

Activities of JAEA for CTBT

-Noble gas joint measurement project with CTBT in Horonobe and Mutsu-

【Background and objectives】

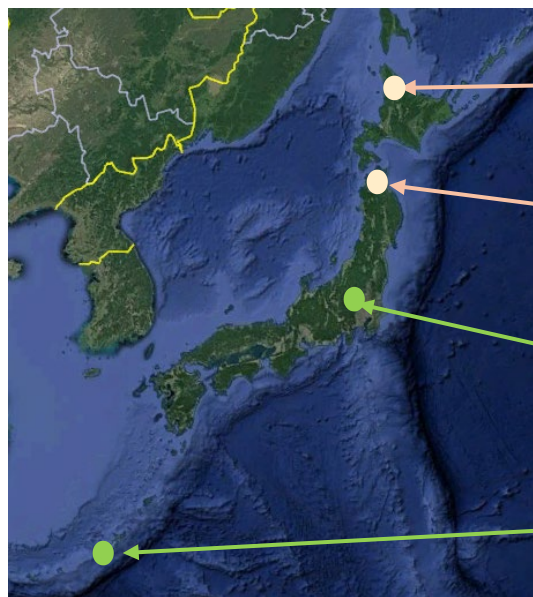
- ❑ The UNSC adopted a resolution encouraging CTBTO to promote the development of an International Monitoring System(IMS)in 2016. In February 2017 , the Japanese government contributed funds for the noble gas measurement project to improve the nuclear test detection capability of CTBTO
- ❑ Monitoring from Hokkaido to Tohoku may improve our ability to detect nuclear tests.

【Outline of measurement】

Device : Transportable Xenon Laboratories (TXL)

Place : Horonobe town, Hokkaido, and JAEA Ominato Facility, Aomori

Period : Early 2018 to March 2026 (Planned as of March 2024)



Horonobe town property
[Noble gas] temporary

JAEA Ominato facility
[Noble gas] temporary

CTBT Takasaki radionuclide
monitoring station
[Particle/Noble gas] permanent

CTBT Okinawa radionuclide
monitoring station
[Particle] permanent



TXL Exterior



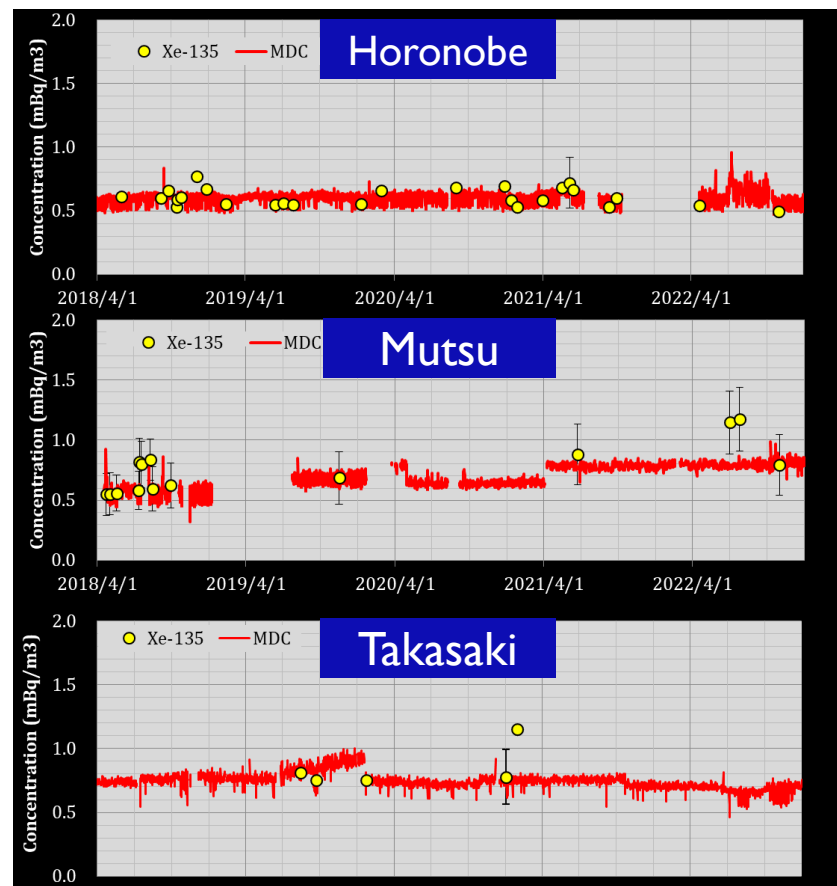
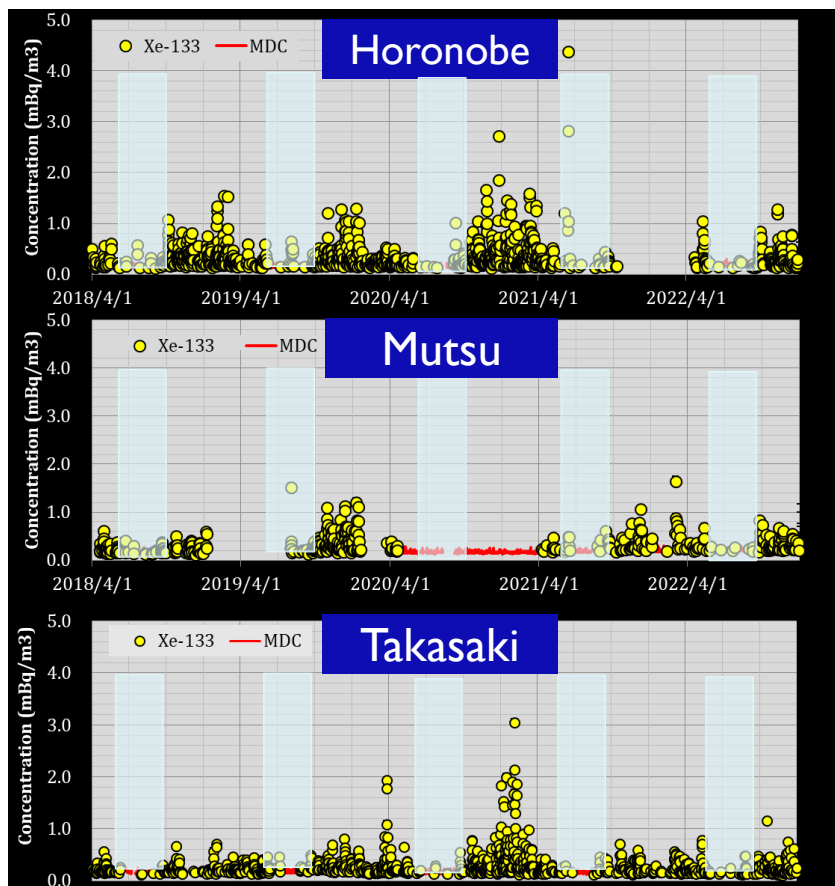
TXL Interior

Locations of CTBT radionuclide monitoring stations and temporary noble gas monitoring stations operated by JAEA

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Time series of air concentration of Xe-133 (left) and Xe-135 (right)



【Results】

MDC: minimum detectable concentration : detection over MDC

- Xe-133 : Detections exceeding MDC are frequent at all three stations, tending to be low-frequency from June to September and high-frequency from fall to winter
- Xe-135 : Occasional detections above MDC but no significant high-concentration detection events