

Major Programme 5:



Evaluation

1 HR

2 HRS

4 HRS

6 HRS

10 HRS

1 DAY

2 DAYS

1 WEEK

2 WEEKS

Major Programme 5: Evaluation

HIGHLIGHTS OF THE ACTIVITIES IN 2005

In 2005, evaluation activities focused on the assessment of the provisional O&M processes and products within SPT1 in order to establish a quality baseline against which future improvements can be compared. In order to do so, the Evaluation Section supported the intercomparison of analysis results by the NDCs and the IDC by developing and providing common software, open source databases and a set of artificial radionuclide spectra. As a result, a baseline quality of radionuclide data processing can now be established. The feedback from NDCs will be taken into account in future comparison exercises, in particular with a view to determining a baseline quality for waveform bulletins. SPT1 was instrumental in achieving the high degree of engagement and good cooperation now in place between NDCs and the PTS for evaluation activities and the NDC Evaluation Workshop provided an opportunity for the PTS to obtain feedback from its 'customers'. The evaluation of OSI activities focused on the preparation, testing and follow-up stages of DE05 and on preparing for the evaluation of the IFE. The Quality Management Workshop held in Vienna in 2005 led to the specification of the revised PTS quality system, on the basis of which the organization's Quality Manual is currently being revised.

EVALUATION

Evaluation activities included the development of assessment frameworks for testing activities, e.g. SPT1 and OSI activities, infrastructure to support the intercomparison of bulletins and a scheme for external evaluation by NDCs.

Assessment of SPT1

The Evaluation Section supported SPT1 (see also "System-Wide Performance Test" in Joint Programmatic Acti-

vities) by developing guidance for evaluation, i.e. PTS self-assessment and NDC evaluation. The PTS engaged a team of consultants to perform external evaluation of SPT1 and provide feedback on the assessment concept by drawing independent conclusions, giving advice on high level, 'dashboard' metrics for provisional O&M, and assisting in identifying improvement objectives and further testing needs.

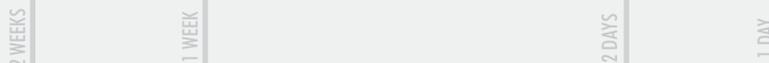
The PTS coordinated the elaboration of guidelines for NDC evaluation of radionuclide and waveform products, as well as a survey questionnaire for NDCs to provide feedback on key issues relating to the quality and timeliness of PTS services.

Four NDCs provided the results of automated or interactive radionuclide analysis in April, May and June 2005 and one more NDC provided results for the spectra issued in June 2005. In phase I, the total number of IMS spectra was 1770 and three participants processed the major part of those spectra in automated mode. The NDCs reviewed subsets of 421, 415, 85 and 9 spectra. Five NDCs and the IDC participated in phase II, analysing 100 artificial spectra generated by the PTS. The results from the two phases were stored in two separate Linssi databases, which, together with queries and tools to make the statistical analysis, were provided to all interested NDCs.

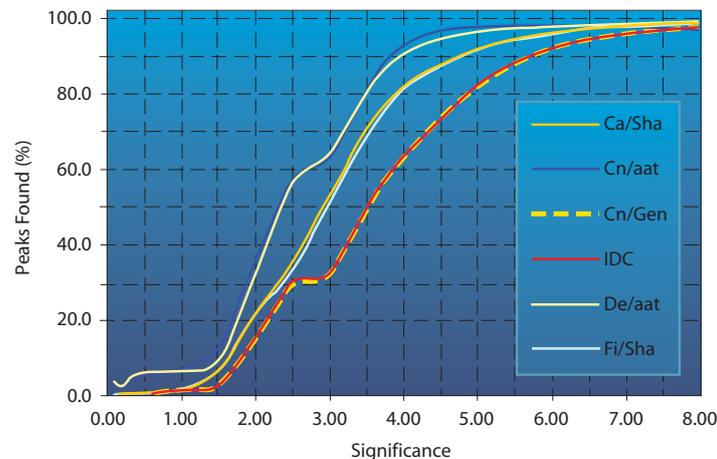
The software enabling the comparison of seismic bulletins was upgraded. The upgraded software was tested on the bulletins contributed by the NDCs during SPT1. The purpose of the test was to identify metrics from the statistical evaluation of REBs against NDC bulletins as a basis for quantifying the continuous improvement of processes. The software for modelling the detection capability of the primary seismic network was also upgraded and beta-tested and validated in SPT1 by comparing the results of simulations with observations by NDCs. Both software packages were provided to NDCs for beta testing.

The PTS prepared preliminary baseline costs for provisional O&M related processes, including managerial and support processes. Relationships between items of expenditure, processes and products and services were established and discussed during the NDC Evaluation Workshop held from 17 to 21 October 2005 in Rome.

The workshop attracted over 80 participants from 26 States Signatories, who contributed reports, presentations and posters describing their SPT1 evaluation. The workshop acknowledged that SPT1 had been very



<p>SPT1 Radionuclide Intercomparison</p> <p>A - Nuclide based Reports</p> <p>A1 - Detailed Report A2 - Nuclide Finding Report A3 - Nuclide Quantification Analysis</p> <p>B - Peak based Reports</p> <p>B1 - Reference-Peak Finding Report B2 - Single Line Findings B3 - Peaks of Relevant Nuclides B4 - Peak Data Analysis B5 - Peak Location Precision B6 - Peak Calibrations</p> <p>C - High-level Statistics</p> <p>C1 - Per Station Participation C2 - Nuclide Finding Frequencies C3 - Review Times C4 - Risk Levels C5 - Plot Variables</p> <p>D - Miscellaneous</p> <p>D1 - Analysis Report D2 - Custom Query</p> <p>Help About</p>
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SPT1 radionuclide intercomparison infrastructure. Left: screenshot of Web interface to Linssi database; right: peak finding probabilities for the software used by the NDCs participating in the June 2005 exercise.

successful in providing baseline information on the current status of the verification regime and in illuminating various areas that required further development. It was recommended that WGB consider future integrated tests to assist the development of selected components of the verification system.

Assessment of OSI Activities

The evaluation of DE05 (see “Methodology Experiments” in Major Programme 4), conducted in Kazakhstan in July 2005, focused on the three stages involved in directed exercises, namely planning, testing and follow-up. WGB recommended that a similar approach be applied to the evaluation of the IFE, i.e. starting at the early stages of the project to assist in the establishment of plans, processes, standards and procedures that will help satisfy the requirements.

QUALITY ASSURANCE

The PTS initiated the review of the quality management system. A Quality Management Workshop took place from 11 to 13 April 2005 in Vienna to advise on the principles for the reorientation of the PTS Quality Manual, to

discuss its scope, objectives and approaches, and to examine the proposed plan, resources and timing. The main recommendation of the workshop was that the revised PTS quality system should go beyond controlling and assuring the quality of products. Rather, and in compliance with the spirit of the WGB mandate in 1997, a quality management system (QMS) should be constructed around goals, processes, indicators and people to ensure that the correct actions are taken properly the first time. A gap analysis characterizing the status of the QMS was conducted to provide input for the revised quality policy and manual.

COOPERATION WITH THE UNITED NATIONS EVALUATION SYSTEMS

The PTS continued to support the endeavours of the United Nations Evaluation Group (UNEG) and cooperated actively in the elaboration of the United Nations Evaluation Norms and Standards (N&S), which were adopted by the United Nations agencies participating in the annual meeting of UNEG in April 2005. The N&S represent a major advance in establishing a common professional framework for evaluation across the United Nations system and provide the basis for inter-agency agreement on certification of evaluation functions.

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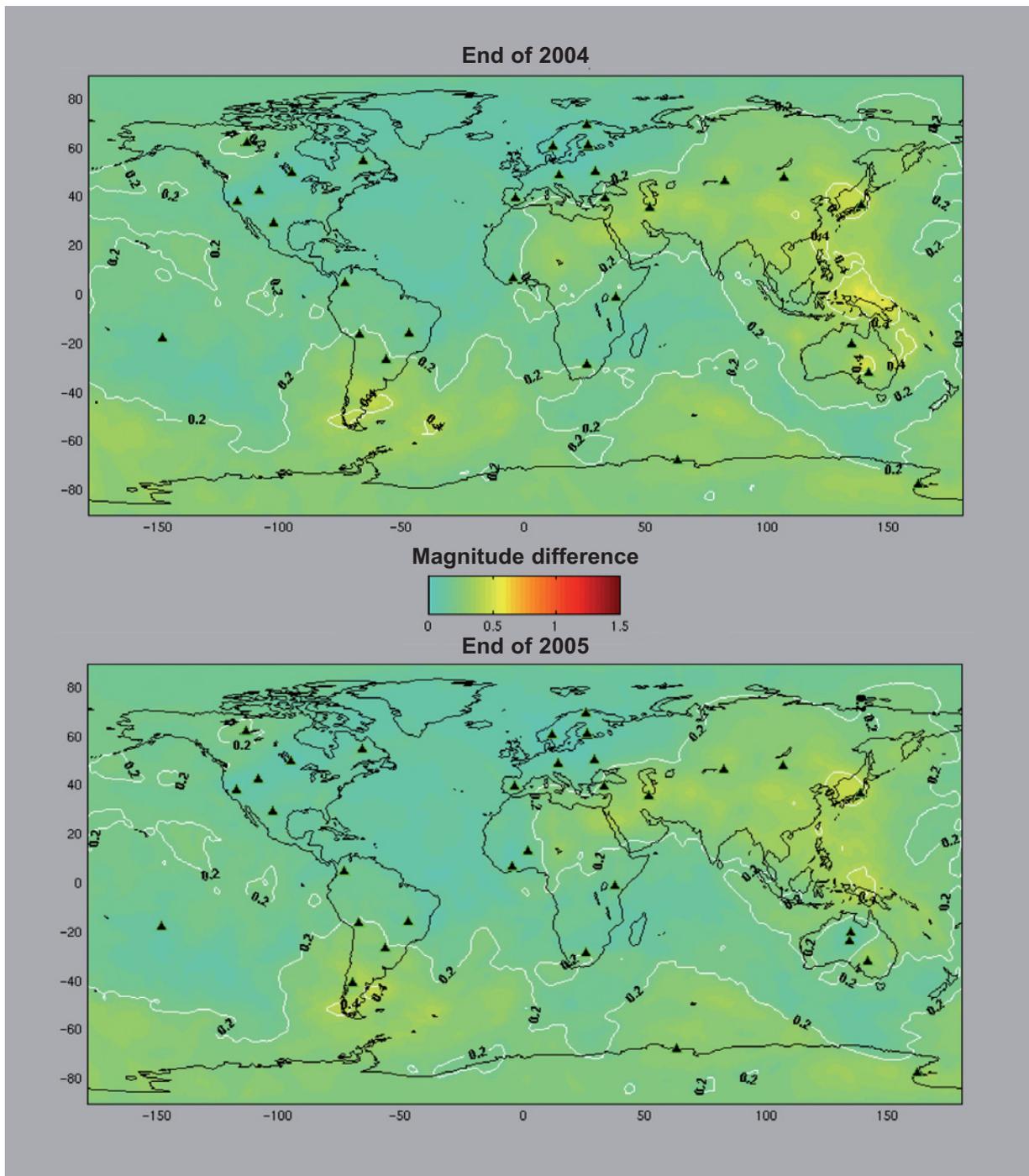
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The maps show simulations of the estimated automatic detection capability of certified IMS stations at the end of 2004 and 2005 relative to that of the 49 currently known stations of the primary seismic network under ideal conditions (full station availability and low background noise).

Relative detection capability is shown as a difference in body wave magnitudes. An event is considered detected when its signal exceeds

the noise level by a factor of 3 at three or more stations. Areas with large magnitude differences (yellow) in the map for the end of 2005, with 32 certified stations, show a decrease in size relative to the end of 2004, when there were 29 certified stations.

Since only primary seismic data were considered in this evaluation, fusion with inputs from other IMS technologies would improve the overall picture even further.