ISET-R News Letter

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http://www.ied.tsukuba.ac.jp/hydrogeo/isetr/

ISET-R Projects for Fostering Young Researchers

Visits to IAEA headquarters, CTBTO, and research laboratories in Seibersdorf.

IAEA headquarters

Since fiscal 2013, we've been supporting young researchers to improve their quality by offering research experiences in different research fields through visits to research laboratories.

For the first time this year, we held a tour to IAEA (International Atomic Energy Agency) headquarters in Vienna and research laboratories in Seibersdorf on April 25, 2014. Total of nine young researchers and students participated in this tour.

Here's a report by the participants.

Schedule for the IAEA tour		
9:00	-12:00	Visit IAEA Headquarters
14:00	-16:00	Visit research laboratories in Seibersdorf

IAEA headquarters: Whole body counting system and radiation detector

We received explanations on equipment measuring internal and external exposure to radiation.

Canberra's bed-type whole body counter

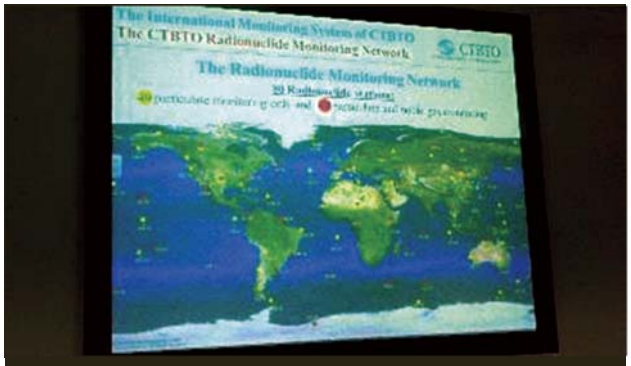
This whole body counting system with two HPGe detectors is large enough for two grown-up men to lie down. The system automatically moves and scans through a subject on the bed and measures radioactivity of the subject body (running time: 40 minutes). The system can provide information on type, intensity, and location of radionuclides found in the body. An anatomical model of the human body is used as a standard. Calibration method using this human body model is vital in keeping measured values accurate.

Two types of measuring equipment were introduced: survey meters for alpha, beta, and gamma emitters to indirectly monitor internal exposure and personal cumulative dosimeter worn by staff members to monitor external exposure. It was emphasized that both current dose and cumulative dose should be monitored. Even though

the current dose level is low, it will be as dangerous as high radiation when exposed for a long time.

Visit to CTBTO headquarters

CTBTO (Comprehensive Nuclear Test-Ban Treaty Organization) is aimed at banning nuclear testing and explosions according to the CTBT. The international monitoring system consists of 321 monitoring stations in 89 countries to detect any signs of nuclear explosions. Those stations include seismic, hydroacoustic, infrasound, and radionuclide stations.

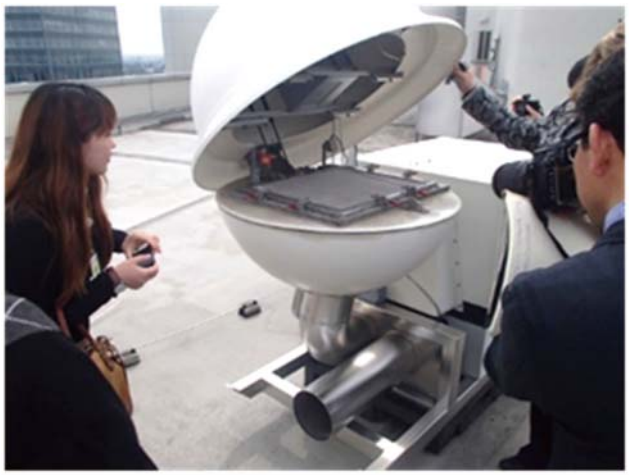


Locations of the CTBTO monitoring stations for radionuclides

Rooftop monitoring equipment at IAEA headquarters

Collectors for suspended particles in the air

The dust filter in the dome collects suspended particles in the air.



Ge detector placed in the rooftop laboratory

The filter is compressed to a circulate plate at a pressure of 20t.

Measurement equipment for radionuclides in the air

SPARAX collects air and measure radioactive xenon in the air.SAUNA detects low-level radioactive xenon in the air.

Laboratories in Seibersdorf

These laboratories prepare and provide standard samples for isotopic measurements. We observed facilities and equipment for preparing standard samples and measuring alpha/gamma-emitting radionuclides.

ALMERA Network (Analytical Laboratories for the Measurement of Environmental Radioactivity)

ALMERA was established in 1995 and consists of 138 laboratories representing 80 countries worldwide. Korea Institute of Nuclear Safety is the regional coordinating laboratory for the Asia-Pacific region. The ALMERA network members can take workshops and technical training held by ALMERA network regarding environmental radioactivity measurement methods.

Reported by Honda, Sakakibara, Taniguchi, Wakiyama (University of Tsukuba)

The participants commented that the tour was a wonderful and valuable experience for them, and were especially fascinated by the CTBTO monitoring system.

We will continue to offer interesting programs, so please visit our website for latest information.

ISET-R Project for fostering young researchers

Website http://www.ied.tsukuba.ac.jp/hydrogeo/isetr/wakate.html

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