

Netherlands Polar Programme

Robert Blaauw | POAC conference | June 10, Delft



Netherlands Polar Programme - Agenda

- Overview NWO
- Overview NPP
- Examples Funded Projects
- Q & A



Dutch Research Council

The Dutch Research Council (NWO) funds top researchers, steers the course of Dutch science by means of research programmes and by managing the national knowledge infrastructure

Nexus role

Knowledge sharing



Infrastructure

Research

People

Netherlands Polar Programme

- Special research programme funded by selected Ministries*
- Supports Arctic and Antarctic research through international collaboration
- The aim of this programme is to promote high-quality scientific research in the Arctic and Antarctic region and to increase the national coherence of Dutch polar research. The programme is tightly linked to the Dutch National Polar strategy



*) OCW, BZ, I & W, LNV, EZK and NWO

Netherlands Polar Programme office

- Research policy development
- Polar research funding through calls-for-proposals
- International collaboration (British Antarctic Survey, Alfred-Wegener Institute)
- Close interface between funding ministries (IPO), NWO, and researchers
- Research station management, Dirck Gerritsz lab, Antarctica
- Central contact point for Dutch polar sciences (www.nwo.nl/npp)



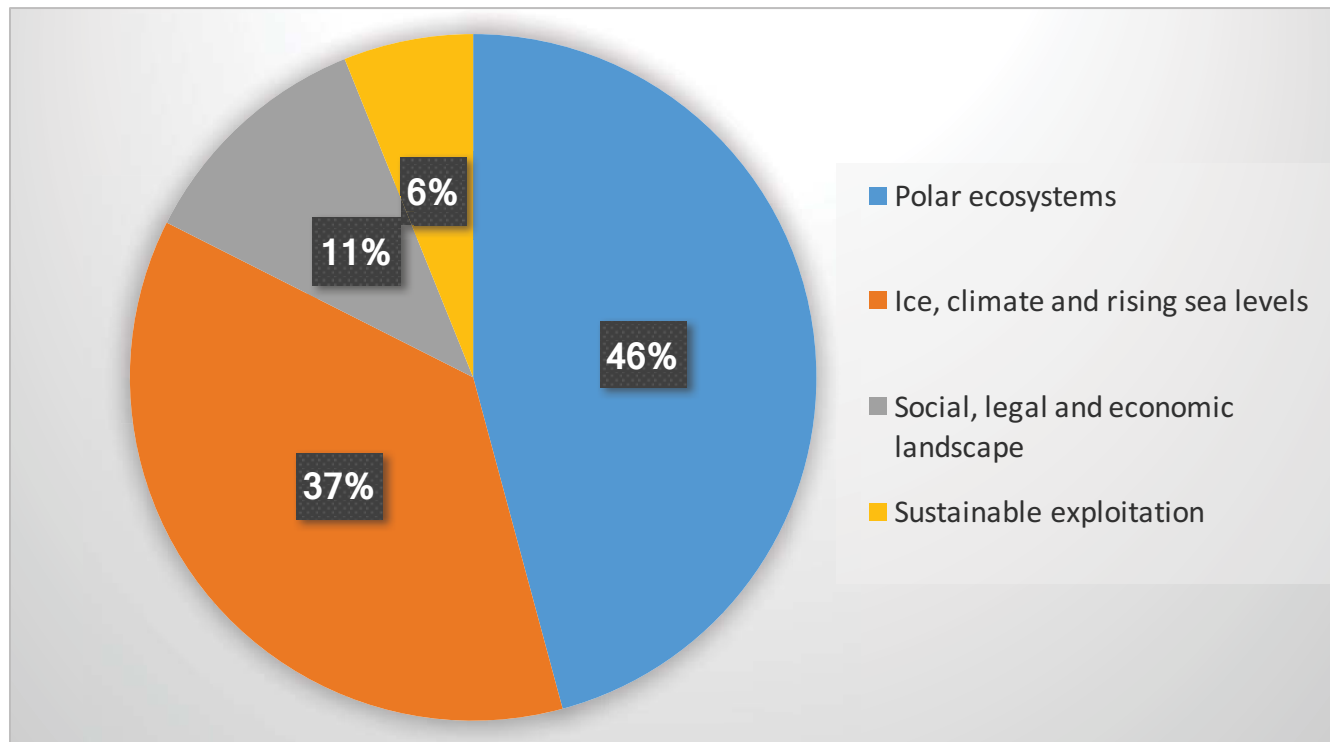
Polar Science Strategy

Main Polar research themes (both in the Arctic and Antarctic region)

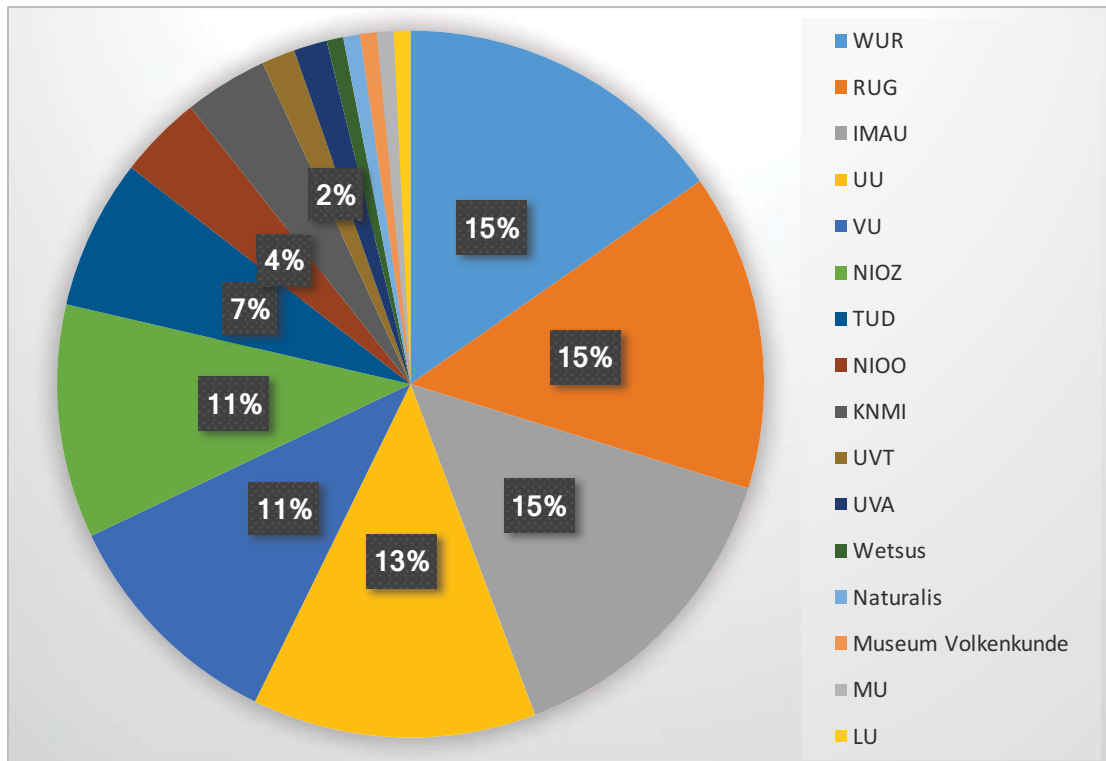
- Ice, climate and rising sea levels
- Polar ecosystems
- Sustainable exploitation
- Social, legal and economic landscape
- Transcending themes



Dutch polar research across themes



Broad Polar Dutch research field



NL polar research - Impact

Top 10 Polar citations, normalized for field and year

	Country	Score
1	Switzerland	1,73
2	USA	1,64
3	Netherlands	1,51
4	United Kingdom	1,50
5	France	1,27
6	Australia	1,27
7	Germany	1,20
8	Belgium	1,16
9	Austria	1,16
10	Canada	1,14

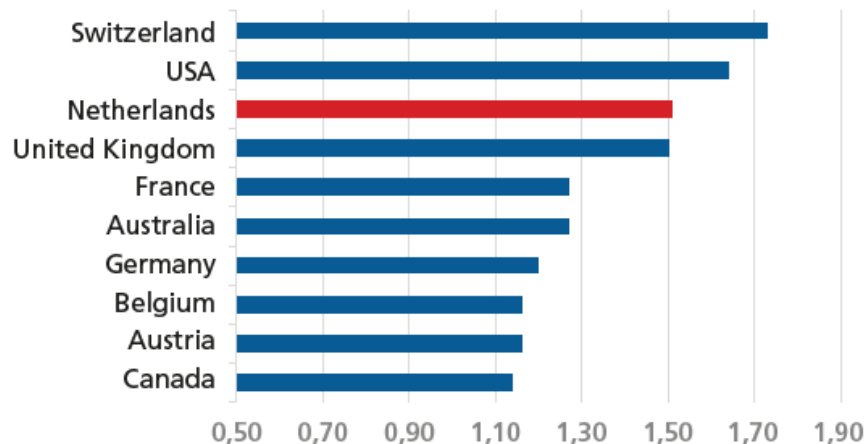


Figure 2 | Citation impact MNCS. The average number of citations of the polar research publications of a country. Citations have been normalized for field and publication year. An MNCS value of 2 for instance means that the polar research publications of a country on average have been cited twice as frequently as the average of their field and publication year.



Commission Polar Research Infrastructure (2018)

Recommendations

- Continue the Dutch Dirck Gerritsz lab at Antarctica (2013)
- Further develop the mobile lab container concept
- Establish a modern international station at Ny-Ålesund with AWI and IPEV
- Extend and further develop international collaboration
- Ensure a long-term budget for polar infrastructure through a rolling funding model with at least a 5-year horizon



Intermezzo



https://youtu.be/0_JoetV3ZTQ



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Funded projects (1) - Ice Whale



Ice Whale Foundation

www.icewhale.nl

Funded projects (1) - Ice Whale

ICEWHALE

- Second largest animal of the world (after the Blue whale)
- 100.000 kilo; lifespan over 200 years (longest-living mammals)
- Endemic to the Arctic (adapted to living in sea-ice)
- Slight recovery after almost complete depletion by whaling
- New threats arise by arctic warming and increased shipping
- Huge knowledge gap (numbers? area? reproduction? ecosystem?)



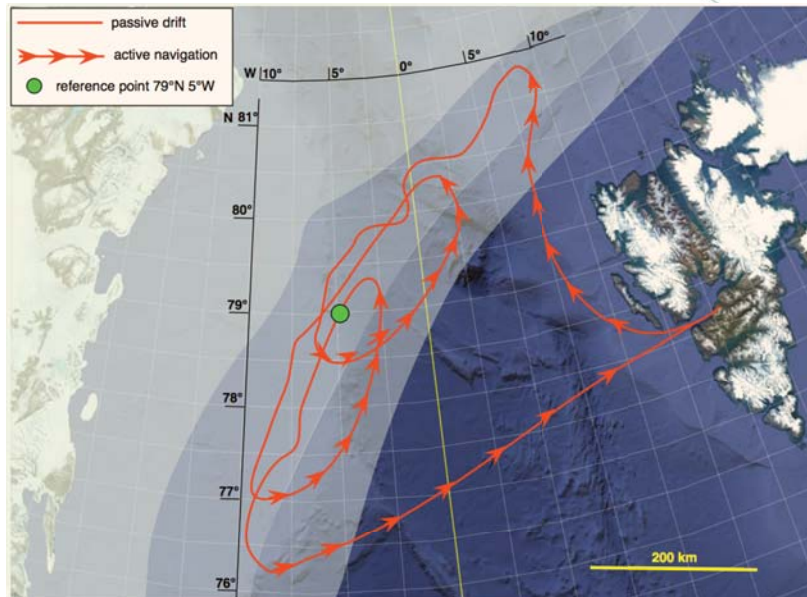
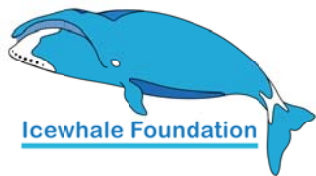
Funded projects (1) - Ice Whale



Funded projects (1) - Ice Whale

THEME 1: Protecting the remnant Icewhale population
(population size, feeding grounds, mating)

THEME 2: Sustainable Arctic Development
(climate/ice modeling, sustainable shipping)



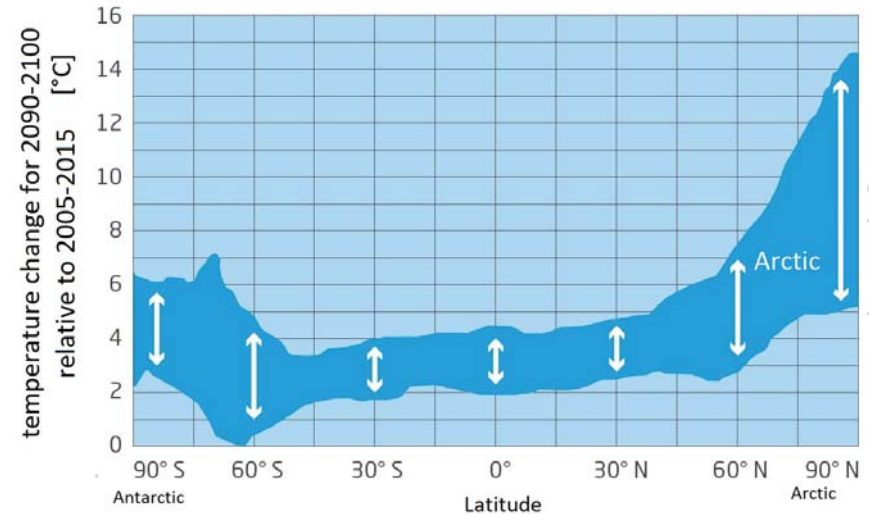
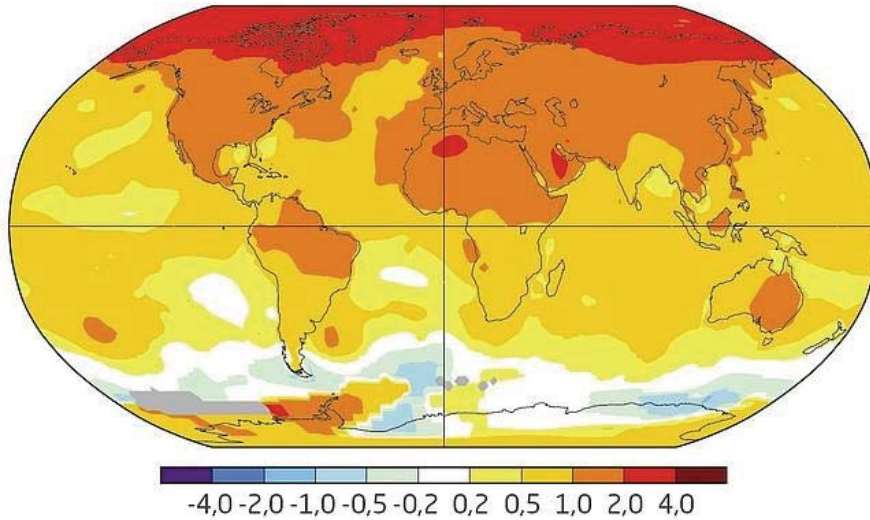
Funded projects (1) - Ice Whale



MARVEL (*Modular Arctic Research Vessel*)



Funded projects (2) - MOSAiC*



Near surface temperature changes 1970-2017 (Grafik: NASA GISS, <https://data.giss.nasa.gov/gistemp>)

*) Multidisciplinary drifting Observatory for the Study of Arctic Climate



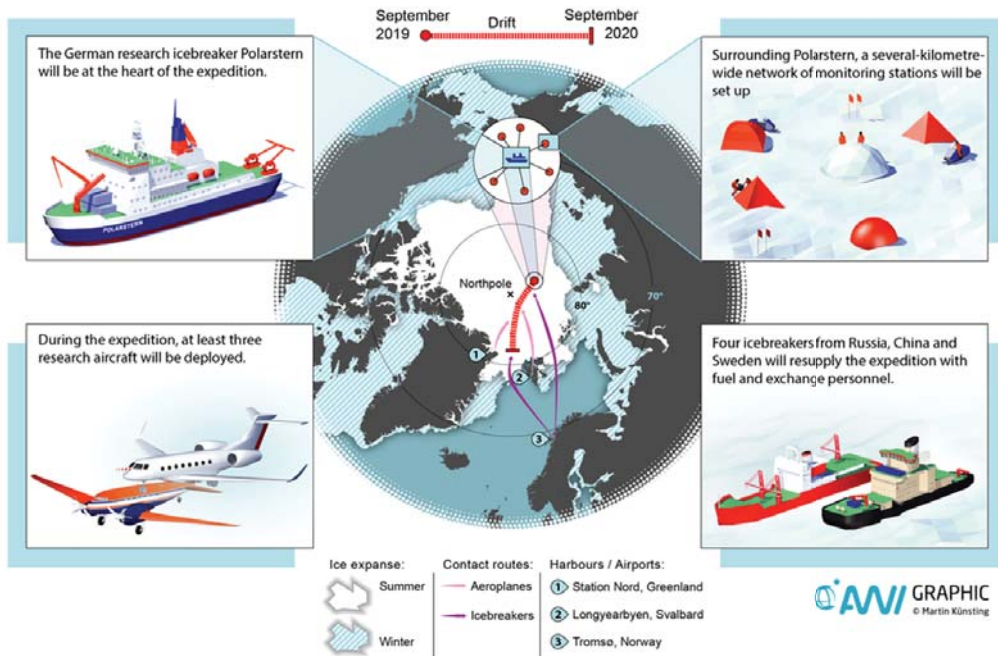
Funded projects (2) - MOSAiC

Main science question: What are the causes and consequences of an evolving and diminished Arctic sea ice cover?

Goal: develop a better understanding of ecosystem processes to improve regional- and global-scale models



Funded projects (2) - MOSAiC





<https://youtu.be/69OsRXEO7y4>

Funded projects (3) - Beyond EPICA*



*) European Project for Ice Coring in Antarctica



Beyond EPICA:
The quest for a 1.5 million year ice core



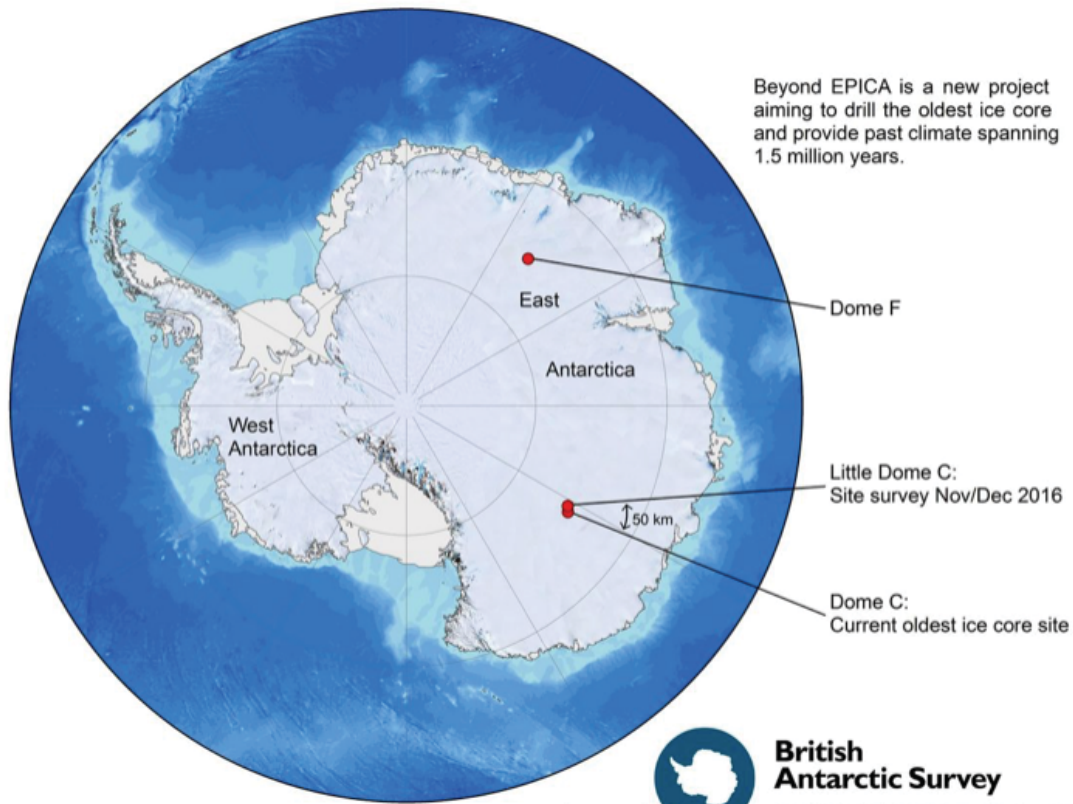
Funded projects (3) - Beyond EPICA

- **Premiss:** It is essential to turn to the past to better constrain the response of Earth's climate continuing emissions
- **Objective:** To understand the transition in Earth's climate response to changes in orbital forcing during the 'mid-Pleistocene transition' (900 to 1200 thousand years ago) and in particular the role of greenhouse gases.
- **Purpose:** Unravelling key linkages between the carbon cycle, ice sheets, atmosphere and ocean behaviour is vital for society to better design effective mitigation and adaptation strategies

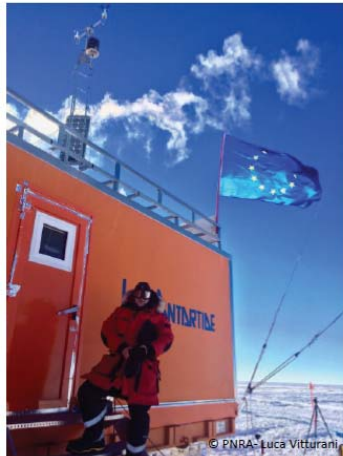


Funded projects (3) - Beyond EPICA

BEYOND EPICA - OLDEST ICE



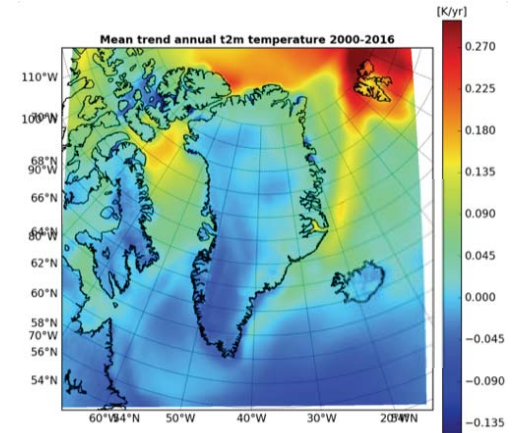
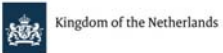
Funded projects (3) - Beyond EPICA



The quest for a 1.5 million year ice core



Funded projects (4) - SEES* expedition 2020



Funded projects (4) - SEES expedition 2020

Objectives

- Observe ongoing environmental change, use new technologies and expand datasets;
- Bring scientists, policy makers and politicians together to improve scientific collaboration;
- Engage next generation polar researchers;
- Improve international cooperation
- Achieve success in outreach (ref. SEES 2015)

Focus

- Terrestrial vegetated uninhabited wilderness, where temperature is increasing so rapidly, that the whole ecosystem is shifting towards an unknown future

Themes

- **Climate Change**
- **Biodiversity Assessment**
- **Pollution**
- **History - Archeology**



NPP funding opportunities

- Previous Topsector Water call for the Arctic funded two applied sciences projects:
 1. **Forecast Arctic Surges and Tides for the Netherlands** *Prof. dr. ir. M. Verlaan, TUD*
 2. **Spray water of jets from wave run-up against ship bows and steep walls** *Prof. dr. ir. W.S.J. Uijttewaal, TUD*
- New call will open soon for policy-driven polar research, total budget ca. M€ 5.5
- Contact NPP: www.nwo.nl/npp, npp@nwo.nl



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