

Editorial

BY OLA DAHLMAN



Ola Dahlman has been engaged in arms control negotiations for over thirty years and spent his entire professional career at the Swedish Defense Research Institute in Stockholm, Sweden. He chaired the Group of Scientific Experts before and during the CTBT negotiations from 1982 to 1996. He subsequently headed the CTBTO's Working Group on verification issues from 1996 to 2006. Dr. Dahlman is currently leading the International Scientific Studies project.

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) has a close and long-term connection to science. For over 50 years, scientists have been working together to develop and implement the most comprehensive and complex verification regime ever created. This regime is designed to monitor compliance with the CTBT by deterring and detecting any nuclear explosions conducted anywhere on Earth.

From 10 to 12 June 2009 around 600 diplomats and scientists from 99 countries gathered in Vienna, Austria, to present and discuss results from the International Scientific Studies (ISS) project that has engaged the scientific community since early 2008. The ISS Conference (ISS09) was organized by the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) in cooperation with the Austrian Federal Ministry for European and International Affairs.

The purpose of the ISS is twofold: to conduct independent assessments of the capabilities and readiness of the CTBT verification regime; and to identify scientific and technological developments that might enhance these capabilities as well as improve the cost-effectiveness of the CTBTO's products and services.

The ISS was initiated in anticipation of an increased interest in the CTBT due to a change in the political environment and increased support for the Treaty, but there were additional reasons. The CTBT's International Monitoring System (IMS) is approaching full implementation and significant steps have been taken to increase the readiness to conduct an on-site inspection. Scientific and technological (S&T) developments have also been dramatic over the 13 years that have passed since the Treaty was opened for signature in 1996.

The ISS interacts with the scientific community through a network, the core of which are 16 senior scientists who coordinate eight topic areas which are key to the verification regime. Many hundred scientists contributed to the Conference, demonstrating the power of networking.

Is the CTBT verifiable? This crucial political question has to be addressed by each State based on its security concerns and its assessment of the capabilities and readiness of the verification regime. 150 States have so far answered affirmatively by signing and ratifying the Treaty. The ISS09 did not aim at supplying the answers to this complex and ultimately political question, but rather at providing independent scientific studies and assessments that may help facilitate national assessments.

At the ISS09 both individual scientists and groups of scientists from around the world presented more than 200 posters altogether covering all of the areas relevant to CTBT verification. This is the first time ever that such a comprehensive collection of scientific work related to the CTBT has been submitted.

Many of the scientists closely involved in the ISS project have contributed articles to this journal, which offers their summaries and analyses of the issues presented and discussed at ISS09. We hope that many more will use this valuable and extensive material to make their own interpretations

and to share the results. Also within the framework of the ongoing ISS project we intend to further synthesize and interpret this material.

The recently concluded ISS Conference is not the end of the ISS process; it is rather the beginning of the next chapter. To maintain its credibility, the CTBTO has to provide products and services on a par with those that are available at any national institution. The CTBTO must thus stay closely attuned to S&T developments and maintain close links with the scientific community in order to understand the implications of these developments and their potential benefits. Ongoing collaboration with the scientific community is an essential element in this important process.

By bringing together scientists from the rapidly developing field of data mining with experts on verification data, we have already witnessed the potential for dramatic improvements in data analysis. Also, when it comes to the implementation of the technologies to be used during an on-site inspection, we recognize that much can be gained from experience already available within the scientific community.

The Comprehensive Nuclear-Test-Ban Treaty, the implementation work by the CTBTO and the ISS process are different facets of how science can be applied in support of the new broad global security agenda where non-military elements are gaining prominence. To mobilize science in support of our pending security issues is an important challenge. The way science and scientists have played and continue to play a pivotal role in relation to the CTBT should be looked upon as an inspiring example.

I want to take this opportunity to thank all of you who have contributed to this initial part of the ISS process, to the ISS09 Conference and to this journal. I very much welcome continued cooperation in further ISS activities.