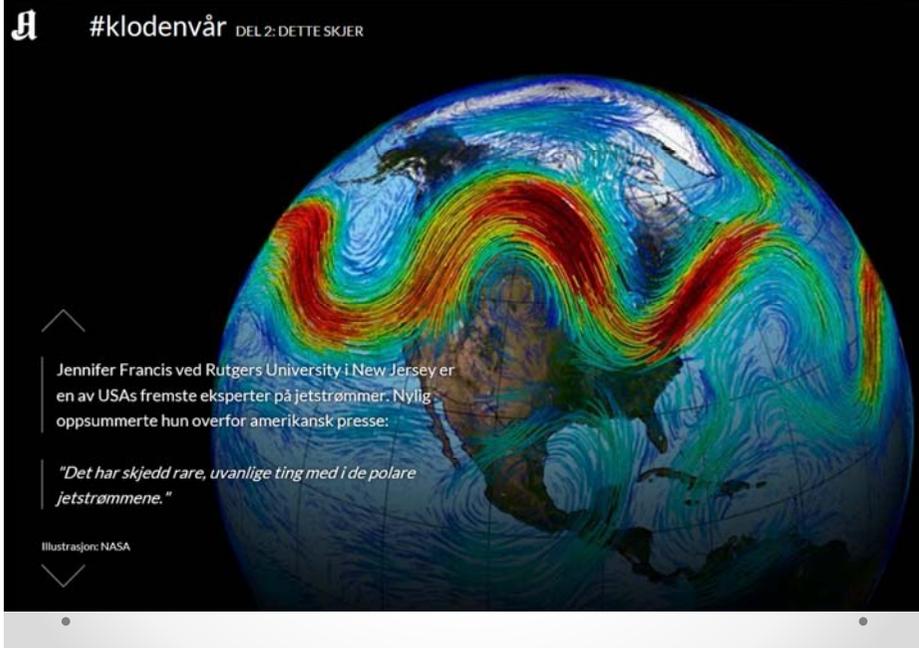


The role of Science, Technology and Innovation in the Arctic and the necessity of international cooperation

Susan Barr

President, International Arctic Science Committee (IASC)



Extreme weather phenomena



Photo: Hans O. Torgersen/Aftenposten

What science can tell us

- especially if we work together



Photo: Jean-Baptiste Strobel/IASC



Photos:
www.whoj.edu
Gazprom, Russia/www.oilrig-photos.com
Norwegian Coastguard



Definition and Mission

The International Arctic Science Committee (IASC)

is a **non-governmental, international scientific** organization.

The mission of IASC is to

encourage and facilitate cooperation in all aspects of Arctic research, in all countries engaged in Arctic research and in all areas of the Arctic region,

by

promoting and supporting leading-edge multi-disciplinary research to foster a greater scientific understanding of the Arctic region and its role in the Earth system.

Member Countries



 Austria	 Japan
 Canada	 The Netherlands
 China	 Norway
 Czech Republic	 Poland
 Denmark	 Republic of Korea
 Finland	 Russia
 France	 Spain
 Germany	 Sweden
 Iceland	 Switzerland
 India	 United Kingdom
 Italy	 United States of America

IASC's membership today includes national science organizations from 22 countries involved in Arctic research.

IASC is an International Scientific Associate of the **International Council for Science (ICSU)** and observer on the **Arctic Council**.




International Arctic Science Committee www.iasc.info

Organizational Structure



Working Groups
Terrestrial
Marine
Cryosphere
Atmosphere
Social and Human

Action Groups
Bipolar Action Group
Action Group on Geosciences
Data Policy Group

Science → **Council Executive Committee Secretariat** ← Strategy

Implementation ←

Instruments to Support Science Development
Workshops, Networks
Assessments, Science Planning
Long-Term Programs

IASC draws on an organizational structure that provides mechanisms for initiating and implementing cutting-edge science-led international programs.

www.iasc.info

International Arctic Science Committee www.iasc.info

Working Groups



Working Groups are IASC's main scientific working bodies. They identify and formulate science plans, act as scientific advisory boards to the IASC Council and assist IASC in the implementation of its science mission.

- **Atmosphere** Working Group
- **Cryosphere** Working Group
- **Marine** Working Group / **Arctic Ocean Sciences Board**
- **Social & Human Sciences** Working Group
- **Terrestrial** Working Group

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Japan and IASC

- Represented by the Science Council of Japan, National Institute for Polar Research (NiPR)
- Japan was in the first group of non-Arctic countries to join IASC (1991 – Takao Hoshiai)
- Current Council Member: Tetsuo Ohata
- Working Group board members
 - Terrestrial: Atsuko Sugimoto, Takayuki Nakatsubo
 - Marine: Koji Shimada, Hajime Yamaguchi
 - Cryosphere: Hiroyuki Enomoto, Shin Sugiyama
 - Atmosphere: Jun Inoue, Hiroshi Tanaka (Vice Chair)
 - Social and Human: Hiroki Takakura
- WG Secretariat assistance – Tetsuo Sueyoshi, NiPR (Cryosphere)



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Atmosphere Working Group

Scientific Foci

- Polar Climate Predictability
- Long-term, International Sea Ice Observatory
- Historical Data Retrieval and Reanalysis
- Atmospheric Chemistry

Steering Group

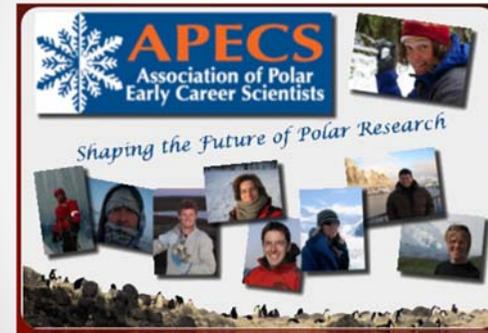
Chair: James Overland
 Vice-Chair: Hiroshi Tanaka
 Vice-Chair: Michael Tjernström
 Vice-Chair: Katharine Law




International Arctic Science Committee www.iasc.info

Also important for IASC and Arctic science is support for:

* The next generation of polar scientists



Indigenous participation in Arctic science



Arctic Science Summit Week (ASSW)

- Initiated by IASC in 1999
- Most important annual gathering of the Arctic research organizations
- Provides opportunities for coordination, cooperation and collaboration
- Any organization engaged in Arctic research may participate
- In odd number years includes a 3-day Science Symposium
- Has been held in a dozen different IASC member countries

- ASSW 2017 Prague, Czech Republic
- ASSW 2016 Fairbanks, USA
- ASSW 2015 Toyama, Japan
- ASSW 2014 Helsinki, Finland
- ASSW 2013 Krakow, Poland
- ASSW 2012 Montreal, Canada
- ASSW 2011 Seoul, Korea
- ASSW 2010 Nuuk, Greenland
- ASSW 2009 Bergen, Norway
- ASSW 2008 Syktyvkar, Russia
- ASSW 2007 Hannover, NH, USA
- ASSW 2006 Potsdam, Germany
- ASSW 2005 Kunming, China
- ASSW 2004 Reykjavik, Iceland
- ASSW 2003 Kiruna, Sweden
- ASSW 2002 Groningen, Netherlands
- ASSW 2001 Iqaluit, Canada
- ASSW 2000 Cambridge, UK
- ASSW 1999 Tromsø, Norway

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25 Years of IASC (1990-2015)

IASC's 25th anniversary will be celebrated 2015, culminating in a final conference in Japan

including

- Arctic Science Summit Week 2015;
- 3rd International Conference on Arctic Research Planning (ICARP III);
- IASC History Publication;

and involving

- IASC Working Groups;
- IASC Partner Organizations.



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Sustaining Arctic Observing Networks (SAON)

A partnership between the Arctic Council and IASC

Report to the Arctic Council and the International Arctic Science Committee
 "Plan for the Implementation Phase of SAON"

The Goal of SAON is to enhance Arctic-wide observing activities by facilitating partnerships and synergies among existing observing and data networks ("building blocks"), and promoting sharing and synthesis of data and information.

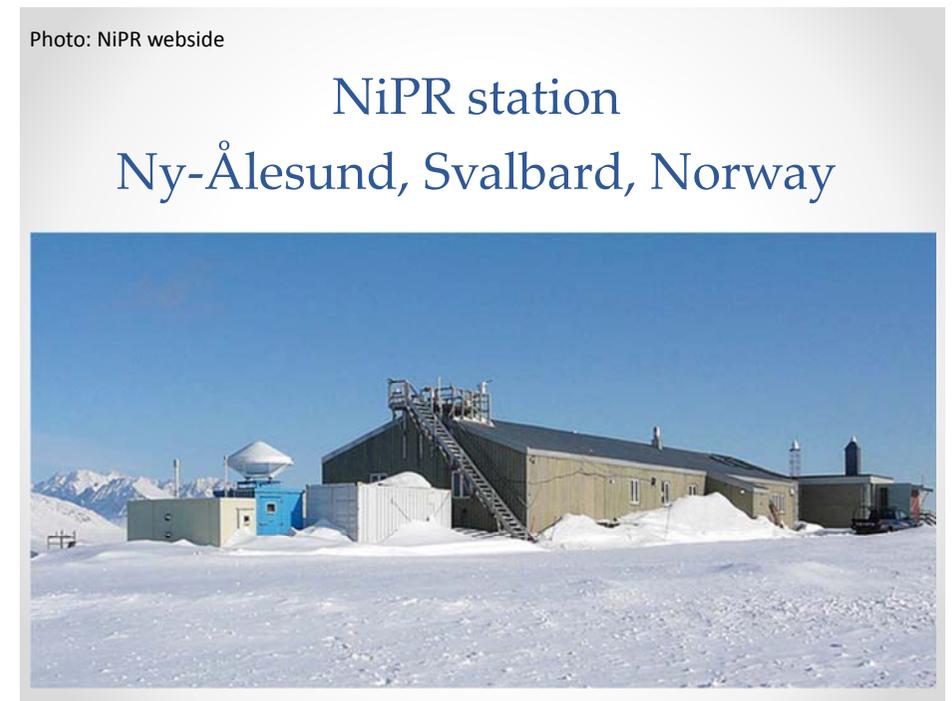
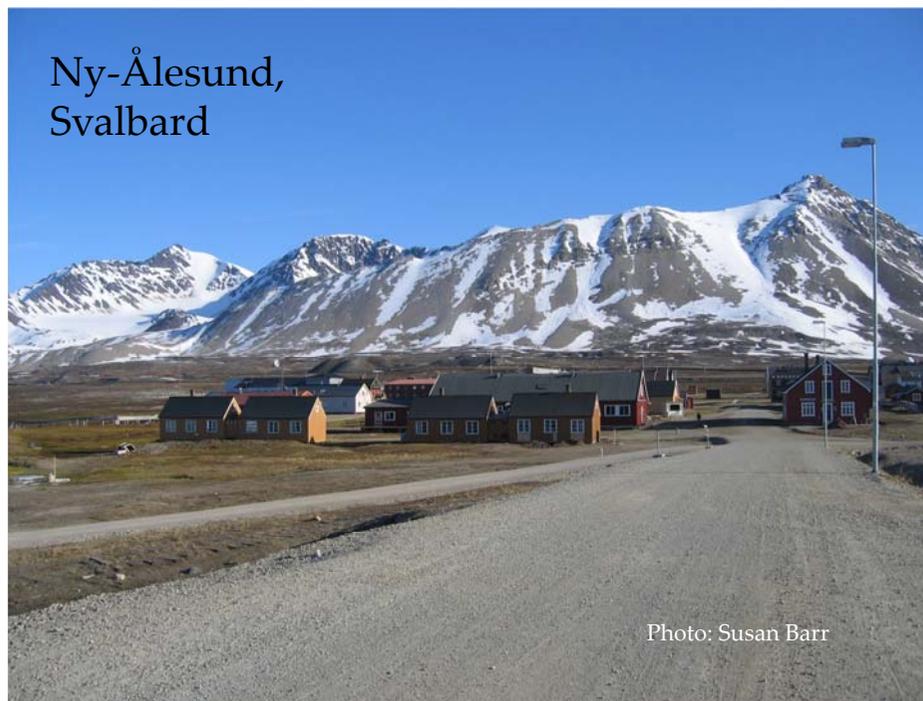
International Arctic Science Committee www.iasc.info

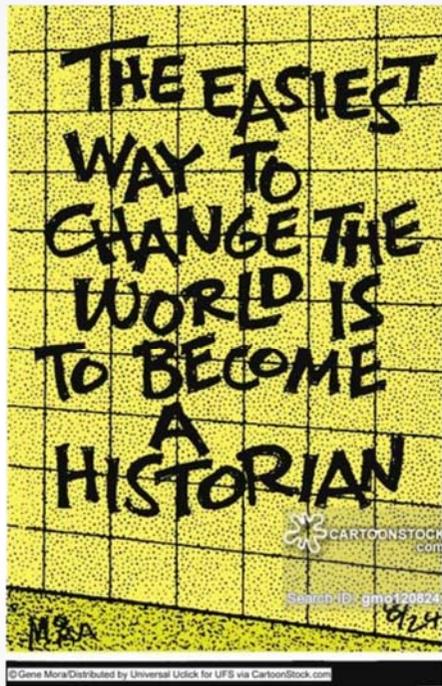
Merged with the IASC Data Standing Committee

Arctic Council Science Cooperation Task Force

Working towards a legally binding Agreement on scientific cooperation among the 8 Arctic States

IASC will follow the development closely to ensure that a possible legally binding agreement is beneficial not only for the 8, but also for all IASC member countries





What is iconic in the Arctic ?



Photo: Susan Barr



www.ifinkl.com



Photo: Susan Barr

Technology and innovation helping heritage



HMS Erebus. Parks Canada



Sentinel-2 (Credits: ESA/P. Carril)



Drones

Erosion and impact measurements



Photos: Susan Barr





Photo: Geir Barstein



3D scanning of
Fort Conger,
Canada
Peter Dawson, Univ. of
Calgary



Impacts on local communities



Photo: Susan Barr



Photo: Google

Japan and Arctic Social Sciences and Humanities

- Paleosiberian language studies
- Anthropological Alaska and Canadian Arctic
- Anthropology, History and Archaeology in Arctic Russia
- Eurasian Arctic adaptation and climate change
- Economic development along the Northern Sea Route
- Studies of the Legal Regime of the Arctic Ocean
- Studies of International Relations in the Arctic
- Hokkaido University – northern Russian universities joint studies for developing young professionals
- Japan Society of Siberian Studies – founded Jan. 2015
- Japan Consortium for Arctic Environmental Research (JCARE), including social sciences



Photo: IASC