

# EML

Environmental Measurements Laboratory

"A Federal Resource"

# NATIONAL SECURITY PROGRAMS

*The Environmental Measurements Laboratory is a government-owned, government-operated laboratory with an established 55-year reputation and capability for fast response and expertise in low level radioactivity and radiation measurements and techniques which are vitally important in recovery operations.*

*EML carries out research and development of field and laboratory based advanced analytical instruments and technologies, coupled with current techniques in sample collection and analysis and data reduction, to identify nuclear threats throughout the world and to provide advice and consultation on environmental measurements and signatures.*

## **Core Capabilities:**

- Radiation Survey Planning
- Radiological Monitoring and Assessment
- Radiation Instrumentation R&D
- Real-Time Radiation Measurements
- Radiation Dosimetry
- Radiochemical Analysis and Quality Assurance

## **Unique Facilities:**

### **Environmental Chamber:**

A 25 cu meter facility, the only one in the U.S., that can generate atmospheres with controlled aerosols and gases for calibration and testing of new instruments.

### **Gamma Spectrometry Laboratory:**

A fully equipped laboratory with high efficiency and high resolution gamma sensors.

## **Modeling Atmospheric Transport**

In collaboration with the World Meteorological Organization (WMO) Global Atmosphere Watch (GAW), the Chinese Academy of Meteorological Sciences and the Chinese Academy of Sciences, measurements are being made using EML's Surface Air Sampling System at Mt. Waliguan in Qinghai Province in central China. The measurements will be used to study the transport process in the atmosphere and will provide unique scientific data for global atmospheric modeling. This collaboration is part of EML's role as a World Calibration Center for Radioactivity in GAW.

## **International Environmental Sample Archive (IESA)**

EML maintains a unique and extensive archive of environmental samples collected throughout the world. Many of these were collected during the period of atmospheric nuclear weapons testing and have unique isotopic compositions. These samples can be used for:

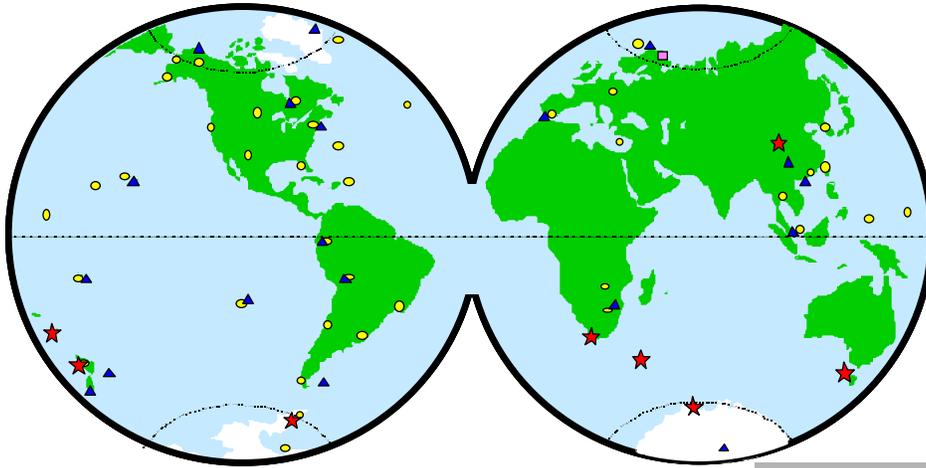
- Quality Control - Test newly developed instruments and techniques
- Nonproliferation - Identify signatures of nuclear proliferation
- Background - Determine global variations of signatures

## **Nonproliferation Treaties:**

As a federal laboratory, EML supports DOE's National Security mission through its detection and deterrence activities for the nonproliferation treaties. EML has been designated as the U.S. Radionuclide Laboratory in support of the International Monitoring System. Development and evaluation of detection systems to aid international weapons inspectors in verification compliance will cross over into counterterrorism applications.

## **EML's Global Radioactivity Sampling Network:**

EML has maintained a worldwide network of aerosol and deposition sampling stations for over 40 years. Currently, there are 10 domestic sites. The network serves to identify any new sources of radioactivity released into the environment.



- ▲ Surface Air Stations
- Total Deposition Stations
- Radon Sampling Sites
- ★ Remote Atmospheric Measurements Program Stations

## EML's Global Networks



**EML RAMSCAN:** A portable, attaché-sized, battery-operated gamma radiation measurement and analysis system used to rapidly assess ("Go"/"No Go") fission product likelihood from freshly collected air filters.



**EML RAMS:** A particulate collection system with a sodium iodide gamma detector applicable for precise attribution and characterization currently used in EML's Remote Atmospheric Measurements Program (RAMP).

**Contact: Colin G. Sanderson**

☎ Voice: 212-620-3642

✉ E-mail: [colin.sanderson@eml.doe.gov](mailto:colin.sanderson@eml.doe.gov)