

# Verification science

*The network of the International Monitoring System (IMS) with its associated communications infrastructure and the International Data Centre (IDC) was designed by a Group of Scientific Experts at the Conference on Disarmament in Geneva to be fully capable of monitoring compliance with the Treaty. New research and improved communications technology continuously strengthens and refines the detection capabilities of the IMS. This column introduces some of the latest developments in the field of verification science.*



SAMPLE OF SPECTRUM SENT VIA THE GLOBAL COMMUNICATIONS INFRASTRUCTURE TO THE INTERNATIONAL DATA CENTRE

## The noble gas experiment – phase III

The IMS is currently carrying out the final stage of a three-phase experiment to test noble gas equipment. The experiment aims to develop appropriate instrumentation for deployment at radionuclide stations to measure radioactive xenon content in the atmosphere. To meet the IMS requirements for xenon measurements, existing

measurement devices need to be adapted and completely new technologies developed.

In phase I, xenon measurement systems were developed by four institutions located in France, Russia, Sweden and the USA that cooperate with

the Provisional Technical Secretariat for this purpose. During phase II of the experiment all four noble gas systems were located at a single laboratory to test their performance synchronously and to examine the correlation of the results. In the current phase III of the experiment, noble gas systems are being delivered to selected sites in four different global regions – Brazil (Rio de Janeiro), Norway (Spitsbergen), French Polynesia (Tahiti), and Southern China (Guangzhou). Phase III aims to assess how the systems operate under various climatic conditions. The systems must demonstrate their capability to operate automatically and reliably in the field. In addition, the achievement of secure and accurate data transmission from the noble gas systems to the IDC in Vienna is of particular importance for phase III. ■



NOBLE GAS SYSTEM DEPLOYED AT RADIONUCLIDE STATIONS RN27 IN PAPEETE (TAHITI)