

SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR) - NATIONAL REPORTS 2007-2008

MEMBER COUNTRY : Republic of Korea

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A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS

1. Current Scientific International Collaboration

As this year's IPY is the second IPY event in Korean history of polar research since Korea began polar research in 1987, KOPRI (Korea Polar Research Institute) is participating in a series of IPY projects in various fields such as paleoclimate, oceanography, atmosphere and glaciology. Realizing the importance of international cooperations the below mentioned international collaborations in science is the highlights of KOPRI's activities during the period between 2007 and 2008.

_ Trace metal analysis in the snow pits in cooperation with China and Japan

As a cooperative work between Korea, China and Japan for contributing to ITASE(International Trans-Antarctic Scientific Expedition), surface snow samples were collected along the traverse routes to Dome A and to Dome Fuji , East Antarctica. Trace metals, water soluble ions and Pb isotopes in the snow samples will be analyzed to investigate spatial changes in their concentrations. (Contact point: Dr. Sungmin Hong, smhong@kopri.re.kr)

_ A hydroacoustic monitoring in the Bransfield Strait

Korea Polar Research Institute (KOPRI) and U.S. NOAA/PMEL have maintained acoustic hydrophone arrays in the Bransfield Strait and Drake passage since December 2005. During 2007/2008 austral summer expedition, KOPRI and NOAA scientists recovered five hydrophones in the Bransfield Strait using the R/V Yuzhmorgeologiya. They also deployed five new hydrophones in the Scotia Sea near the South Georgia Island. These hydrophones record underwater sounds originated from earthquakes, icebergs and marine mammals. We expect to understand tectonic events, volcanic activities, and ice breakup in the region from those records. (Contact point: Dr. Minkyu Park, minkyu@kopri.re.kr)

_ International collaboration on the study of Antarctic oscillations and their impact on mid-latitude climate

It is important to understand what caused the Antarctic Oscillation (AAO) variability, particularly the low frequency variability. This heavily depends on the availability of the AAO index reconstruction. To improve the quality of low-frequency changes in the reconstruction, we need to take the advantage of multiproxy data, including tree-ring and ice-core data sets. The usage of ice-core and coral data would greatly improve the low-frequency climate signals and hopefully result in a much better AAO index for the past several centuries. That is essential to answer whether recent trend in AAO is caused by ozone as suggested by recent simulations. In order to investigate the AAO variability and its connection to mid-latitudes, KOPRI and Beijing Normal University of China are currently collaborating. The purpose of this study is to find teleconnections between Antarctica and East Asia by analyzing coral records in the northern mid-latitudes and modern meteorological data. (Contact point: Dr. Seong-Joong Kim, KOPRI, seongjkim@kopri.re.kr)

_ The 14th International Symposium on Polar Sciences

International Symposium on Polar Sciences was held in KOPRI, Incheon, South Korea in May 15-17, 2007. It has been held in Korea every one or two years since 1988 (every year since 2000). With the theme, 'Polar Regions in Global Change', there was more than 45 presentations spanning from paleoceanography and paleoclimatology, glaciology, atmospheric sciences, geophysics, geology, and gas hydrates. Seventeen foreign scientists from eight countries participated in the symposium and give their presentations.

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_ The 15th International Symposium on Polar Sciences

International Symposium on Polar Sciences is scheduled to be held in KOPRI, Incheon, South Korea between 24-26th Sep, 2008. The main theme of the symposium will be 'Polar Ecosystems: Biodiversity and Adaption'. There have been currently expected to have more than 50 presentations and to have foreign participators from no less than 10 countries all over the world.

(Contact point: Dr. Hak Jun Kim, hjkim@kopri.re.kr; Dr. Dockyu Kim, envimic@kopri.re.kr)

_ International Seminar on polar-station operation and logistics

KOPRI held the International Seminar inviting 6 countries' experts who take charge of polar-station operation and logistics at KOPRI conference room, Incheon, South Korea in April 7-14, 2008. At this Seminar US(OPP), Japan(NIPR), China(CAA), Australia(AAD), England(BAS), Germany(AWI)'s experts introduced recent issues on polar station operation & logistics and discussed with KOPRI staffs.

(Contact point: Dr. Ho-Sung Chung, hchung@kopri.re.kr, Mr. Dongmin Jin, KOPRI, dmjin@kopri.re.kr)

_ Logistic cooperation with China

China's Icebreaker 'Xue long' support KOPRI by transporting KOPRI's cargo from Buenos Aires in Argentina to King Sejong Station on King George Island in the Antarctic and KOPRI helped China to rent a Helicopter(KA32) belonging to Korea company last year for the purpose of transporting the cargo from 'Xue long' to ZhongShan Station.

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2. Major Research Activities, Based upon 5 years Research Plan

As KOPRI's major basic research projects, which have been started since 2006 at the King Sejong Station in the Antarctica, the below mentioned scientific researches, participating 110 persons from 26 organizations will be mainly highlighted in 5 years' research term.

- _ Paleoclimate and pale-oceanography of polar regions to understand the response of global warming
- _ Formation, evolution and neo-tectonic of Antarctica
- _ Integrated research on the composition of polar atmosphere and climate change
- _ Monitoring on environmental changes at the Korea arctic and antarctic stations
- _ IPY International Trans-Antarctic Scientific Expedition and Glaciological Fundamental Development
- _ Constructing polar monitoring-network system : studies on characteristics of submarine active tectonic processes and marine environmental changes
- _ Research of biodiversity and polar organism

3. The Endorsement of the National Science & Technology Council on Antarctic Scientific Research

_ Ice Breaker (ARAON)

The Korea's icebreaker(Araon), which is scheduled to be completed by the end of 2009, is currently under construction. At the beginning 2007, Hanjin Heavy Industry, Inc. had won the contract for constructing the icebreaker and the steel-cutting ceremony was held in Jan. 2008. After keel-laying in May of 2008 and launching and delivery in 2009, she is planned to be commissioned for scientific research and logistic purposes in both Antarctic and Arctic region. Korea expects that the icebreaker would enhance the capability of conducting scientific research in polar region with upgraded efficiency and quality.

_ 'International Polar Year'(IPY) Launching Ceremony

Korea's 'International Polar Year'(IPY) Launching Ceremony was held at the National Assembly of S.Korea located at Youido Seoul Korea in April 19, 2007. At this Ceremony 6 countries' researchers including US, Russia, China introduced the IPY research program which they conducted. KOPRI also presented the research program plan involving ice-coring in the Antarctica monitoring Antarctic atmosphere.

_ 20th Anniversary of King Sejong Station

The last February in this year, there were two ceremonies for congratulating the 20th anniversary of the King Sejong Station both at KOPRI in Korea and at King Sejong Station in Antarctica. In the ceremonies, many people who played a role in establishing the station were invited to the ceremony in Antarctica.

_ Mr. President - Myung-Bak Lee - called to the King Sejong Station

Newly elected Mr. President - Myung-Bak Lee - made calls to the King Sejong Station two times. Mr. President said hello to the station leader and other parties and encouraged their every efforts and activities in Antarctica. It was a good opportunity to arouse the public attentions to the activities of the Korea in the Polar region.