

Mobile Noble Gas Background Observation System and Japanese Cooperation

Naoko Nakashima¹, Jonathan Baré¹, Randy Bell¹, *Nurcan Meral Özel¹

1. Comprehensive Nuclear-Test-Ban Treaty Organization

Two mobile noble gas measurement systems were installed in Horonobe, Hokkaido, and Mutsu, Aomori, Japan with generous voluntary funds from Japan. These Transportable Xenon Laboratories (TXLs) support CTBTO noble gas background measurement campaigns that develop means to distinguish the source of detected *radioactive isotopes of the noble gas xenon (radioxenon)* as either peaceful activities or test explosions. Although these new TXLs cannot be used for core CTBT verification reports, *they nevertheless will enable more effective use of the IMS' s monitoring capacity*. Four isotopes of radioxenon are particularly relevant to the detection of a nuclear explosion; the “smoking gun” evidence of whether a nuclear test explosion has occurred. TXLs observe the background level of radioxenon at different locations and in combination with Atmospheric Transport Modeling (ATM) help CTBTO understand its behavior.

Keywords: CTBTO, IMS, radioxenon