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Book of Abstracts

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**ARCTIC CONNECTIONS –
THE RESULTS OF 150 YEARS OF RESEARCH**



Session 2: Arctic Climate Variability

Wednesday 25 March 2009

- 08:30 - 08:50** **Inger Hanssen-Bauer:** Climate in the “Norwegian Arctic” during the 20th and 21st century
- 08:50 - 09:10** **Yvan Orsolini:** Projected changes in Arctic summer cyclones under global warming in the Bergen climate model
- 09:10 - 09:30** **Vladimir Alexeev:** Vertical structure of recent Arctic warming from observed data and reanalysis products
- 09:30 - 09:50** **John Cassano:** Changing Greenland Precipitation: A Weather Perspective
- 09:50 - 10:10** **Sergey Pisarev:** Spatial interannual variability of the Arctic Cold Halocline margins.
- 10:10 - 10:30** **Karin Refsnes:** The Svalbard Integrated Arctic Earth Observing System – Description and Status
- 11:00 - 11:20** **Øystein Skagseth:** Observed transport variability of Atlantic Water through the Norwegian Sea to the Arctic based on long-term current-meter mooring arrays.
- 11:20 - 11:40** **Maria Pisareva:** Large – scale variability of the upper water masses characteristics within the Eurasian Basin observed by ITPs.
- 11:40 - 12:00** **Bjørge Risebrobakken:** Holocene climate extremes in the south-western Barents Sea
- 12:00 - 12:20** **Kirstin Werner:** Holocene Variability of Atlantic Water Advection in the Fram Strait
- 12:20 - 12:40** **H. A. J. Meijer:** Greenland Holocene temperatures obtained by differential diffusion studies
- 14:00 - 14:20** **William D'Andrea:** Mid- to late-Holocene NAO-type variability and the impacts of climate change on Saqqaq, Dorset and Norse occupation in West Greenland based on lacustrine alkenones and compound-specific hydrogen isotopes
- 14:20 - 14:40** **Liguang Sun:** A 7500-year Oxygen and Carbon Isotope Record within the Shell Remains in Ny-Alesund, Svalbard, Arctic: Linkage with Solar Activity and Episodes of Ice-rafting in North Atlantic
- 14:40 - 15:00** **Mikhail Ivanov:** Polar Urals glaciers variability past to Future
- 15:00 - 15:20** **Michael Fritz:** How ground ice studies may contribute to paleoenvironmental reconstructions at the easternmost edge of Beringia (Herschel Island, western Canadian Arctic)
- 15:20 - 15:40** **Reinhard Pienitz:** Postglacial paleoclimates of the Foxe Peninsula, Nunavut, Canada: new insights from chironomid and sedimentological analyses.
- 15:40 - 16:00** **Nazarova:** Reconstruction of Holocene Climate Variability in Yakutia, North Eastern Siberia, made with regional calibration data set and chironomid inference model
- 16:20 - 16:40** **Aleksandra Zemskova:** Ground ice and cryogenic morphology of Quaternary deposits of Yeniseyskiy bay coast and floral variety along the northern part of Yenisey river (research in the frames of IPY 2007-2009)
- 16:40 - 17:00** **Sebastian Wetterich:** Late Quaternary environmental history inferred from permafrost exposures on Kurungnakh Island, Lena Delta, Northeast Siberia, Russia
- 17:00 - 17:20** **Alexey Lupachev:** Soil-Cryogenic Complex of Russian North-east in Modern and Future Climate Conditions
- 17:20 - 17:40** **L. X. Yuan:** Striking association between North Atlantic climate and seabird populations in Ny-Alesund, Svalbard, Arctic between 12 and 4 kyr ago

fluctuation pattern ($R=0.59$, $P<=0.01$). The peaks of $\delta^{18}O$ and $\delta^{13}C$ profiles corresponded to getting colder climate, reducing snow melt amount and decreasing input of snowmelt water into Kongsfjorden; and the troughs of $\delta^{18}O$ and $\delta^{13}C$ profiles corresponded to becoming warmer climate, enhancing snow melt amount and increasing input of snowmelt water into Kongsfjorden. After comparing with solar activity and episodes of ice-rafting in North Atlantic, it was concluded that increasing $\delta^{18}O$ and $\delta^{13}C$ values within the shell remains corresponded to weaker solar activity and enhanced drift-ice cycles, and vice versa, which revealed the strong correlation among the variations of $\delta^{18}O$ and $\delta^{13}C$ in shell remains and solar activity and episodes of ice-rafting in North Atlantic.

Mikhail Ivanov

Polar Urals glaciers variability past to Future

Ivanov M.

High-latitude alpine glaciers are sensitive climate indicators and the most greatly they respond on the Arctic's climate changing. Existing at the limit of possibility glaciers of the Polar Ural mountains are reliable object for monitoring of nature fluctuations. The study region is located between $68^{\circ}10'$ and $67^{\circ}30'N$, where the maximum of glaciers is concentrated, which are the 50% of glaciation area of Polar Ural. First glaciers discovered in 1932. The static glaciological investigations were in progress in 1958–81 on IGAN and Obrucheve glaciers. In 1947, 53, 58, 60, 68, 73, 89 was made aerial survey and topographical plan for glaciers, received ASTER-2000. The DGPS survey of Obrucheve and IGAN made in 2008. The main topics of this report are the revision, generalization of collected data, making detailed diagrammatic curves of glacier's size fluctuations for the modeling task solution. Data from the 1932, 1947, 1953, 1960, 1973 1982–2008 are important for the detailed reconstruction of fluctuations line of glacier's square area, length and the surface altitude and their connection with climate. For the glacier's fluctuations estimation numerical models of the surface, based on the topoplans were made. On this numerical models the contours of glaciers for different years were overlaid. Size, square area and surface altitude fluctuations were calculated. The material of moraine research was generalized too. The photographs of glaciers from different years are collecting for the new "Catalogue of repeated images", which will represent climate and nature environment changing.

Michael Fritz

How ground ice studies may contribute to paleoenvironmental reconstructions at the easternmost edge of Beringia (Herschel Island, western Canadian Arctic)

Fritz, Michael, Hanno Meyer, Lutz Schirrmeister, Hugues Lantuit, Nicole J. Couture and Wayne H. Pollard

Herschel Island lies off the Yukon Coastal Plain in the southern Beaufort Sea as a terminal moraine resulting from the Laurentide Ice Sheet during the Early to Middle Wisconsin and represents the likely easternmost edge of Beringia. Ground ice is ubiquitous and contributes to the shaping of the landscape since deglaciation. Stable isotope analyses ($\delta^{18}O$, δD) have been performed on various ground ice types. Since ground ice is a valuable record of paleoclimate information it can be used for paleoenvironmental reconstructions. Ice wedges on Herschel Island have begun to form in outwash and morainic deposits during the Pleistocene after deglaciation, when dry and harsh climatic conditions supported frost cracking. These ice wedges are remarkably depleted in their isotopic signature (-29‰) compared to Holocene ice wedges (-24 to -21‰). Within ice-rich Herschel Island sediments, bodies of massive ice are exposed whose appearance and isotopic composition is completely different from all other sampled ground ice types. $\delta^{18}O$ -isotopes are strongly depleted (-33‰) thus suggesting a Pleistocene origin with slope and d-excess near the global meteoric water line (GMWL), which indicate that the moisture is likely of meteoric origin without substantial alterations. Other massive ice of unknown but supposedly glacial origin was encountered adjacent to large, striated boulders. With -37‰ for $\delta^{18}O$, the ice exhibits extremely low isotopic values. The question arises, whether the ice bodies aggraded before or after deglaciation as massive segregated ice or if the ice was originally basal glacier ice buried by supraglacial till.

Reinhard Pienitz

Postglacial paleoclimates of the Foxe Peninsula, Nunavut, Canada: new insights from chironomid and sedimentological analyses

Rolland, Nicolas and Reinhard Pienitz

Climate change reports show that many High Arctic regions are affected by unprecedented environmental changes because global warming effects are amplified at high latitudes. However, paleoclimate studies completed in areas surrounding the southern Foxe Basin, Labrador and northern Quebec, suggest that