

## Summary of the meeting with Dr. Alexander Bychkov

### 1. Personal Profile

#### (1) Name

Dr. Alexander Bychkov

#### (2) Affiliation

Executive Secretary, North Pacific Marine Science Organization (PICES)

#### (3) Major professional experiences (only selected ones)

- Ph.D. in Analytical Chemistry (Institute Geochemistry and Analytical Chemistry, Russian Academy of Science (RAS), 1978)
- Leading Research Scientist, Pacific Oceanological Institute (POI), Far-Eastern Branch of RAS
- Head, Climate Chemistry Laboratory, POI, Far-Eastern Branch of RAS
- Chairman, Northern Pacific Synthesis Group, Joint Global Ocean Flux Study (JGOFS), International Geosphere-Biosphere Program (IGBP)

#### (4) Areas of expertise

Marine Science (chemical oceanography, carbon cycle)

### 2. Meeting Specifications

#### (1) Date

December 2, 2013

#### (2) Venue

Special Conference Room, NIES

#### (3) NIES participants

- Dr. Akimasa Sumi, President
- Dr. Hideo Harasawa, Vice President
- Mr. Hiroyasu Tokuda, Vice President
- Dr. Shogo Murakami, Executive Research Coordinator; Manager, International Coordination Office
- Dr. Hitoshi Mukai, Director, Center for Global Environmental Research

#### (4) Discussion procedure

To begin, Dr. Bychkov was provided with reference materials and shown a DVD introducing NIES as a research institution. President Sumi then presented an overview of NIES, and indicated to the advisor the following three general topics as guiding points for discussion:

- (A) Distinctive features of NIES in the areas of advisor's specialization;

(B) Distinctive features of NIES as a research institution involved with the environment, and points of expectation;

(C) Points which NIES should address and strengthen.

Dr. Bychkov was shown around the three facilities with the highest correspondence to his specialty and interests, namely the Biological Resource Collection Building, Center for Environmental Risk Research, and Hydraulic Experimental Laboratory by affiliated researchers, while conducting a frank exchange of opinions with these researchers. This was followed by a further exchange of opinions with researchers from the Center for Global Environmental Research. Subsequently, Dr. Bychkov offered his comments (see 3 below) to President Sumi, based on the information provided, followed by wide-ranging discussion between the attendees.

### 3. Comments by Dr. Bychkov

- (1) NIES is unique in the spatial scales and scope of its research and should exploit this unique feature while maintaining a balance between basic and policy-oriented research

My initial impression from reviewing the website of NIES and informal discussions is that NIES covers the entire field of environmental studies. NIES is perhaps unique in the spatial scales of its research – from local to regional and global issues. The range of research from basic to policy-related is also impressive. It is very important though not to switch completely to policy-oriented research but to continue to maintain basic research. From what I saw today you have modern, high-quality equipment and facilities and highly trained personnel – which means that you have a strong capacity to contribute greatly to basic research.

- (2) NIES should maintain an organizational structure which favors an interdisciplinary approach over a multidisciplinary one

It will become increasingly important for NIES to ensure it encourages an interdisciplinary orientation over a multidisciplinary approach to research activities. From this short visit I could not assess the level of synthesis or interaction between the different fields, centers and programs at NIES. However, one way I believe you could facilitate this is by having particular programs which are implemented by two or more centers.

- (3) NIES should expand the type and scope of its international cooperation and participation in international organizations

While NIES already conducts research over a variety of spatial scales, is engaged in many international exchanges of databases, and has strong communication with Japan's neighboring countries, I believe it should consider expanding to other nations beyond these neighboring countries. NIES participation in more international organizations having the objective of arranging domestic and international activities in common frameworks could be very beneficial.

For example, the main mission of PICES is to promote and coordinate marine scientific research in the northern North Pacific and its marginal seas, an area which is so massive that the individual member countries, however powerful these countries may be, could not cover alone. NIES would greatly benefit from participation in related international organizations to complement its research and information and data exchange beyond its current scope.

- (4) I would like to see NIES expand and renew cooperation in specific research areas, in particular for future collaboration with PICES

NIES used to be actively involved in PICES in two areas: (1) carbon and climate and (2) environmental assessment. From my perspective it would be very beneficial for PICES if NIES again became involved in projects in at least these two areas.

For carbon and climate, I believe that carbon flux measurements from the ocean, and carbon and methane measurements from airplanes and satellites are among your strong areas. What the Center for Global Environmental Research is doing is very relevant to certain PICES activities. Both NIES and PICES also deal with modeling. In the case of PICES, this mostly pertains to downscaling of global models to specific regional issues.

For environmental assessment, the particular area for potential collaboration between NIES and PICES are the issues of radioactivity and emerging pollutants. Marine pollution issues, including radioactive contamination of marine organisms in the North Pacific, have come to the fore at the Marine Environment Quality Committee (MEQ) of PICES. While certain organizations and various universities in Japan cover similar territory, there are particular issues which NIES is uniquely positioned to address. Thus, I believe it would be beneficial to have NIES researchers as members of our Working Groups on *Assessment of Marine Environmental Quality of Radiation around the North Pacific* (WG 30) and on

*Emerging Topics in Marine Pollution* (WG 31).

- (5) Collaboration on related projects can be facilitated by taking advantage of internationally available funding and partner facilities

During my visit, I saw very interesting results for pCO<sub>2</sub> measurements of the surface ocean from the NIES Voluntary Observing Ships (VOS) Program for east-west transects and north-south transects in the western North Pacific. However, there are no data for north-south transects in the eastern North Pacific.

PICES has endorsed the North Pacific Continuous Plankton Recorder (NP CPR) survey since 1999, and has managed the funding consortium that supports this regional activity since 2008. This survey is also a VOS monitoring program that uses commercial ships to collect samples of phytoplankton and zooplankton along their regular routes of passage on a seasonal basis (the north-south transect between Washington State and Alaska is sampled six times per year). Having the NIES pCO<sub>2</sub> system on these ships will allow collection of data in the eastern North Pacific that are complementary to a comprehensive pCO<sub>2</sub> data set owned by NIES for the western North Pacific. This would be an excellent addition to the PICES agenda and a good means for NIES to expand the scope of their monitoring activities. Funding such a project might be feasible.

- (6) Effective communication of research outcomes to policy-makers and the general public is a powerful tool

Translating scientific achievements and outcomes into publicly understandable information for policy-makers and the public is becoming increasingly important, and I believe NIES should commit resources to using this powerful tool. For example, a short brochure could be much more effective than a comprehensive but lengthy report when targeting decision-makers.

- (7) Increase capacity building via participation in training and technology transfer to foster the next generation of researchers

PICES encourages training and technology transfer and there are many programs which I believe are of relevance to NIES, including a visiting fellowship program. Under this program, researchers work for up to three months in the area of their expertise at a host institution. This approach is very successful in educating young people. Capacity building for the new generation of scientists is very important and valuable, and I would like to see NIES participating in and

facilitating such activities.

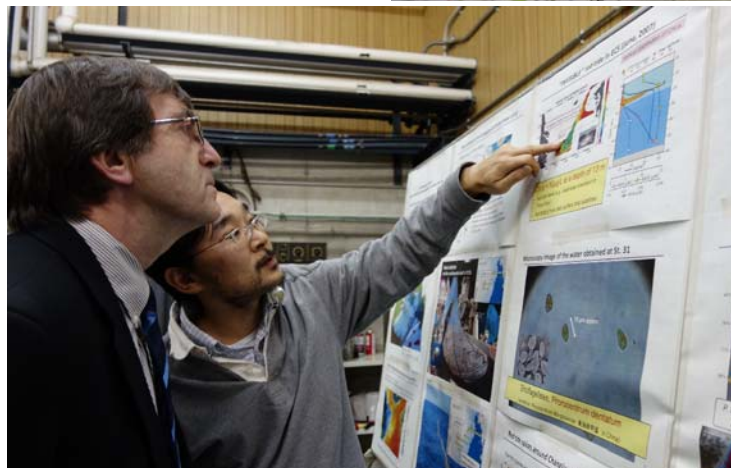
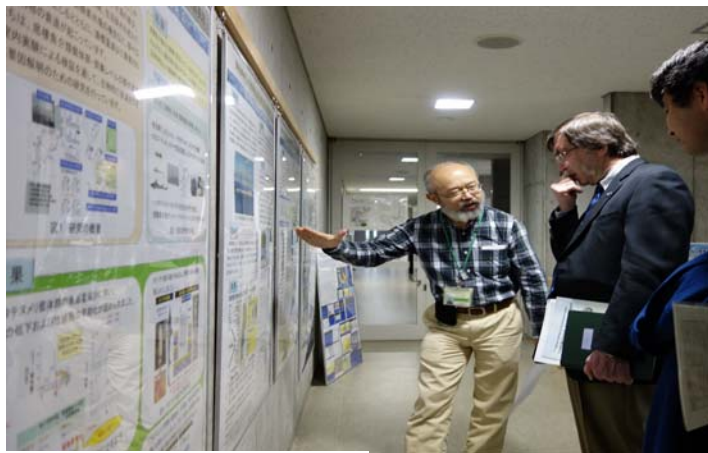
- (8) The decisive factor in raising the profile and reputation of NIES from an international viewpoint is the willingness to try new things

If NIES remains receptive to trying some of the activities suggested it has the potential to become an extremely prominent and attractive partner in the international field. Some funding is available to facilitate the aforementioned activities. A decisive factor in the success or failure of such undertakings is the willingness to accept new activities or receive persons at your institute and match them with a receptive and suitable host. Of course, there is also the investment of time. Willingness and openness is the starting point for any new project or relationship. Although not everything will be successful, I would like to see NIES taking a more active role internationally. I was very impressed by what I saw today, but believe it is always worthwhile to try new things.



Biological Resource  
Collection Building  
環境生物保存棟

Center for Environmental  
Risk Research  
環境リスク研究センター



Hydraulic Experiment  
Laboratory  
水理実験棟

Discussions between Dr. Bychkov  
and the NIES President's Office  
理事室との意見交換

