earthquake monitoring, tsunami prediction, monitoring of underwater volcanoes and ocean processes, and meteorology relevant to

continued on page 15

continued from page 15

climate change and nuclear accidents, as well as the potential use of findings deriving from geological mapping conducted during an on-site inspection.

Mr. Marshall stressed the fact that all potential civil and scientific applications of International Monitoring System technologies depend on data availability. The International Data Centre processes IMS raw data and makes it available to States in the form of Event Bulletins. It is up to the States to make the data available for civil and scientific applications. Mr. Marshall underlined also the importance of

synergies with other technologies in the discussed fields, which have not yet been exploited.

Ambassador Liviu Aurelian Bota of Romania, Chairman of the Preparatory Commission, presented the concluding remarks. He encouraged further expert discussions, increased exchange of information and technical knowledge between States Signatories and increased State participation to upgrade national technological capacities. ■

Publications of the Provisional Technical Secretariat

The following publications are currently available in hard copy or can be downloaded electronically from our web site at www.ctbto.org:



2001 ANNUAL REPORT
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BASIC FACTS: SIX BOOKLET SERIES
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Booklet 2: The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization

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Booklet 4: The Global Communications Infrastructure and the International Data Centre

Booklet 5: On-Site Inspections

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Calendar of Meetings 2003

Preparatory Commission:

20th Session 24 – 27 June 2003

21st Session 10 – 14 November 2003

Working Group A:

23rd Session 10 – 13 June 2003

24th Session 29 September – 3 Oct. 2003

Working Group B:

20th Session 17 Feb. – 7 March 2003

21st Session 26 May – 6 June 2003

22nd Session 1 – 12 September 2003

Advisory Group:

20th Session 22 – 25 April 2003

21st Session 27 – 30 May 2003

22nd Session 22 – 26 September 2003

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