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AsiaFlux Newsletter

Contents

● Basic Concepts of the Framework on Earth Observations
● Report on the 2003 AGU Fall Meeting - The current flux monitoring research
● Post-Workshop Field Trip to ChinaFLUX Sites in the Southern China
● Forest Carbon Cycle Studies in Kitasaku Research Site
—Birch (*B. ermanii*) forest near Mt. Asama—
● International Symposium on Global Environment Monitoring

Basic Concepts of the Framework on Earth Observations

Gen INOUE
National Institute for Environmental Studies, Japan

The English version of "Chikyu Ondanka Kenkyu no Saizensen' (The State of Art of Global Warming Research) edited by the Council for Science and Technology Policy (CSTP) of the Cabinet Office of the Japanese Government will soon be published by Kluwer Academic Publishers. From this monograph, you will know that Japan has had a long history of Earth observations related to Global Warming and has accumulated large volumes of data. As compared with the western countries, however, observation activities in Japan are limited in volume. Furthermore, the number of monitoring sites throughout the Asian region is small; and the network for exchanging data and other information and for quality assurance does not work effectively.

The next phase is to envision a ten-year strategy of the research or monitoring in this field. In Japan, relevant ministries in charge of the global environmental issues often take initiatives and push forward their plans without exchanging information each other. There is thus a possibility that China or Korea may take over Japan in initiating the unified strategic earth observation programs.

Following the Earth Observation Summit on July 31, 2003 in Washington DC, where we initiated a grand scheme, a working group (WG) on Earth Observations was established under the Global Warming Initiatives of CSTP to discuss the ten-year strategy of earth observation of Japan.

The WG submitted a skeleton paper on Earth Observation Strategy of Japan, to the 3rd Meeting of the Environmental R&D Promotion Project Team, held on December 19, 2003. The implementation plan is under discussion, and Readers' opinions on the framework or implementation plan are, therefore, welcome. It is expected that this strategy would ultimately lead to more effective monitoring systems and encourage us to make productive discussions on international cooperation to improve the Earth Observation Systems in Asia.

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Basic Considerations of the Framework on Earth Observations

Secretariat

The framework consists of the following eight components.

1.Fundamental objectives

・To contribute to comprehensive policy making in order to secure sustainable socio-economic development of human life and welfare while deepening our understanding of the Earth system.

・To promote efficient observation studies within the framework of international cooperation through optimal allocation of financial and human resources.

・To take advantage of unique features and comparative strengths of our country in establishing the global monitoring system through international cooperation.

・To strengthen international cooperation in Asia, especially in regions of East Asia, South-East Asia, and Oceania

2. Need-based Monitoring strategy

・To develop a strategy in consistent with needs of the initiative

・To carry out global monitoring observations in response to requests from process and modeling research programs.

・To enhance the quality of long-term monitoring in an effort to cope with the global environmental problems.

3. Establishment and promotion of an integrated monitoring system

・To establish and strengthen a comprehensive and integrated monitoring system based on land surface, ocean, aircraft, and satellite observations.

・To develop a new integrated monitoring system which is flexible in response to changing demands, while improving the current monitoring system.

・To develop an effective integrated system for data storage, retrieval, conversion and information exchange.

・To contribute to building a global socio-economic database besides earth observation data relevant to natural sciences.

4. Development of a new monitoring method

・To develop a new monitoring methodology or platform focusing on future Earth observation system.

・To meet the needs and expectations of studies employing large volumes of data such as observation, monitoring, and modeling research.

5. Transition from research monitoring to operational monitoring

・To evolve to an effective monitoring system, from long-term monitoring system initiated by researchers to an operational monitoring system, based on the current monitoring systems maintained by researchers.

6. Data access and distribution

・All data must be open to the public in principle.

・Data must be supplied quickly at a minimum cost.

・Researchers must be given priority in data dissemination activities for a given period time following internationally accepted standards and criteria.

・It is necessary to construct a shared data system with data format standards to enhance data distribution, while maintaining the existing system and standards.

7. International cooperation

・International cooperation is necessary to construct a system for promoting data exchange among countries and for handling missing temporal and spatial observation data.

・Japan should assert its leadership at both regional (East-Asia, Southeast Asia, Oceania) and global levels.

・Japan should support the creation of necessary infrastructure and enhance development of human resources especially in developing countries of Asia and the Pacific. Furthermore, it should encourage participation of developing countries in monitoring activities.

8. Organizational System for implementing initiatives

・It is necessary to construct an effective liaison system of ministries and organizations to boost global monitoring activity

・It is important to involve public and civil organizations, including NGOs, in the process and to take appropriate measures for disseminating information to the public.

Report on the 2003 AGU Fall Meeting - The current flux monitoring research

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1. Introduction

The 2003 AGU (American Geophysical Union) Fall Meeting was held at Moscone Center West, San Francisco, USA from December 8 to 10, 2003. Moscone West, the new meeting facility with light and airy lobby areas, has enough space for both oral and poster sessions giving a considerable open feeing. More than 10,000 scientists, graduate students, technicians participated, including over 100 participants from Japan and many others from Korea, China and other countries.

The 2003 AGU Fall Meeting at Moscone Center West, San Francisco

There were 20 special fields in total, and both oral and poster presentations on flux monitoring were made in fields such as Atmospheric Science, Biogeosciences and Hydrology. Presentations continued throughout five days as a congested schedule.

The interesting feature in the research of flux monitoring and other greenhouse gases topics in the 2003 fall meeting was integration trend of respective special fields, which provides unification of multi-disciplinary studies at each flux site. Session for the research report at individual flux monitoring site was not held, due to enhance the inter-disciplinary studies at each. Alternatively, session numbers of integrated studies on remote sensing and model estimation, scale up to catchments and regional scale, analysis and examination of data quality were increased. In addition, the number of presentations employing integrated data analysis (combination of flux data with stable isotopes, hydrologic balance, and chemical budgets for river discharge) increased.

For additional details on the 2003 AGU Fall Meeting, visit URL: http://www.agu.org/meetings/fm03/index.shtml

2. Program and abstracts

In the field of Atmospheric Science, there were 314 oral presentations in 42 sessions, and 534 poster presentations in 27 sessions. The Biogeosciences field had, 257 oral presentations in 35 sessions and 455 posters in 25 sessions, also the Hydrology field had 381 oral presentations in 51 sessions and 732 posters in 37 sessions. (See Table 1: Sessions related to flux observation network presented at AGU 2003 fall meeting) Six to eight papers were presented within an oral session of two hours. Ten to 25 posters were presented and discussed in one of four sessions on each day. From the second day of the fall meeting, exhibitions by commercial companies and other organizations such as NOAA, NASA, JAMSTEC were made to present their latest scientific instruments, equipment, software, books and journals, minerals, fossils, and scientific programs.

3. Some interesting presentations

3.1 Flux Validation on a Regional Scale

Scale up procedures and methods of flux monitoring results to a large area were presented and discussed. One way to evaluate flux on a regional scale was application of atmospheric CO_2 concentration data (measured using a 500 m-tower or aircraft) to energy balance in the atmospheric boundary layer using inverse model, etc. A few studies attempted to calculate the monthly mean flux from the difference in CO_2 concentration between the atmospheric boundary layer and free atmosphere, and the other estimated monthly mean surface flux from the amplitude of daily CO_2 concentration changes. Some others tried to evaluate the meso-scale transportation of CO_2 in the atmospheric boundary layer with CO_2 concentration distribution by combining the regional scale transportation model with CO_2 exchange model on the earth surface, while others integrated satellite data with inverse model. Large-scale evaluation of tower flux data was also examined, which evaluated the effects on a wider regional surface balance in the northwestern plains of North America and Siberia. The eddy correlation method employed at homogeneous land surface showed that the flux data obtained represented the characteristics of the measurement region.

3.2 Stable Isotope Studies on Responses of Ecosystems

Measurements of changes in the ratios of stable isotope of carbon, oxygen and hydrogen in cellulose of trees have been conducted at many flux monitoring sites, and the measurements of stable isotope ratio of carbon in the air at terrestrial ecosystems were also carried out applying the Kieling Plot method (using the changes in CO_2 concentration and stable isotope ratio) to separate the contributions of the respiration. Carbon balances in regional scale and boundary layer scale were analyzed by applying the ratio of stable isotope of carbon or oxygen, which provide the fractionation of the net exchange of CO_2 between terrestrial ecosystem and the atmosphere (NEE) into gross photosynthesis and ecosystem respiration. The reported studies of carbon balance using stable isotope ratios had wide extensions from the individual leaf, tree level to community level and to the atmospheric boundary level. These presentations clearly showed the importance of comprehensive studies on the fractionation of stable isotopes in plants, and reported importance of the studies on the background data of stable isotope ratios in the atmosphere and precipitation

3.3 Integration with Remote Sensing

To achieve a wide scale application of remote sensing and evaluate its application on CO2 flux monitoring, the two research areas are being integrated. The Normalized Distribution of Vegetation Index (NDVI) was calculated from the measurements of spectrum at the flux monitoring sites and satellite data as a new attempt of SpecNet to integrate spectrum results at each ecosystems site, similar to the FLUXNET, and to examine the seasonal variations of NDVI and fluxes in a large scale. The aim of such activity was to scale up the evaluation areas and improve the accuracy of carbon balance evaluation, in which satellite data and both CO_2 flux and spectrum data at each tower site were used to clarify the differences in relationships among different vegetation types, seasonal differences, and weather changes.

3.4 Study on Micro-chemical Compounds

Studies on flux exchange process, and the chemical reaction of Biogenic Volatile Organic Compounds (BVOC) in terrestrial ecosystems in relation to anthropogenic disasters such as forest fire were reported. REA (Relaxed Eddy Accumulation) was mainly applied to determine the trace gas flux, but other methods such as chamber technique and METT were also used. Although conventional gas detectors such as GC-FID, GC-MS, and HPLC were mostly used to analyze BVOC, the state-of-art analysis method of PTR-MS (Proton Transfer Reaction Mass Spectrometry) was used in some studies. The progress in analytical methodologies played an important role to promote the research in quality. The importance of BVOC flux monitoring is well recognized among the FLUXNET in western countries, and accordingly large amount of funding and considerable amount of human resources are allocated for the project.

Table1 Sessions related to Flux Observation Network presented at AGU 2003 fall meeting

Atomspheric Science	Oral	Poster
Effects of Biomass Burning Plumes on the Troposphere and Stratosphere	2	2
Use of Inverse Modeling for Constraining Global Budgets of Atmospheric Trace Gases	2	1
Biogenic Reactive Trace Compounds and Their Role in Atmospheric Chemistry and Climate	3	1
Isotopic Constraints on Global Budgets of Atmospheric Gases	2	1
Chemistry and Composition of the Troposphere	0	2
Biogeoscience		
Disturbance, Climate, and Management Impacts on Carbon Budgets of Forested Ecosystems	2	1
Regional-Scale Isotopic Interactions Between the Biosphere and the Atmosphere	1	1
Validation and Application of Land Surface Products From the MODIS Sensor	2	1
Terrestrial Productivity and Carbon Storage: Research Issues and Tools	2	1
Carbon Cycling in Northern Soils and Surface Waters	2	0
Ecosystems in Flux: Isotopes as Indicators of Ecosystem Change	1	1
Estimating Terrestrial Carbon, Water, and Energy Fluxes From Site to Region	4	2
Very High Resolution Land Cover Mapping Applications to Resource Management	0	1
Hydrology		
Remote Sensing of the Land Surface	2	1

Post-Workshop Field Trip to ChinaFLUX Sites in the Southern China

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As Guirui YU reported in the last issue of AsiaFlux Newsletter, "The International Workshop on Flux Observation and Research in Asia" was held successfully between 1st and 3rd December 2003 in Beijing, China. The workshop committee also provided us an opportunity to visit ChinaFLUX sites in the southern China.

Qianyanzhou site

Qianyanzhou flux observation site (26° 44'N, 115° 04'E, 100 m asl) is one of the four major forest observation sites of Chinese Ecosystem Research Network (CERN), and is located in the middle of Jiangxi province, the southern China. The Qianyanzhou site was about 45 km apart from Taihe city, the capital of Taihe County. It took two and half hours by flight from Beijing to Nanchang, the capital of Jiangxi province, and then about four hours by highway bus from Nanchang airport to Taihe city. A two-hour bus tour from Taihe city to Qianyanzhou station was comfortable, except for sloughing through the dirt road for the last several kilometers.

The flux observation site is situated in Qianyanzhou Agricultural Experimental Station of Red Soil and Hilly Land, which is affiliated to Institute of Geographical Sciences and Natural Resources Research, Chinese

Photo. 1 Eddy covariance measurement system on the flux tower of Qianyanzhou Station.

Academy of Science. About 20 scientists and post-graduate students are working in the station. As defined by the station name, the soil is characterized by typical red soil, which distributes widely in southern China. Qianyanzhou region is classified into subtropical monsoon climate zone, with annual mean air temperature of 18° C and annual precipitation of 1500 mm; in winter, however, air temperature sometimes goes down below zero and it has frost. It had much more precipitation in 2002 than normals, while in 2003, severe draught continued since summer. According to an introductory pamphlet of Qianyanzhou Experimental Station, most of native vegetation in this area is disturbed by human activities during land use change in China.

A newly built 42-m high flux tower stands in hilly pine plantation of about 20 years old. The dominant species are *Pinus elliottii*, *Pinus massoniana*, *Cunninghamia lanceolata*, and *Schima superba*. Canopy height is ca.15 m, and the vegetation below canopy was not dense. We cannot describe ecological details of the forest, but it seems to be a nice forest for hiking with family. The instruments installed on the flux tower are more than standard in quantity and quality when compared with most AsiaFlux sites in Japan, and they are organized well. Open-path eddy covariance systems, which consist of a well-known combination of CSAT3 (Campbell Scientific Inc.) and LI-7500 (LI-COR Inc.), are working at three levels of the tower (15, 23 and 41 m; Photo. 1). A closed-path system is also working at 23 m. Results of these multi-level flux measurements can be helpful for understanding CO_2 exchange over the hilly terrain. Additionally, a seven-height CO_2 profile system, including a LI-COR's gas analyzer and a Campbell's data logger, is installed on the tower. Moreover, a scintillometer was mounted at the middle of the tower to measure path-averaged fluxes across an upwind valley. CO_2, CH_4 and N_2O emissions from the forest soil are also measured monthly by utilizing a static chamber system (Photo. 2). Several bamboo-made scaffolds for ecophysiological measurements seem to be suitable for this ecosystem.

We were very impressed with that ChinaFLUX generally unifies not only equipped instruments but also processing procedure. This is quite different from AsiaFlux sites in Japan, and is undoubtedly advantageous for inter-site comparisons within the ChinaFLUX. At Qianyanzhou site, many interesting ecological and agricultural studies are also conducted. We were guided to a filed, in which they studied influence of intensified UV-B radiation on rice.

As the case for other FLUXNET sites, Qianyanzhou flux observation site is only operated by a senior scientist, Yun-Fen LIU, with assistances of several staffs of the station and graduate students. They have to do everything from keeping a lot of instruments for pro-

Photo. 2 Static chamber used within ChinaFLUX for measurements of CO_2, CH_4, and N_2O emissions from the soil.

cessing and analyzing huge number of data, which is really exhausting work. We sincerely hope that Qianyanzhou site could be kept working for a long period, at least ten years, so that it can make invaluable contribution to ChinaFLUX and AsiaFlux activities. Collaborations with other ChinaFLUX sites and close communication with Japanese and Korean Fluxnetters will help successful operation of Qianyanzhou site.

Dinghushan site

Taking a farewell to Qianyanzhou site, we took a night-train for about twelve hours and arrived at the oldest city, Guangzhou, in southern China. Dinghushan flux observation site (23°10'N, 112°34'E) is located in Dinghushan biosphere reserve of Zhaoqing, about 80 km in southeast of Guangzhou, Guangdong province. This reserve is controlled under the South China Institute of Botany, Chinese Academy of Science. The site lies in the low mountains and hilly lands, with an altitude from 14 to 1000 m, and it has a complicated topography. The region is most influenced by the monsoon humid climate of torrid zone of South Asia. Mean annual temperature is 21°C, with a mean maximum of 28°C in July and a mean minimum of 12°C in January. Mean annual precipitation is 1,956 mm, with dry season during the winter and wet season from April through September. Relative humidity is high and fairly constant (ca. 82%) throughout the year.

A 38-m high flux observation tower was built in 2002 at the altitude of 300 m. Vegetation is typical evergreen broad leaved forest of subtropic and tropics. The dominant species in canopy layers include *Cleistocalyx operculatus, Syzygium jambos, Castanopsis chinensis, Pinus massoniania,* and *Rhododendron moulmainense*. The forest understory is densely covered by ferns. Geologically the soils of the reserve are characterized by lateritic red-earth, with yellow-earth and mountain shrubby-meadow soil.

Jun-Hua YAN is in charged of the routine flux measurements at Dinghushan site. An open-path eddy covariance system is installed at 30 m high on the tower and at forest understory, respectively (Photo. 3). As same as in Qianyanzhou, a seven-height CO_2 profile system is installed on the tower to measure canopy storage flux; nine chamber collars are fixed in the forest floor to measure soil gases emissions monthly. The president of the South China Institute of Botany introduced us that their institute, based on the collaboration with Australia's Commonwealth Scientific and Industrial Research Orgnisation (CSIRO), is focusing on modeling the carbon balance of terrestrial ecosystems in the southern China.

Acknowledgments

We express sincere gratitude to Qianyanzhou Experimental Station and South China Institute of Botany for their introductions as well as hospitality with delicious Chinese foods. Our thanks are also to the workshop organizer for providing us comfortable accommodation and transportation.

Photo. 3 An open-path eddy covariance system at Dinghushan site.

Forest Carbon Cycle Studies in Kitasaku Research Site

—Birch (*B. ermanii*) forest near Mt. Asama—

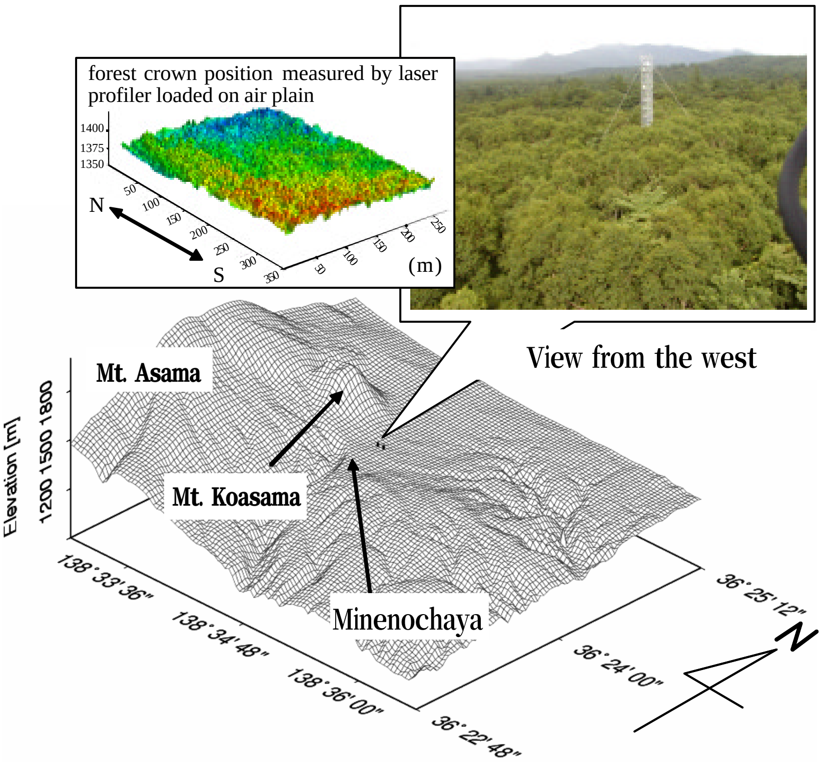
Koh NAKAYA, Hideshi IKEDA, Chieko SUZUKI, Sinji YASUIKE, and Takuya KOBAYASHI
Central Research Institute of Electric Power Industry, Japan

The experimental site was located at a 50 yr old secondary deciduous forest near Mt. Asama, central Japan (36° 24'N, 138° 35'E, elevation 1,380 m). The experimental site was on organic layer developed on volcanic deposits in a flat terrain with gentle slope of -3 degrees from the southwest to the direction of the northeast. Predominant winds through the year were from the north with a forested fetch of ca. 1.5 km and from the west with a fetch of ca. 600 m. Annual mean temperature is 7.7° C and mean annual amount of precipitation is 1,211 mm at Karuizawa weather station (elevation 999 m).

The dominant canopy tree species was Betula ermanii and other species followed (*Alnus hirsute, Sorbus commixta* and so on). This mixed deciduous broadleaved forest was ca. 18 m tall and trees in understory developed (*Euonymus planipes, Hydrangea paniculata*). Forest floor was covered with undergrowth without bamboo grass. Seasonal leafing period is from May to October. The leaf area index (LAI) of the stand, which was estimated from litterfall data, was 5.2 in maximum. The snow cover period is from December to March and the maximum depth was 0.7 m.

Flux observation (by K. Nakaya)

Two 28 m tall scaffolding towers are erected through the canopy, 88 m away from the east and the west. The scintillometer transects was established between these towers at height of 23 m and 28 m AGL. An eddy-covariance system was set-up at the top of the east tower. CO_2 concentration is measured with both closed-path IRGA and open-path IRGA. Additional profile method for flux measurement has been performed. The net ecosystem exchange (NEE) in 2002 is 5.2 $tCha^{1}yr^{1}$



Research items for forest carbon cycle studies

	method	number of point	frequency
biomass	DBH, height laser profiling by air plain	—	1/year
litter	litter trap	20	suitable
LAI	litter trap LAI-2000	20	suitable
soil moisture	TDR ECH2O	1point, 4depth 5points, 1 depth	continuous
soil temperature	Platinum resistance thermomete	1points, 8 depth	continuous
soil carbon content	guide line of coastal research	2points (0-5, 7.5-12.5cm) 4points (0-5cm)	1/month (April-Nov.)
soil respiration	circulation chamber method	1	1/month
	alkali adsorption method	15	1/month
soil water chemistry	suction collect ion chromatograph acidimetric method	6 10, 20cm)	1/month (April-Nov.)
others	Stable isotope analysis Chemical analysis of carbon	—	suitable

which had been evaluated with the closed-path system. In this study, effect of wind direction dependent characteristics on scintillometer measurements, and a determination method of the seasonally changing zero plane displacement using bi-height scintillometer measurements, were reported. We hope to develop the spatial representative flux measurement technique and to evaluate total carbon balance in this research forest.

Carbon dynamics in Vegetation - Forest soil System (by H. Ikeda)

We are observing carbon dynamics in atmosphere - vegetation - soil system by the techniques of carbon storage measurements and stable isotope analysis. Laser profiling method (RAMS-e) is applied on tree height measurements, by the jointed project with Kokusai Kogyo co.. Litter fall is observed at 20 points in the site, and Carbon flux is evaluated. In the site, depth of soil layer is about 20 to 30 cm, which covers lapilli layer, erupted by Asama volcano in 1873. Soil organic matter (SOM) is analyzed at 2 points, where migration of SOM in the site is representative. SOM includes labile component (humic acid and fulvic acid) and stabile component (humin). Because these components have seasonal variations and vertical profiles, SOM samples are collected monthly at 2 depths. Decomposition mechanism of SOM is analyzed based on soil moisture and soil temperature observation. Residual part of decomposed SOM runs off from the soil system by soil water and groundwater. Decomposed SOM effluxes to atmosphere (soil respiration) mainly. In the Kita-saku site, we observe soil respiration at 1 point with circulation chamber method and 15 points alkali adsorption method monthly. This observed soil respiration consists of decomposed SOM and CO_2 released from vegetation root. We divide these 2 components with comparison between root alive area and root removed/cut area.

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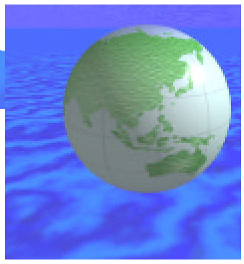
International Symposium on Global Environment Monitoring



National Institute for Environmental Studies(NIES) will hold "International Symposium on Global Environment Monitoring" on April 24 (Saturday), 2004 at MiraiCAN Hall as an Official Side-event for the Earth Observation Summit II Tokyo 2004. The purpose of the symposium is to demonstrate NIES Global Environment Monitoring Activities with latest research outcomes and discuss future environmental monitoring strategies for the Earth Observation Summit II in Tokyo. We are looking forward to your participation.

◆ Date & Time	April 24 (Saturday), 13:00-17:00, 2004 for International Symposium April 23 (Friday) - 24 (Saturday), 10:00-17:00, 2004 for Poster Exhibition
◆ Venue	MIRAIKAN Hall (Museum of Emerging Science and Innovation (Kagaku-Miraikan), 7F) Conference Room 1 (Museum of Emerging Science and Innovation (Kagaku-Miraikan), 7F)
◆ Host	National Institute for Environmental Studies (NIES)
◆ Registration Fee	Free (necessary for advanced registration)
◆ Registration	Please send us E-mail or fax with following information (1) Name,(2)e-mail address, (3)Age, (4)Postal Address(in Japan, if available), (5)Occupation. We will send you the Registration ID Ticket for the symposium by postal mail by April 20. If you are not in Japan, we will send you some ID number to identify registration by e-mail.
◆ Contact	Secretariat of International Symposium on Global Environment Monitoring TEL +81-(0)3-5511-1512, FAX. +81-(0)3-5511-1505, E-mail：nies-sympo@ccc-inc.co.jp

Program of International Symposium (April 24 (Saturday), 13:00-17:00, 2004

Coordinator: Shuzo NISHIOKA, Executive Director, NIES

13:00-13:10 Opening Remarks — Yohichi GOHSHI, President, NIES

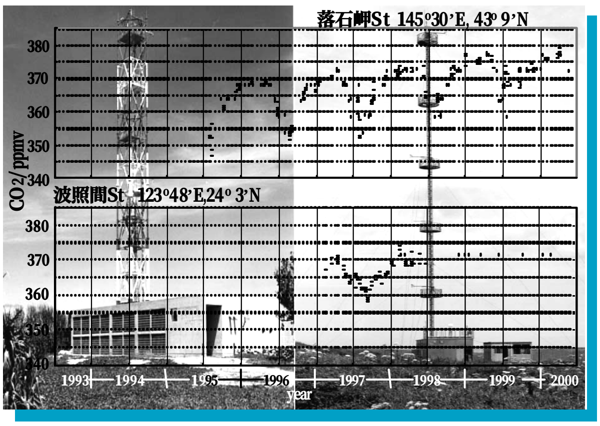
13:10-13:40 Outline of NIES in situ Global Environment Monitoring Activities
Yasumi FUJINUMA, Research Program Manager, Center for Global Environmental Research, NIES

13:40-14:10 Monitoring of Ozone Layer with Ground-based Networks and Satellites
Hideaki NAKANE, Deputy Director, Atmospheric Environment Division, NIES
(Commentator：W. Andrew Matthews, Manager,
Pacific National Institute of Water & Atmospheric Research, New Zealand)

14:10-14:40 Observation of Ocean CO_2 Flux and International Collaboration
Yukihiro NOJIRI, Leader,
Carbon Cycle Research Team,
Climate Change Research Project

14:40-15:00 Coffee Break

15:00-15:30 Observational Study of Natural Halocarbons in the Atmosphere
- For Improved Understanding of Atmosphere and Biosphere Interactions -
Yoko YOKOUCHI,
Independent Senior Researcher,
Environmental Chemistry Division, NIES



15:30-16:00 Scientific Interests of Monitoring Network for Kosa Aerosol in Northeast Asia
Masataka NISHIKAWA, Leader, Environmental Analytical Chemistry Laboratory, Laboratory of Intellectual Fundamentals for Environmental Studies, NIES (also Leader for KOSA Research Team, NIES)

16:00-16:30 Long-term Monitoring of Ecological Services in Tropical Forest
Toshinori OKUDA, Leader, Tropical Ecology Section, Environmental Biology Division, NIES

16:30-16:50 Summary of the Symposium

16:50- Closing Remarks

Editor's Note

National universities have become Independent administrative corporations.
Please expect much of us!

The editor of AsiaFlux Newsletter No.9:
Kentaro TAKAGI
(Hokkaido University)

The tentatively scheduled editor of AsiaFlux Newsletter No.10 is Tetsuya HIYAMA (Nagoya University).

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