Japanese Contributions and Collaborations for IMS Technologies and the Verification Regime

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The CTBT verification regime is supported by the cooperation of member states who host monitoring stations and laboratories of the International Monitoring System (IMS) network. The proactive collaboration with state governments and research institutions hosting IMS facilities is crucial for improvement of the technologies for the verification regime.

Japan has contributed for many years in establishing and maintaining these facilities and in improving the verification technologies and regime, in a variety of aspects. Japan hosts stations for three of the technologies: seismic, infrasound and radionuclide. The technical contributions by Japan in projects for the improvement and enhancement of the radionuclide monitoring/detection capability are highlighted in this presentation.

In addition to the contributions through the operation of two IMS radionuclide monitoring stations in Japan, Okinawa, and Takasaki, two additional radionuclide measurement campaigns have been initiated at Horonobe and Mutsu, through financial support from the government of Japan (GoJ) in 2017. These campaigns started in early 2018, with the collaborations of Japan Atomic Energy Agency (JAEA). A new campaign in Fukuoka is being initiated, using another existing mobile system, aiming to configure a high dense measurement network for the evaluation and the calibration of the current noble gas system network of the IMS.

Another collaboration in the radionuclide sector is the air sampling for Ar-37 analysis and the new sampler testing at Takasaki station, in order to enhance the capability for On-site Inspection (OSI). Ar-37 is produced naturally by cosmic rays and exists in the atmosphere as background. Thus, it is also important to know its behavior in the environment. A 2-year sampling campaign was conducted at Takasaki in collaboration with JAEA in 2016-2018 utilizing their expertise.

The government of Japan (GoJ) has strongly supported to establish these collaborations, especially through voluntary contribution, in 2012, 2013 and 2017. They were used for enhancement of atmospheric transport modeling project, noble gas measurement campaign at Horonobe and Mutsu mentioned above, and sending Cost-free Experts (CFEs) of IMS HA Technology.

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