Monitoring and reporting tools of the International Data Centre and International Monitoring System

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The Comprehensive Test-Ban Treaty (CTBT) which prohibits all nuclear explosions was opened for signature in 1996. Since then, the Preparatory Commission for the CTBT Organization has been working towards the establishment of a global verification regime to monitor compliance with the ban on nuclear testing. The International Monitoring System (IMS) comprises facilities for seismic, hydroacoustic, infrasound and radionuclide monitoring, as well as a means of communicating data to the International Data Centre (IDC) located in Vienna, Austria. The IDC provides objective products and services necessary for effective global monitoring. Upon completion of the IMS, 321 stations will be contributing to both near real-time and reviewed data products.

Currently there are approximately 200 facilities in IDC operations. This number is expected to increase by about 40% over the next few years, necessitating methods and tools to effectively handle the expansion. The requirements of high data availability as well as operational transparency are fundamental principals of IMS network operations, therefore, a suite of tools for monitoring and reporting have been developed. These include applications for monitoring Global Communication Infrastructure (GCI) links, detecting outages in continuous and segmented data, monitoring the status of data processing and forwarding to member states, and for systematic electronic communication and problem ticketing. The operation of the IMS network requires the help of local specialists whose cooperation is in some cases ensured by contracts or other agreements. The PTS Provisional Technical Secretariat (PTS) strives to make the monitoring of the IMS as standardized and efficient as possible, and has therefore

created the Operations Centre in which the use of most the tools is centralized.

Recently the tasks of operations across all technologies, including the GCI, have been centralized within a single section of the organization. To harmonize the operations, a State of Health monitoring project provides an integrated view of network, station and GCI performance and will provide system metrics. However, as the IMS network expands, easier access to more information will cause additional challenges to analyze and manage these metrics.