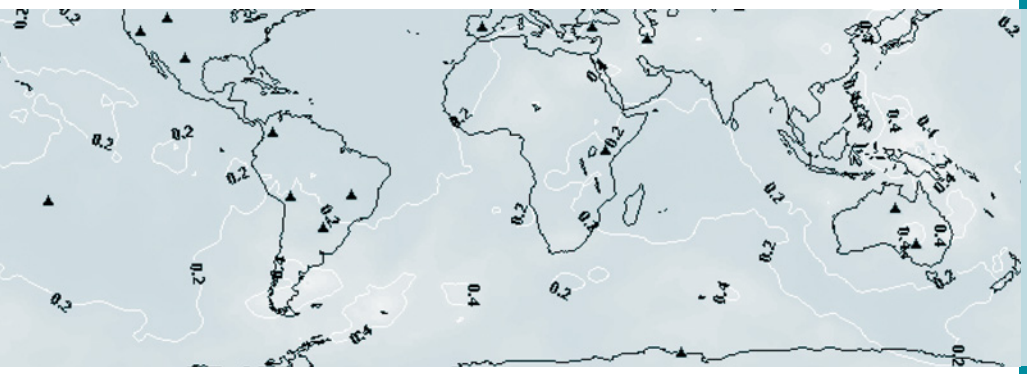
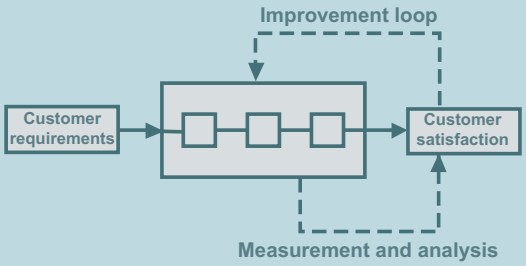




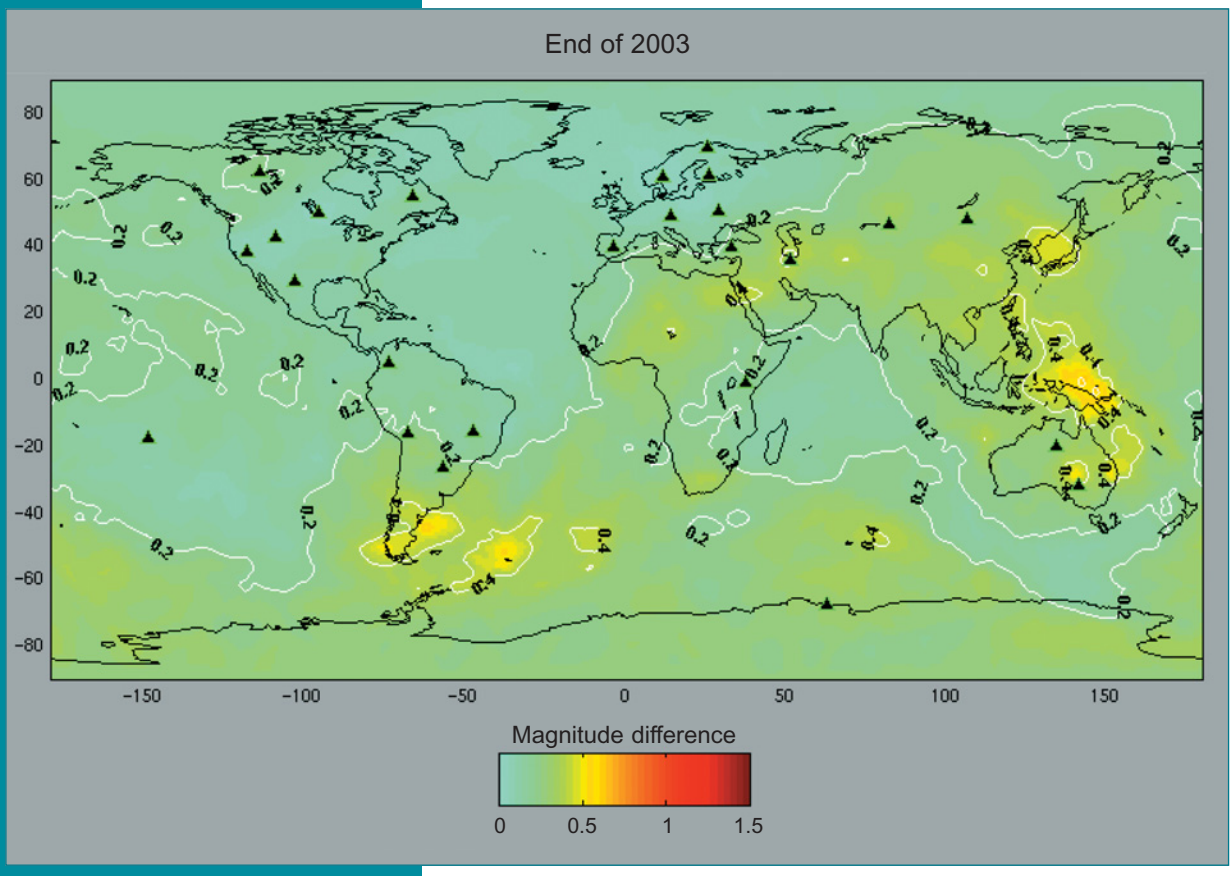
Major Programme 5:
Evaluation

Major Programme 5: Evaluation

During 2004, WGB endorsed the objectives and orientation of the evaluation and quality assurance activities proposed by the PTS for 2005–2009. The goal of the Evaluation Major Programme in this period is twofold: firstly, to contribute to developing a performance planning and assessment system, encompassing system build-up activities and development of provisional verification readiness; and secondly, to revisit the quality system of the PTS with a view to addressing key requirements of standard ISO 2001 issued by the International Organization for Standardization, in particular those related to customer requirements, and to measuring, analysing and continually improving the performance of the system.

Validation of PTS modelling tools in SPT1

Tmtool is a software tool for modelling the detection capability of the primary seismic network of the IMS. The station configurations in Tmtool are being updated to correspond to the SPT1 station network. Within SPT1 and as a main objective of the NDC–evaluation workshop to be held in 2005, it is intended to validate the software by comparing the results of simulations with real observations.



EVALUATION

In 2005–2009, the PTS plans a shift from system build-up to provisional operation and testing. To ensure that the PTS achieves the system commissioning targets and provisional verification readiness objectives with the financial and human resources available, a performance planning and assessment system is needed to manage such a transition. In 2004, and in order to gain experience in performance planning, the PTS evaluation work focused on formulating assessment frameworks for the testing of activities, including SPT1 and OSI activities, with the aim of assessing the level of provisional verification readiness.

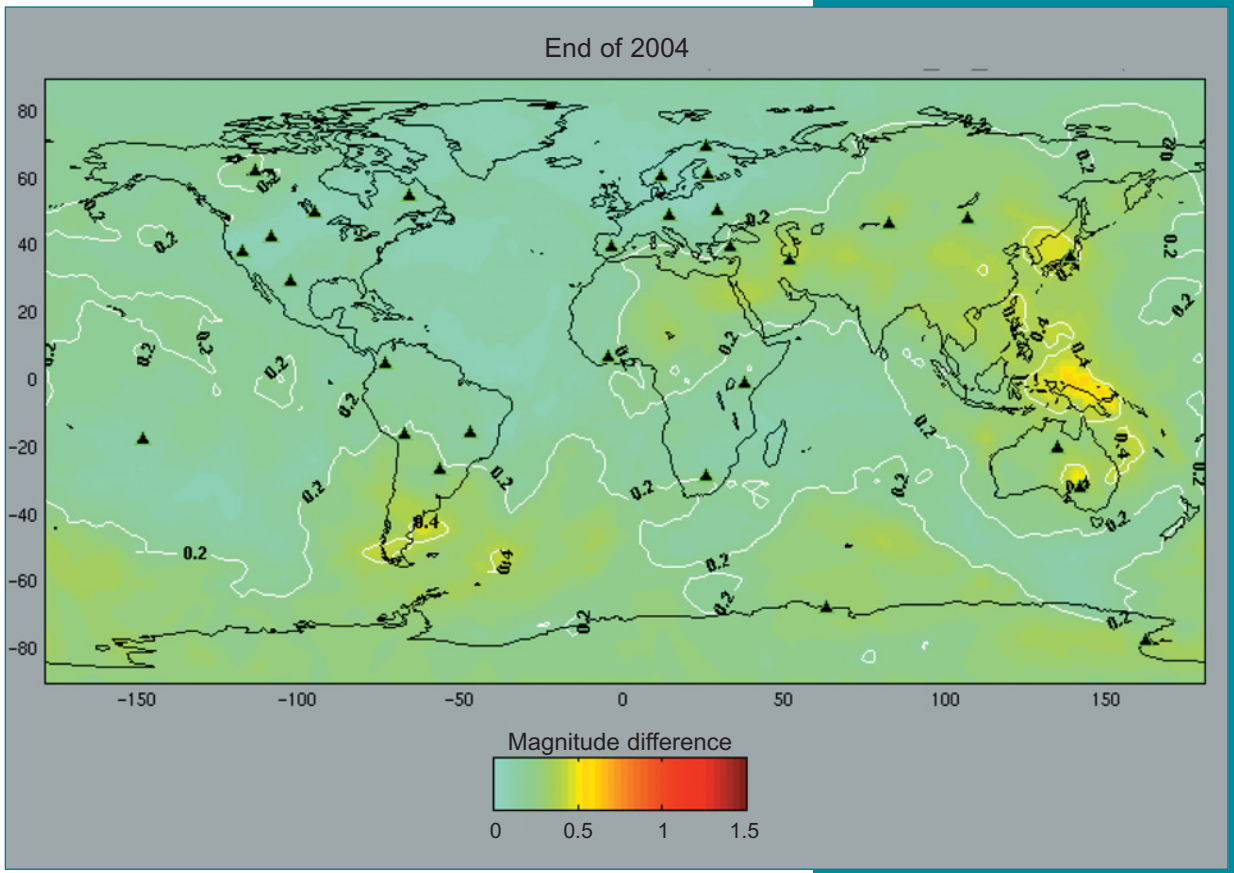
Assessment of SPT1

The assessment of SPT1 during 2004 centred on three major issues: the ability of the PTS to collect and transmit data from the IMS, the ability to meet data processing and product delivery objectives, and the determination of the system baseline cost and cost–performance relationships. The aim was to assess the capacity of the functional elements currently in place, including the work processes supporting the achievement of performance targets, e.g. data availability and quality requirements, data processing and product and service delivery.

The maps show simulations of the estimated automatic detection capability of certified IMS stations at the end of 2003 and 2004 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 2004, with 29 certified stations, show a decrease in size relative to the end of 2003, when there were 25 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.



The preliminary results of the assessment appeared to indicate four priority aspects needing further work: (a) the tools in place for logging problems, attributing data outages and making statistical analysis of failure rates; (b) the tools for monitoring the operational status of the IMS, including state of health and management information and decision making support tools; (c) development of O&M cost estimates for the PTS, based on a breakdown of work processes, including support processes, that would allow cost–performance relationships to be established; and (d) developing and calibrating the tools to measure and display the technical performance and capabilities of the IMS.

An assessment of the ergonomics of the analyst software tools used by the IDC analysts for interactive data analysis was launched in 2004 and is expected to be completed in September 2005. This study should provide advice to the PTS on whether the current tools correspond to the state of the art, and on their viability once the IMS build-up is completed.

Assessment of PTS Products

In 2004, work was begun to assess the quality of PTS products corresponding to the SPT1 preparatory phase through intercomparison exercises with the participation of NDCs.

One conclusion from the intercomparison of radionuclide and waveform products in 2004 was the need to include a sufficiently large number of data to reach representative conclusions. The analysis of results proved time consuming despite the small number of participating NDCs. Therefore in 2004 the PTS prepared the basic infrastructure to facilitate the involvement of NDCs in the evaluation of SPT1 and the analysis of data during the intercomparison exercises in 2005.

For the radionuclide intercomparison, the infrastructure consists of a Linux based database, known as Linssi, where the PTS will compile NDC and PTS data and results of automatic or interactive analysis. This database, together with data and results, will be delivered to NDCs participating in the SPT1 evaluation. This arrangement will allow the analysis of large amounts of data or results, provide maximum transparency and allow NDCs to decide the scope of SPT1 evaluation that they deem appropriate.

Regarding radionuclide products, release 3.16 of the Aatami evaluation software was provided to interested NDCs for beta testing within the context of SPT1. Further to a request by WGB at its Twenty-Third Session, the possibility of making this tool independent of specific computer hardware and commercial software environments was being studied.

As requested by the Twenty-Third Session of WGB, the software Bulcmp and Tmtool were being upgraded. The upgrades will be made available to interested NDCs for use during SPT1 in 2005 in the context of PTS product quality assessment.

Assessment of OSI Activities

Assessment frameworks were utilized in the evaluation of the 2004 OSI activities DE04 and TTE-4. The evaluators of these activities have contributed to improving the frameworks, which were deemed as useful tools to provide guidance and systematize evaluations and to assist in putting the objectives of these activities into the perspective of FE07. The evaluation reports for both activities will be issued in 2005.

QUALITY ASSURANCE

A plan to review the PTS quality management system (QMS) was drafted and the review was begun in 2004. The plan calls for a revised quality policy and manual, and for a plan to implement the revised QMS. A draft will be submitted during the quality management workshop to be held in April 2005 and will include the review of the PTS quality policy and manual by a drafting team representing the major activities of the PTS.

WORKSHOP AND UNEG

The Evaluation Section supported the planning and implementation of the O&M workshop held in Baden in October 2004, in particular the system performance and training sessions. The recommendations of the workshop regarding the participation of NDCs in the evaluation of SPT1 and in the intercomparison of results have guided the activities of the PTS in the preparation of the 2005 activities. The NDC–evaluation workshop in 2005 will focus on SPT1 and will take place from 17 to 21 October in Rome.

The PTS continued to support the endeavours of the United Nations Evaluation Group (UNEG), participated in the UNEG working group on norms and standards and the task force on harmonization and United Nations reform, and hosted a meeting of the working group in Vienna in preparation for the meeting in 2005.