

Seismological Investigations of the National Data Centre Preparedness Exercise 2015 (NPE2015)

The National Data Centre Preparedness Exercises (NPE) are regularly performed dealing with fictitious treaty violations to practice the combined analysis of CTBT verification technologies and national technical means. These exercises should help to evaluate the effectiveness of analysis procedures applied at NDCs and the quality, completeness and usefulness of IDC products. The NPE2015 is a combined radionuclide-waveform scenario. Fictitious particulate radionuclide and radioxenon measurements at IMS stations were reported to the international community. The type of isotopes and concentrations could arise from an underground nuclear explosion. The task is to identify the scenario behind the provided data. The source region and time domain of a possible treaty violation was determined from backtracking ATM. A time slot in October and a region around the mining area Lubin could be identified. The seismicity of the determined source region was investigated to identify events which cannot be classified as natural or induced within the relevant time interval. The comparison of spectral characteristics and a cluster analysis was applied to search for non-characteristic events within a number of known induced events in the area. The results reveal that all candidate events are part of cluster with a minimum of seven events with comparable signature.

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Track Classification: 3. Advances in sensors, networks and processing