**MEMBER COUNTRY:** **Republic of Korea**
**National Report to SCAR for :** 2009-2010

| Activity | Contact Name | Address | Telephone | Fax | Email | web site |
|---|---|---|---|---|---|---|
| **National SCAR Committee** | | | | | | |
| | Korea Polar Research Institute (KOPRI) | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6040 | +82-32-260-6049 | polar@kopri.re.kr | www.kopri.re.kr |
| **SCAR Delegates** | | | | | | |
| **1) Delegate** | Dr. Byong-Kwon Park | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6040 | +82-32-260-6049 | bkpark@kopri.re.kr | www.kopri.re.kr |
| **2) Alternate Delegate** | Dr. Yeadong KIM | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6210 | +82-32-260-6218 | ydkim@kopri.re.kr | www.kopri.re.kr |
| **Standing Scientific Groups** | | | | | | |
| **Life Sciences** | Dr. SangHoon LEE | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32- 260-6250 | +82-32-260-6109 | shlee@kopri.re.kr | www.kopri.re.kr |
| | Dr. Han Gu CHOI | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6162 | +82-32-260-6301 | hchoi82@kopri.re.kr | www.kopri.re.kr |
| | Dr. SungHo KANG | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6251 | +82-32-260-6301 | shkang@kopri.re.kr | www.kopri.re.kr |
| **Geosciences** | Dr. Moon Young CHOE | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6130 | +82-32-260-6109 | mychoe@kopri.re.kr | www.kopri.re.kr |
| | Dr. Jong Kuk HONG | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6213 | +82-32-260-6218 | jkhong@kopri.re.kr | www.kopri.re.kr |
| **Physical Sciences** | Dr. Seong-Joong KIM | Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Incheon, 406-840, Korea | +82-32-260-6232 | +82-32-260-6236 | seongjkim@kopri.re.kr | www.kopri.re.kr |

| Activity | Contact Name | Address | Telephone | Fax | Email | web site |
|---|---|---|---|---|---|---|
| **Scientific Research Program** | | | | | | |
| **ACE** | | | | | | |
| **AGCS** | | | | | | |
| **EBA** | | | | | | |
| **ICESTAR** | | | | | | |
| **SALE**<br>**AAA (2010-)** | | | | | | |

| Activity | Contact Name | Address | Telephone | Fax | Email | web site |
|---|---|---|---|---|---|---|
| **ACTION GROUPS** | | | | | | |
| | | | | | | |
| **EXPERT GROUPS** | | | | | | |
| | | | | | | |
| **SCADM** | | | | | | |
| | Dr. Soon Gyu HONG | KOPRI, Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Yeonsu-gu, Incheon 406-840, Korea | +82-32-260-6310 | +82-32-260-6301 | polypore@kopri.re.kr | www.kopri.re.kr |
| | Mr. Min Choul LEE | KOPRI, Get-pearl Tower, 12 Gaetbeol-ro, Yeonsu-gu, Yeonsu-gu, Incheon 406-840, Korea | +82-32-260-6081 | +82-32-260-6088 | leemc@kopri.re.kr | www.kopri.re.kr |
| **SCAGI** | | | | | | |
| | | | | | | |
| **NATIONAL ANTARCTIC DATA CENTRE** | | | | | | |
| KOPRI is going to open Korean Polar Data Centre (KPDC) in the ealry of 2011.<br>Contact Point: Min Chul LEE (leemc@kopri.re.kr) | | | | | | |
| **SCAR DATABASE** | | | | | | |
| | | | | | | |

**A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS*:**

**1. The First Antarctic Expedition of *ARAON***

Korea's ice-breaker, Araon, was delivered to the ship operator, Korea Polar Research Institute (KOPRI), after the ship-building was finished on 2 November 2009. *ARAON*, a 7,487 ton ice-breaking research vessel, can accommodate up to 85 persons (25 crew and 60 researchers) and load up to 31 TEU (20ft container). Her endurance is around 70 days (20,000 nautical miles) without additional supply.
She departed her mother port, Incheon, Korea on 18 December 2009 and she returned after completing a three-month Antarctic expedition, which was her first. Araon's mission on the first Antarctic expedition was to test the ice-breaking capability by breaking one-meter multiple-year ice conditions (KR PL 10) and to support an in-depth survey on candidate sites for Korea's second station in Antarctica.
(Contact Point: Mr Dongmin JIN, KOPRI, dmjin@kopri.re.kr)

**2. Hydroacoustic monitoring in the Bransfield Strait**

The Korea Polar Research Institute (KOPRI) and the United States National Oceanic and Atmospheric Administration's Pacific Marine Environmental Laboratory (US NOAA/PMEL) have maintained acoustic hydrophone arrays in the Bransfield Strait and Drake Passage since December 2005. During the 2009-2010 austral summer expedition, KOPRI and NOAA scientists successfully recovered five hydrophones in the Bransfield Strait aboard the RRV James Clark Ross. Five new hydrophones were redeployed at the same mooring location in the Bransfield Strait. These hydrophones passively record underwater sounds originating from earthquakes, icebergs and marine mammals. We expect these recordings to improve our understanding of tectonic events, volcanic activities, and ice break-up in the region. All the logistics were handled by the staff members of the British Antarctic Survey and all the recoveries and deployments were successfully completed with great support from the captain and the crew members of the RRV James Clark Ross.
(Contact point: Dr Minkyu PARK, KOPRI, minkyu@kopri.re.kr)

**3. International collaboration on the study of Antarctic Oscillation and its impact on mid-latitude climate (2007-2009)**

It is important to understand the causes of variability in the Antarctic Oscillation (AAO), particularly low-frequency variability. This depends heavily on the availability of AAO index reconstructions. To improve the quality of low-frequency changes in the reconstructions, we need to take advantage of multi-proxy data, including tree-ring and ice core data sets. The use of ice core and coral data would greatly improve low-frequency climate signal data and hopefully result in a much better AAO index for the past several centuries. This is essential to understanding whether the recent trend in AAO is caused by ozone, as suggested by recent simulations. To investigate the AAO variability and its connection to mid-latitudes, KOPRI is currently collaborating with Beijing Normal University of China. KOPRI provides matching funds of USD 20,000 for proxy coral data that is sampled in mid-latitudes, while Beijing Normal University analyzes the AAO index using available meteorological data. This project was initiated by KOPRI to find teleconnections between Antarctica and East Asia over the long term by analyzing coral records in the northern mid-latitudes and integrating this data with modern meteorological data. Some of these results were published in 'Annales Geophysicae' (Journal). To understand the change in the AAO under the glacial climate conditions, KOPRI recently initiated another international collaboration with the Chinese Meteorological Administration (CMA). In this collaboration, KOPRI and CMA invest funds in each other and analyze the change in the AAO for the last glacial time. The purpose of this collaboration is to understand the role of the Antarctic winds on the glacial carbon budget.
(Contact point: Dr Seong-Joong KIM, KOPRI, seongjkim@kopri.re.kr)

**4. International collaborative marine and Quaternary geoscience research on abrupt environmental change in the Larsen Ice Shelf system**

For the International Polar Year (IPY), two KOPRI scientists participated in an international, multi-disciplinary field program (USAP LARISSA program) driven by Professor Eugene W. Domack at Hamilton College, New York, to address the rapid changes occurring in the Antarctic Peninsula region as a consequence of the abrupt collapse of the Larsen Ice Shelf. The overarching goal of this project is to describe and to understand the basic physical and geological processes active in the Larsen embayment that a) contributed to the present phase of massive, rapid environmental change; b) are participating in that change as part of the coupled climate-ocean-ice system; and c) are fundamentally altered by these changes. The collaboration between KOPRI and its US partners will be extended for further accomplishment. This collaborative project will make use of the USAP RV Palmer in 2012 (as part of the IPY: LARISSA project) with Korean participation. In the following season, the Korea's icebreaker Araon will deploy to the NW Weddell Sea in the area of the Larsen Ice Shelf.
(Contact Point: Dr Ho Il YOON, KOPRI, hiyoon@kopri.re.kr)

**5. The 16th International Symposium on Polar Sciences**

The 16th International Symposium on Polar Sciences was held at KOPRI, Incheon, Korea from 10-12 June, 2009. It has been held in Korea and hosted by KOPRI every one or two years since 1988 (every year since 2000) with the aim of strengthening the network among polar scientists sharing the polar scientific research, and developing international collaborative research programs.
The theme of the 16th Symposium was “Polar Exploration with Araon”, and consisted of more than 50 presentations spanning four themes: (1) climate change and the ocean system, (2) paleoclimate, (3) hydrothermal vent systems, and (4) tectonics and magmatism. Many renowned and outstanding foreign scientists participated in the symposium and gave keynote speeches and presentations. This symposium not only provided much information about how to take advantage of research vessels in the polar oceans so as to make the research activities feasible, but it also provided opportunities to share the research outcomes and fostered collaboration among the participants.
(Contact point: Mr Dongmin JIN, KOPRI, dmjin@kopri.re.kr)