ACAP

Asia Center for Air Pollution Research
Japan Environmental Sanitation Center

Asia Center for Air Pollution Research

INTRODUCTION

The East Asian region, comprised of southeast and northeast Asia, is home to more than a third of the world's population. It has experienced rapid economic growth since the late twentieth century, which has continued into the new century. Growing energy consumption increases the amount of pollutants in the atmosphere, leading to regional air pollution problems for countries in East Asia. It is becoming increasingly evident that regional air pollution in East Asia causes urban air pollution and acid deposition problems in each country in the region.

Until the 1990s, few fact-finding studies had been conducted on the mechanisms of acid deposition, and little was known about its impacts in East Asia. At the First Session of the Intergovernmental Meeting (IG1) in March 1998, with East Asian countries participating, it was decided to launch the preparatory phase activities of the Acid Deposition Monitoring Network in East Asia (EANET) in April 1998. After more than two years of preliminary operation, EANET began its activities on a regular basis in January 2001, based on a decision at the Second Session of the Intergovernmental Meeting (IG2) held in October 2000.

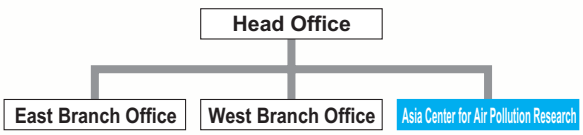
The Acid Deposition and Oxidant Research Center (ADORC) was established in Niigata, Japan, as a branch office of the Japan Environmental Sanitation Center (JESC), to promote EANET activities, acting as the Network Center and play a pivotal role as Japan's National Center in this network. ADORC was founded with the support of Niigata Prefecture, the City of Niigata, manufacturing companies, and non-profit organizations (NPOs), under the leadership of the Environment Agency (which has become Ministry of the Environment) of Japan.

ADORC was renamed the Asia Center for Air Pollution Research (ACAP) in June 2010, and in November 2010 the "Instrument for the Strengthening the Acid Deposition Monitoring Network in East Asia (EANET)" was adopted at the Twelfth Session of the Intergovernmental Meeting (IG12). It was also decided that ACAP should continue in its role as the Network Center for EANET.

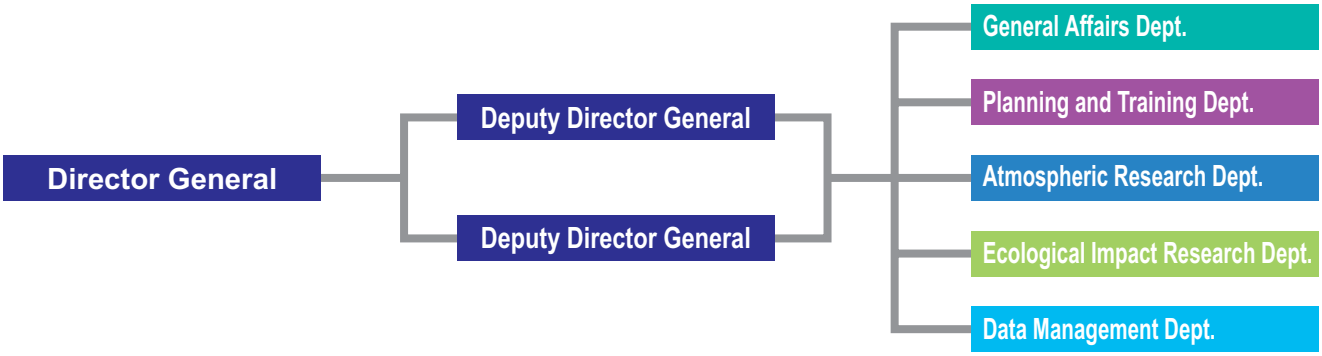
In recent years, there is a new trend to view regional air pollution problems from a global perspective. In particular, ozone and fine particulate matter such as $PM_{2.5}$ have become a noticeable issue of hemispheric pollution, including inter-continental transport

The impacts on climate change and global warming caused by regional air pollution are also notable issue. ACAP aims to accomplish the mission of researching acid deposition and air pollution problems in the East Asian region, including these new issues.

Organization of Japan Environmental Sanitation Center (JESC)



Organizational Chart of ACAP



Major Functions of Each Department

General Affairs Department

- Development of annual work programs of ACAP.
- Administrative management of ACAP.
- Personnel and financial issues.

Planning and Training Department

- Management and coordination of technical assistance.
- Planning and coordination of technical missions.
- Planning, coordination and implementation of training and public awareness activities and research fellowship programs.
- Planning and implementation of international conferences, workshops, etc. by the Center.
- Collection and dissemination of relevant information.
- Research on air pollution related issues.

Atmospheric Research Department

- Evaluation of the results of wet and dry deposition monitoring.
- Preparation of technical documents for wet and dry deposition monitoring.
- Analyses of wet and dry deposition monitoring samples.
- Promotion of QA/QC activities on wet and dry deposition monitoring.
- Research activities related to wet and dry deposition, and chemical transport modeling.
- Operation and management of deposition monitoring stations operated by the Center.

Ecological Impact Research Department

- Evaluation of the results of monitoring for soil/vegetation, inland aquatic environment and catchment (ecological impacts monitoring).
- Preparation of technical documents for ecological impacts monitoring.
- Analyses of ecological impacts monitoring samples.
- Promotion of QA/QC activities on ecological impacts monitoring.
- Research activities related to ecological impacts monitoring.
- Operation and management of ecological impacts monitoring stations operated by the Center.

Data Management Department

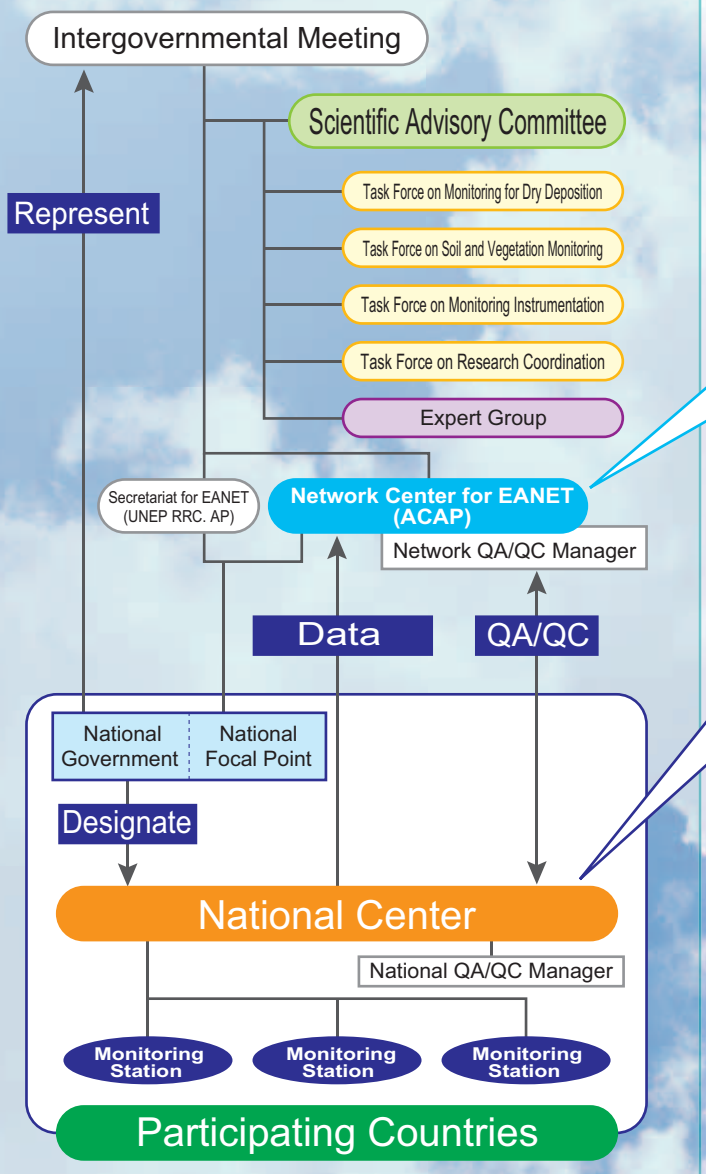
- Development and updating of database on acid deposition monitoring in East Asia.
- Central compilation, evaluation, storage and dissemination of monitoring data.
- Consultation and advice for the national monitoring plans.
- Coordination and implementation of QA/QC programs.
- Preparation of EANET data report and periodic report of EANET.
- Research activities of emission inventories.

Asia Center for Air Pollution Research

EANET and Functions of ACAP

ACAP carries out functions as the Network Center for EANET, functions as the National Center for Japan, and other functions related to air pollution including acid deposition.

Institutional Framework of EANET



Cambodia, China, Indonesia, Japan, Lao P.D.R, Malaysia, Mongolia Myanmar, Philippines, R of Korea, Russia, Thailand and Vietnam

Tasks of ACAP

Tasks as the Network Center for EANET

- Compilation, evaluation and storage of data.
- Preparation of data reports on the acid deposition in the East Asian region.
- Dissemination of data and relevant information.
- Implementation and coordination of QA/QC activities.
- Technical support to the participating countries including dispatch of technical missions.
- Implementation of training activities.
- Support to Task Forces as their secretariats.
- Research activities such as research for improving monitoring methodologies.
- Promotion of public awareness, etc.

Tasks as the National Center of Japan

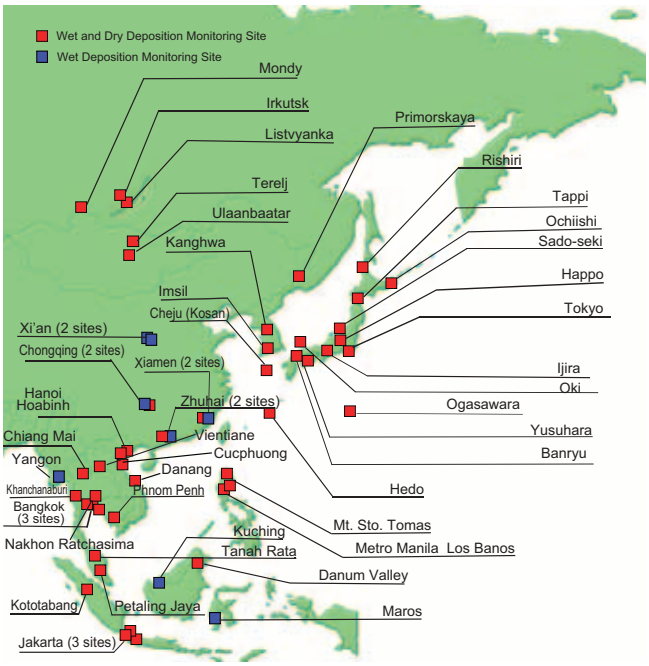
- Preparation of draft national monitoring plan.
- Collection, evaluation and storage of national monitoring data.
- Submission of monitoring data to the Network Center.
- Implementation of the national segment of the Network's QA/QC programs.

Other Tasks

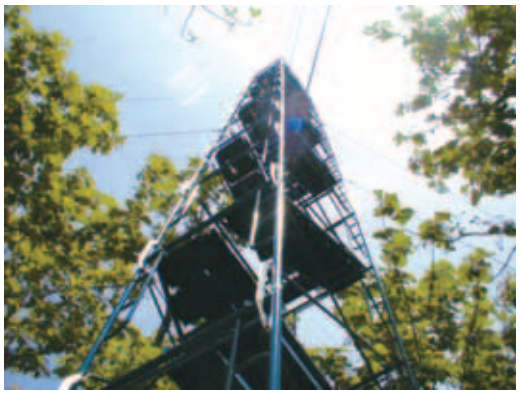
- Operation and maintenance of a few Network monitoring stations.
- Collection, evaluation and storage of monitoring data of Japanese stations other than the Network stations.
- Dissemination of information related to acid deposition.
- Support for networking of academic and business communities on acid deposition.
- Research on air pollution related issues.

Major achievements

Collection, analysis/evaluation, and storage of monitoring data from participating countries.



◆Wet Deposition Monitoring Sites (54 sites) of EANET (as of 2010).



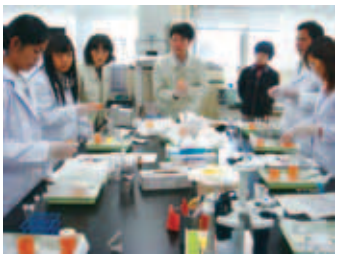
◆Promotion of research activities through joint projects with participating countries, etc.

- Support for revision of EANET monitoring guidelines and technical manuals.
- Issuing of training materials on acid deposition, soil and inland aquatic environment monitoring, and data management.

- Support for developing the "Periodic Report on the State of Acid Deposition in East Asia" (PRSAD) by compiling the results of five years of monitoring.
- Issuance of the annual "Data Report on Acid Depositon in the East Asian Region"
- Implementation of QA/QC programs, such as the inter-laboratory comparison projects.

◆Publication of fact sheet of 13 participating countries in EANET.

- Promotion of public awareness through joint projects with participating countries on developing their own national brochures and videos.



- Implementation of individual trainings at ACAP, and dispatch of technical missions to participating countries.

◆Twelfth Session of the Intergovernmental Meeting(November 2010, Niigata).

- Provision of support for holding EANET meetings, such as Intergovernmental Meetings (IG), Scientific Advisory Committee (SAC), Working Groups, etc., and held public awareness workshops, etc.

Asia Center for Air Pollution Research

Facilities and Equipment / Instruments

- The ACAP building is a two-story building that includes offices, chemical and biological laboratories, a training laboratory, rooms for trainees, one large and one small meeting room, and a library, etc. The building, completed in October 2000, is equipped with back-up electrical power units in case of a black out and pollution control equipment.
- A telemeter system was installed with on-line connections to ten EANET monitoring sites in Japan.
- Computers and software for modeling research activities on long-range air pollutants transport are available.
- Other equipment includes desks, shelves, personal computers, overhead projectors, and other training equipment for trainees.
- Wet and dry deposition sampling can be undertaken for research and training purposes at the Niigata-Maki national monitoring station, located approximately 15 minutes by car from ACAP.

◆Trainees' Room

◆Niigata-Maki National Monitoring Station

◆Laboratory (Training)

◆Laboratory (Atmospheric Research)

◆Computer Room

◆Lecture Room


◆Large Meeting Room


◆Ion Chromatograph


◆Stable Isotope Mass Spectrometer


◆Scanning Electron Microscope

Equipment and instruments such as the following are available for research and training purposes.

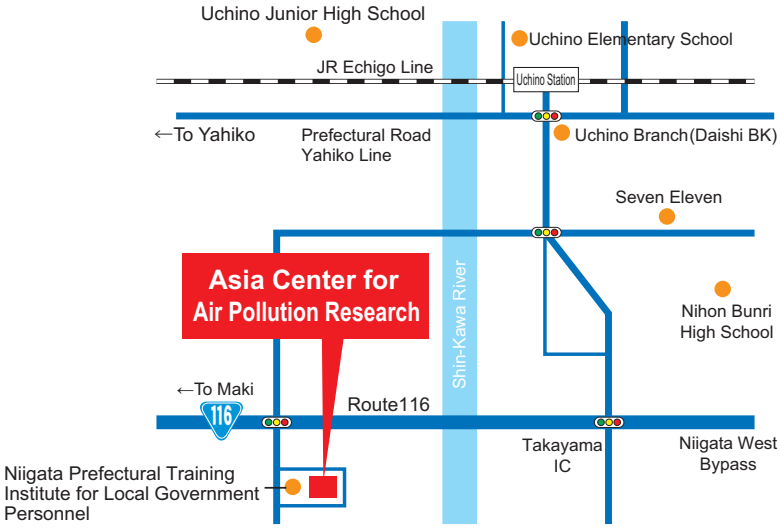
- **Equipment and instruments for analysis of wet and dry deposition monitoring samples and samples for soil and vegetation, and inland aquatic environments.**
  These include several ion chromatographs (ICs) for anion and cation analysis, respectively, atomic absorption spectrometer (AAS), pH meters, conductivity meters, and deionized water apparatus.

- **Equipment/instruments for sampling of wet and dry deposition.**
  These include a few types of wet-only samplers, standard rain gauges, denuder instruments, filter pack kits, high-sensitivity automatic instruments for detecting air pollutants, and dry deposition flux measurement systems.

- **Modern equipment/instruments for sophisticated research activities.**
  These include a stable isotope mass spectrometer, scanning electron microscope, gas chromatograph mass spectrometer, liquid chromatograph mass spectrometer, inductively coupled plasma-mass spectrometer, and OC/EC analyzer.


◆Research on Wet Deposition at
Niigata- Maki National Monitoring Station


◆Gas Chromatograph Mass Spectrometer



Directions for access to the Asia Center for Air Pollution Research (ACAP)

●From the Kanestu Highway "Niigata-Nishi" exit:

Go through the Niigata west bypass to the Uchino area, and continue straight ahead for about five minutes. Turn left at the Sowa intersection, turn left in front of the Niigata Prefectural Training Institute for Local Government Personnel. From here, the ACAP building is about 250 meters ahead on the right side.

●From the Maki area via Route 116

Take Route 116 to Niigata. Turn right at the Sowa intersection.

●From Narita Airport to Niigata

The fastest way to get to Niigata is to take the JR Narita Express (NEX), which takes roughly one hour for the one-way journey. Change trains to the JR (MAX) Toki (Joetsu Shinkansen) at Tokyo Station (takes about two hours from Tokyo). At Niigata Station change to the JR Echigo line (local line) and get off at Uchino Station, then take a taxi at Uchino Station to ACAP (five-minute trip).

●From Niigata Airport

Shuttle bus service is available between Niigata Airport and Niigata Station. Get off at the South exit of Niigata Station. Take the train to Uchino Station (on the Echigo line). Take a taxi at Uchino Station to ACAP (five-minute trip).

Asia Center for Air Pollution Research
Japan Environmental Sanitation Center
URL:http://www.acap.asia
1182 Sowa, Nishi-ku, Niigata-shi, 950-2144, Japan
Phone (+81)25-263-0550 Fax (+81)25-263-0566

Japan Environmental Sanitation Center (JESC)
Head Office/ East Branch Office
10-6 Yotsuyakami-cho, Kawasaki-ku, Kawasaki City, Kanagawa Prefecture, 210-0828, Japan
West Branch Office
5-11 Shirakibaru 3-chome, Onojo City, Fukuoka Prefecture, 816-0943, Japan

Recycled paper

February 2011