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Atmospheric Science

Hydrological Science

Ocean Science

Planetary Science

Solar and Terrestrial Science

Solid Earth Science

Interdisciplinary Working Groups

6th Annual Meeting

AOGS

11 to 15 August **2009**

Singapore



AOGS... In Asia for Asia and the World

Arctic and Antarctic Climate Variability in the Last Glacial Maximum

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²*Chinese Academy of Sciences, Beijing 100081, China*

In the Arctic and Antarctic, the main climate drivers are the Arctic Oscillation (AO) and the Antarctic Oscillation (AAO), respectively. When the AO is in positive phase, the subarctic regions especially Eurasia and western North America are warmer than normal and vice versa, while the AAO is in positive phase, the southern hemisphere (SH) polar vortex and circumpolar westerly tend to be stronger, sea ice production increases, and Antarctica becomes colder but the Antarctic Peninsula warmer. In recent decades, both the AO and AAO have been in an increasing trend. The increasing AO mode is believed to impact the recent Arctic warming, while the positive AAO mode is associated with the slight East Antarctic cooling and the warming in the Antarctic Peninsula. In order to examine the change in the AO and AAO under the cold climate background, we analyzed the change in these two modes for the Last Glacial Maximum (LGM) compared to the pre-industrial (PI) simulation using coupled ocean-atmosphere models (i.e. CCSM, FGOALS, IPSL, MIROC3.2, and UBRIS-HadCM3M2) from the second phase of Paleoclimate Modeling Intercomparison Project (PMIP 2). In the LGM, the amplitude of the simulated AO decreases in all models, weakening the polar vortex and westerly winds with its center displaced into mid-latitudes. For the case of the AAO, its amplitude appears to be smaller than the PI with a small decrease in the standard deviation of the AAO in HadCM3M2, IPSL, FGOALS, but in CCSM and MIROC the AAO amplitude is slightly larger in the LGM. The overall weaker AAO in the LGM is consistent with the weaker SH polar vortex and westerly winds found in some proxy records. This result implies that under global warming the polar vortex and westerly winds will be stronger in both hemispheres.

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14:15
IWG10-D2-
PM1-307-007

IWG10-A004
Tsunami Science and Emergency
Management: Working Together
for Safer Communities

Jane SEXTON¹, Ole NIELSEN¹, David
BURBIDGE¹, Trevor DHU¹
¹*Geoscience Australia, Australia*

14:30
IWG10-D2-
PM1-307-008

IWG10-A005
Incorporating the Modeling of
Tsunami Impacts into Land Use
Planning

Wendy SAUNDERS¹, Gegar PRASETYA¹
¹*GNS Science, New Zealand*

14:45
IWG10-D2-
PM1-307-009

IWG10-A006
Mangrove Flora as Bioshield
Against Natural Disasters

Aluri Jacob SOLOMON RAJU¹
¹*Andhra University, India*

IWG09 / IPY 2007-2008 and Asian Contribution

Wed - 12 Aug | Room 307

Session Chair(s) Yoshio Asuma

16:00
IWG09-D2-
PM2-307-008

IWG09-A001
Arctic and Antarctic Climate
Variability in the Last Glacial
Maximum

Seong-Joong KIM¹, Junmei LU²
¹*Korea Polar Research Institute, South Korea*
²*Chinese Academy of Sciences, China*

16:15
IWG09-D2-
PM2-307-009

IWG09-A007
Our Knowledge Gaps in the
Arctic Change

Takashi YAMANOUCI¹
¹*National Institute of Polar Research, Japan*

16:30
IWG09-D2-
PM2-307-010

IWG09-A015
Number Concentration of Aerosol
Particles in the Antarctic
Troposphere Measured by the
Aircraft POLAR-2 from Germany

Naohiko HIRASAWA¹, K. HARA²,
Makoto WADA¹, Takashi
YAMANOUCI¹
¹*National Institute of Polar Research, Japan*
²*Fukuoka University, Japan*

16:45
IWG09-D2-
PM2-307-011

IWG09-A014
A Climatology of Air Transport to
the Antarctic and the Differences
of Characteristics Between Coastal
Region and Interior Region

Kazue SUZUKI¹, Takashi
YAMANOUCI¹, Naohiko HIRASAWA¹
¹*National Institute of Polar Research, Japan*