



Being prepared to verify the CTBT-Atmospheric Transport modeling and radionuclide analysis at the Austrian National Data Centre during the NDC Preparedness Exercise 2009

Gerhard Wotawa (1) and Irene Schraick (2)

(1) Central Institute for Meteorology and Geodynamics, Data, Methods and Modelling, Vienna, Austria
(gerhard.wotawa@zamg.ac.at, +43 1 3691233), (2) Seibersdorf Laboratories, Seibersdorf, Austria
(irene.schraick@seibersdorf-laboratories.at)

An explosion in the Kara-Zhyra mine in Eastern Kazakhstan on 28 November 2009 around 07:20 UTC was recorded by both the CTBTO seismic and infrasound networks. This event triggered a world-wide preparedness exercise among the CTBTO National Data Centres. Within an hour after the event was selected by the German NDC, a computer program developed by NDC Austria based on weather forecasts from the European Centre for Medium-Range Weather Forecasts (ECMWF) and from the U.S. National Centers for Environmental Prediction (NCEP) was started to analyse what Radionuclide Stations of the CTBTO International Monitoring System (IMS) would be potentially affected by the release from a nuclear explosion at this place in the course of the following 3-10 days. These calculations were daily updated to consider the observed state of the atmosphere instead of the predicted one. Based on these calculations, automated and reviewed radionuclide reports from the potentially affected stations as produced by the CTBTO International Data Centre (IDC) were looked at. An additional analysis of interesting spectra was provided by the Seibersdorf Laboratories. Based on all the results coming in, no evidence whatsoever was found that the explosion in Kazakhstan was nuclear. This is in accordance with ground truth information saying that the event was caused by the detonation of more than 53 Tons of explosives as part of mining operations. A number of conclusions can be drawn from this exercise. First, the international, bilateral as well as national mechanisms and procedures in place for such an event worked smoothly. Second, the products and services from the CTBTO IDC proved to be very useful to assist the member states in their verification efforts. Last but not least, issues with the availability of data from IMS radionuclide stations do remain.