



The 24th International Symposium on Polar Sciences
30 Years of footsteps in Antarctica: Looking back and looking forward

May 29-30, 2018
Korea Polar Research Institute
Incheon, Republic of Korea

Fourth Circular

We welcome all of you to the 24th International Symposium on Polar Science in Incheon, Republic of Korea on May 29-30, 2018.

The International Symposium on Polar Sciences has been held annually ever since the conception of Korea's Antarctic research schemes. This Symposium not only serves as an international forum for bringing polar scientists together to exchange views and ideas, but also provides an opportunity to discuss collaborative research among peers and colleagues.

We are pleased that over 200 participants from 11 countries will join our symposium which includes 2 plenary lectures, 36 oral presentations and 58 poster presentations.

A detailed program and other practical information are attached. We are sincerely looking forward to meeting all of you in Incheon.

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THEME

The King Sejong Station was established and inaugurated on King George Island in February 1988, after the Republic of Korea acceded to the Antarctic Treaty in November 1986. Since then KOPRI has continued to expand its research as well as to strengthen logistic capacities to support world class science, for example a research icebreaker, Araon and the second Antarctic Station, Jang Bogo in Terra Nova Bay as a platform for conducting continental Antarctic research. KOPRI has devoted its passion and commitment to explore the uncharted field of Antarctic research for over three decades. In commemoration of the scientific dedication over the years and celebrating the 30 years anniversary of King Sejong Station, the theme of the 24th International Symposium on Polar Sciences will be “30 years of footsteps in Antarctica: Looking back and looking forward.” We would like to cordially invite you to share your knowledge and understanding as well as your perspective of future outlook on Antarctic research.

PLENARY SPEAKERS

Prof. Steven L. Chown
(President, Scientific Committee on
Antarctic Research)

Prof. Axel Timmermann
(Director, Center for Climate Physics,
Institute for Basic Science)

INVITED SPEAKERS

Prof. Bill J. Baker
(University of South Florida)

Prof. John Smellie
(University of Leicester)

Dr. Claus-Dieter Hillenbrand
(British Antarctic Survey)

Prof. Karen Heywood
(University of East Anglia)

Prof. John C. Priscu
(Montana State University)

SESSIONS

Earth's atmosphere and space environment observed from the Antarctica

(Chair: Seong-Joong Kim / seongjkim@kopri.re.kr)

It has been 30 years since KOPRI first started observing the Earth's atmosphere, including the lower and upper atmospheres at the first Korean Antarctic Station, King Sejong Station. As the second Antarctic station was established in 2014 closer to the inland Antarctica, our observation capability has been vastly expanded to cover not only the polar atmosphere but also the polar space environment, including aurora and cosmic ray. In this session, we will briefly go through atmospheric (and climate change) and space research activities in Antarctica and introduce the recent research activities conducted around Korean Antarctic stations.

Ocean and cryosphere changes around the Antarctica I, II

(Chair of Session I: Jinyoung Jung / jinyoungjung@kopri.re.kr)

(Chair of Session II: SangHoon Lee / shlee@kopri.re.kr)

In this session we would like to focus on oceanic, cryospheric, and environmental changes which are taking place in glacially influenced systems such as ice shelves and underlying ocean waters, as well as polynyas impacted by rapid warming around the west Antarctica. The session also targets on studies that cover biological responses nearshore, fjords, sheltered bays and other coastal regions as a consequence of climate-induced processes such as glacier retreats.

Ecological dynamics and biotechnological potential of Antarctic organisms

(Chair: Dockyu Kim / envimic@kopri.re.kr & Se Jong Han / hansj@kopri.re.kr)

Although microbes play a critical role as Antarctic inhabitants, much is unknown about their diverse responses to the current environmental changes, induced by either climate changes or increased human activities, in maritime Antarctic ecosystems. The recent studies suggest that environmental changes may have significant and direct effects on the microbial communities and microbes would subsequently induce biotic changes. The microbial ecological dynamics in Antarctic environments and their interaction with other cold-adapted (micro) organisms are being highlighted. Thus, the findings from these studies will be the basis for searching novel candidates and research for biotechnological application. This session will present recent studies on (micro) organisms ranging from genomic to physiological, and discuss about their biotechnological potential.

Glacier history around the Antarctic Peninsula

(Chair: Boo-Keun Khim / bkkhim@pusan.ac.kr)

This session will present the reconstruction of paleoclimate and paleoceanography of polar regions during the last hundreds of thousand years. The climate system of Antarctic Peninsula and its surrounding region is of special interest because it is one of the most rapidly warming areas in the world. This session will focus on studies of the past environmental changes caused by climate changes around the Antarctic Peninsula.

Chronicle of geoscience in Antarctica: From the Era of Peninsula to the Age of Continent

(Chair: Moon Young Choe / mychoe@kopri.re.kr)

Geosciences deals with geological history of Earth and is seeking to understand the complexity of the Earth's physical and biogeochemical systems. This session will explore past research achievements in the Antarctic Peninsula, highlighting current activities in the Western Ross Sea, Northern Victoria Land and on other parts of the Antarctic Continent, and discuss the future perspectives of Polar Geosciences.

SIDE MEETINGS

LIONESS-WRS Workshop

10:00-18:00, May 28 at Penguin Seminar Room (Cafeteria Building 2nd Floor)
LIONESS-WRS (Land-Ice/Ocean Network Exploration with Semiautonomous Systems in the Western Ross Sea) Workshop will take place to strengthen international collaboration in the Terra Nova Bay/Northern Victoria Land, Antarctica, and to seek potential research opportunities in other regions (e.g., Thwaites/Totten/Larsen C/Ellsemere etc.) under the LIONESS framework. During the workshop, we will be discussing very interesting preliminary results coming out from our collaborative efforts conducted in the 2017/2018 field season as well.

SOCIAL EVENTS

All participants are kindly invited to the social events hosted by KOPRI

Icebreaker Reception

18:30 - 20:00, May 28 at Grand Ballroom, Sheraton Grand Incheon Hotel

Banquet Dinner

18:00 - 19:30, May 30 at KOPRI Main Hall

FOR EARLY CAREER POLAR SCIENTISTS

KOPRI wishes to encourage the participation of early career polar scientists at this symposium

Korean Early Career Polar Scientists Gathering

13:30 - 14:30, May 29 at Polar Bear Seminar Room (KOPRI Main Building 3rd Floor)

Young Scientists Awards

Young Scientists Awards will be presented to the outstanding poster presentations and the award ceremony will take place as a part of the banquet dinner in 18:00 - 19:30, May 30 at Main Hall

PROGRAM AT A GLANCE

May 28 (Monday)		
Time	Place	Program
18:30 – 20:00	Grand Ballroom, Sheraton Grand Incheon Hotel	o Icebreaker Reception

May 29 (Tuesday)		
Time	Place	Program
08:30 – 09:00	Reception Desk	o Registration
09:00 – 09:30	Auditorium	o Opening Remarks
09:40 – 12:30	Auditorium & Sejong International Conference Room	o Plenary Lecture 1 o S1. Earth's atmosphere and space environment observed from the Antarctica o S2. Ocean and cryosphere changes around the Antarctica I
12:30 – 14:00	Main Hall & Polar Bear Seminar Room	o Lunch o Korean Early Career Scientists Gathering
14:10 – 16:20	Auditorium	o S3. Glacier history around the Antarctic Peninsula
16:30 – 18:00	Hallway	o Coffee Break and Poster Session

May 30 (Wednesday)		
Time	Place	Program
08:30 – 09:00	Reception Desk	o Registration
09:00 – 11:50	Auditorium	o Plenary Lecture 2, o S4. Ocean and cryosphere changes around the Antarctica II
12:00 – 13:00	Main Hall	o Lunch
13:00 – 15:10	Auditorium	o S5. Ecological dynamics and biotechnological potential of Antarctic organisms
15:10 – 15:40	Hallway	o Coffee Break and Poster Session
15:40 – 17:50	Auditorium	o S6. Chronicle of geoscience in Antarctica: From the Era of Peninsula to the Age of Continent
18:00 – 19:30	Main Hall	o Banquet Dinner and Young Scientists Award

DETAILED PROGRAM

May 29 (Tuesday)		
Registration - Reception Desk		
08:30 - 09:00	Registration	
Opening Ceremony - Auditorium		
09:00 - 09:20	Welcome Remarks	
09:20 - 09:30	Group Photo Session	
Plenary Lecture 1 - Auditorium		
09:40 - 10:20	PL 01. Steven L. Chown (SCAR) <i>Choosing our Future: Antarctic Science in a Global Setting</i>	
Session 1 - Auditorium Session 2 - Sejong International Conference Room	S1. Earth's atmosphere and space environment observed from the Antarctica	S2. Ocean and cryosphere changes around the Antarctica I
10:30 - 10:50	S1 01. Hongqiao Hu (Polar Research Institute of China, People's Republic of China) <i>Ground-based Polar Upper Atmospheric Physics Observations at PRIC</i>	S2 01. In-Young Ahn (KOPRI, Republic of Korea) <i>Antarctic fjords as an ecosystem model for climate-related studies: a case of Marian Cove in King George Island</i>
10:50 - 11:10	S1 02. Byung-Ju Sohn (Seoul Nat'l Univ., Republic of Korea) <i>Rapidly warming Antarctic continent over a recent decade</i>	S2 02. Francyne Elias-Piera (KOPRI, Republic of Korea) <i>A seasonal trophic strategy of the amphipod <i>Gondogeneia antarctica</i> in an Antarctic nearshore habitat at King Sejong Station</i>
11:10 - 11:30	S1 03. Yong Ha Kim (Chungnam Nat'l Univ., Republic of Korea) <i>Ablation model analysis of meteor radar data from King Sejong Station, Antarctica</i>	S2 03. Taewon Kim (Inha Univ., Republic of Korea) <i>Effects of freshening and acidification on marine benthic animals of Antarctica</i>
11:30 - 11:50	S1 04. Tae-jin Choi (KOPRI, Republic of Korea) <i>Revisit to 30-year Climate Observed at King Sejong Station, Antarctica</i>	S2 04. Dongseon Kim (Korea Institution of Ocean Science & Technology, Republic of Korea) <i>Ocean acidification in the Amundsen Sea, Antarctica</i>
11:50 - 12:10	S1 05. Hye-Yeong Chun (Yonsei Univ., Republic of Korea) <i>Characteristics and sources of gravity waves observed from meteor radar at King Sejong Station (62°13'S, 58°47'W) and radiosondes at Jang Bogo Station (74°37'S, 164°13'E), Antarctica</i>	S2 05. James Hooper (Univ. of Wollongong, Australia) <i>The role of Patagonian Dust-Fe in fertilisation of the Southern Ocean</i>
12:10 - 12:30	S1 06. Hataek Kwon (KOPRI, Republic of Korea) <i>Impact of stratospheric polar vortex weakening events on the surface air temperature at King Sejong station</i>	S2 06. Jinku Park (Pusan National Univ., Republic of Korea) <i>Physical forcings determining the inter-annual variability of early bloom properties in the central Ross Sea Polynya</i>
12:30 - 14:00	Lunch & Korean Early Career Scientists Gathering	

Session 3 - Auditorium	S3. Glacier history around the Antarctic Peninsula
14:10 – 14:40	<p style="text-align: center;">S3 01. Claus-Dieter Hillenbrand (British Antarctic Survey, UK) <i>Reconstruction of Late Quaternary palaeoenvironmental changes in the Antarctic Peninsula by multi-proxy analysis of drift sediments from its Pacific margin</i></p>
14:40 – 15:00	<p style="text-align: center;">S3 02. Jae Il Lee (KOPRI, Republic of Korea) <i>KOPRI researches on past environmental changes around the Antarctic Peninsula</i></p>
15:00 – 15:20	<p style="text-align: center;">S3 03. Yeong Bae Seong (Korea Univ., Republic of Korea) <i>Late Quaternary deglacial history in Larsen B and C embayment, Antarctica</i></p>
15:20 – 15:40	<p style="text-align: center;">S3 04. Cristina Subt (Univ. of South Florida, USA) <i>Dating the Undatable: Pushing 14C dating in marginal marine Antarctic sediments to new limits</i></p>
15:40 – 16:00	<p style="text-align: center;">S3 05. Jinwook Kim (Yonsei Univ., Republic of Korea) <i>Psychrophilic microbe-mineral interaction and its implications to Fe-cycling in Antarctic region</i></p>
16:00 – 16:20	<p style="text-align: center;">S3 06. Sunghan Kim (KOPRI, Republic of Korea) <i>Changes in Magnetic susceptibility and grain size in the Southern Ocean off the northern Antarctic Peninsula since the last glacial period and its implication for ice calving activity</i></p>
16:30 – 18:00	Coffee Break & Poster Session

May 30 (Wednesday)	
Registration – Reception Desk	
08:30 – 09:00	Registration
Plenary Lecture 2 – Auditorium	
09:00 – 09:40	PL 02. Axel Timmermann (Institute for Basic Science) <i>Global Warming Slowdown due to Collapsing Antarctic Ice Sheets and Melting Icebergs</i>
Session 4 – Auditorium	S4. Ocean and cryosphere changes around the Antarctica II
09:40 – 10:10	S4 01. Karen Heywood (Univ. of East Anglia., UK) <i>Variation in the distribution and properties of Circumpolar Deep Water in the Eastern Amundsen Sea, on seasonal timescales, using seal borne tags</i>
10:10 – 10:30	S4 02. Craig M. Lee (Univ. of Washington, USA) <i>Sustained, Autonomous Observations Beneath Ice Shelve</i>
10:30 – 10:50	S4 03. Pierre Dutrieux (Lamont-Doherty Earth Observatory of Columbia Univ., USA) <i>Seaglider and Float Observations Beneath Dotson Ice Shelf, West Antarctica</i>
10:50 – 11:10	S4 04. Tae-Wan Kim (KOPRI, Republic of Korea) <i>Oceanic exchanges at the Dotson Ice Shelf calving front, West Antarctica</i>
11:10 – 11:30	S4 05. Christine Dow (Univ. of Waterloo, Canada) <i>Weakening of the Nansen Ice Shelf due to the presence of a large basal channel</i>
11:30 – 11:50	S4 06. Stefan Jendersie (National Institute for Water and Atmospheric Research, New Zealand) <i>Tele connection between ice shelves in the Ross Sea Sector</i>
12:00 – 13:00	Lunch
Session 5 – Auditorium	S5. Ecological dynamics and biotechnological potential of Antarctic organisms
13:00 – 13:30	S5 01. John C. Priscu (Montana State Univ., USA) <i>Aquatic ecosystems beneath Antarctic ice</i>
13:30 – 13:50	S5 02. Ok-Sun Kim (KOPRI, Republic of Korea) <i>Comprehensive study on the distribution of microbial communities in terrestrial ecosystems on Barton Peninsular, Antarctica</i>
13:50 – 14:10	S5 03. Woo Jun Sul (Chung-Ang Univ., Republic of Korea) <i>Influence of proximity to Antarctic research stations and anthropogenic activity on abundance of antibiotic resistance genes in soils</i>

14:10 – 14:40	<p>S5 04. Bill J. Baker (Univ. of South Florida, USA) <i>Chemistry and bioactivity of Antarctic marine organisms</i></p>
14:40 – 15:00	<p>S5 05. Se Jong Han (KOPRI, Republic of Korea) <i>Production of biodiesel and bioethanol from the biomass of psychrophilic microalgae chlamydomonas sp. knm0029c</i></p>
15:00 – 15:20	<p>S5 06. Hyuncheol Oh (Wonkwang Univ., Republic of Korea) <i>Bioactive secondary metabolites from Antarctic lichens and fungi</i></p>
15:20 – 15:50	Coffee Break & Poster Session
Session 6 – Auditorium	S6. Chronicle of geoscience in Antarctica: From the Era of Peninsula to the Age of Continent
15:50 – 16:20	<p>S6 01. John Smellie (Univ. of Leicester, UK) <i>Victoria Land volcanism - an overview of recent volcanological and palaeoenvironmental research</i></p>
16:20 – 16:40	<p>S6 02. Gi Bom Kim (Gyeongsang Nat'l Univ., Republic of Korea) <i>Bimodal Bubble Generation in Explosive Silicic Volcanism</i></p>
16:40 – 17:00	<p>S6 03. Laura De Santis (National Institute of Oceanography and Experimental Geophysics, Italy) <i>The Italian contribution to Seismostratigraphic studies on the Ross Sea</i></p>
17:00 – 17:20	<p>S6 04. Yongcheol Park (KOPRI, Republic of Korea) <i>P-wave velocity structure beneath the northern victoria land, antarctica: two separate mantle heat sources</i></p>
17:20 – 17:40	<p>S6 05. Sung-Sep Kim (Chungnam Nat'l Univ., Republic of Korea) <i>The kinematic evolution of the Macquarie Plate and its implications for oceanic lithosphere fragmentation</i></p>
17:40 – 18:00	<p>S6 06. Sung-Hyun Park (KOPRI, Republic of Korea) <i>Newly Discovered mantle province beneath the Southern Ocean</i></p>
18:00 – 19:30	Closing Remarks & Banquet Dinner

SYMPOSIUM POSTER SESSION

May 29-30 (Tuesday-Wednesday)		
Poster Session - Hallway		
PP 01	Wuju Son (UST, KOPRI, Korea)	<i>Identifying multiple Sound Scattering Layers</i>
PP 02	Kyuin Hwang (UST, KOPRI, Korea)	<i>Evaluation of fungal universal primers for NGS-based diversity studies</i>
PP 03	Giovanni Pio Liberato (Univ. of Siena, Italy)	<i>Stratigraphy of Permian-Triassic fluvial-dominated succession in Southern Victoria Land (Antarctica): Preliminary data</i>
PP 04	Luca Zurli (Univ. of Siena, Italy)	<i>Provenance of Ross Sea Drift in McMurdo Sound (Antarctica) and implication for middle Quaternary to LGM glacial transport: new evidence from petrographic data</i>
PP 05	Hojin Jo (UST, KOPRI, Korea)	<i>Transcriptome analysis to reveal dormancy mechanisms of Antarctic moss, <i>Sanionia uncinata</i></i>
PP 06	Jae Eun So (UST, KOPRI, Korea)	<i>The revision of lichen flora around Maxwell bay, King George Island, Antarctica</i>
PP 07	Ji-Hee Yoo (Yonsei Univ., Korea)	<i>Characteristics of inertia-gravity waves revealed in radiosonde data at Jang Bogo Station (74°37'S, 164°13'E), Antarctica</i>
PP 08	Mi Young Byun (KOPRI, Korea)	<i>Conserved function of poaceae type II galactinol synthase genes, involved in tolerance to multiple abiotic stresses through the accumulation of Raffinose family oligosaccharides</i>
PP 09	Mi Jung Lee (KOPRI, Korea)	<i>Rittmann volcano, northern Victoria Land, Antarctica as the source of englacial tephra</i>
PP 10	Byeong-Gwon Song (Yonsei Univ., Korea)	<i>Gravity wave activities in the upper mesosphere observed at King Sejong Station, Antarctica(62.22°S, 58.78°W) and their potential sources in the lower atmosphere</i>
PP 11	Sung Mi Cho (KOPRI, Korea)	<i>Species diversity of Antarctic lichen photobionts and their photochemical characteristics</i>
PP 12	Hyoung Sul La (KOPRI, Korea)	<i>Spatial patterns of summer mesozooplankton community in the western Arctic Ocean</i>
PP 13	Jaewook Lee (Chungnam Nat'l Univ., Korea)	<i>Evidence for non-linear wave-wave interactions in mesospheric winds measured by a meteor radar at King Sejong Station, Antarctica</i>
PP 14	Suin Moon (Chungnam Nat'l Univ., Korea)	<i>Predicting ionospheric F2 layer's critical frequency over Jeju Station using artificial neural networks</i>
PP 15	Sangbeom Ha (Pusan Nat'l Univ., Korea)	<i>Glacio-marine sedimentation in the continental slope and rise to the east of Pennell-Iselin Banks in the Ross Sea</i>
PP 16	Junseok Hong (Chungnam Nat'l Univ., Korea)	<i>Optical features and ionospheric irregularities observed at a sub-auroral station (L=2.5) during the St. Patrick's day storm</i>
PP 17	Eun-Byeol Jo (Chungnam Nat'l Univ., Korea)	<i>An investigation of relation between sporadic E layer and vertical ion drift convergence using ionosonde data in Korea</i>

PP 18	Se-Heon Jeong (Chungnam Nat'l Univ., Korea)	<i>Manually scaling year ionograms measured by Jeju ionosonde in 2012</i>
PP 19	Wonseok Lee (Chungnam Nat'l Univ., Korea)	<i>A first comparison of meteor radar and Fabry-Perot Interferometer winds at King Sejong Station</i>
PP 20	Hosik Ham (Chungnam Nat'l Univ., Korea)	<i>Propagation analysis of mesospheric gravity waves on OH and OI-557.7nm airglow layers over King Sejong Station</i>
PP 21	JeongHeon Kim (Chungnam Nat'l Univ., Korea)	<i>Developing a data-assimilated SAMI2-CNU model using Korean ionosonde data</i>
PP 22	Sung Jin Kim (KOPRI, Korea)	<i>Cryoprotective Effect and Partial Characterization of a Novel Exopolysaccharide (P-ArcPo 20) Produced by Pseudoalteromonas tetraodonis Strain ArcPo 20</i>
PP 23	Ji-Hoon Kihm (UST, KOPRI, Korea)	<i>The new species of Dactylobiotus (Parachela, Eutardigrada) from King George Island, Antarctica</i>
PP 24	Jae-Ryong Oh (UST, KOPRI, Korea)	<i>Late carboniferous oncoid from the Brøggerhalvøya, NW Svalbard, Arctic Norway</i>
PP 25	Sookwan Kim (UST, KOPRI, Korea)	<i>Clues to late Cenozoic ice-sheet dynamics and bottom-current activity in the northwestern Ross Sea margin, Antarctica</i>
PP 26	Chang-Uk Hyun (KOPRI, Korea)	<i>Adélie penguin counting using very-high-resolution UAV images and deep learning-based object detection technique</i>
PP 27	Mauro Mazzola (Nat'l Research Council, Institute of Atmospheric Sciences and Climate, Italy)	<i>The Italy-Korea cooperative project SAMEECA: Surface-Atmospheric Mass and Energy Exchanges at a Coastal Antarctic site</i>
PP 28	Hye Jeong Kim (Seoul Nat'l Univ., Korea)	<i>Quartz grain microtextures of beach sands from the Punta Arenas area, southernmost Chile and King George Island, Antarctica</i>
PP 29	Eunsol Kim (Chungnam Nat'l Univ., Korea)	<i>Climatology of ionospheric density profiles in the auroral and polar cap regions from long-term incoherent scatter radar observations</i>
PP 30	Young Kyu Park (Yonsei Univ., Korea)	<i>Geochemical identification of sediment provenance during glacial-interglacial period: the Southern Drake Passage</i>
PP 31	Jaewoo Jung (Yonsei Univ., Korea)	<i>Illite crystallinity responding depositional environments during the Holocene: Larsen Ice Shelf C, Antarctic Peninsula</i>
PP 32	Young-bae Ham (UST, KOPRI, Korea)	<i>Comparison of neutral winds and ion drifts observed at Jang Bogo Station, Antarctica</i>
PP 33	Jae-In Kim (KOPRI, Korea)	<i>Utilization of aerial imagery for study on population ecology of Adélie penguins in Cape Hallett, Antarctica</i>
PP 34	Young Shin Kwon (UST, KOPRI, Korea)	<i>Amundsen Sea specific ecosystem model: Result of the lower-trophic level</i>
PP 35	Hong Nhung Vu (UST, KOPRI, Korea)	<i>Transcriptome analysis of Antarctic and Korea Diophrys oligothrix ciliate</i>
PP 36	Hosang Kim (Seoul Nat'l Univ., Korea)	<i>Spatio-temporal photosynthetic variability of Antarctic Intertidal algae</i>
PP 37	Sung Joon Song (Seoul Nat'l Univ., Korea)	<i>A new species of the genus Dactylopusia (Copepoda: Harpacticoida: Dactylopusiidae) discovered in King Sejong Island, Antarctica</i>

PP 38	Hanna Bae (Seoul Nat'l Univ., Korea)	<i>Variation of diatom communities caused by drastic environmental changes in Marian Cove, Antarctica, during the austral summer</i>
PP 39	Chang Woo Lee (KOPRI, Korea)	<i>Crystal structure of dihydrodipicolinate reductase (PaDHDPR) from Paenisporosarcina sp. TG-14: structural basis for NADPH preference as a cofactor</i>
PP 40	Ju-Mi Hong (KOPRI, Korea)	<i>Anti-cancer activity of lobaric acid and lobarstin extracted from the Antarctic lichen Stereocaulon alpinum</i>
PP 41	Sung-suk Suh (Mokpo Nat'l Univ., Korea)	<i>Anticancer activity of ramalin, a secondary metabolite from the Antarctic lichen Ramalina terebrata, against colorectal cancer cells</i>
PP 42	Dockyu Kim (KOPRI, Korea)	<i>Soil temperature increase effects on maritime Antarctic soil microbial community and humic acid degradation</i>
PP 43	Dong-U Kim (KOPRI, Korea)	<i>Can spatial variation of megabenthic epifauna reflect successional processes in Marian Cove, a rapid warming fjord in King George Island, Antarctica?</i>
PP 44	Eunho Ko (UST, KOPRI, Korea)	<i>Effect of sea ice melting processes on phytoplankton physiology in the Northern Chukchi Sea</i>
PP 45	Manuel Dall'Osto (ICM-CSIC, Spain)	<i>Polar atmosphere-ice-ocean interactions: Impact on climate and ecology</i>
PP 46	Yeonggi Kim (KOPRI, Korea)	<i>Oceanographic characteristics in the Marian Cove</i>
PP 47	Heewon Yang (KOPRI, Korea)	<i>Oceanic heat transport and basal melting of the Dotson Ice Shelf</i>
PP 48	Young Wook Ko (Sungkyunkwan Univ., Korea)	<i>Changes in algal community structure of Maxwell Bay, King George Island, Antarctica: A comparison of 1988-1989 and 2016-2018 surveys</i>
PP 49	Hyo Jin Kang (UST, KOPRI, Korea)	<i>Comparison of seasonal characteristics of cloud condensation nuclei measured at polar regions</i>
PP 50	Seojeong Park (Inha Univ., Korea)	<i>Effects of low salinity and low pH on behavioral aspects of Antarctic amphipod, Gondogeneia antarctica</i>
PP 51	Eunchong Sin (UST, KOPRI, Korea)	<i>Effect of low pH and low salinity on the behavior and physiology of the limpet, Nacella concinna</i>
PP 52	Sun-Yong Ha (KOPRI, Korea)	<i>Distribution of DOM and CDOM by the glacial melting in the Marian Cove</i>
PP 53	Bokyung Kim (KOPRI, Korea)	<i>Physiological characteristics and related biochemical parameters of snow algae from King George Island, Antarctica</i>
PP 54	Minkyoung Kim (Seoul Nat'l Univ., Korea)	<i>Episodic dumping of ice rafted benthic organisms on the Amundsen shelf, Antarctica</i>
PP 55	Seong-Joong Kim (KOPRI, Korea)	<i>Southern hemisphere westerly wind for the Last Glacial Maximum</i>
PP 56	Gilliam Li Yin Lee (Universiti Putra Malaysia, Malaysia)	<i>Metabolic pathway of phenol degradation of a cold-adapted Antarctic bacterium revealed through whole genome sequencing</i>
PP 57	Chang-Uk Hyun (KOPRI, Korea)	<i>Monitoring glacier retreat using time-series remote sensing imagery in Marian Cove, King George Island, Antarctica</i>
PP 58	Chang-Uk Hyun (KOPRI, Korea)	<i>Investigating snow cover effect on distribution of lichen and moss in Barton Peninsula, King George Island, Antarctica</i>

GUIDE FOR ORAL / POSTER PRESENTERS

Oral Presentation

Plenary speakers will have 40 minutes for their presentations including Q&A. Session invited speakers will have 30 minutes for their presentations including Q&A. Session oral speakers will have 20 minutes for their presentations including Q&A. Please check your presentation schedule and prepare your presentation within the allocated time.

A beam projector and notebook PC will be provided for your presentation. To avoid technical problems, all presenters are asked to use Microsoft Power Point® (2010 and lower) that is compatible with IBM PC's.

If you have any files that are not compatible with Windows XP®/Windows 7, you are cordially invited to bring your own notebook PC for your presentation. If you have any special presentation requests, please be sure to inform the Secretariat at least 3 days before the symposium.

Poster Presentation

For your poster presentation, a 90cm (width) by 130cm (height) board will be provided. Each poster will/should be posted for 2 days (May 29-30) from 09:00-18:00, according to the poster session schedule. Please check your schedule and prepare your poster in advance of the symposium period.

TRANSPORTATION INFORMATION

From Incheon International Airport to the city central

Incheon International Airport is well connected to all major cities in Republic of Korea, including Incheon where KOPRI is located. Depending on your arrival time and the amount of luggage you bring, you can choose between two options; Limousine Bus or Taxi.

- Limousine Bus (KRW 7,000; approx. USD 7)

There is a Korean Air Lines (KAL) Limousine Bus operating between the airport and a hotel located nearby KOPRI. Once you leave the baggage claim/customs area, you will enter the Arrival area on 1st floor of the airport through one of the arrival gates.

For those arriving through Terminal 1, visit the ticket counter or vending machine outside Gate 4A and purchase a ticket for bus number '6707B.'

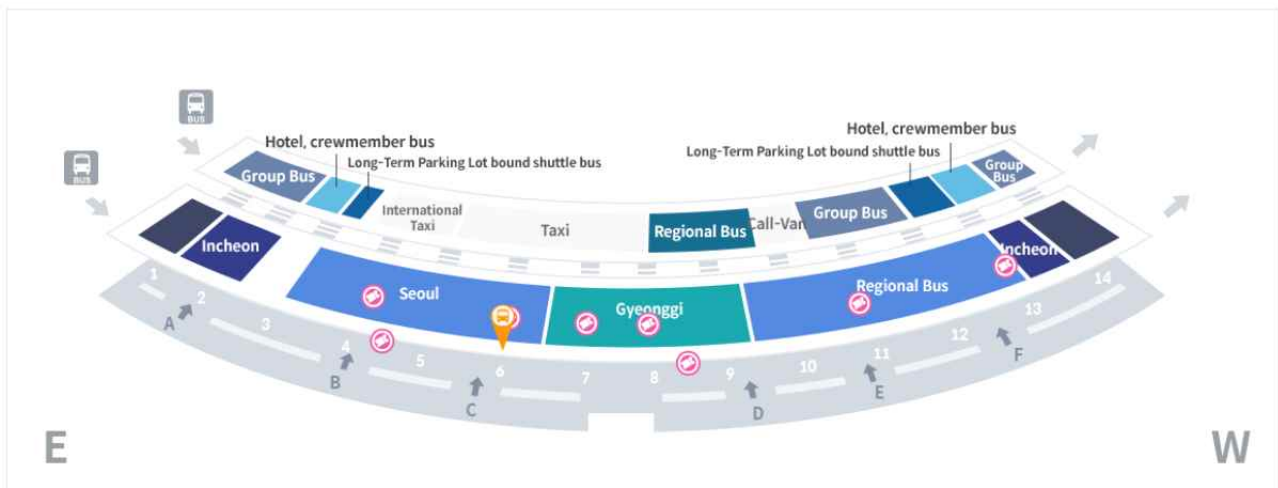
For those arriving through Terminal 2, proceed to the first basement level where the ticket kiosks are located at, and take the same bus, '6707B.'

1. Bus route : Incheon Airport Terminal 1 ⇔ Incheon Airport Terminal 2 ⇔ Korea Coast Guard HQ ⇔ Orakai Songdo Park Hotel ⇔ Central Park Hotel / Gyeongwonjae Ambassador Hotel ⇔ Holiday Inn Incheon Songdo ⇔ Incheon National University Station ⇔ Oakwood Premier Incheon ⇔ **Sheraton Grand Incheon Hotel**

2. Bus time table and bus stop location for Terminal 1

Departure time								
05:37	06:05	06:37	07:04	07:30	08:05	08:46	09:24	09:48
10:18	10:55	11:38	12:25	13:15	14:05	14:43	15:25	16:05
16:45	17:26	18:04	18:50	19:42	20:32	21:22	22:00	22:28

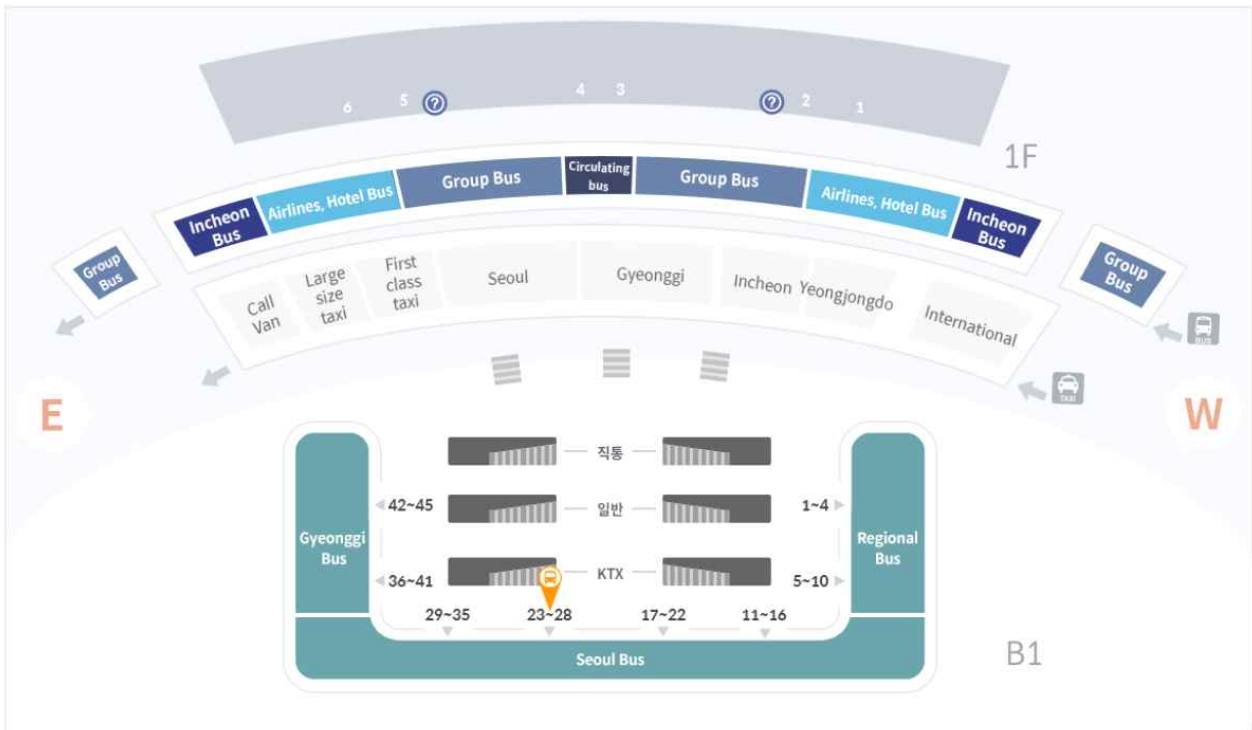
Terminal 1 Bus stop location



3. Bus time table and bus stop location for Terminal 2

Departure time								
05:57	06:25	06:57	07:24	07:50	08:55	09:06	09:44	10:08
10:38	11:15	11:58	12:45	13:35	14:25	15:03	15:45	16:25
17:05	17:46	18:24	19:10	20:02	20:52	21:42	22:20	22:48

Terminal 2 Bus stop location



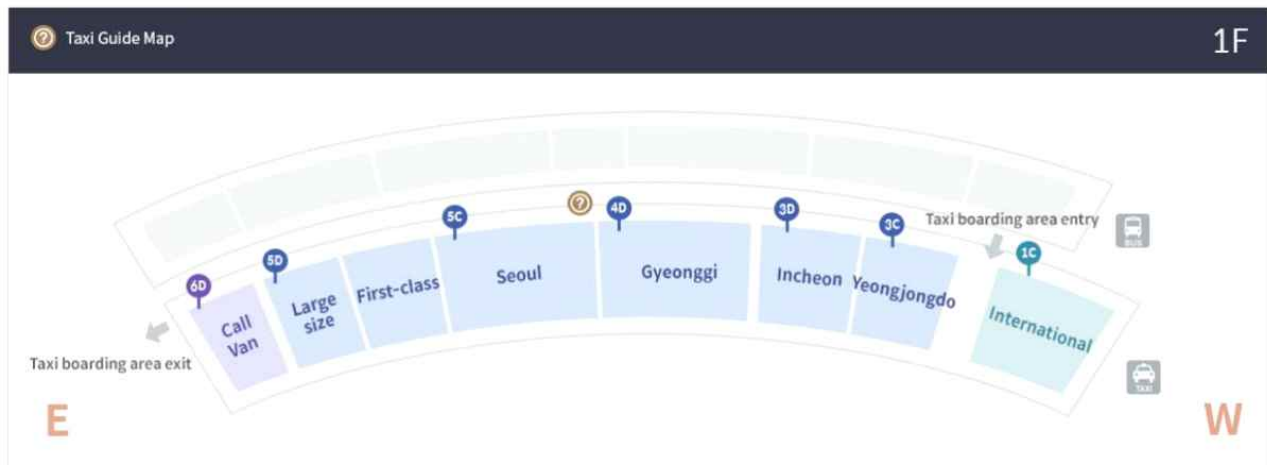
○ Taxi (KRW 30,000; approx. USD 30)

1. Taxi stand

Terminal 1



Terminal 2



2. Address in Korean

Accommodation	Address	Telephone
Korea Polar Research Institute	인천 연수구 송도미래로 26 극지연구소	032-770-8400
Orakai Songdo Park Hotel	인천 연수구 테크노파크로 151 오라카이 송도 파크 호텔	032-210-7000
Central Park Hotel	인천 연수구 테크노파크로 193 송도 센트럴 파크 호텔	032-310-5000
Gyeongwonjae Ambassador Hotel	인천 연수구 테크노파크로 200 경원재 앰배서더 호텔	032-729-1101
Holiday Inn Incheon Songdo	인천 연수구 인천타워대로 251 홀리데이 인 인천 송도	032-250-0000
Oakwood Premier Incheon	인천 연수구 컨벤시아대로 165 오크우드 프리미어 인천 호텔	032-726-2000
Sheraton Grand Incheon Hotel	인천 연수구 컨벤시아대로 153 셰라톤 그랜드 인천 호텔	032-835-1000

From Hotel to KOPRI

Bus transportation between Sheraton Grand Incheon Hotel and KOPRI will be provided during May 29-30. You can find the timetable below;

Date	Hotel → KOPRI	KOPRI → Hotel
29 May	08:20	18:00
30 May	08:20	20:00



KOPRI's location on google maps: <https://goo.gl/maps/32GAmq376A92>

Sheraton Grand Incheon Hotel's location on google maps: <https://goo.gl/maps/B8SRvi1vWEu>