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YOUTH FOR CTBT

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Nurturing a science diplomacy generation at MEPhI

If you haven't heard about MEPhI, Moscow's National Research Nuclear University, you should know that it hosts the largest group of CTBTO Youth Group members in Russia.

There are more than 30 CYG members from MEPhI, seven of whom are present at the CTBTO SnT 2019. They are delivering abstracts for both poster and oral presentations and two MEPhI students were successful finalists in the CTBT innovation challenge for the sustainable development goals (SDGs).

CTBTO's roots in MEPhI were sown and nurtured by Elena Tsyvkunova, a professor in the institute of international relations and Natalia Zhurina, former MEPhI student and current CYG regional coordinator for Eastern Europe.

After three years a number of new projects related to the CTBTO and science diplomacy in general have been developed at the university.

"Fostering science diplomacy generation is the goal of primary importance for MEPhI as an educational institution," says Tsyvkunova."Actually, it is one of our own sustainable development goals – to harness the power of the atom, as it is embodied in MEPhI's logo, the power of science with a view to nurturing a science diplomacy generation."

Ksenya Pirnavskaya

International response key to solving geophysics puzzles

An international effort is needed to investigate and explain geophysics says Tarje Nissen-Meyer, a seismologist and professor of geophysics.

"We need to unravel the full wave field," he said. "The puzzle cannot be solved by one country or one institution. It is a global problem which requires an international collaboration. Governments, non-governmental organisations, charities should come in."

Nissen-Meyer, who is concerned with deciphering earth's interior from sedimentary basins to the core by means of seismic waves, has developed his technique since 2003.

His seismic technique relies on surface observations as it is practically impossible to dig deep into the earth. He said the technique could be used by the CTBTO at its data centers.

"There is a seismic source and the structure. Usually, when the wave goes through the earth it passes through some geological structures. So, the question is where did it happen?," he said.

The whole system on earth, including people's decisions, technology and animals was complex, he said and diversity in terms of policies and skills could help solve the geophysics.

Nissen-Meyer was speaking to SnTimes on the side-lines of a panel about knowledge gained from 20 years of CTBT data.

Farai Shawn Matiashe

vDEC- access for researchers to CTBTO data

CTBTO data are providing scientists from around the world with new capabilities to research subjects ranging from the impact of climate change on blue whales to submarine volcanic activity.

Data collected by the CTBTO's International Monitoring System (IMS) is being made available upon request to scientists from its virtual Data Exploitation Centre (vDEC).

Marine biologist Tracey Rogers described how research using CTBTO data is revealing how the changing eating habits of blue whales could be a direct result of rapid climate change.

Data from CTBTO hydroacoustic stations is providing ecologists conducting the project with a sweeping view of events in the Southern Atlantic, she said. Such data enables them to monitor and find signals to examine whale movement patterns. Changes in whale movements and migration are influenced by changes in the marine environment. Studying the shifts in the undersea environment offers understanding of climate change in the Southern Atlantic.

During a vDEC briefing panel on Wednesday at SnT 2019, Rogers explained that the main source of nutrition for blue whales, the largest mammal on earth, are krill, tiny, shrimp-like crustaceans they must consume in huge amounts every day to survive.

The decline of krill can be traced back to the changing water conditions in the ocean which is a direct result of climate change. This effect can be clearly observed through the altered behavior of blue whales in recent times.

CTBTO data from vDEC has provided the research programme a long term reliable collection of data without which the research would have not been as accurate and specific as it is, said Rogers.

The importance of long term IMS data was also underscored by Dirk Metz who is using hydroacoustic data to detect submarine volcanic activity. What is unique about the CTBTO's hydroacoustic stations is that they are the only global network providing such a rich record of long-term quality data.

Moumi Awudu
Sylvia Mishra