ID: **SE5** Type: **Panel discussion**

Session

Friday 2 July 2021 16:00 (2 hours)

NDCs (National Data Centres) are the national technical organizations competent to advise their governments on the verification of the Comprehensive Nuclear-Test-Ban Treaty. The objective of this session is to allow NDC experts to share experience in fulfilling their verification responsibilities. During presentations and discussions, special emphasis will be put on:
• use of IMS data and IDC products for verification purposes as well as civil or scientific applications,
• use of NDC-in-a-box or specific tools in operation in NDCs,
• collaboration and interactions between NDCs.

Speakers: Several speaker interventions
The duration of each presentation is 10 minutes, following by 5 minutes of QA.

Abstracts:
1) From the isolated seismic / infrasound acquisition systems to a research and development system
Author: G. A. Fernandez, Observatorio San Calixto, BOLIVIA

The Observatorio San Calixto (OSC) is a Jesuit nonprofit private research institution from Bolivia (Plurinational State of) stablished on 1913 since then is on charge of the seismic and infrasound monitoring at local, regional levels, actually in charge of seismic hazard studies along the country. On behalf of science OSC has made scientific agreement with "Commissariat à l'Energie Atomique et aux énergies alternatives, France" (CEA) and "Air Force technical Application Center" (AFTAC) with both institutions we certified the Primary Seismic Station PS06-LPAZ, Auxiliary Seismic Station AS08-SIV and Infrasound Array IS08-Peñas. Since then a set of three different acquisition software were implemented at our National Data Center (NDC), somehow was complicated to merge the earthquake localization solutions, but since 2016 and within the NDC – Capacity Building we were benefited with the Capacity Building System (CBS), which is composed by a server, workstations and backup system, after that our NDC started to have all data from our certified stations and some from the open seismic network from the neighborhood countries and as result the OSC – NDC is performing efficient monitoring and new studies.

2) 20 YEARS OF MADAGASCAR NDC ACTIVITIES
Authors: A. H. Ramanantsoa, F. Randrianarinosy, J.B. Andrianaivoarisoa, A.T. Rakotoarisoa, from Institute and Observatory of Geophysics of Antananarivo, MADAGASCAR

At the end of 2001, NDC Madagascar has operated after infrasound and seismic stations were installed. Data availability of 99% is the result of rigorous maintenance. IMS data are used as verification regime and for civil applications. Data are processed using NDC in a box packages. All of these activities are not possible without different trainings (maintenance, data processing…) followed by the staff of NDC Madagascar. Participations in Science and Technology conference or Infrasound Technology Workshop allow the NDC to present research results to the community.

3) Infrasound processing at Romanian NDC using NDC-in-a-Box
Author: Daniela Ghica, National Institute for Earth Physics, ROMANIA

At Romanian NDC, the infrasound data processing capabilities of NDC-in-a-Box are used since 2016, when the duo of infrasound detection-oriented software – DTK-GPMCC and DTK-DIVA – has been packaged into the system.
Starting with 2009, three infrasound stations have been deployed on the Romanian territory by the National Institute for Earth Physics (NIEP): (1) IPLOR (in the central Romania), (2) BURARI (in the northern Romania), under the cooperation with Air Force Technical Application Center AFTAC (USA), and (3) I67RO temporary

PTS portable array (in western Romania) as two-year experiment (2016-2018), within a collaboration project with PTS/CTBTO.
Data recorded with the Romanian infrasound stations are automatically processed at Romanian NDC by running PMCC detector (DTK-PMCC). DTK-GPMCC is applied to study in detail the detected signals, including the capacity of fusing them into approximate source location by cross bearing. DTK-DIVA is used to investigate the array monitoring performance. i.e., detection capability, types of sources observed, ambient noise conditions etc.
In addition to the data recorded with the local stations, data from IMS infrasound network are processed at Romanian NDC, in order to jointly characterize large events (bolides, explosions). Furthermore, IDC products such as LEB bulletins proved to be very useful to identify the detections observed with the Romanian infrasound stations.
Infrasound processing at Romanian NDC benefited from the technical assistance kindly provided by PTS/CTBTO and consisting of NDC-in-a-Box SHI Software Package, trainings (Intermediate Level Infrasound Data Analysis Training, July 2019, Bucharest, Romania; NDC Advanced Training on Infrasound Data Analysis, October 2019, Bruyères-le-Châtel, France), as well as of valuable advices from the PTS staff.

4) Kazakhstan National Data Center and Its Activity in Support of CTBTO
Speaker: Alexandr Smirnov

KazNDC conducts monitoring around the clock in support of CTBTO. All data from the IGR NNC stations are being collected, processed; seismic and infrasound bulletins are being created; databases are being formed. Annually, seismic bulletins include around 20000 events – earthquakes and explosions. This information is used in the interest of Kazakhstan to estimate seismic hazards of the territory, monitor technogenic seismicity in mineral production fields to ensure seismic safety of the existing facilities, and study the fields for future important facilities. For many years the works on saving the historical records of nuclear explosions have been conducted at KNDC; this is of paramount importance for scientific research.
KNDC continuously cooperates with international and national seismological centers.

Promotional text

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