



ISAES 2019

XIII International Symposium on Antarctic Earth Sciences

22 July (Mon) – 26 July (Fri) , 2019
Songdo Convensia, Incheon, Republic of Korea

PROGRAM BOOK



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er Session

on)/23(Tue), 13:45-15:00

Permafrost and Periglacial Ice Free Areas in Antarctica

Bedrock Erosion Rates and the Development of Weathering Features in Antarctica
Dan Morgan Vanderbilt University, USA

Geophysical and Geomorphological Investigations of Polygonal Patterned Ground in Continuous Antarctic Permafrost as a Mars Analog
Mauro Guglielmin University of Insubria, Italy

Active Layer Modeling at Signy Island (Maritime Antarctica) and the Role of the Surface Type
Stefano Ponti University of Insubria, Italy

Statistical Analysis of Soils Properties from Antarctica Based on a Large Database
Mayara Daher Universidade Federal de Viçosa, Brazil

Microbial Life in the Brine of Cryo-environments in the Northern Victoria Land (Antarctica)
Maria Papale Institute of Polar Science, National Research Council, Italy

Thermal Diffusivity of Antarctic Soil Estimated Using Carslaw-jaeger and Finite Element Methods
Heejeung Kim Seoul National University, Korea

Electrical Resistivity Imaging to Study Permafrost Distribution in a Marine Terrace in Byers Peninsula, Livingston Island, Maritime Antarctica
Antonio Correia University of Evora, Portugal

ed)/25(Thu), 13:30-15:00

Applied Bathymetry for Understanding Quaternary History and Change

New Bathymetric and Multi-channel Seismic Data from the NW Weddell Sea: Implications for the Late Cenozoic Glacial History of the South Orkney Islands Continental Shelf
German Leitchenkov Research Institute for geology and mineral resources of the world ocean, Russia

IBCSO V2.0: A Collaborative Effort Towards Improved Bathymetric Information
Jan Erik Arndt Alfred Wegener Institute for Polar and Marine Research, Germany

Evidence of Accelerated Glacial Retreat on King George Island, South Shetland Islands
Jude Castellino British Antarctic Survey, United Kingdom

A Subglacial Hydrologic Switching Hypothesis for Silt Sorting and Deposition during Ice Sheet Retreat in the Amundsen Sea Embayment
Dustin Schroeder Stanford University, USA

July 22(Mon)/23(Tue), 13:45-15:00

S12

Geological Records of Ocean and Ice Sheet Change from the Ross Sea

- A104 High Resolution Seismo-stratigraphic Evidence from the Edisto Inlet Fjord, Western Ross Sea (Antarctica)
Francesca Battaglia Cà Foscari University of Venice, Italy
- A130 The STREAM Project: Late Quaternary Evolution of the Ocean-ice Sheet Interactions - The Record from the Ross Sea Continental Margin (Antarctica)
Ester Colizza University of Trieste, Italy
- A131 New Chronologies on East Antarctic Ice Sheet Stability - Surface Exposure Ages from Bennett Platform, Transantarctic Mountains
Julia Lindow Woods Hole Oceanographic Institution, USA
- A157 Multiple Glaciation in the Middle Segment of the Western Ross Sea: Revealed By Intermediate-resolution Seismic Data
Zhongyan Shen The Second Institute of Oceanography, China
- A199 Assessing the Orbital Response of the WAIS from a Ross Sea Deep Ocean Perspective Since the Late Pliocene
Molly Patterson Binghamton University, USA
- A214 Preliminary Results of Geochemical Proxies (Biogenic Opal, TOC, and Caco3) at IODP Site U1523 on the Ross Sea Continental Shelf
Sunghan Kim Korea Polar Research Institute, Korea
- A288 Plio-pleistocene Antarctic Slope Current in the Outer Ross Sea, and Linkages to West Antarctic Ice Sheet Variability
Benji Griffin Victoria University of Wellington, New Zealand
- A297 Paleooceanographic Changes during the Past One Million Years in the Central Basin, Northwestern Ross Sea
Minkyung Lee Korea Polar Research Institute, Korea
- A337 Antarctic Holocene Deglaciation and Environmental Evolution of the Eastern Ross Embayment
Christina Riesselman University of Otago, New Zealand
- A348 Using Sedimentology and Geochemistry to Elucidate Antarctic Ice Sheet Extent in the Late Miocene to Pliocene: Results from IODP Site U1522 on the Ross Sea Continental Shelf
Denise Kulhanek Texas A&M University, USA
- A349 XRF Sediment Geochemistry from IODP Site U1523, Outer Ross Sea Continental Shelf, and Its Utility to Distinguish Sediment Input from Various Water Masses
Denise Kulhanek Texas A&M University, USA
- A388 A Preliminary Study of the Relationship of Chemical Data with the Diatoms Assemblage in the Coastal Core Sediment of the Antarctic Ross Sea
Younho Noh Korea Polar Research Institute, Korea
- A392 Petrography of Gravel Size Clasts from Iodp_exp374 Drillcores (Ross Sea - Antarctica): Implications for Miocene Ice Flows
Luca Zurlì University of Siena, Italy
- A431 Late Quaternary Paleoenvironment and Paleoclimate of the Northern Drygalski Basin (Ross Sea, Antarctica) Using Microorganism Assemblages and Sediment Characteristics: Preliminary Results
Fiorenza Torricella Università di Pisa, Italy

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Abstracts

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Session *	(Theme 4) Geological records of ocean and ice sheet change from the Ross Sea
Title of Paper *	Paleoceanographic changes during the past one million years in the Central Basin, northwestern Ross Sea
Information on Author(s)	<p>Author(s) *</p> <ol style="list-style-type: none"> Min Kyung Lee^{1*} Kyu-Cheul Yoo¹ Jae Il Lee¹ Christian Ohneiser² Sunghan Kim¹ Robert McKay³ Olya Albot³ Christina Riesselman² Michael Bollen² Richard Levy⁴ Ho Il Yoon¹ <p>Affiliation(s)</p> <ol style="list-style-type: none"> Korea Polar Research Institute, Incheon, Korea University of Otago, Dunedin, New Zealand Victoria University of Wellington, Wellington, New Zealand GNS Science, Wellington, New Zealand
Abstract * (less than 4,000 characters)	<p>The Central Basin is located in the northwestern Ross Sea continental slope and rise. A 11.75 m-long core RS15-LC42 was collected from the southwestern part of the Central Basin (71° 49' S, 178° 35' E, 2084 m deep) by the Korean RVIB Araon in 2015. The chronology is established based on paleomagnetism and diatom biostratigraphy. This core covers about 1.3 million years. Ohneiser et al. (2019) reported Brunhes-Matuyama reversal (0.78 Ma) at 8.26 mbsf of this core, and according to paleo-intensity records the sedimentation is almost continuous although there is a hiatus near 9.54 mbsf. LC42 core is composed of two distinct sedimentary facies: 1) well-laminated greenish gray diatom-rich silty mud, and 2) massive/bioturbated light gray sandy mud. Well-laminated facies include high content of TOC, opal and carbonate with no IRD (clasts > 2 mm), while massive/bioturbated sandy mud facies show high MS value and bear clasts IRDs. The laminated silty mud facies has abundance in illite while smectite and kaolinite is relatively rich in sandy mud facies. The chlorite content does not change as a whole. The difference in clay mineral composition between two facies indicates that two facies originated from different sources. The diatom assemblage in LC42 include reworking indicator species (early-Pliocene and Miocene taxa), and the tendency of reworking is evident in the lower part of the boundary between 2.8 and 3.2 mbsf. This result suggest that there was a significant shift in the oceanographic regime in this region around 0.3 Ma.</p>
Preferred Presentation Type *	Poster

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ABOUT ISAES

The first Antarctic Geology Symposium was held jointly with IUGS (the International Union of Geological Sciences) in September 1963 and initially was held at irregular intervals, interspersed with conferences on Antarctic Quaternary Studies and marine geology. Since 1987, the International Symposium on Antarctic Earth Sciences (ISAES) has been

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