



ANTARCTIC TREATY CONSULTATIVE MEETING 2006

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Collaborations with other Parties in Science and Related Activities during the 2005/2006 Season





Collaborations with other Parties in Science and Related Activities during the 2005/2006

Conscious of the importance of collaborations among the parties within the spirit of the Antarctic Treaty and in accordance with Article 6 of the Protocol, Korea had cooperated with several parties during the 2005/2006 in scientific and related activities.

1. Trace metal analysis of the 3624-m Vostok Antarctic ice core in cooperation with France and Italy

A glaciologist of Korea Polar Research Institute (KOPRI) participated in the analysis of trace metals of the 3624-m Vostok deep ice core as a collaborative work between Korea, France and Italy. Full profiles of changes in the occurrence of various trace metals such as Li, Co, Ru, and U were reconstructed in relation to climate changes during the past 420,000 years BP, which covers the last four climatic cycles. (Contact point: Dr. Sungmin Hong, smhong@kopri.re.kr)

2. Trace metal analysis in the snow pits in cooperation with China

As a cooperative work between Korea and China, additional snow pit samples were collected in the course of the traverse from Lambert Basin to Dome A, East Antarctica. Trace metals and water soluble ions in the snow samples are to be analyzed to investigate inter- and intra-annual changes in their concentrations. (Contact point: Dr. Sungmin Hong, smhong@kopri.re.kr)

3. A joint paleoceanographic study between Korea and Israel

KOPRI and the Department of Environmental Sciences and Energy Research, Weizmann Institute of Science in Israel have been working together to reconstruct paleoenvironment recorded in sediment cores retrieved from Bransfield Strait and South Orkney Plateau. Sedimentological, geochemical & paleontological analysis are being performed at KOPRI and carbon, nitrogen, and oxygen isotope analyses on diatom at Israel' isotope laboratory. A Korean scientist had stayed in Israel for three months in 2005 to learn the procedure of cleaning and pre-treatment of diatom and analyze the stable isotope compositions of diatom in a sediment core from South Orkney Plateau. (Contact point: Dr. Hoil Yoon, hiyoon@kopri.re.kr)

4. Participation of a Korean geophysicist in JARE 47

A geophysicist from KOPRI participated in the 47th Japanese Antarctic Research Expedition (JARE 47) as a member of summer party during the period of December 2005 to March 2006. He boarded on the Icebreaker *Shirase* and visited Syowa station, the Japanese station. During his stay at the station, he joined several field surveys around the station.

(Contact point: Dr. Jong Kuk HONG, jkhong@kopri.re.kr)

5. A hydroacoustic monitoring in the Bransfield Strait

KOPRI and NOAA deployed seven acoustic hydrophone moorings (complete with current meter) in the Bransfield Strait and Drake passage from the *R/V Yuzhmorgeologiya* in December 2005. These hydrophones will record underwater sounds originated from earthquakes and icebergs for one year and be recovered in December 2006. we expect to understand tectonic events, volcanic activities, and ice breakup in the region.

(Contact point: Dr. Minkyu Park, minkyu@kopri.re.kr)

6. A gas hydrates survey in Okhotsk sea (CHAOS 2005)

A survey for Hydro-Carbon Hydrate Accumulations in the Okhotsk Sea (CHAOS 2005) was conducted by KOPRI, POI and VNIIO of Russia, and KIT of Japan on the Okhotsk sea from R/V Lavrentyev during the period from 20 May to 10 June 2005. The main goal of the survey is to study evolution of gas hydrates by

using many geological and geophysical methods such as gravity coring, echo sounding, side-scan sonar, and sea floor mapping. Hydrates bearing cores have been recovered in many sites and many gas flares emitting from gas hydrates were found in echo-sound records. (Contact point: Dr. Young Keun Jin, ykjin@kopri.re.kr)

7. Hydrographic data collection with US AMLR (Antarctic Marine Living Resources) program

Underway seawater temperature measurement using expendable bathythermograph (XBT) was undertaken from KOPRI's annual research cruise aboard R/V Yuzhmorgeologiya. The data were collected from late November to late December during the transit between Punta Arenas and King George Island, and in the vicinity of South Shetland Islands. It was a cooperative arrangement with US AMLR (Antarctic Marine Living Resources) program, which charters the same research vessel following KOPRI. These efforts are expected to form a complementary data set that covers a much larger portion of an austral summer.

(Contact point: Dr. Hyoung-Chul SHIN, hcshin@kopri.re.kr)

8. Exchange of information on studies of Antarctic and Arctic oscillations and their teleconnections to mid-latitude climate

As the leading mode in mid-high latitudes in the southern and northern hemispheres, the Antarctic and Arctic Oscillations (AAO & AO) are keys to better understand regional climate anomalies around the Korean peninsula. In order to investigate pole to mid-latitude teleconnections, KOPRI and Beijing Normal University of China are collaborating to share information. The purpose of this study is first to study on the low-frequency variability of AAO by reconstructing long-term AAO index using statistical method, second to find teleconnections in AAO and regional climate such as the relations between AAO and East Asian monsoon by analyzing modern meteorological data, third to investigate the variability of AO to cold surges and heavy snow around Korea..(Contact point: Dr. Seong-Joong Kim, KOPRI, seongkim@kopri.re.kr)

9. The 13th International Symposium on Polar Sciences

International Symposium on Polar Sciences was held in KOPRI, Incheon, South Korea in May 9-11, 2006. The symposium was the 13th of its kind, and it has been held in Korea every one or two years since 1988 (every year since 2000). The main office building of KOPRI had moved in the last April to Incheon, the second largest harbor city in Korea. This year's symposium was the first one held in the new building. With the theme, 'From Molecules to Ecosystem in Polar Science,' there were more than 45 presentations spanning from molecular biology, biochemistry, microbiology, ecology to biodiversity of polar organisms. There was also a special session "Toward IPY 2007~2008." Nineteen foreign scientists from twelve countries participated in the symposium and gave their presentations.

(Contact point: Dr. Yoo-Kyung Lee, yklee@kopri.re.kr ; Dr. Hyun Park, hpark@kopri.re.kr)

10. Logistic cooperation with China, Chile, Uruguay and Russia

KOPRI had two vessel operations in the 2005/2006: one for conducting research and the other for transporting fuel and provisions to King Sejong Station. With the cargo vessel, we have provided a free service transporting and loading/unloading cargo to Chinese and Russian bases. Chile and Uruguay which have amicably neighboring bases on King George Island, aided Korea with airlift service to and from an Antarctic gate way, Punta Arenas, Chile and King George Island again as in the previous seasons. Frequent flight services by Chilean Air Force provided timely services to scientists who had irregular time schedules for their field work, transporting Korean scientists and cargo. It was crucially helpful for us to complete our summer campaign effectively and successfully in time, alleviating a great deal of time loss in the season's operation. We would like to heartily thank these parties for their unsparing efforts exerted. (Contact point: Mr. Hyung-Geun Lee, hglee@kopri.re.kr)