

Svalbard

Flora van extreme milieus



Christophe Brochard - 20 februari 2021 - WFD



university of
groningen

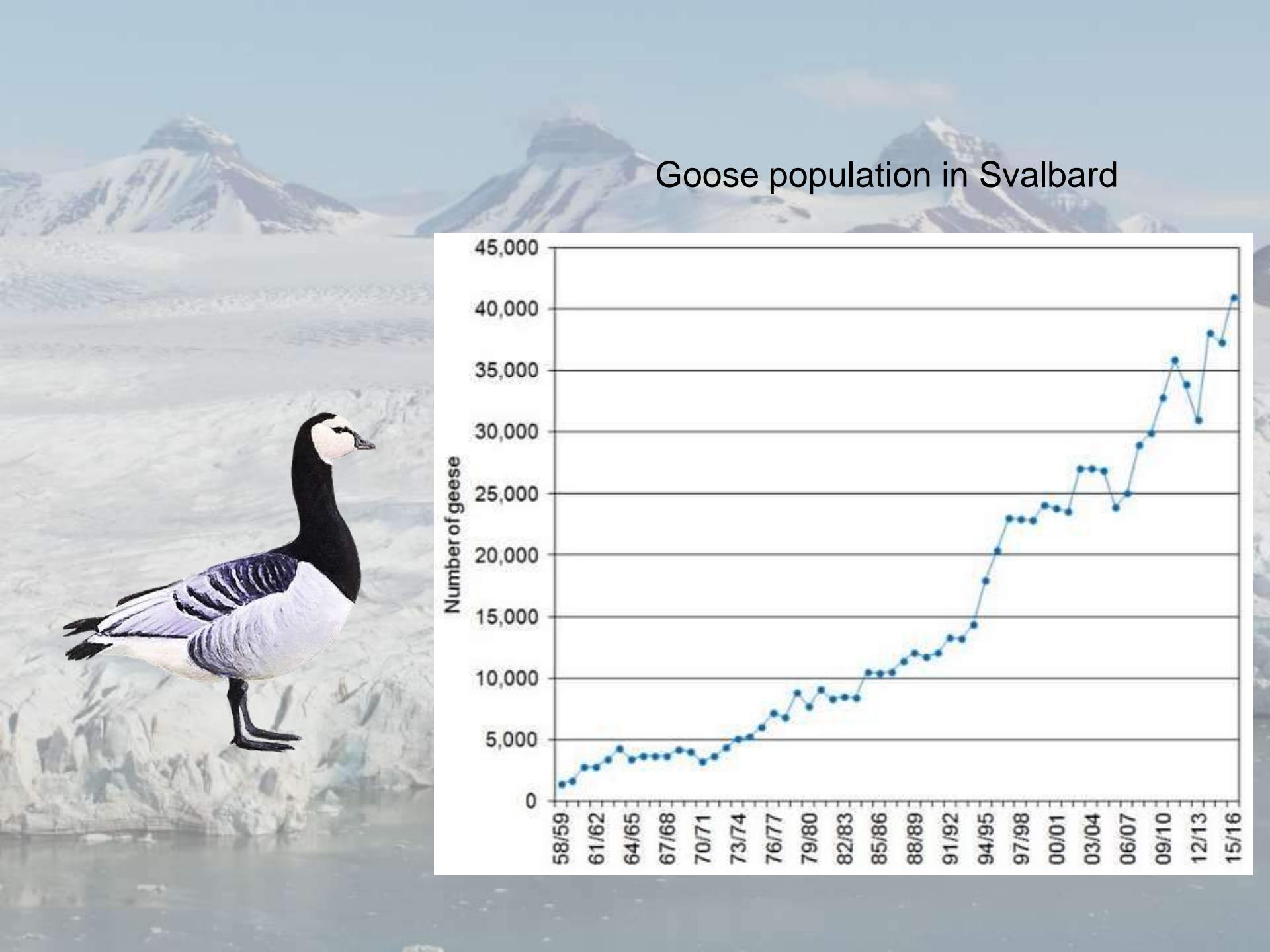


University of Groningen The Netherlands

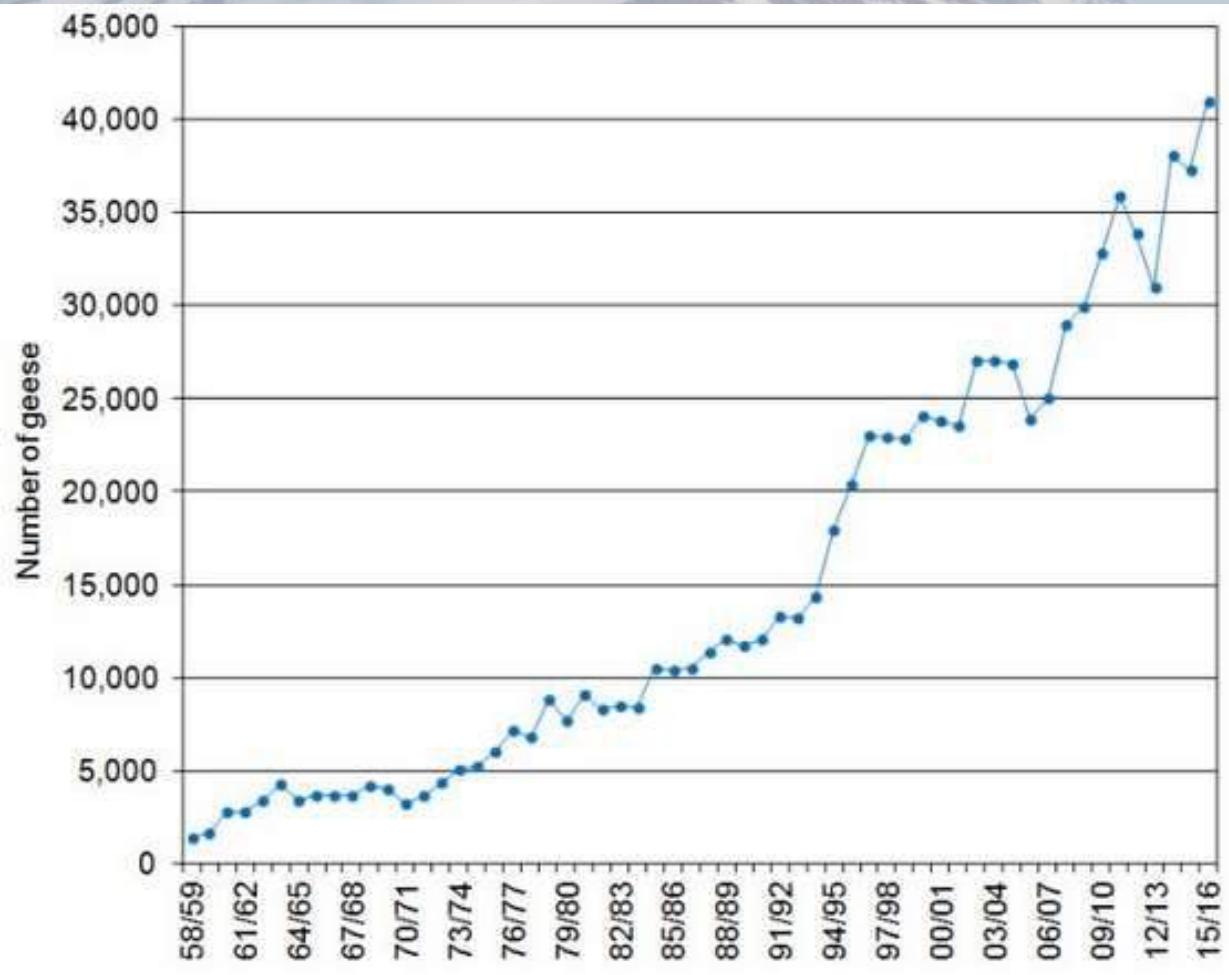








Goose population in Svalbard









TopoSvalbard

Zoem in place tutto

0.00 km

Test input/markers

This figure is a detailed topographic map of a coastal region in Norway, likely the Svalbard archipelago. The map features a color-coded elevation scale, with brown representing higher elevations and blue representing lower areas. Numerous geographical features are labeled, including fjords like Tysfjorden, Bremnesfjorden, and Rombaken, and islands like Bjørnøya and Getoya. The map also shows several settlements and research stations, such as Ny-Ålesund, Prins Karls Forland, and the Svalbard Research Station. An inset map in the top right corner provides a regional perspective, showing the location of the main map area within the broader Arctic context.





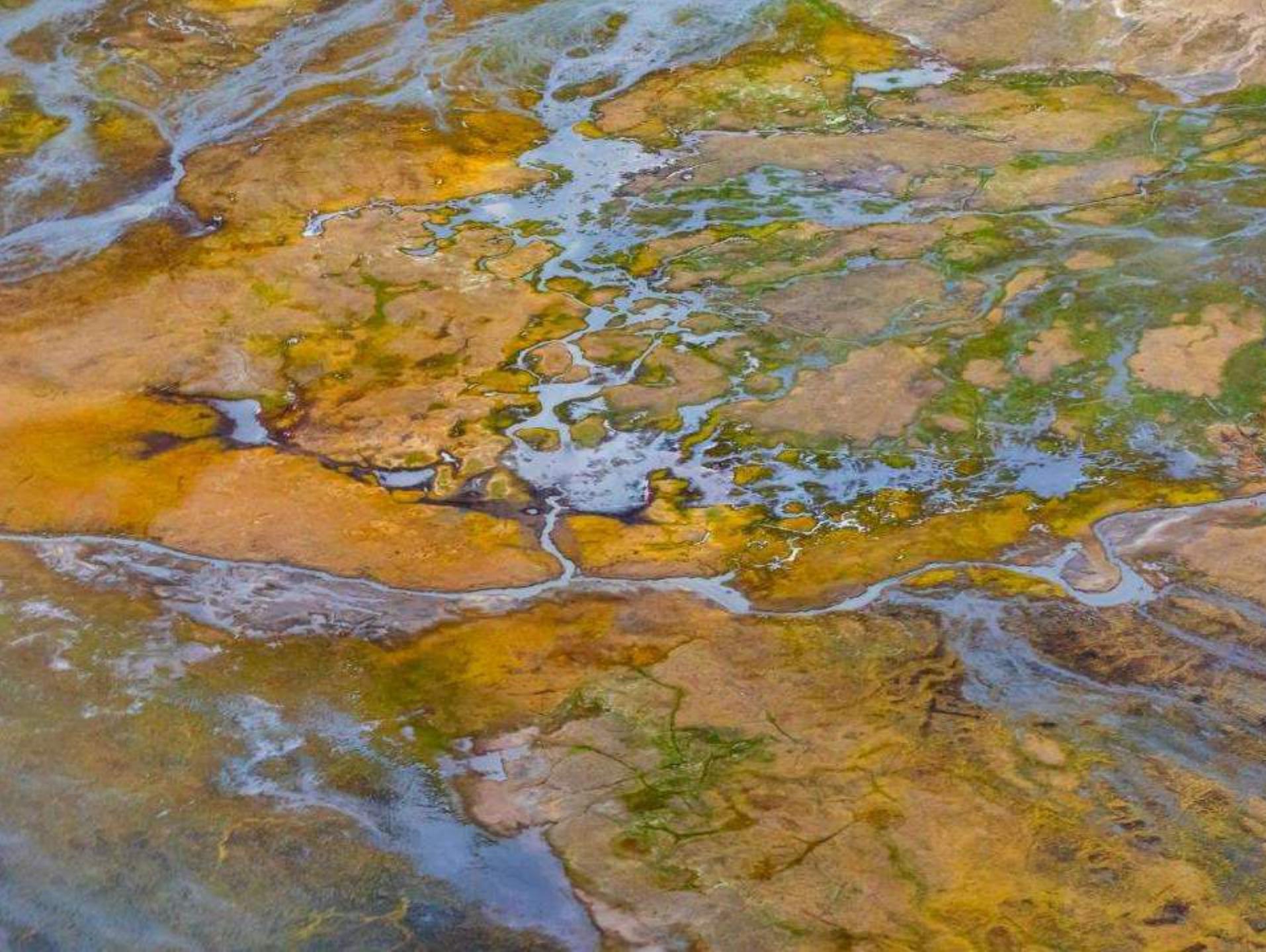
































2

1











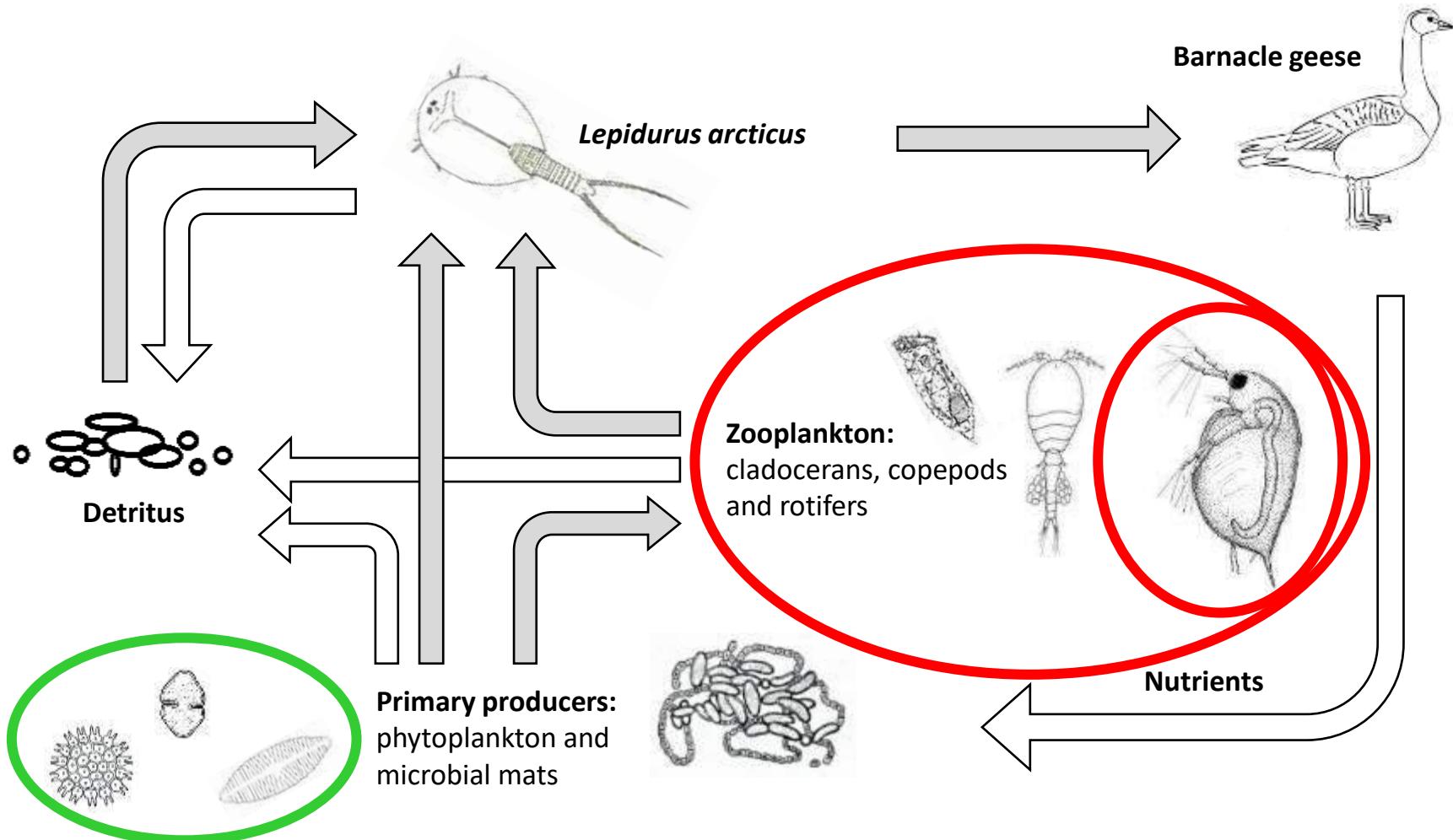








Interactions in aquatic arctic systems





















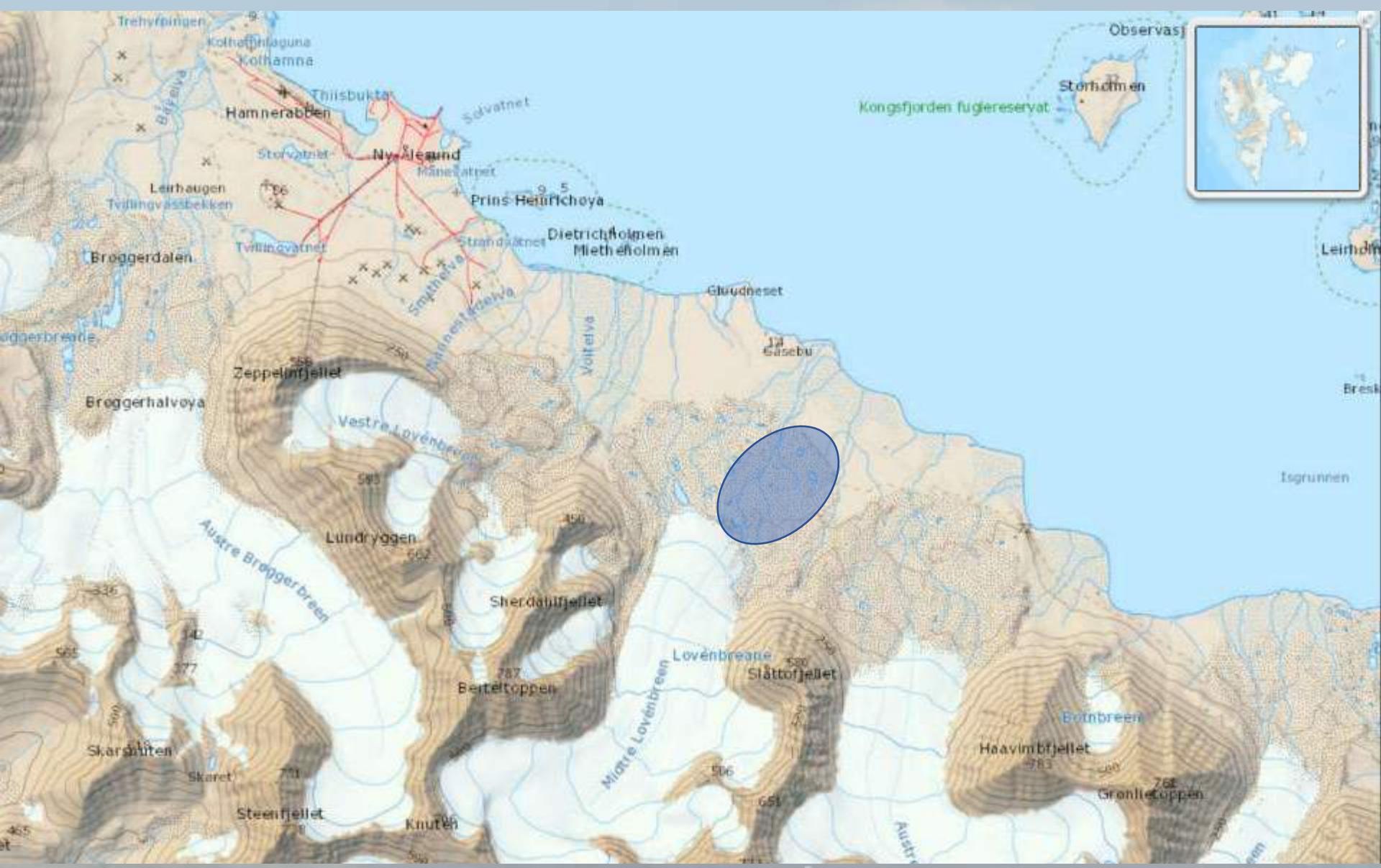
Zooplankton
Not heated
5 replicates

Zooplankton
Heated
5 replicates

Phytoplankton
Heated + unheated
3 replicates

Colonization of life among arctic ponds at Midtre Lovénbreen





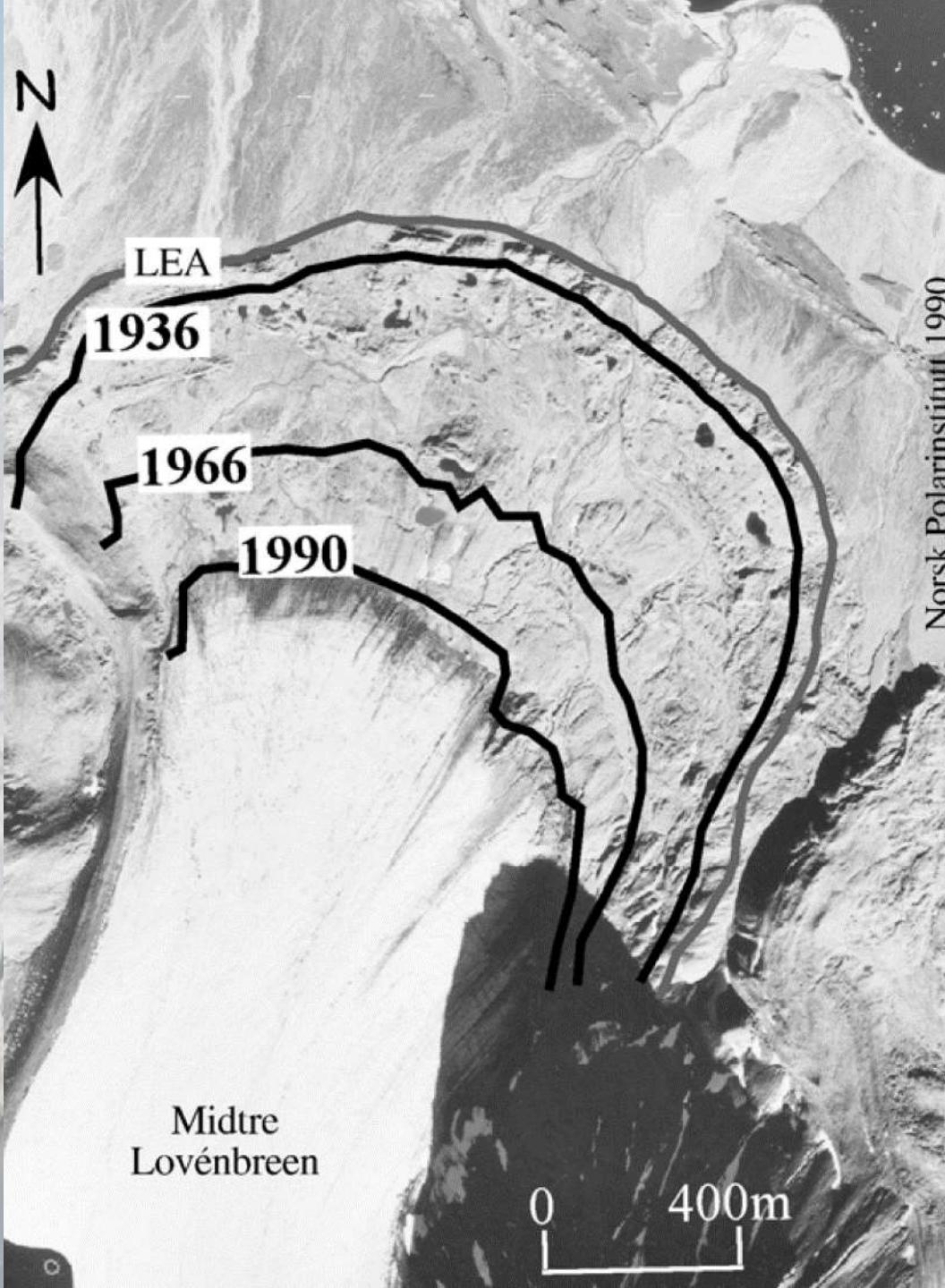
Kongsfjorden fuglereservat

Observasj

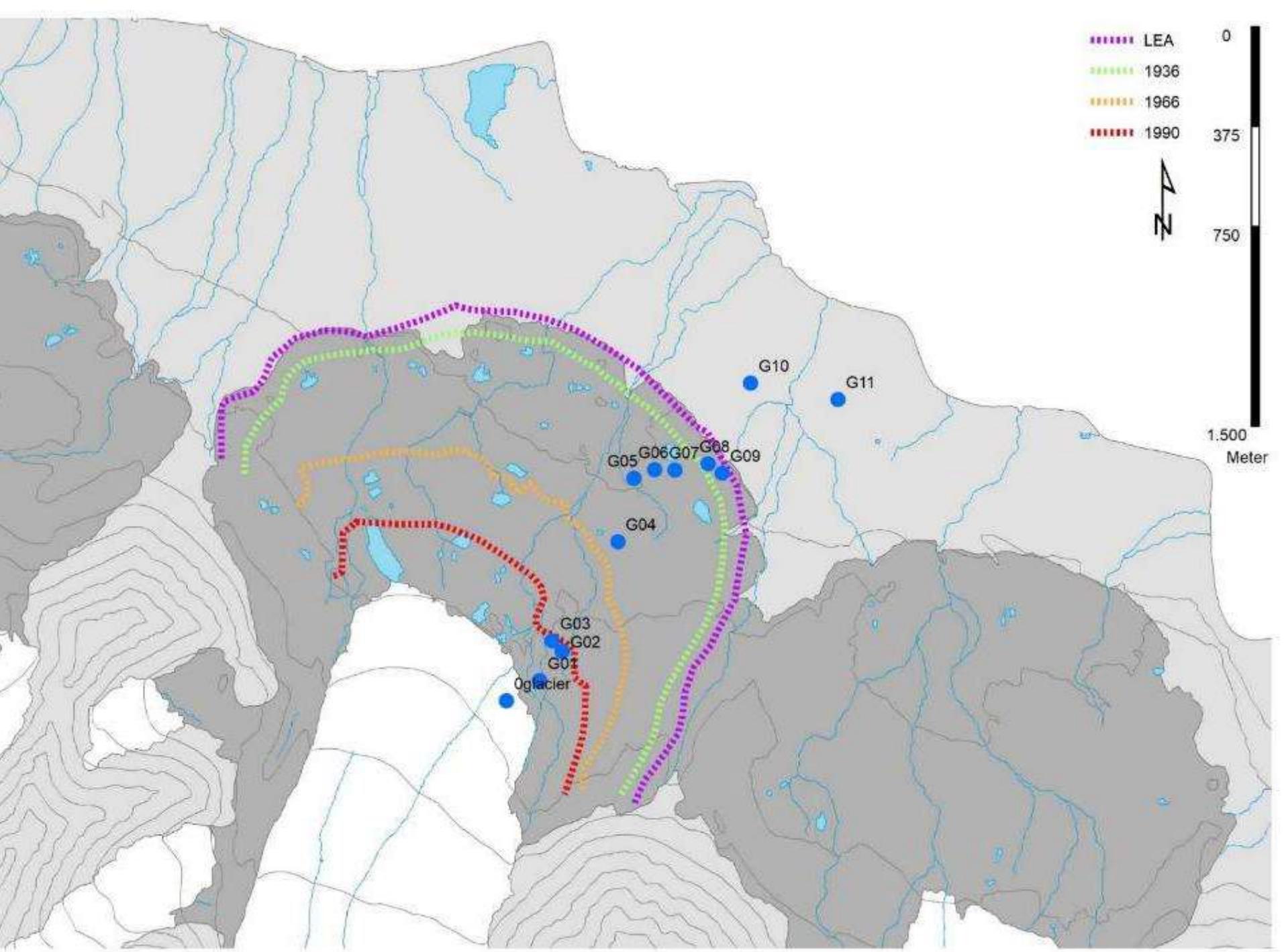
Storfjorden

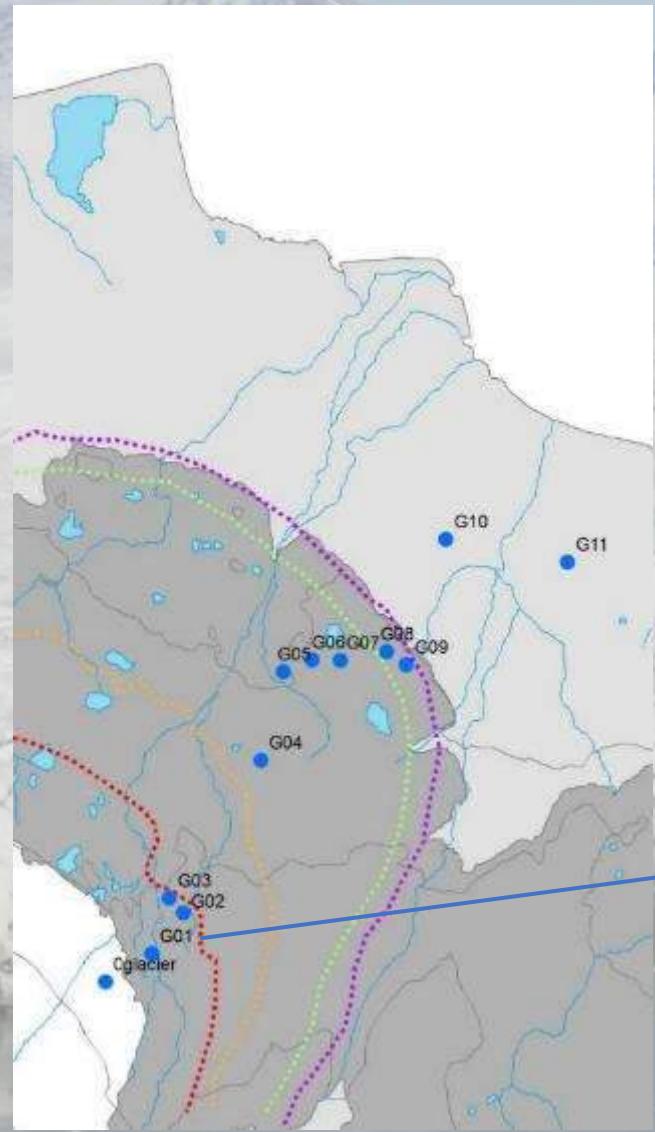


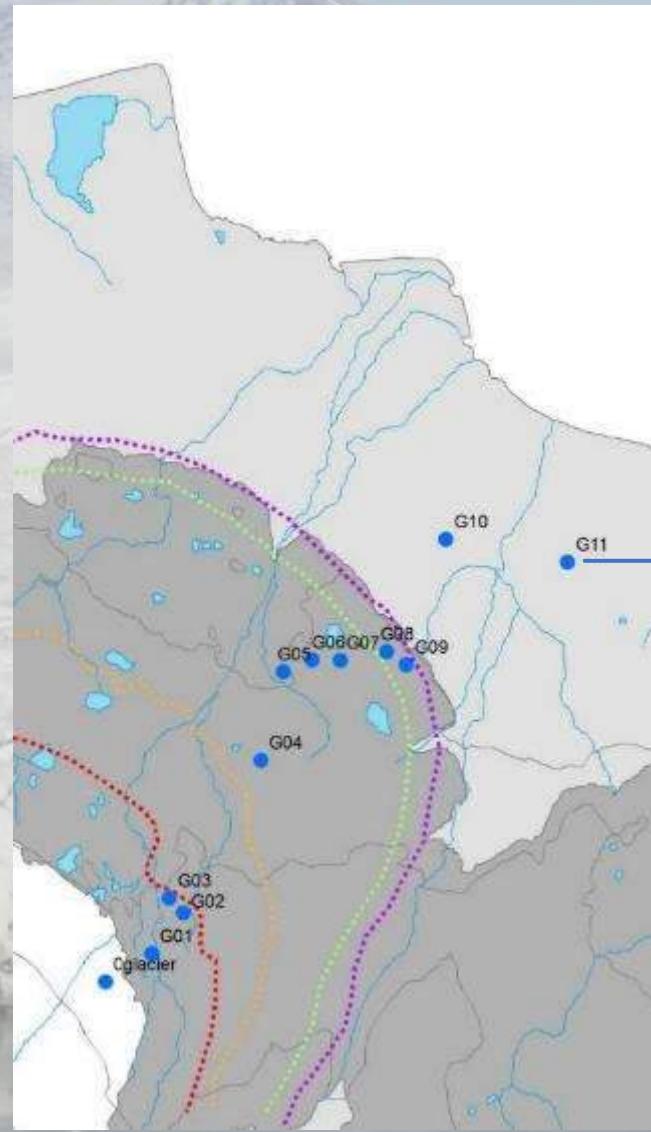




Norsk Polarinstitutt 1990







Topics of research

Zooplankton

- **Cladocera**



- **Copepoda**



- **Rotifera**

Topics of research

Phytoplankton

- Desmidiaceae



Flora

- Vegetation mapping





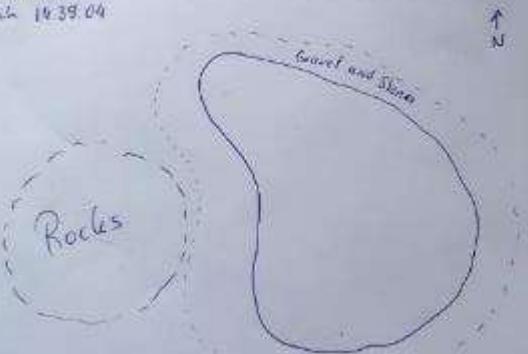
Colonization of life among arctic ponds at Midtre Lovvøysen

Bureau Biota

Location number: Mlt. G01	GPS Coordinates: N 69° 37' 00" E 19° 04' 57"	
Date: 17.07.2019 14:30	Distance to glacier: meter	
Weather: 50% Clouds, wind 2		
Samples codes:	Zoo(Date=loc): Phyto(Date=loc): Detritus(Date=loc):	
ZooDate=loc: 2.G01	Volume in L: /	Volume in L: B601
Volume in L: 100	Volume in L: /	Sample from Shores
Mesh net: 35 µm		
Quick notes:		
Location description: water: 0°C Stones and gravel	-Vegetation 10m around pond: ○ Moss: ○ Stone: 100% Submerge vegetation: ○ Other:	
Size: Perimeter 40 m, 34.87 m ² Depth: > 60 cm, not clear water		
Grazing presence: 4x 1m ² Number of droppings: 1 3 2 4	Lepidopter presence: /	

Location drawing:

Track 1439.04



List of plants:

No plants, water with lot of sediment is supension
Not possible to see the bottom
Sclerobion + others in other sample, most likely terrestrial
came with lot of sediment

Contact:

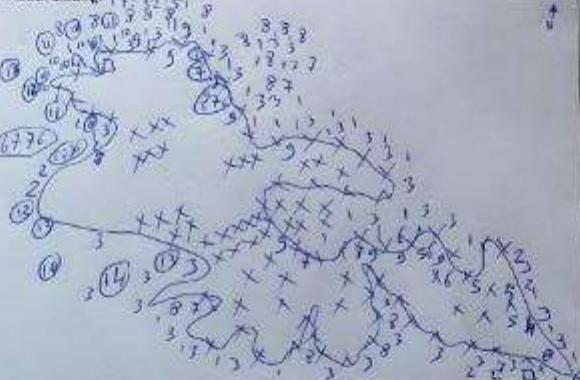
Christophe Brochard (Bureau Biota); c.brochard@bureaubiota.com
Maarten Loonen (Arctic Centre); m.j.loonen@uu.nl

Colonization of life among arctic ponds at Midtre Lovvøysen

Bureau Biota

Location number: Mlt. G-1 f	GPS Coordinates: N 69° 37' 31.59" E 19° 04' 59.20"	
Date: 18.07.2019 14:30	Distance to glacier: meter	
Weather: 100% cloud, wind 2		
Samples codes:	Zoo(Date=loc): Phyto(Date=loc): Detritus(Date=loc):	
ZooDate=loc: G-1 f	Volume in L: /	Volume in L: D610
Volume in L: 100	Volume in L: /	Mesh net: 35 µm
Mesh net: 35 µm		La. 1000 mesh + Aphelinus hyperomyz
Location description: water: 0°C Stones and gravel	-Vegetation 20m around pond: 50% Moss: 20-50%, 40% rain → Salic- & Sphag spp. Stone: 10% Submerge vegetation: 0% water Other:	
Grazing presence: 4x 1m ² Number of droppings: 1 3 2 4	Lepidopter presence: /	

Location drawing:



List of plants:

X moss
Dive. sp. spp.
Glyc. acut. +
G. tenu. polars. +
G. glauca pat. +
G. bar. sp. -
Eric. schiz. +
Luz. sp. +
Sax. alpin. +
Lup. big. +
Poly. sp. +

X moss
G. leuc. +
D. fundix.
L. humilis aculep. confert. +
P. bell. +
sp. gal. flac. + Scl. aro.

Contact:

Christophe Brochard (Bureau Biota); c.brochard@bureaubiota.com
Maarten Loonen (Arctic Centre); m.j.loonen@uu.nl























































































































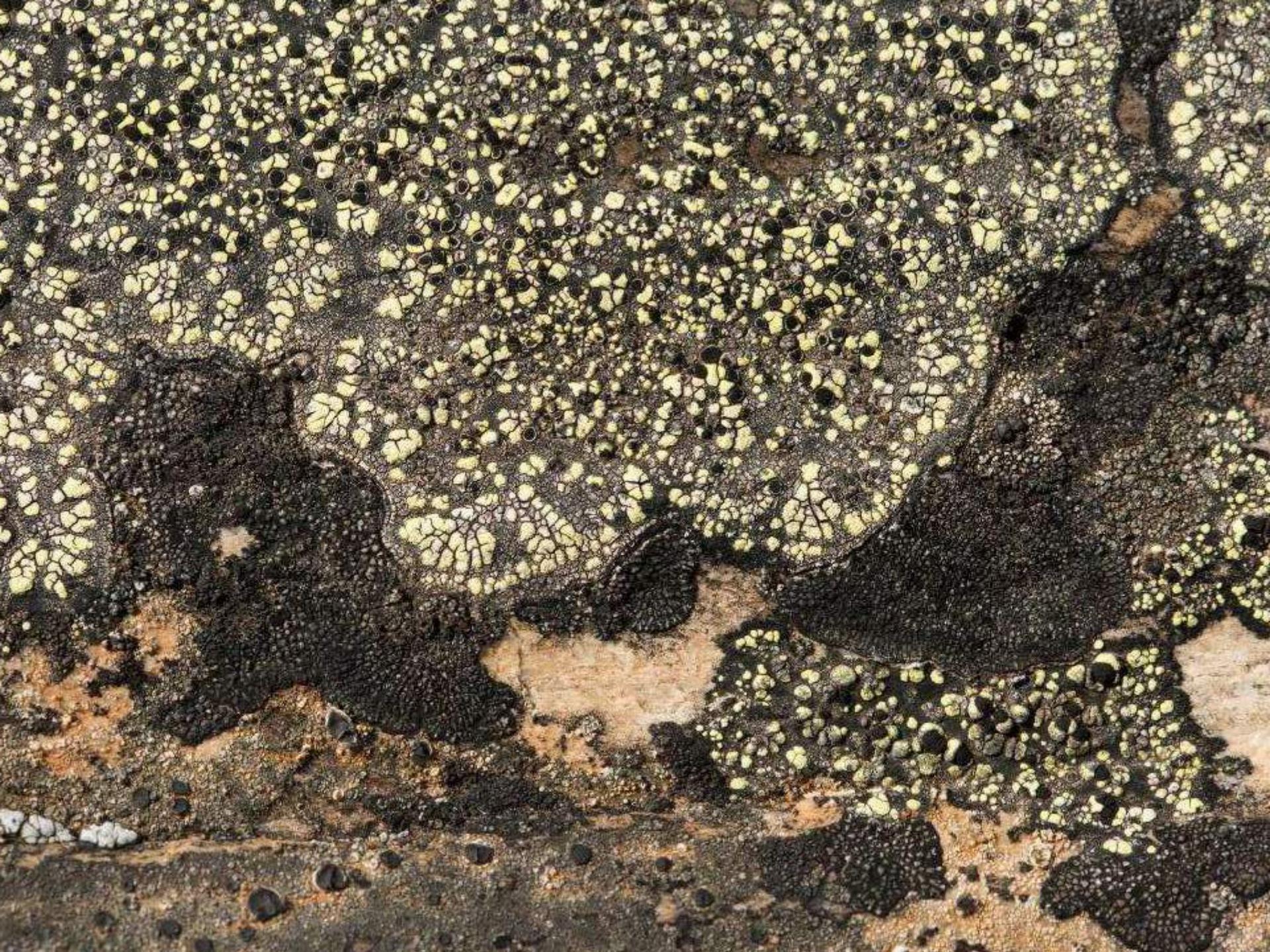


























Silene uralensis ssp. *arctica*



Silene uralensis ssp. *arctica*



Silene uralensis ssp. *arctica*



Silene uralensis ssp. *arctica*



Silene uralensis ssp. *arctica*



Silene uralensis ssp. *arctica*



Saxifraga oppositifolia



Saxifraga oppositifolia



Saxifraga oppositifolia



Saxifraga oppositifolia



Saxifraga oppositifolia



Saxifraga oppositifolia



Saxifraga oppositifolia





Silene acaulis



Silene acaulis



Silene acaulis



Silene acaulis



Silene acaulis



Salix polaris



Salix polaris



Salix polaris



Salix polaris



Salix polaris



Huperzia arctica



Equisetum variegatum



Equisetum scirpoides



Equisetum arvense ssp. *alpestre*



Cardamine pratensis ssp. *angustifolia*



Draba alpina



Draba corymbosa



Draba lactea / *Draba norvegica*



Draba pauciflora



Braya glabella ssp. *purpurascens*



Braya glabella ssp. *purpurascens*



Cochlearia groenlandica



Cochlearia groenlandica



Potentilla pulchella



Potentilla hyparctica



Ranunculus sulphureus



Arenaria pseudofrigida



Arenaria pseudofrigida



Cassiope tetragona



Cassiope tetragona & Exobasidium hypogenum



Silene involucrata ssp. *furcata*



Dryas octopetala



Dryas octopetala



Papaver dahlianum



Papaver cornwallisense



Micranthes hieraciifolia & *Micranthes foliolosa*



Luzula arcuata



Carex fuliginosa ssp. *misandra*



Carex hardina ssp. *hepburnii*



Carex subspathacea



Carex rupestris & *Carex saxatilis* ssp. *laxa*



Juncus biglumis



Pedicularis hirsuta



Eriophorum scheuchzeri ssp. *arcticum*



Eriophorum scheuchzeri ssp. arcticum



Eriophorum scheuchzeri ssp. arcticum



Eriophorum triste



Eriophorum triste



Saxifraga cespitosa



Saxifraga cespitosa



Saxifraga cespitosa



Saxifraga cernua





Saxifraga svalbardensis



Saxifraga rivularis



Saxifraga hyperborea



Saxifraga hirculus ssp. *compacta*



Saxifraga hirculus ssp. *compacta*



Saxifraga aizoides



Festuca rubra



Festuca vivipara





Trisetum spicatum



Taraxacum brachyceras



Stellaria longipes



Cerastium arcticum



Bistorta vivipara



Oxyria digyna



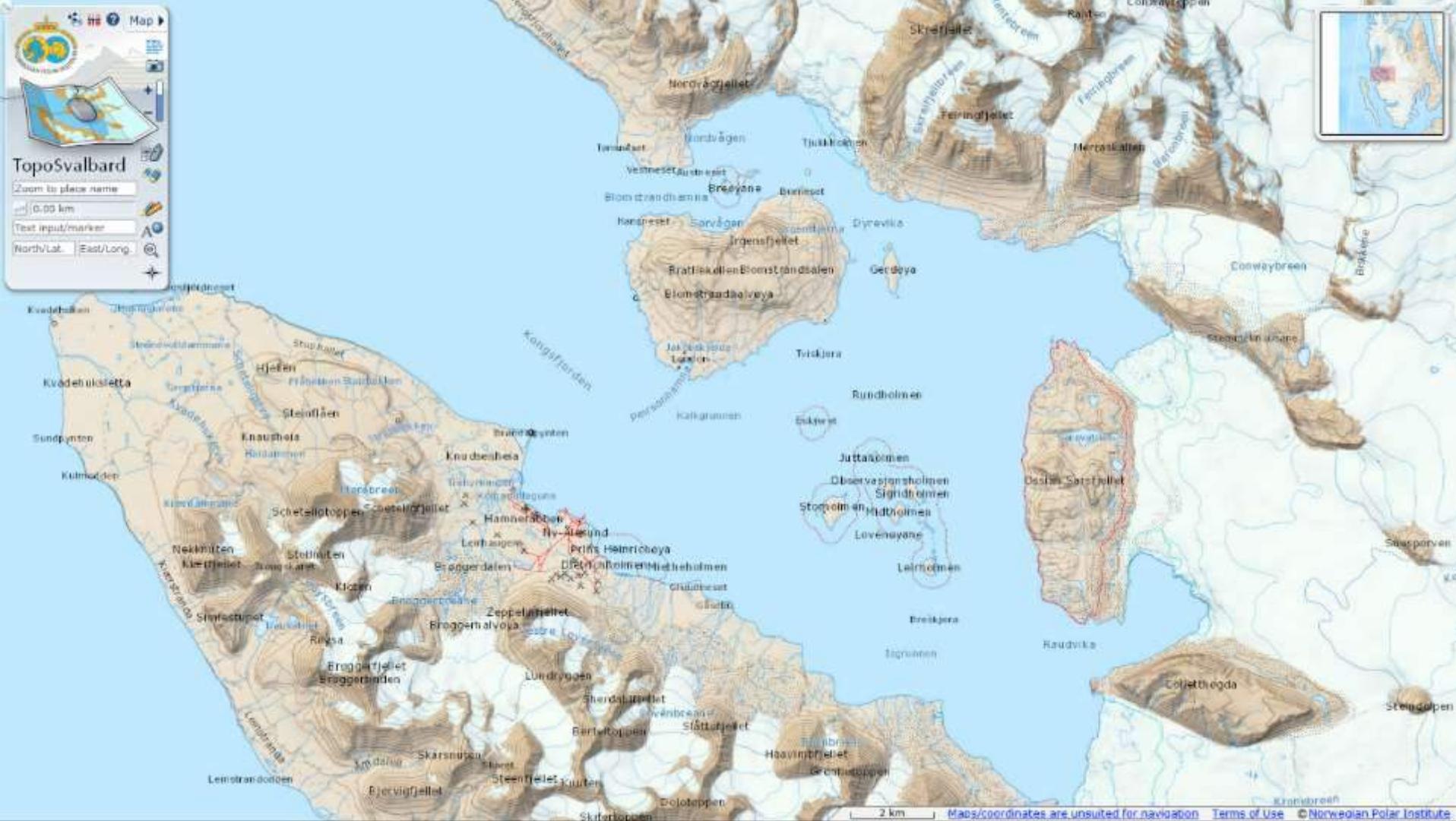
Oxyria digyna



Mertensia maritima ssp. *tenella*



Mertensia maritima ssp. *tenella*







Silene uralensis ssp. *arctica*



Pedicularis dasyantha



Salix reticulata



Chrysosplenium tetrandrum



Chrysosplenium tetrandrum



Chrysosplenium tetrandrum



Chrysosplenium tetrandrum



Potentilla insularis



Arnica angustifolia



Arnica angustifolia



Tofieldia pusilla

Cystopteris fragilis





Cystopteris fragilis



Woodsia glabella

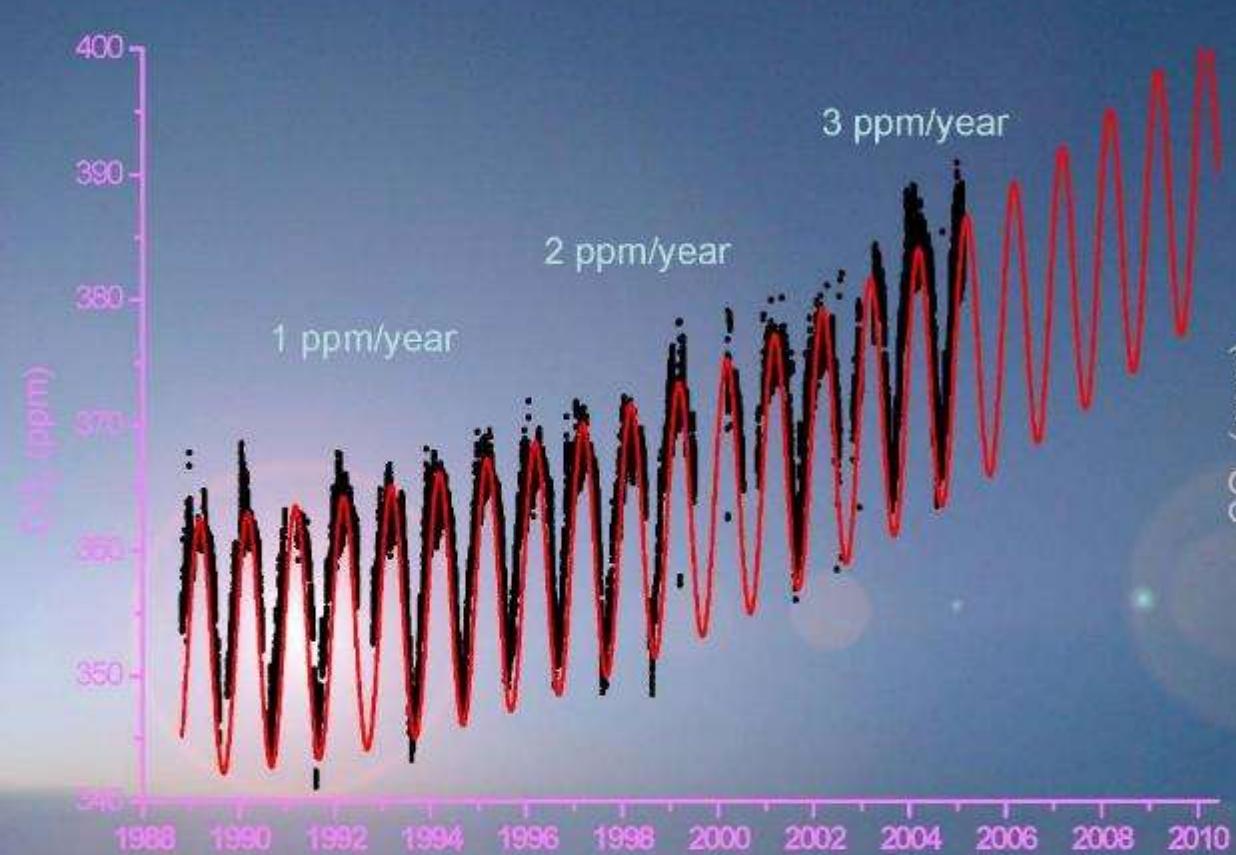
Comastoma tenellum



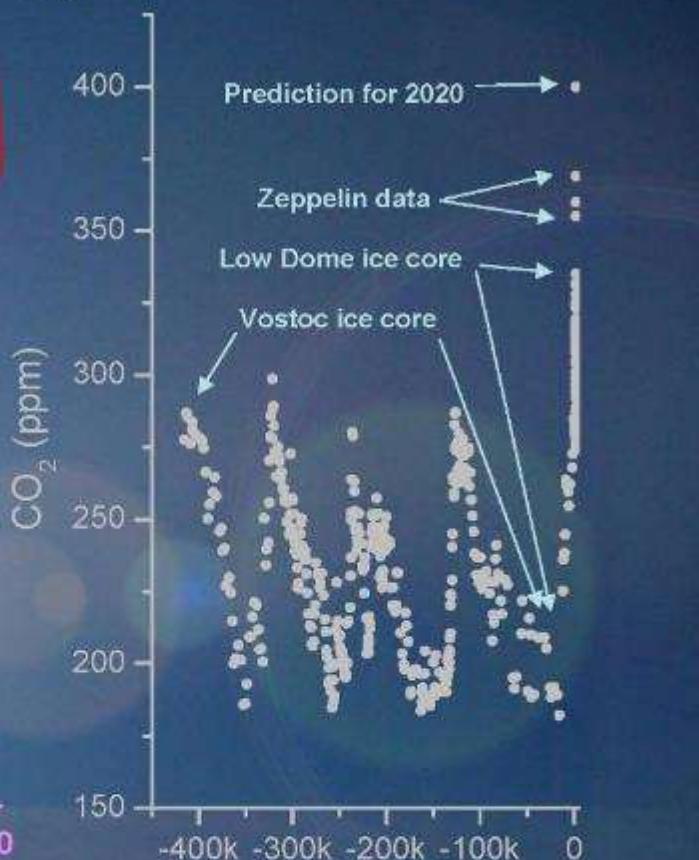


Comastoma tenellum

Carbon dioxide (CO₂) measurements at the Zeppelin station, Svalbard



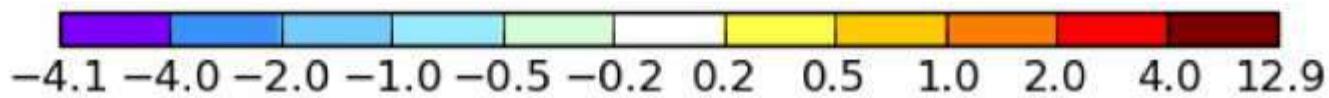
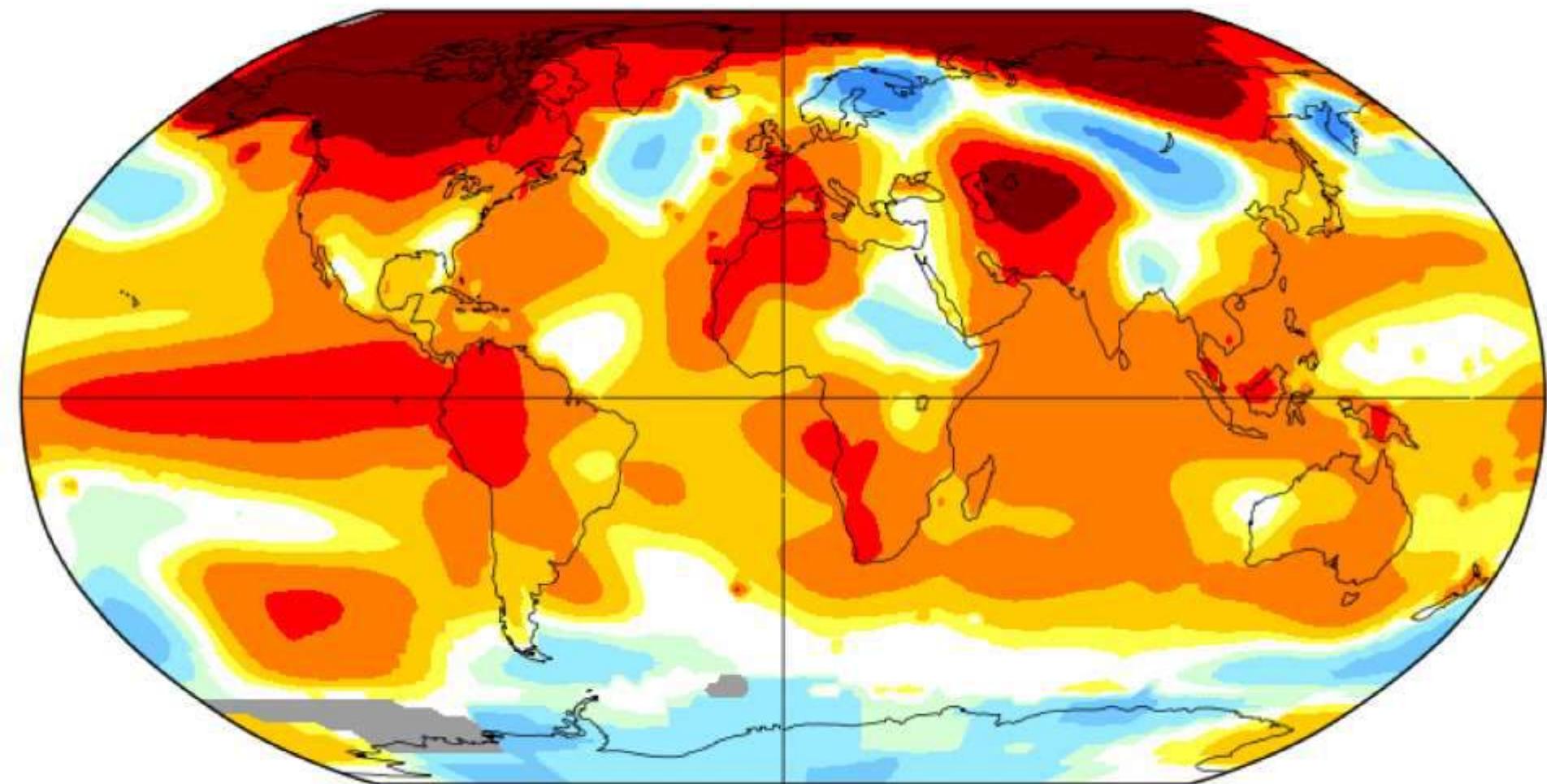
Carbon dioxide is increasing in the atmosphere due to human activities. There is not only a continuous increase of CO₂, the rate of the increase in the Arctic is escalating as well. In the beginning of the 90's the rate was about 1 ppm per year, but today the increase is about 3 ppm per year. Never before has CO₂ increased at the rate as it does now. This is clear from the comparison of our measurements with ice core data in the graph to the right.

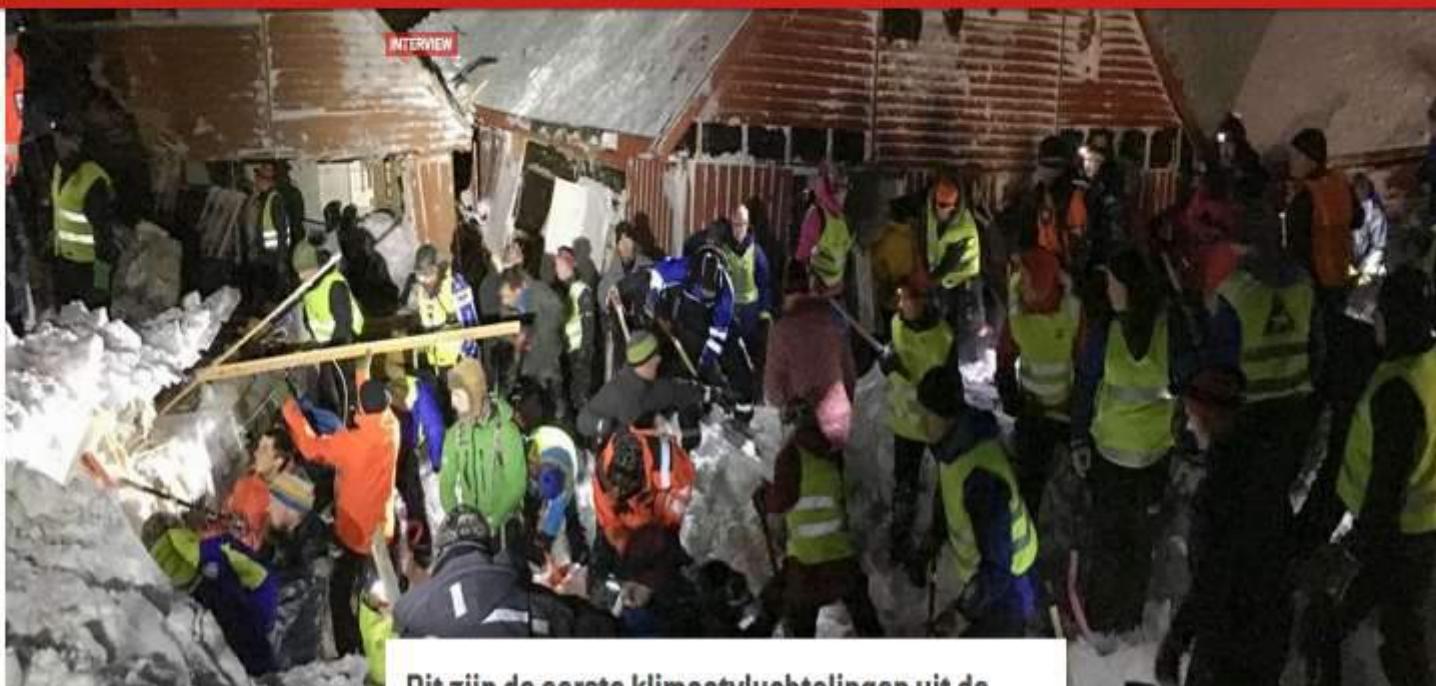


January 2016

L-OTI(°C) Anomaly vs 1951-1980

1.13





Dit zijn de eerste klimaatvluchtelingen uit de Poolgebieden

Door Joost van Wijk - 05 Sep 2017 in [Brandpunt](#)

Christiane moest haar huis 100 meter verplaatsen, omdat de grond letterlijk onder haar wegzakte. Regen kende ze op de eilandengroep Spitsbergen nauwelijks. Nu regent het bijna iedere maand.

Op Spitsbergen zijn de winters nu gemiddeld 10 graden te warm en is de temperatuur al meer dan 6 jaar boven het gemiddelde. Dit heeft ingrijpende gevolgen voor de bewoners van het eiland. Wat is er aan de hand en hoe ernstig is de situatie? We vroegen het aan Maarten Loonen, bioloog en poolonderzoeker van de Rijksuniversiteit Groningen. Hij bemint al 28 zomers een arctisch onderzoeksstation op het Noorse Spitsbergen.

De temperatuur ligt gemiddeld 10































Dank voor jullie aandacht



Bureau Biota
Ecologisch advies, onderzoek en educatie

