# Symposia and Workshops

## 1. Conferences, Workshops and Research Meetings

| Title | Place | Date | Participants |
|---|---|---|---|
| The 3rd Seminar on Risk Assessment and Prevention of Invasive Alien Plants: How Should We Face Against Alien Plants? | Okayama University | August 5, 2006 | 165 |
| International Workshop on Development of Database (APASD) for Biological Invasion | Taiwan ROC | September 19-21, 2006 | 60 |
| Korea–Japan Joint International Symposium: Nitrogen Behavior and its Effective Management in Agro-Ecosystems | Korea | September 21-22, 2006 | 200 |
| 3rd Meeting for the Presentation of NIAES Research Topics: Thinking about Agriculture and the Environment | Meiji-Yasuda Life Hall | September 28, 2006 | 221 |
| The 4th Seminar on Risk Assessment and Prevention of Invasive Alien Plants: Research Findings in One-Year | Electric Building, Fukuoka | October 21, 2006 | 75 |
| The 6th Seminar on Organic Chemical Studies: Current Issues and Counterstrategies in Drift of Chemicals to the Atmosphere | NIAES | October 5, 2006 | 119 |
| The 23rd Research Meeting on Pesticides: Pesticide Residue in Minor Crops – Problems and Future Issues – | NIAES | October 6, 2006 | 122 |
| The 4th Symposium of Environmental Research Institutes in Japan | Tsukuba International Congress Center | November 28, 2006 | 123 |
| Aquatic and Ecological Environment in Koise-River Watershed: Toward the Establishment of Agriculture, Forestry and Fisheries Co-existing with Nature | Tsukuba International Congress Center | December 8, 2006 | 120 |
| The 5th Seminar on Risk Assessment and Prevention of Invasive Alien Plants | Tokyo International Forum | December 10, 2006 | 127 |
| NIAES International Symposium 2006: Evaluation and Effective Use of Environmental Resources for Sustainable Agriculture in Monsoon Asia –Toward International Research Collaboration | Tsukuba International Congress Center | December 12–14, 2006 | 276 |
| The 24th Seminar on Soil and Water: Soil as a Base for Material Circulation—its Role in the Carbon Cycle | Tsukuba Office, Agriculture, Forestry and Fisheries Research Council | February 21, 2007 | 122 |
| The 23rd Meteorology Workshop: Plant Responses to Air Pollutants and Global Changes | NIAES | March 9, 2007 | 122 |
| Towards the Establishment of Future-Oriented Urban Society with Agriculture and Industrial Cluster of Food and Agriculture | Toyohashi University of Technology | March 12, 2007 | |

## 2. Sixth Seminar on Organic Chemical Studies: Current Issues and Counterstrategies in Drift of Chemicals to the Atmosphere

The Sixth Seminar on Organic Chemical Studies was held on 5 October 2006 at the NIAES conference hall. Five domestic speakers experienced in pesticide drift to the atmosphere were invited from government, independent administrative institutions, and Japan's National Federation of Agricultural Co-operative Associations (Zen-Noh). There were a total of 119 participants.

Various organochemicals are drifting in the atmospheric environment, and sick house syndrome and chemical sensitivity have recently become serious problems. In agriculture, pesticide spraying causes spray and vapor drifts, and the population is also exposed directly and indirectly via the crop and soils. Twelve compounds are currently listed by the Stockholm Convention as persistent organic pollutants (POPs), and nine of them are pesticides or their byproducts. POPs are characterized by a high level of hazard (highly toxic) and high exposure potential (long persistence in the environment, high bioaccumulation, long distance transport). We are concerned that not only POPs but also pesticides are having adverse effects on human health and the environment. The objectives of this seminar were to define the current issues and counterstrategies in the risk management of chemicals in the atmosphere, including pesticide drift, and to discuss the directions of further studies.

The following topics were presented at the seminar: 1) Provisions for dealing with chemicals under the Air Pollution Control Law (M. Kida, Ministry of Environment); 2) Exhaust of pollutants and their behavior in the atmosphere (K. Kawamoto, National Institute for Environmental Studies); 3) Approaches to drift studies using an atmosphere–vegetation model (K. Inoue, National Agricultural Research Center; T. Watanabe, Forestry and Forest Products Research Institute); 4) Approaches to combating the spray drift of pesticides (Y. Kawahata, Zen-Noh); and 5) Status quo of studies of pesticide vapor drift, and new approaches to these studies (Y. Kobara, NIAES).

A group discussion was conducted to promote the exchange of opinions. Participants exchanged ideas on spray drift, vapor drift, and models to simulate drift. The general discussion emphasized the urgency and significance of these issues and revealed that participants had a mutual understanding of them.

## 3. The 24th Seminar on Soil and Water: Soil as a Base for Material Circulation—its Role in the Carbon Cycle

On 21 February 2007, the 24th Seminar on Soil and Water was held at the Tsukuba Norin Hall in the Tsukuba office of the Agriculture, Forestry and Fisheries Research Council Secretariat. At this seminar, as part of the international effort to address global warming since the Kyoto Protocol entered into force, the newest research results were reported and the discussion focused on the following points: 1) dynamics of soil carbon at the global and regional scales; 2) humus as inherent soil organic matter at a micro-scale; and 3) sustainability of soil fertility at the field scale under changing cultivation systems. The total number of participants on that day was 215: 90 from municipal governments, 13 from universities and colleges, 16 from private companies, 51 from national institutes, and 45 from NIAES.

Nine speakers gave presentations on the following topics: 1) Aim of the seminar: role of soil in the carbon cycle as a base for material circulation (K. Sugahara, NIAES); 2) Newest trends in research on the carbon cycle at a global scale: results of the Global Carbon Project and relevant projects of the Ministry of Environment (Y. Yamagata, National Institute for Environmental Studies); 3) Elucidation of the carbon cycle in an agriculture–forestry–fisheries ecosystem: introduction of the Global Warming Project of the Ministry of Agriculture, Forestry and Fisheries (K. Yagi, NIAES); 4) Evaluation of soil carbon change at a regional scale: extension of the Rothamsted C model (M. Yokozawa, NIAES); 5) Carbon balance of forest ecosystems, focusing on the pedosphere and long-term monitoring of soil respiration (A. Kishimoto, NIAES); 6) Relationship between dynamics of soluble organic matter in the soil and carbon accumulation (R. Wagai, Kyoto University); 7) Mechanism of accumulation of humic substances in the soil (N. Yamaguchi, NIAES); 8) Differences in farmland management practices and carbon sequestration in upland fields (N. Koga, National Agricultural Research Center for the Hokkaido Region); and 9) Influence of continuous paddy–upland rotations on soil fertility (N. Kato, National Agricultural Research Center for the Tohoku Region).

The general discussion focused on the following points:

1. Carbon cycle at a global scale

In relation to the carbon dynamics of East Asia, Dr. Yamagata pointed out problems such as the fact that organic matter flows out into water bodies as a result of the

destabilization of peat bogs. Because plans to drain wide areas of peat bogs for agricultural use are being implemented in Indonesia and Malaysia, it is possible that these areas will become sources of carbon dioxide.

2. Mechanism of accumulation of soil carbon

In response to the question of whether the long-term influence of paddy–upland rotation can be predicted by the Rothamsted C model, Dr. Yokozawa replied that he wanted to tackle it as a future subject. In response to the question of whether the maximum amount of carbon stored in the soil can be estimated from the soil contents of Al and Fe, Dr. Wagai and Dr. Yamaguchi replied that this would be difficult. Dr. Koga's response to the question of how much deep he evaluates in farmland was that he follows the guideline (30 cm) of the International Panel on Climatic Change (IPCC).

3. Management of organic matter and food production:

Dr. Morihiro Maeda made the following comments: 1) the application of organic materials with high carbon to nitrogen (C/N) ratios may have a negative effect on plant growth; and 2) paddy–upland rotations should not be stopped from the viewpoint of carbon decomposition, although they decrease the carbon content in soil. In addition, Dr. Koichiro Aramaki commented that, if the objective is to store carbon, then he would recommend extensive fertilizer application in the form of bark compost. In light of these comments, the discussion focused on the question of what kind of soil management is desirable to prevent the decrease in soil fertility that results from paddy–upland rotation.

## 4. 23rd Meteorology Workshop: Plant Responses to Air Pollutants and Global Changes

The 23rd Meteorology Workshop was held to on 9 March 2007, with eight speakers and about 130 participants, in the NIAES meeting hall. The objective of this symposium was to review research on plant response of to air pollutants and global changes in the past, present, and future. After the opening address by Dr. Y. Sato, President of NIAES, the eight speakers gave presentations. The topics can be summarized as follows. Dr. I. Nouchi, Director of NIAES, reviewed the results of the last 40 years of Japanese research on the effects of ozone on plants. He showed that crop production in East Asia will decrease in response to the increase in ambient ozone concentration that is a consequence of the recent economic development in China. Dr. H. Saji (National Institute for Environmental Studies) explained that there are two strongly supported theories on the mechanism by which ozone injuries plants: the active oxygen toxicity theory and the programmed cell death inducement theory. Dr. K. Ogawa (Center for Environmental Sciences in Saitama) conducted that a principal cause of the decline observed in Japanese cedar, *Cryptomeria Japonica*, in areas such as the plains of the Kanto district is not acid rain, but the recent periods of low air humidity and water stress. From the results of high-altitude observations of ambient ozone concentrations and simulations of mountain air streams, Dr. Y. Kohno (Central Research Institute of Electric Power Industry) proposed that the cause of decline of beeches on the mountaintops and ridgelines in the Tanzawa Ranges of Kanagawa Prefecture might be both the influence of ozone and the strong winds that are a product of the geography of the area. Dr. J. Hidema (Tohoku University) reported that UV-B enhancement levels of 40% above ambient decreased the yield of "Sasanishiki" rice and also increased the proportion of small brown rice grains. Dr. T. Hasegawa (NIAES) reported from FACE experiments that $CO_2$ enrichment at 200 ppm above ambient $CO_2$ concentration increased rice yield by about 14% in both Japan and China. Dr. T. Matsui (Gifu University) explained that there were two ways in which heat can induce spikelet sterility in rice plants: by defective pollen dispersal and by defective anther opening. From the results of field observations and the analysis of a heat balance model to simulate panicle temperature, Dr. M. Yoshimoto (NIAES) explained that the actual temperature of the panicles is more important than the air temperature in generating heat-induced spikelet sterility in rice plants. Finally, a panel discussion, "Development of research to evaluate plant responses to atmospheric environmental change" was held by the eight speakers. Panelist and participants agreed that the mobilization of wide research powers is essential if we are to promote research to predict changes in agricultural production from global warming, these changes are now an issue of the greatest concern worldwide.