

53rd ANNUAL INTERNATIONAL ARCTIC WORKSHOP

March 18-21, 2026
Buffalo, New York

PROGRAM AND ABSTRACTS

Sponsored and Hosted by:

University at Buffalo
Center for Geological and Climate Hazards
The (RENEW) Research and Education in eNergy, Environment
and Water Institute
College of Arts and Sciences
Department of Geology

Organizing Committee:

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Karlee Prince
Gerard Otiniano
Lisa Lenker
Juana Colón
Laura Yearke

Introduction

(updates ongoing)

Overview and History

Annual International Arctic Workshop

The 53rd Annual International Arctic Workshop will be held on the Medical campus of the University of Buffalo. The meeting is sponsored and hosted by the University at Buffalo, Center for Geological and Climate, College of Arts and Sciences, Department of Earth Sciences, and the RENEW Institute. This workshop has grown out of a series of informal annual meetings started by John T. Andrews and sponsored by INSTAAR and other academic institutions worldwide.

Northeast Glaciology Meeting

[The International Glaciological Society \(IGS\)](#) Northeast Glaciology Meeting fosters collaboration and discussion among scientists at all career stages. This informal, student-friendly event encourages participants to share posters and talks in a relaxed, interactive setting. The IGS was founded in 1936 to provide a focus for individuals interested in practical and scientific aspects of snow and ice.

General Information

Event Website

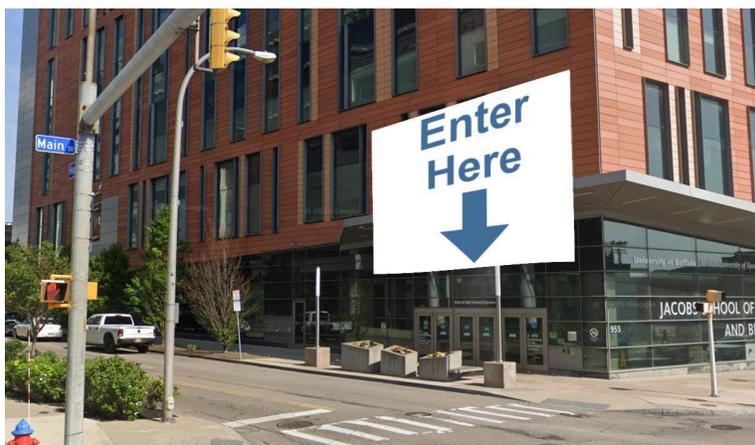
[The Arctic Workshop & The Northeast Glaciology Meeting](#)

Location

UB Jacobs School of Medicine and Biomedical Sciences

The conference venue is the Jacobs Medical School building at [955 Main St, Buffalo, NY 14203](#) ([Google map](#)).

Use the [Main & High Streets Entrance](#)



The building is staffed by 24 hour security. Use the buzzer to the right of the door or inside the vestibule and say you are here for the Arctic Workshop. Keep your conference name tag for subsequent entry.

Check-In / Registration

Check in is open:

Wednesday, March 18, at the Icebreaker/Reception between 5:00 – 7:00 pm

Thursday and Friday, March 19-20, beginning at 8:00 am.

Registration to the event may also be available at these times - depending on the final number of current registrations.

Parking

The recommended parking solution is the [Ellicott-Goodrich parking garage at 860 Ellicott Street](#), two blocks away. Cost is approximately \$10-15 per day. Alternatively, street parking downtown is available but not ample.

Wi-Fi

Wi-Fi available via [UB eduroam](#). If you do not have an eduroam account, you can [sign up for guest access](#) with an email and password.

File Uploads

A [public Box file](#) has been created for presentation files (e.g., powerpoint files). [Upload your files here](#).

Once uploaded you will not be able to edit or delete your files. If you have any issues, please contact Juana Colon at juanacol@buffalo.edu.

Talks

Talk slots are 15 minutes in length. Please target 12 minutes for speaking and leave 3 minutes for questions.

Posters

At registration you will receive information on where to set up your poster. Please put it up as early as possible on the day that you are presenting, and leave it up as late as possible. There will be two poster sessions; one on each day of the workshop.

Title: Relationships Between Precipitation and Air Temperature with Air Circulation Indices in Nuuk (SW Greenland) from the Late 19th to the Early 21st Century

Authors: Andrzej Arażny^{1,2}; Arkadiusz Bartczak³; Rajmund Przybylak^{1,2}; Przemysław Wyszyński^{1,2}; Johan H. Scheller⁴

Affiliations: ¹ Faculty of Earth Sciences and Spatial Management, Nicolaus Copernicus University in Toruń, Poland; ² Centre for Climate Change Research, Nicolaus Copernicus University in Toruń, Poland; ³ Stanisław Leszczycki Institute of Geography and Spatial Organization, Polish Academy of Sciences, Warsaw, Poland; ⁴ Danish Meteorological Institute, Copenhagen, Denmark

Abstract:

Arctic precipitation plays a key role in driving global climate, ecosystem stability, and the mass balance of glaciers and the Greenland Ice Sheet. The cryosphere is crucial to the evolution of the global climate system. Therefore, this study investigates long-term precipitation changes in southwest Greenland (Nuuk station) and their relationships with air temperature and atmospheric circulation indices, including the North Atlantic Oscillation (NAO) and the Greenland Blocking Index (GBI).

For analysis, several datasets of daily, monthly, seasonal, and annual precipitation totals and mean air temperatures from the Nuuk station were used. Due to data gaps, four climatic subperiods were selected for comparative analysis: (A) 1875–83 and 1886–91 (beginning of precipitation measurements in Nuuk during the Little Ice Age), (B) 1925–27, 1929–32, 1934, and 1936–42 (Early Twentieth-Century Warming), (C) 1970–84 (transition from cooling to contemporary warming), and (D) 2000–14 (recent major warming).

Daily precipitation totals for the earlier periods were digitized from meteorological yearbooks, while later data were obtained from the Danish Meteorological Institute database. Monthly NAO indices from the NSF National Center for Atmospheric Research and GBI indices from NOAA were also used.

Preliminary analyses using statistical methods such as Spearman's rank correlation coefficients reveal strong relationships between precipitation, temperature, and atmospheric circulation patterns in the Arctic.

This work was supported by the National Science Centre, Poland (project no. 2020/39/B/ST10/00653).

Title: Climatic and bioclimatic conditions on the Labrador coast at the turn of the 20th century

Authors: Rajmund Przybylak^{1,2}; Andrzej Arażny^{1,2}; Garima Singh¹; Konrad Chmist¹; Przemysław Wszyński^{1,2}

Affiliations: ¹ Faculty of Earth Sciences and Spatial Management, Nicolaus Copernicus University in Toruń, Poland; ² Centre for Climate Change Research, Nicolaus Copernicus University in Toruń, Poland

Abstract:

Meteorological sub-daily measurements (three to five times per day) conducted by Moravian missionaries at the turn of the 20th century provide a reliable description of the climatic and bioclimatic conditions of the Labrador coast. The observations were carried out on behalf of the Deutsche Seewarte and are available in the archives of Deutscher Wetterdienst (Germany). For the climate analysis, long, continuous sub-daily temperature series (7–36 years) for six stations—Rama (1882–1890), Hebron (1882–1918), Okak (1883–1889), Nain (1882–1913), Zoar (1882–1894), and Hoffenthal (1882–1898)—were used.

For the estimation of bioclimatic conditions, midday temperature and wind speed data were applied. Wind force was estimated using the Beaufort scale and converted to m s^{-1} at a height of 1.2 m above ground. Mean daily air temperatures, calculated as the average of sub-daily measurements, were adjusted to true mean daily air temperatures. These corrected data were used to calculate standard climatic characteristics, including monthly, seasonal, and annual means; day-to-day temperature variability; thermal seasons; Growing Degree Days; Air Thawing Index; Positive Degree Days; and Air Freezing Index. To describe the bioclimatic conditions, two indices were utilized: Wind Chill Temperature (WCT) and Insulation Predicted (Iclp).

Mean annual air temperatures during the historical period were approximately $1.5\text{--}2.3^\circ\text{C}$ lower than today, while wind speeds were lower by about 0.8 m s^{-1} . Spatial differences in climate and bioclimate conditions between stations in both periods were generally small. In the contemporary period, more favorable bioclimatic conditions occurred on the Labrador coast than in the historical period. Mean annual WCT and Iclp were smaller in the historical period by 1.8°C and 0.1, respectively, compared with the present. The results reveal both greater climate continentality and day-to-day variability in the historical period than today.

The work was supported by the National Science Centre, Poland, project no. 2020/39/B/ST10/00653.

Title: Before Modern Weather Stations: The Moravian Brethren's 18th-Century Climate Records from Labrador/Nunatsiavut and Southwestern Greenland

Authors: Przemysław Wszyński^{1,2}; Rajmund Przybylak^{1,2}; Andrzej Arażny^{1,2}; Garima Singh¹; Konrad Chmist¹

Affiliations: ¹ Nicolaus Copernicus University, Faculty of Earth Sciences and Spatial Management, Toruń, Poland; ² Nicolaus Copernicus University, Centre for Climate Change Research, Toruń, Poland

Abstract:

Within the framework of the project “Reconstructions of Climatic and Bioclimatic Conditions in Greenland and Labrador/Nunatsiavut ca. 1770–1939 from Moravian Missionary Observations (MORCLIM),” extensive archival investigations were carried out in several Moravian repositories throughout Europe and North America. These included the Moravian Church House in London, the Unity Archives – Moravian Archives Herrnhut in Germany, and the Moravian Archives in Bethlehem, USA. Additional archives and library collections likely to preserve early instrumental weather measurements from stations in southwestern Greenland and Labrador were also examined.

During this exploratory stage, thousands of digital images were taken of handwritten documents containing original instrumental observations and descriptive weather records. Published summaries of meteorological data from 18th- and 19th-century scientific literature were also identified. A substantial portion of these materials, including records of air temperature, atmospheric pressure, and wind characteristics, has already been digitized, quality-checked, and released through the open-access repository of the Centre for Climate Change Research.

The earliest identified series for southwestern Greenland and Labrador originate in the 18th century. In many locations, systematic observations continued after the Moravian missions ended, maintained during the 19th and 20th centuries by the national meteorological services of Denmark, Germany, and Canada. This paper provides a comprehensive catalogue of all archival sources collected so far that contain early instrumental meteorological measurements for coastal Labrador and southwestern Greenland from the 18th to the early 20th century. It evaluates their chronological extent, interruptions in recording, measured variables and temporal resolution, and key metadata including observation techniques, instruments, personnel, and related contextual details.

This work was supported by the National Science Centre, Poland, project no. 2020/39/B/ST10/00653.