

Report on the International Conference on Polar Climate and Environmental Change in the Last Millennium Toruń (Poland)

by Thomas Opel

The International Conference “Polar Climate and Environmental Change in the Last Millennium“ was organised by the Department of Climatology, Institute of Geography of the Nicolaus Copernicus University, Toruń, together with the Polish Society of Geophysics, Pomorski Branch, and the Committee on Polar Research, Polish Academy of Sciences. It was held from 01–03 February 2010 at the University Hotel of the Nicolaus Copernicus University Toruń.

About 35 participants, predominantly from Poland but also from several other European countries and the USA met in wintry and snowy Toruń, the birthplace of Nicolaus Copernicus, to discuss past, recent and future climate changes in the polar regions.

After the opening address by the chair of the organising committee, Rajmund Przybylak (Nicolaus Copernicus University Toruń), the scientific program started with four key-note lectures on hot topics of polar climate research.

Kevin Wood from University of Washington elaborated in his lecture North Atlantic climate variations since 1802 on the surface temperature changes in the Sub-Arctic North Atlantic realm with a special focus on a new temperature compilation for this region based on different meteorological time series and the derived climatic insights. This new dataset is an important addition to single meteorological records. It enables a better view on the highly dynamic climate in this key region, e.g. on the early 20th century warming, together with the recent Arctic warming the most striking Arctic climate feature of the last centuries.

In the following talk on *One hundred years of Norwegian meteorological observations on Svalbard* – What have we learned? Øyvind Nordli (Norwegian Meteorological Institute, Oslo) presented a new improved composite temperature series from Svalbard. He discussed this climate record and its temporal and seasonal features compared to regional and Arctic meteorological records. Furthermore, he related temperature and precipitation time series to large-scale atmospheric patterns and presented new data on Svalbard permafrost temperatures, before finishing with a historical view on climate research on Svalbard.



Jacek Jania (University of Silesia, Katowice) focussed in his lecture *Climatic signal filtered by glaciers. How Spitsbergen glaciers can reflect climate changes over centuries* on glaciers as witnesses of climate change. He discussed the importance of internal glacier dynamics on glacier extent and thickness changes often interpreted as signs of climate change based on several case studies from Svalbard and emphasized the necessity of distinguish dynamic signals from climate signals.

In his talk *Permafrost in transition: State and Fate of Permafrost in Northern Hemisphere* Vladimir Romanovsky from University of Alaska, Fairbanks, presented a comprehensive overview on the current state of permafrost research in Eurasia and North America. It contained the development and history of permafrost, the reaction of permafrost on Global Warming, the effects of permafrost degradation on landscapes, infrastructure and society as well as the potential carbon release of thawing permafrost.

The following talks and posters predominantly dealt with a wide spectrum of Arctic climate and its variability in the last decades to millennia. Several talks and posters presented results from research at the Polish Polar Station at Hornsund (Svalbard), run by the Institute of Geophysics, Department of Polar and Marine Research of the Polish Academy of Sciences. Nevertheless, three thematic priorities existed, first, meteorological studies on Svalbard with talks on atmospheric circulation and precipitation types on Svalbard, second, paleoenvironmental studies on Svalbard with contributions on fjord sediments and glacier dynamics. The third focus was on historical climatology with talks and posters on early instrumental meteorological observations in the Arctic, also one of the main research themes of the Department of Climatology, Institute of Geography of the Nicolaus Copernicus University, Toruń.

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The conference was greatly organized and took place in a very familiar atmosphere, accompanied by nice social events. This worthwhile conference on one of the most important and actual topics of polar and climate research brought together

scientists from different disciplines and opened possibilities for fruitful discussions. It was an excellent opportunity to get an overview on the Polish polar research and it would have had deserved more participants.