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Scenario details of NPE 2012 - Independent performance assessment by simulated CTBT violation

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The Comprehensive Nuclear-Test-Ban Treaty (CTBT) was opened for signature on 24 September 1996. The technical preparations for monitoring CTBT compliance are moving ahead rapidly and many efforts have been made since then to establish the verification system. In that regard the two underground nuclear explosions conducted by the Democratic People's Republic of Korea 2006 and 2009 were the first real performance tests of the system.

In the light of these events National Data Centres (NDCs) realized the need of getting more familiar with the verification regime details. The idea of an independent annual exercise to evaluate the processing and analysis procedures applied at the National Data Centres of the CTBT was born at the NDC Evaluation Workshop in Kiev, Ukraine, 2006. The exercises should simulate a fictitious violation of the CTBT and all NDCs are invited to clarify the nature of the selected event. This exercise should help to evaluate the effectiveness of procedures applied at NDCs, as well as the quality, completeness, and usefulness of IDC products. Moreover, the National Data Centres Preparedness Exercise (NPE) is a measure for the readiness of the NDCs to fulfill their duties in regard of the CTBT verification, the treaty compliance based judgments about the nature of events as natural or artificial and chemical or nuclear, respectively. NPEs proved to be an efficient indicative tool for testing the performance of the verification system and its elements.

In 2007 and 2008 the exercise were focused on seismic waveform data analysis. Since 2009 the analysis of infrasound data was included and additional attention was attached to the radionuclide component. In 2010 a realistic noble gas release scenario was selected as the trigger event which could be expected after an underground nuclear test. The epicenter location of an event from the Reviewed Event Bulletin (REB), unknown for participants of the exercise, was selected as the source of the noble gas release.

Details of the new scenario of NPE 2012 to be conducted this year will be presented. Particulates detections instead of noble gas are intended to use as the internal release scenario and trigger of the exercise. The application of Atmospheric Transport modelling will play again the key role to define the possible source region of the fictitious radionuclide event. Various entrance levels corresponding to the available capability will be supplied to enable more NDCs to participate.