

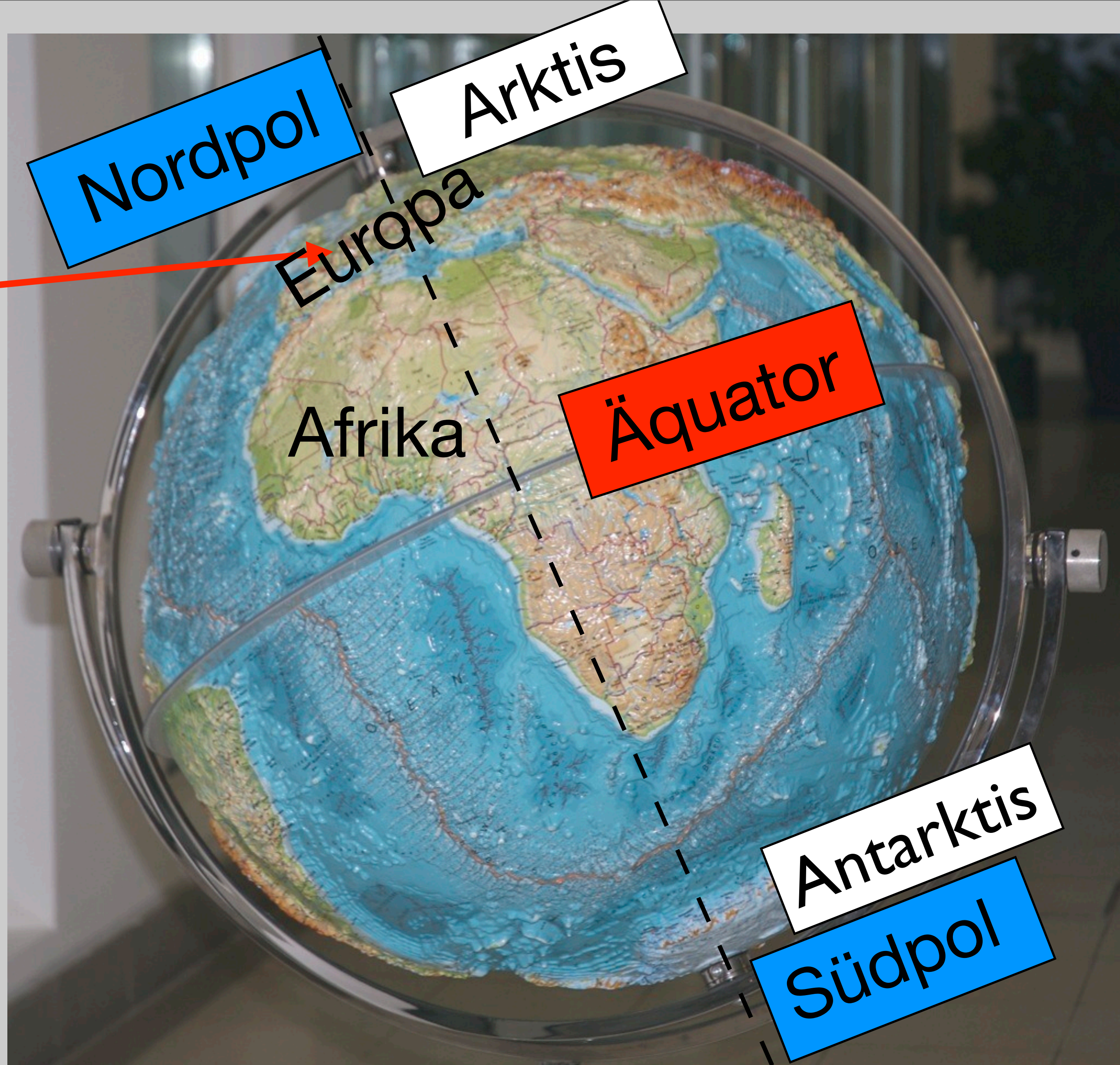
Die Polargebiete - nur weiße Flecken auf der Landkarte ?

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www.awi.de

Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung (AWI), Bremerhaven



Friedrichshafen

Nordpol

Arktis

Europa

Afrika

Äquator

Antarktis

Südpol



Zügelpinguin



Elefant & Giraffe



Eisbär

?

Wo leben diese Tiere?



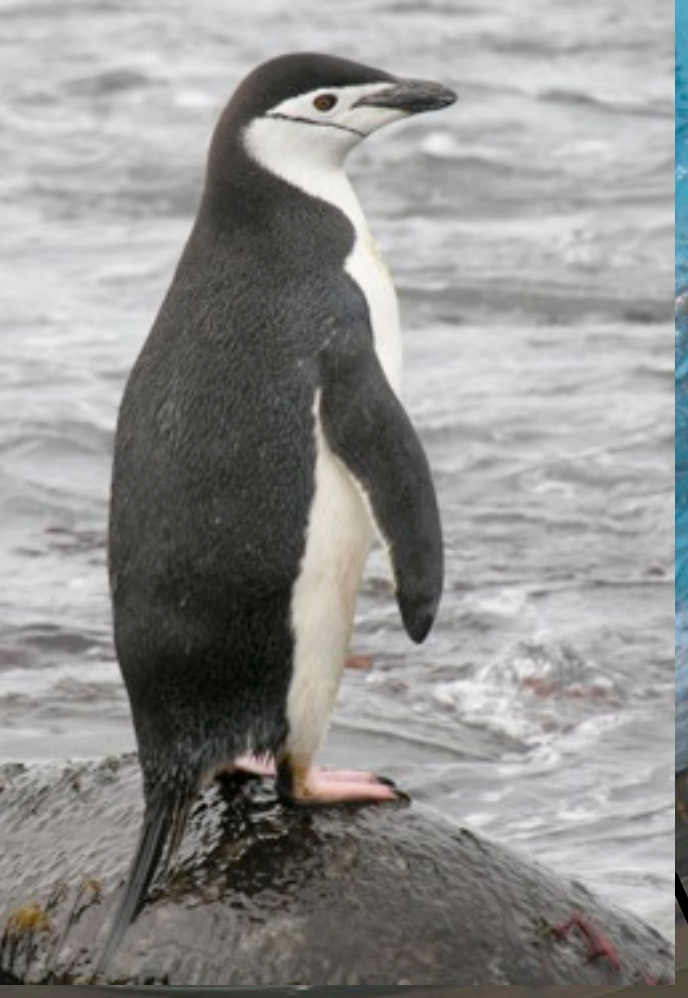
Nordpol

Arktis



Afrika

Äquator



Antarktis

Südpol

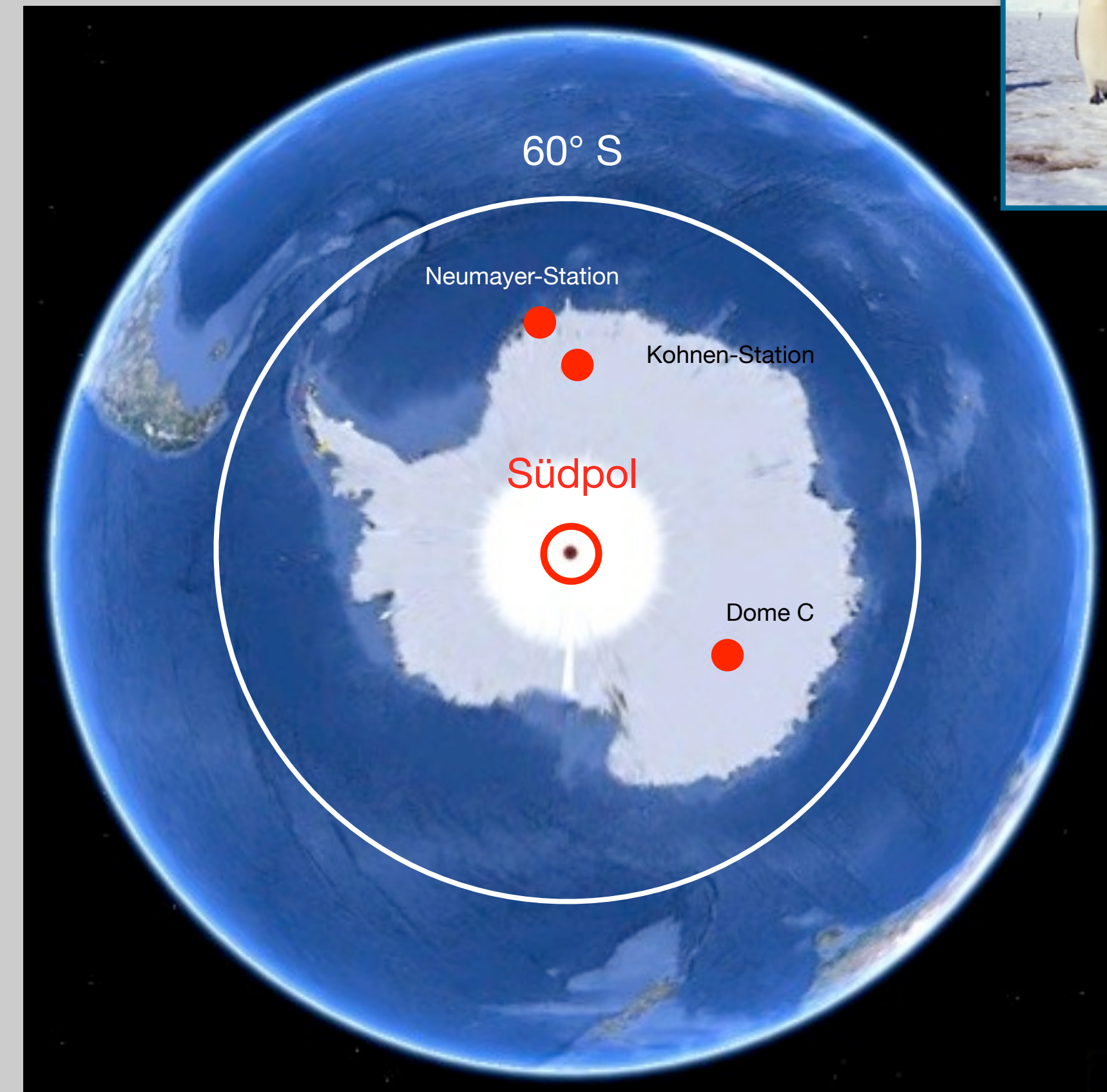
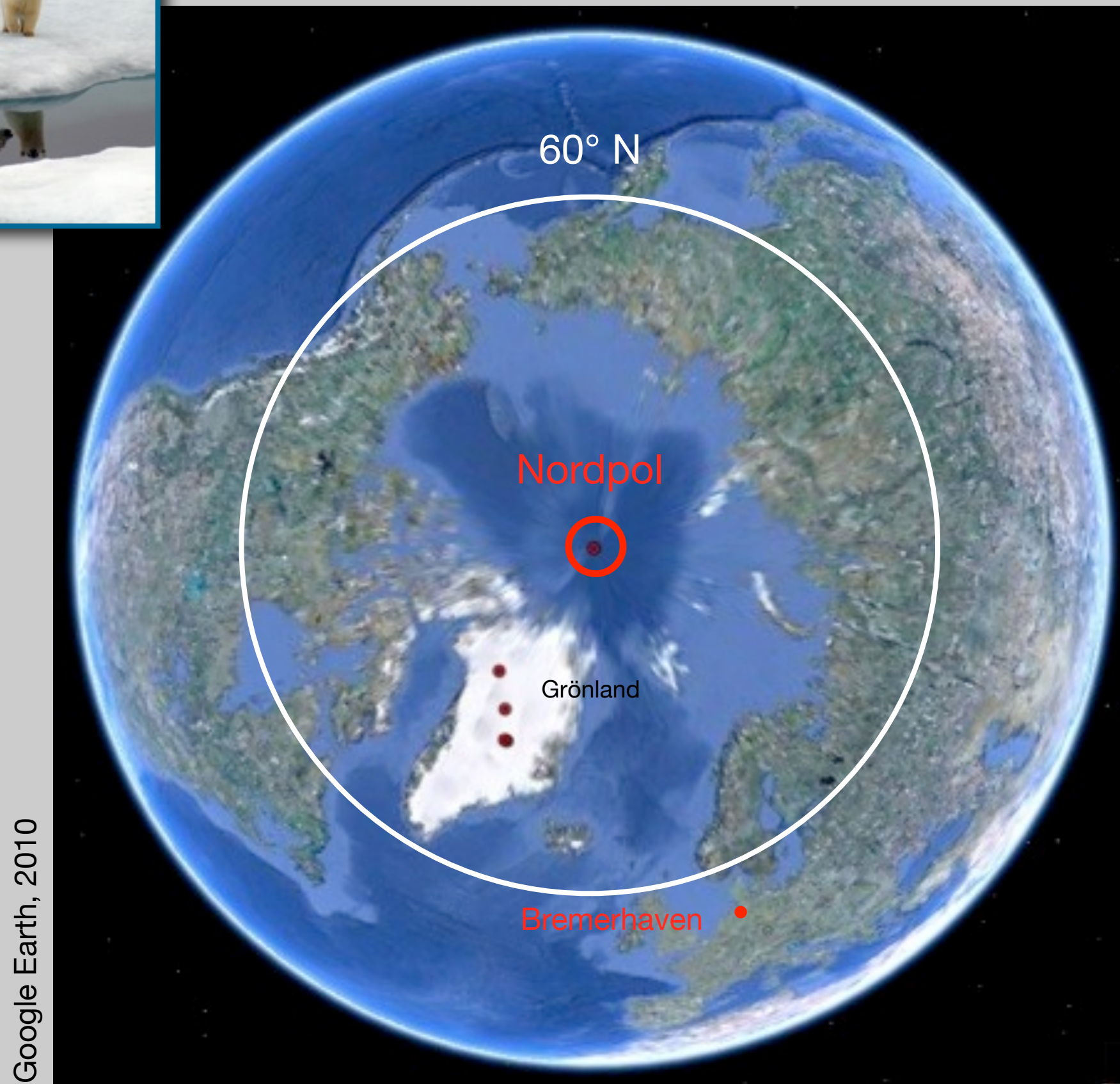




Arktis

Die Polarregionen

Antarktis



Meer von Land umgeben
Nordpol liegt im Meer

Land von Meer umgeben
Südpol liegt auf eisbedecktem
Kontinent (ca. 2830 m ü.M.)



Arktis

Die Polarregionen

Antarktis



Am Nordpol

photo: hans oerter, 2010



Am Südpol
Scott-Amundsen-Base (USA)

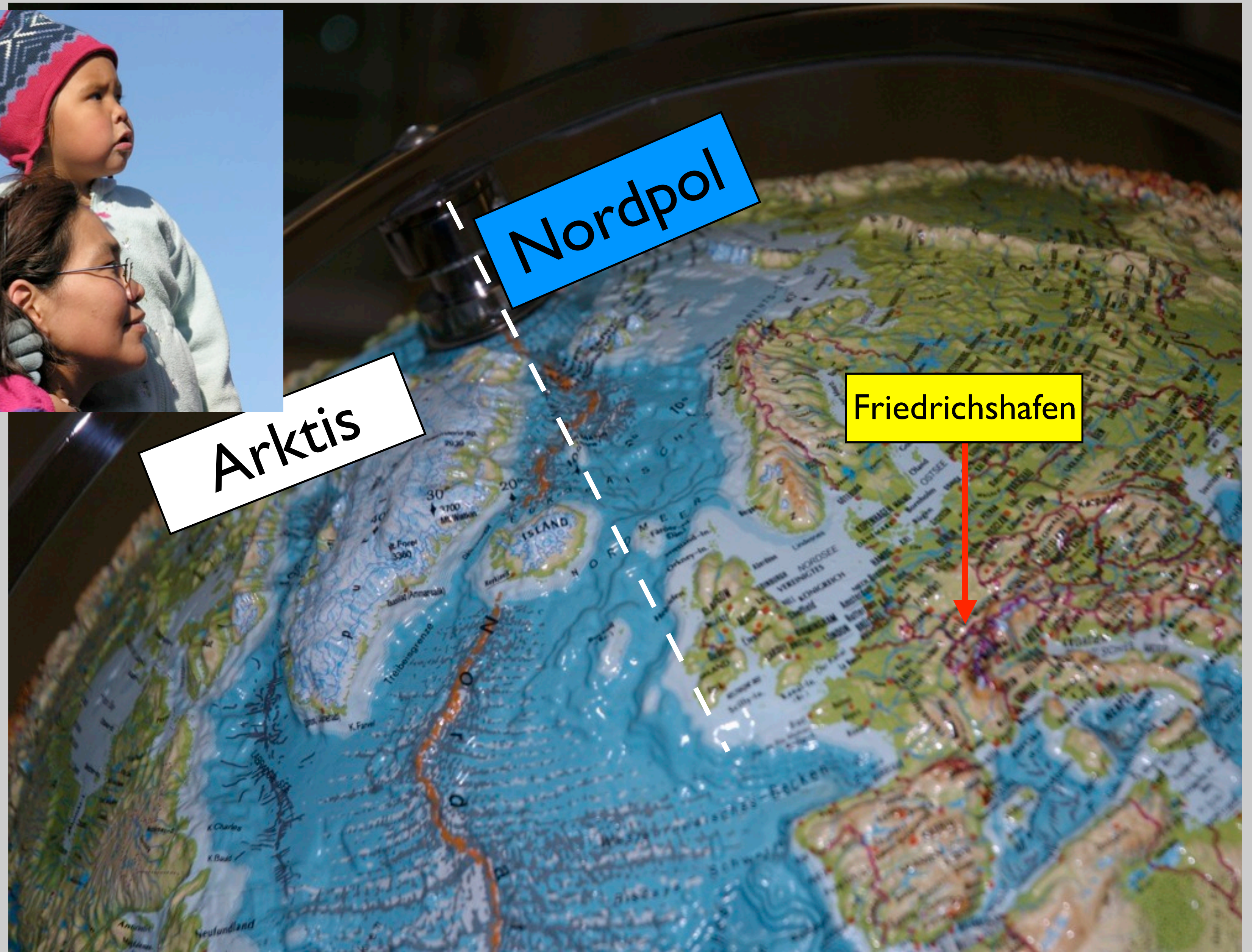
Ice cube

neue Station, seit 2003

photo: Forest Banks, IceCube project, 2005

Meer von Land umgeben
Nordpol liegt im Meer

Land von Meer umgeben
Südpol liegt auf eisbedecktem
Kontinent (ca. 2830 m ü.M.)



In der Arktis
wohnen
Menschen !

Sie heißen Inuit.

FS Polarstern auf dem Weg zum Nordpol 1991



foto: Archiv AWI, 1991



Was ist Meereis?

Meereis ist gefrorenes Meerwasser.

Beim Gefrieren von Meerwasser gefriert nur das Wasser, das Salz fällt aus.

Meereis wird vom Wind und den Meeresströmungen bewegt.

Meereis schmilzt im Sommer und gefriert im Winter.

Meereis ist ein Lebensraum.



photo: hans oerter

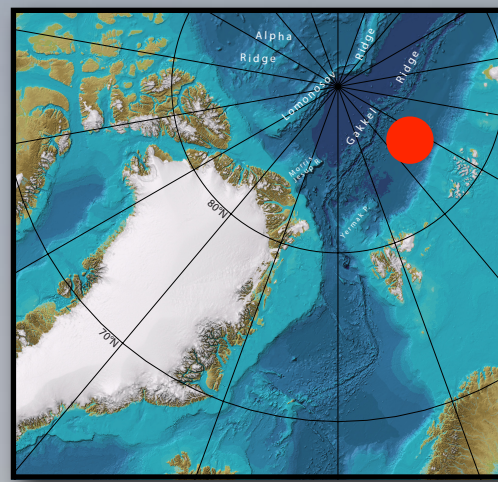
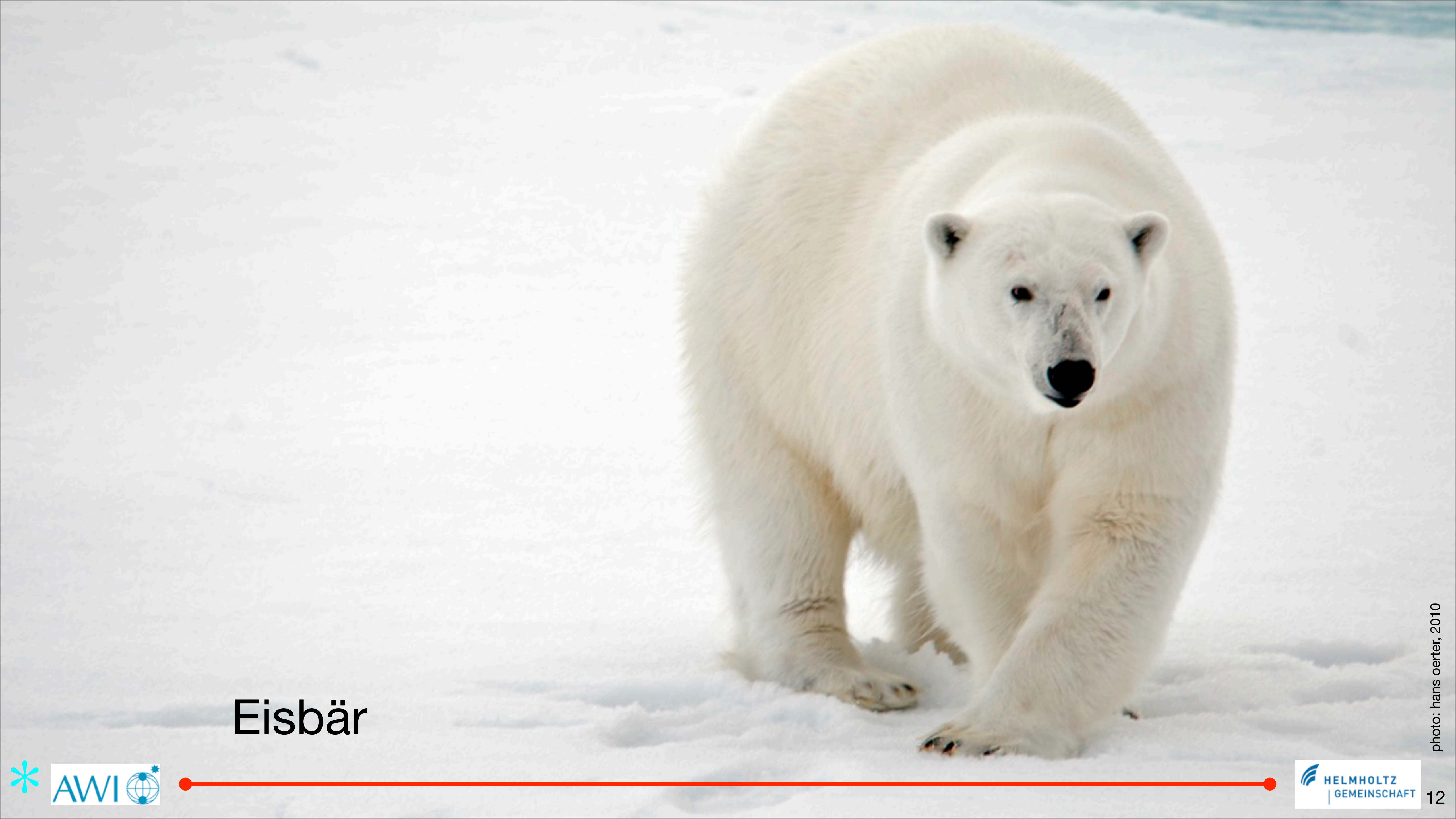


photo: hans oerter, 2010

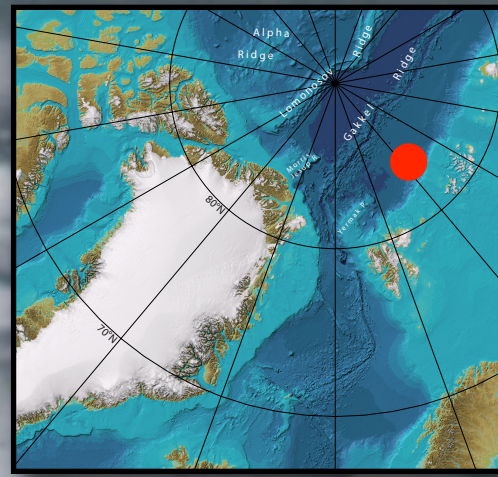


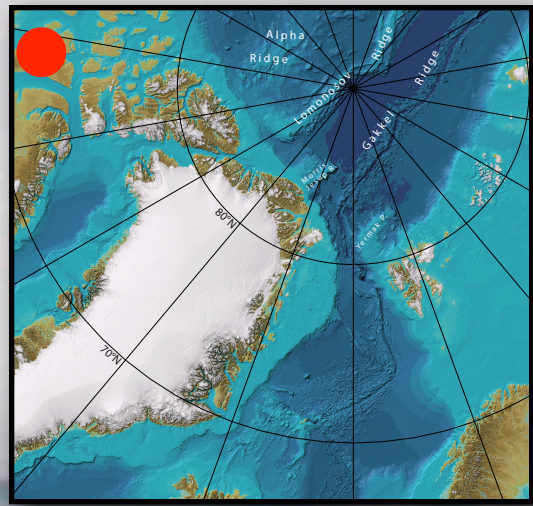
Eisbär

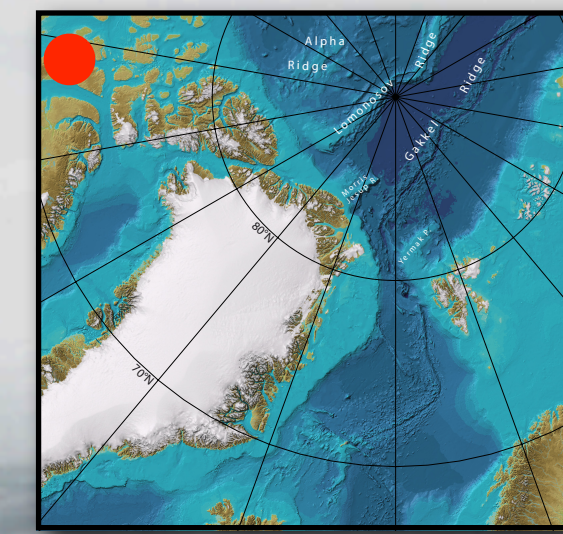


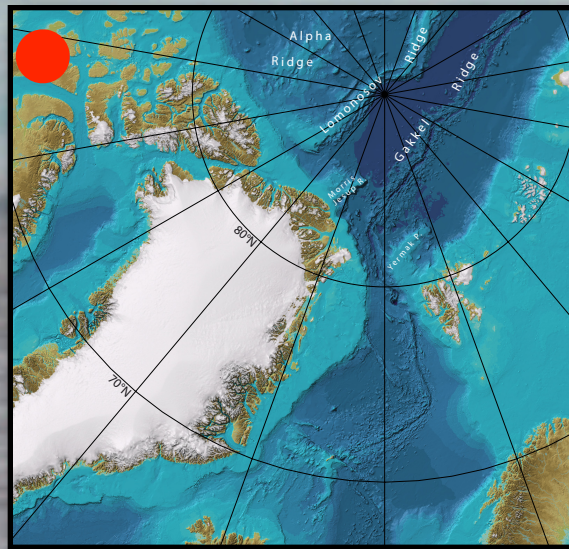
photo: hans oerter, 2008













Bartrobbe



photo: hans oerter, 2007

in Qaanaaq (Thule), Nordgrönland

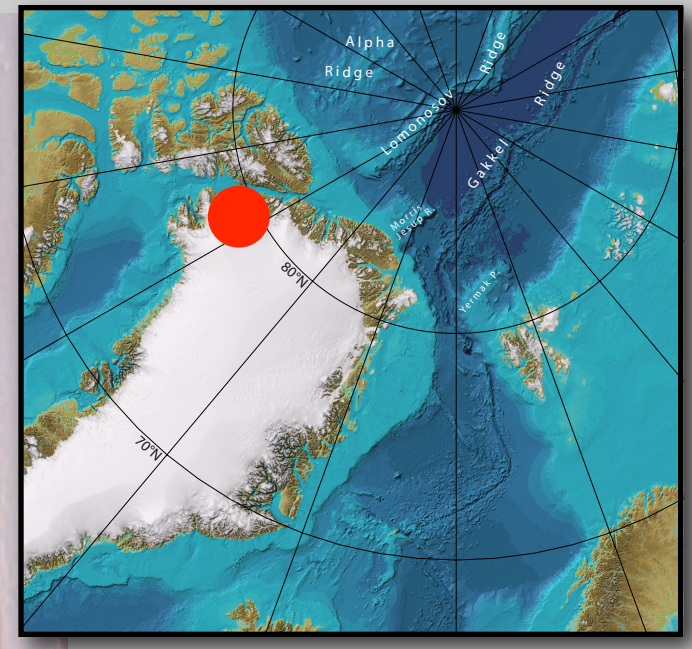


photo: hans oerter, 2006

Inuit- (Eskimo-) dorf in Nordgrönland

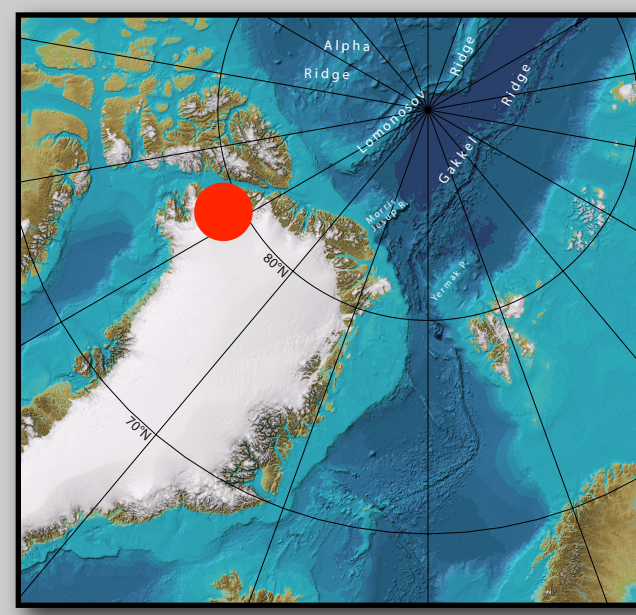
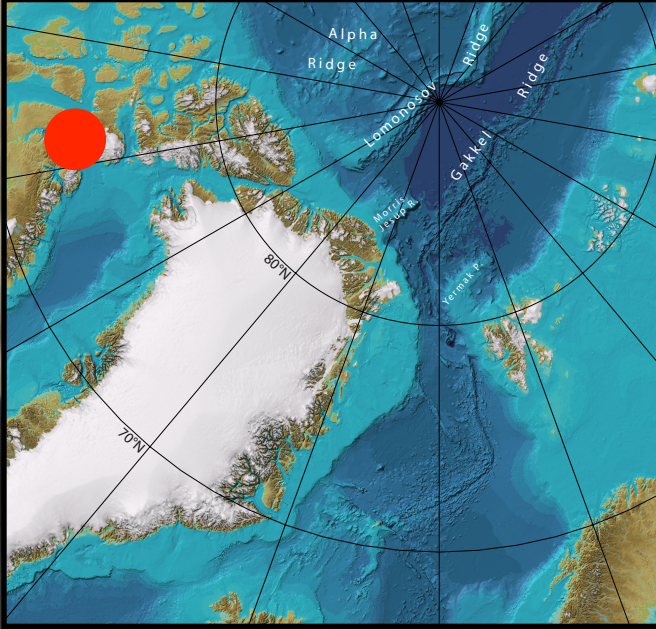


photo: hans oerter, 1999



Nuuk (Godhåb), Hauptstadt Grönlands

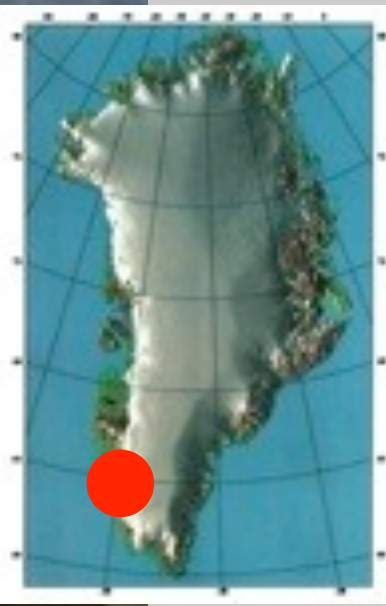
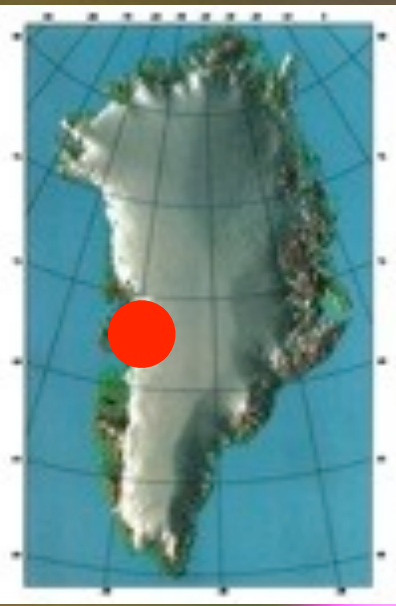
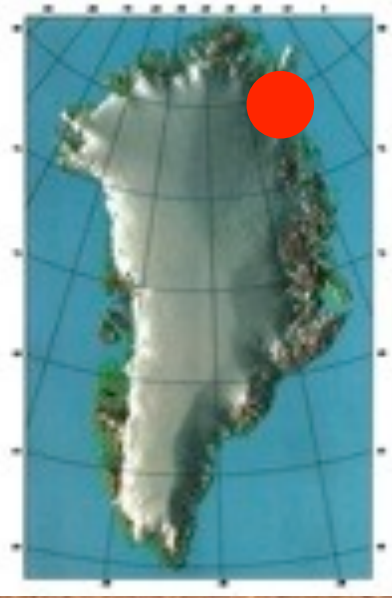


photo: hans oerter, 2006

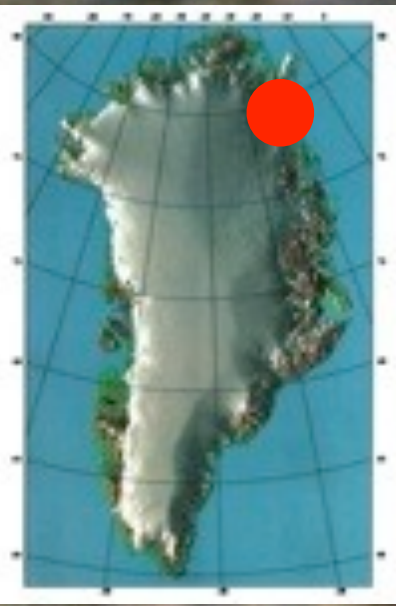


Weidenröschen



Moschusochsen

photo: hans oerter



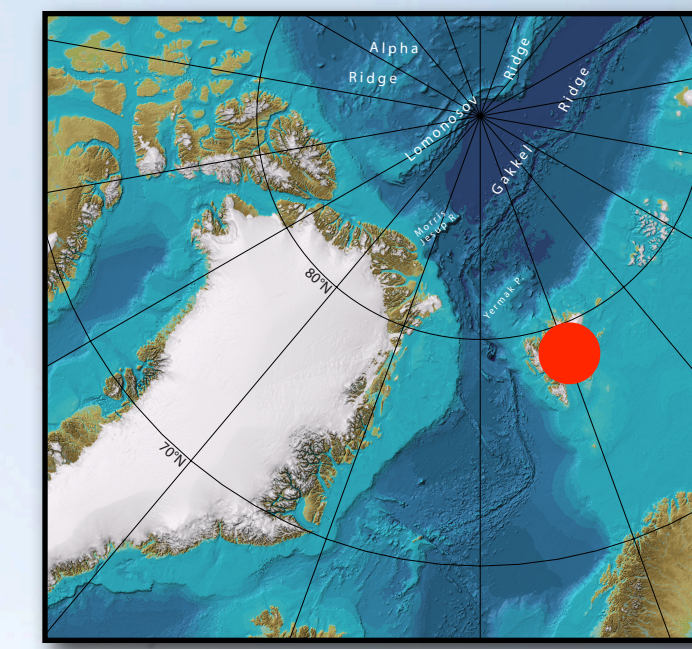
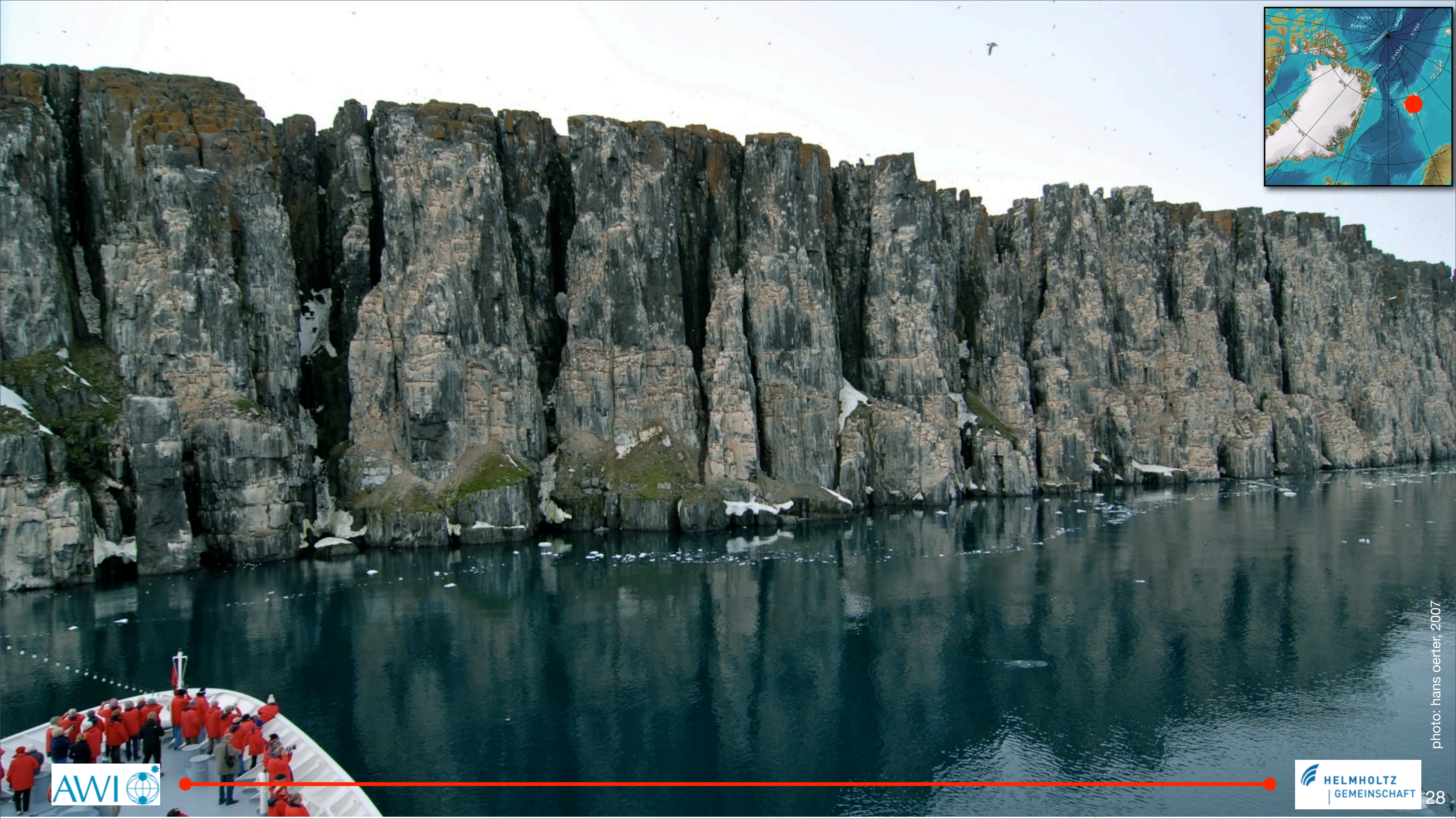
Schneehase

photo: hans oerter

Grönlandmohn



photo: hans oerter





Dickschnabellummen

Rand des Grönländischen Inlandeises

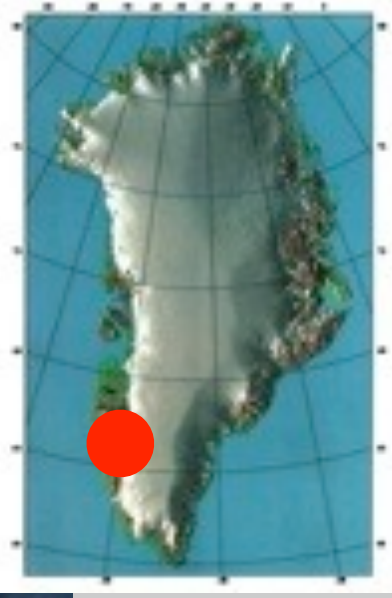


photo: hans oerter, 2001

Schmelzwassersee auf dem Inlandeis

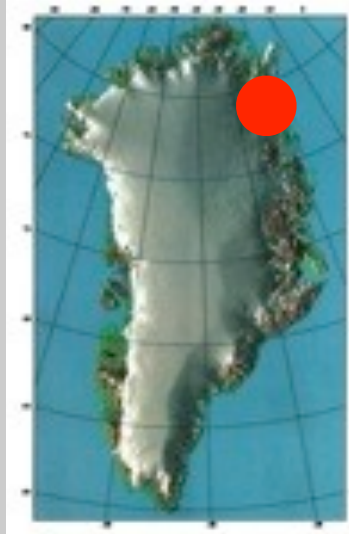
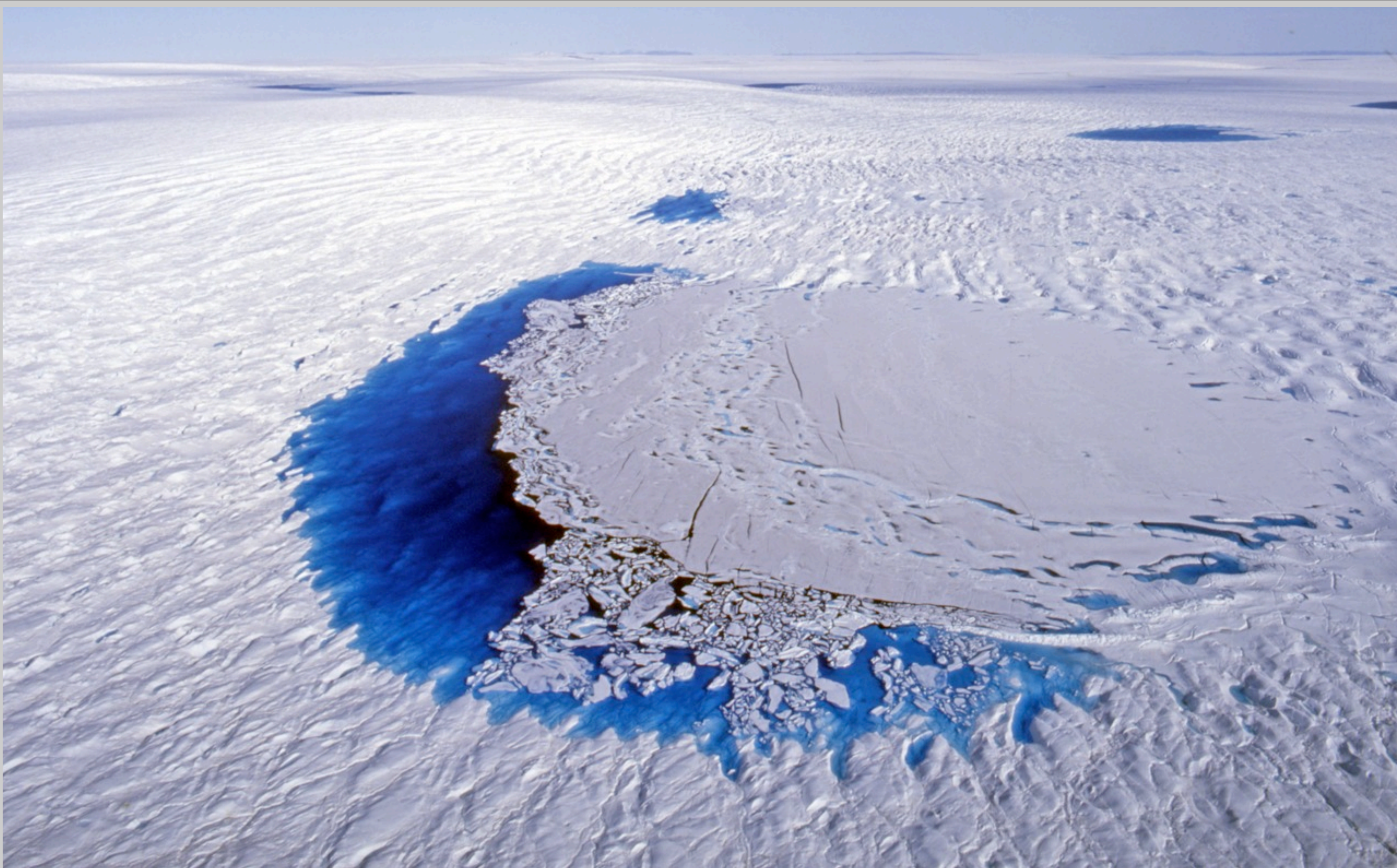
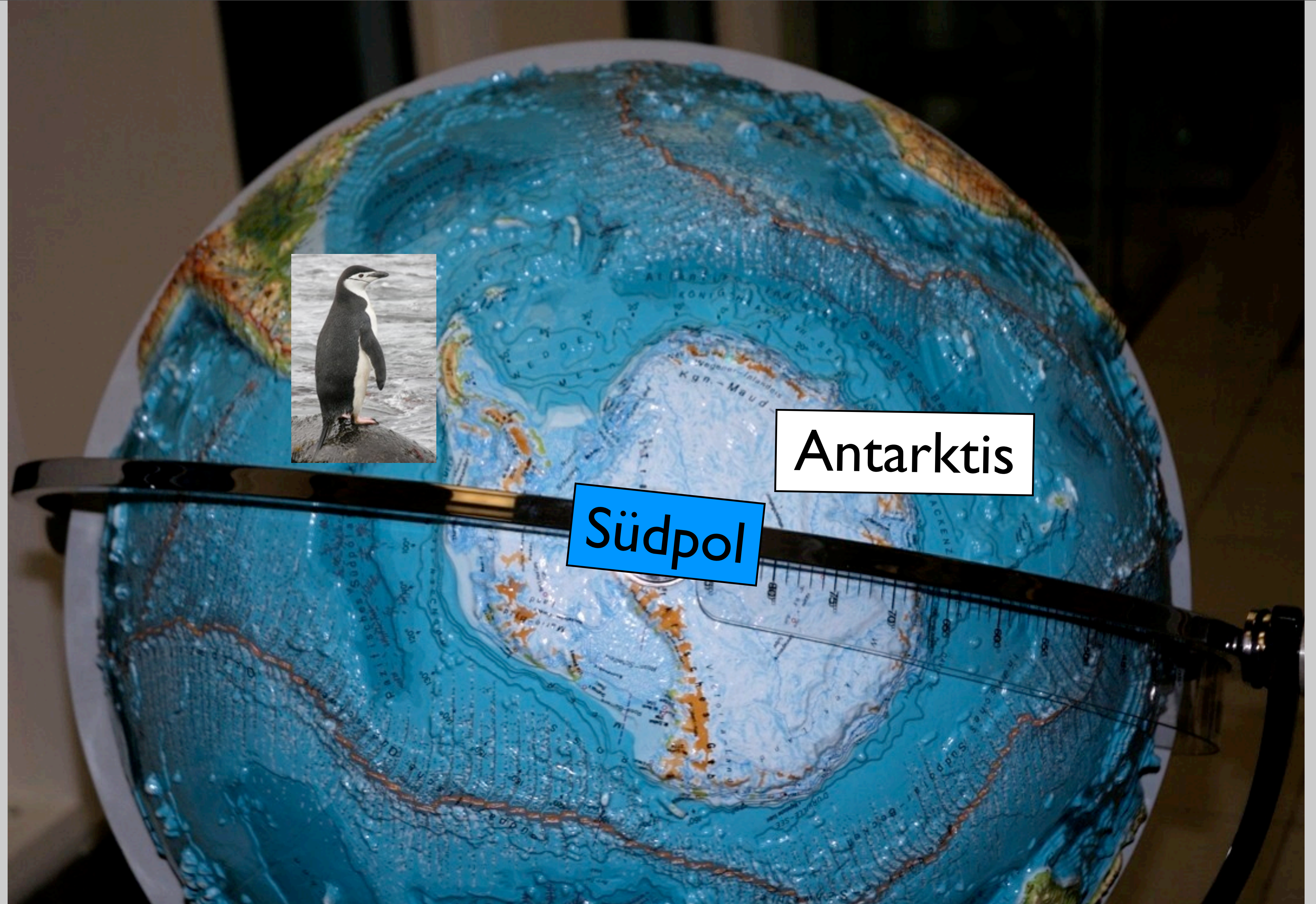
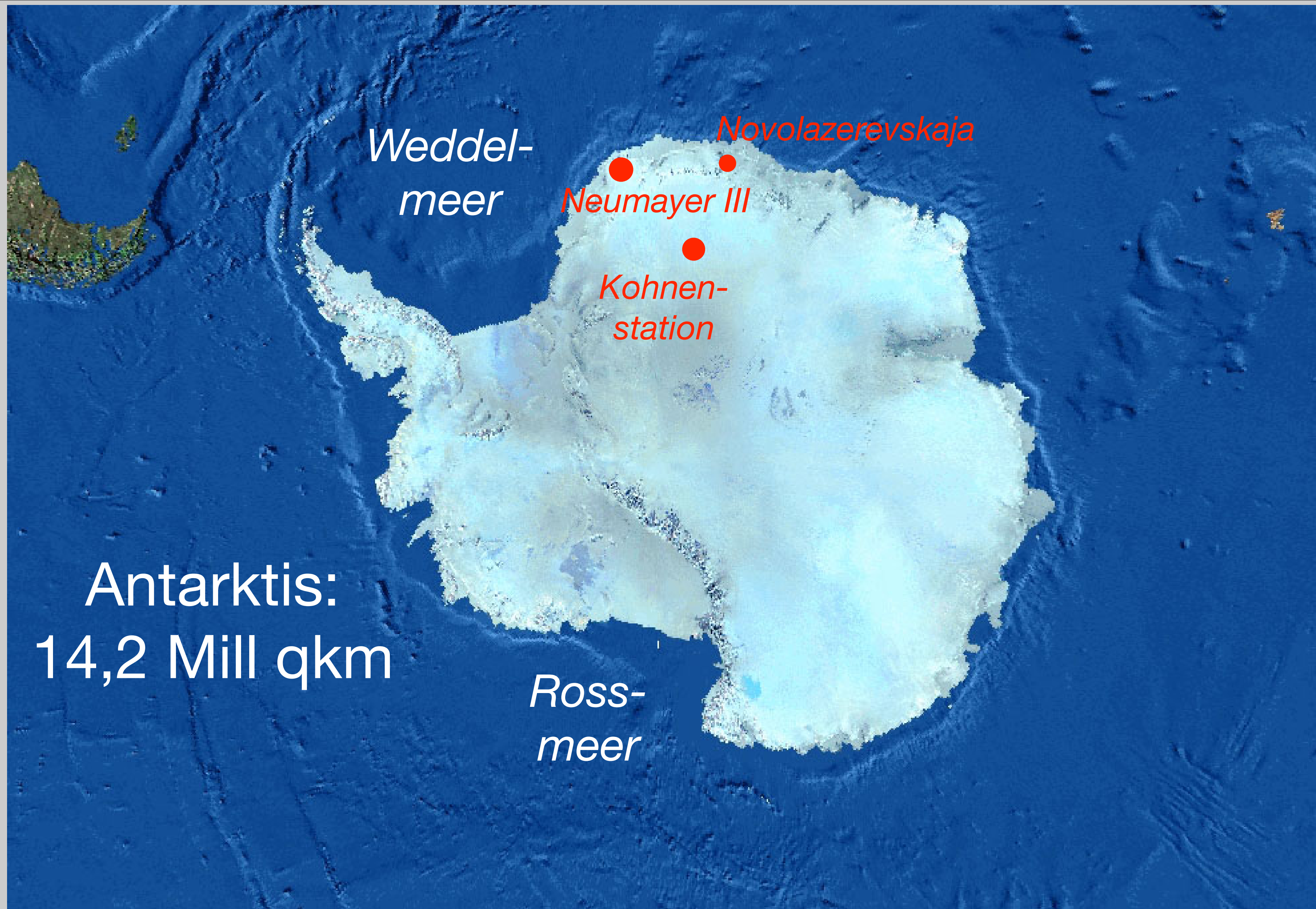
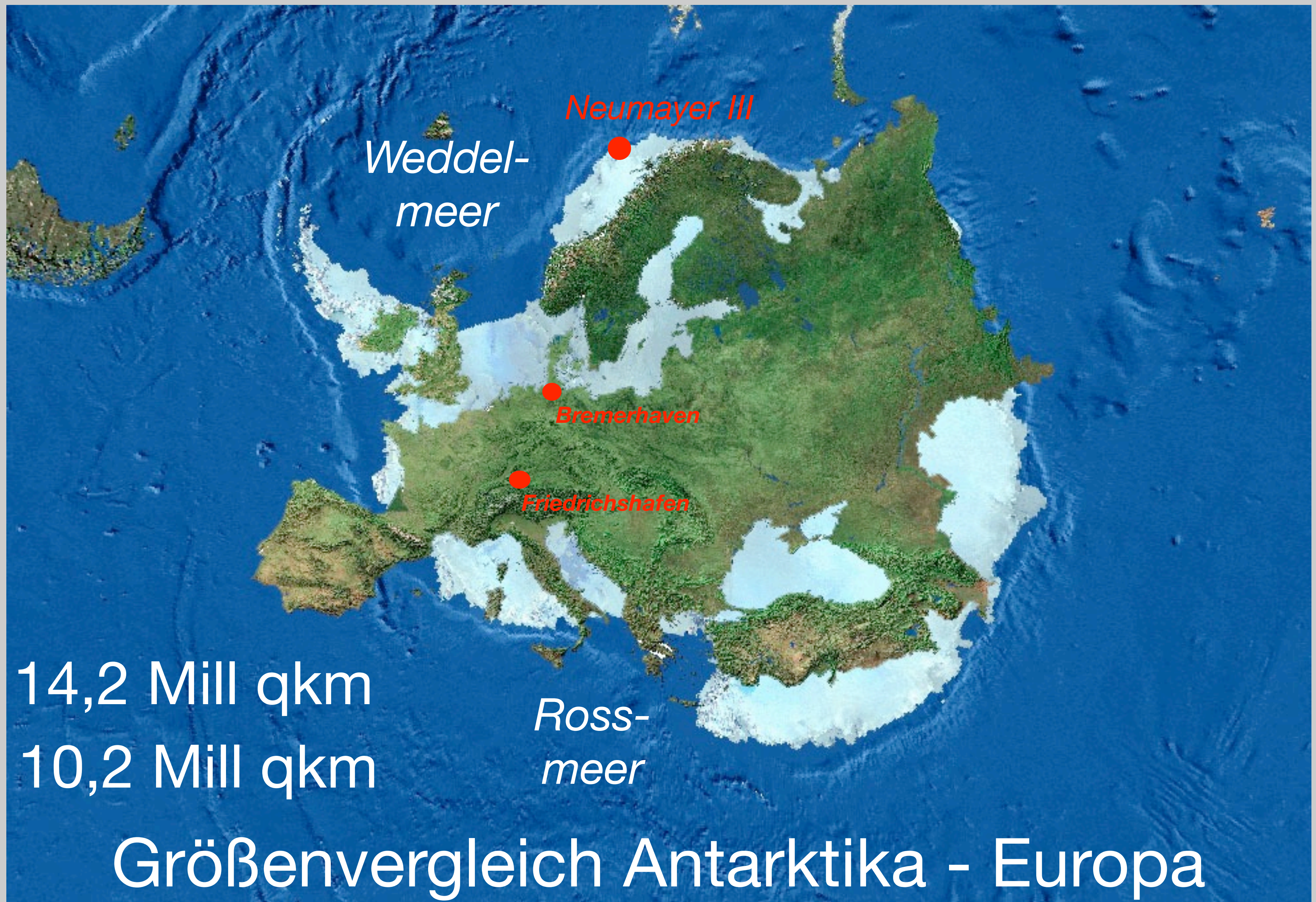


photo: hans oerter, 1993

Antarktis







Quelle: ArcGIS/G. Rotschky



Eselspinguin



Königspinguin



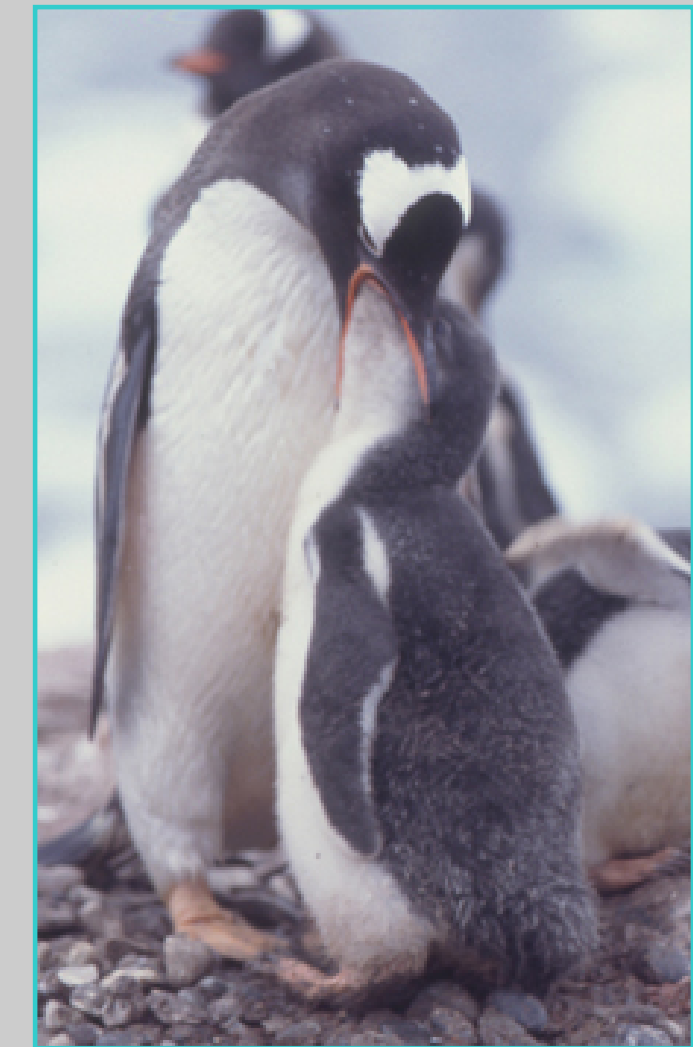
Kaiserpinguin



Albatros



Skua



Eselspinguin



Seeleopard



Adeliepinguin



Zügelpinguin



Scheidenschnabel



Pelzrobbe

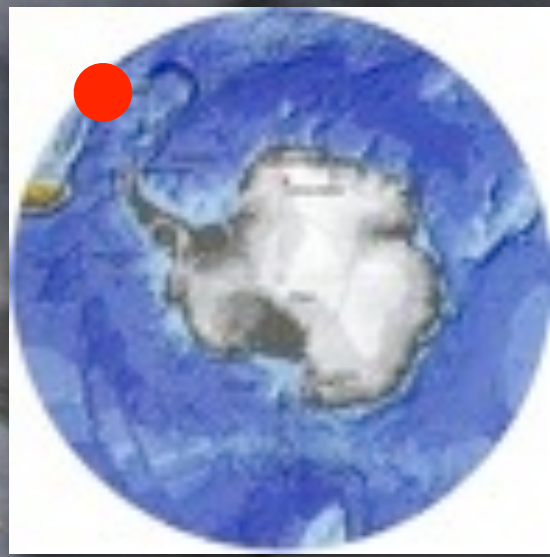


See-Elefant

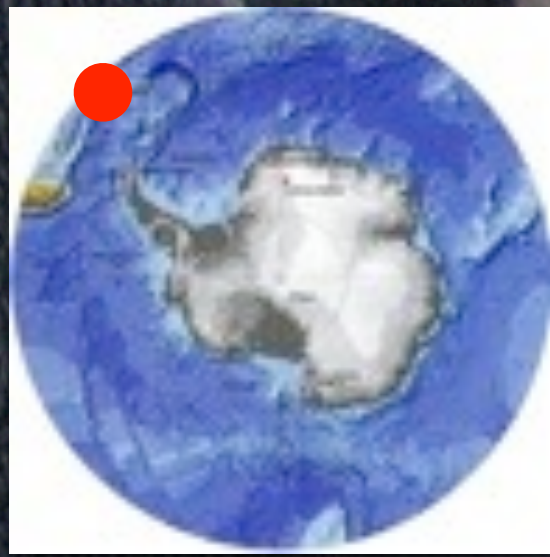
Tiere der Antarktis



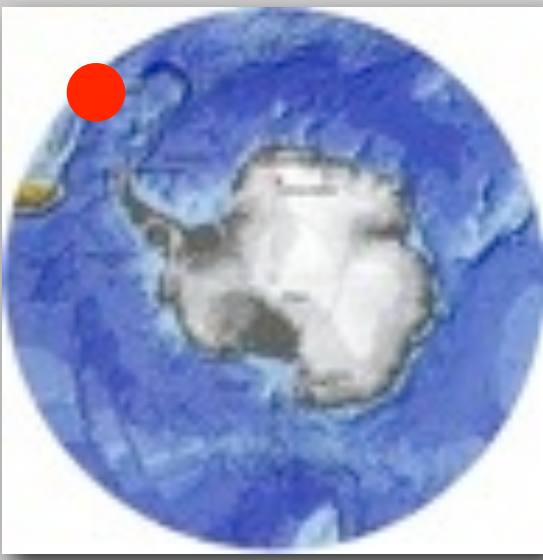
Königspinguine



Königspinguin

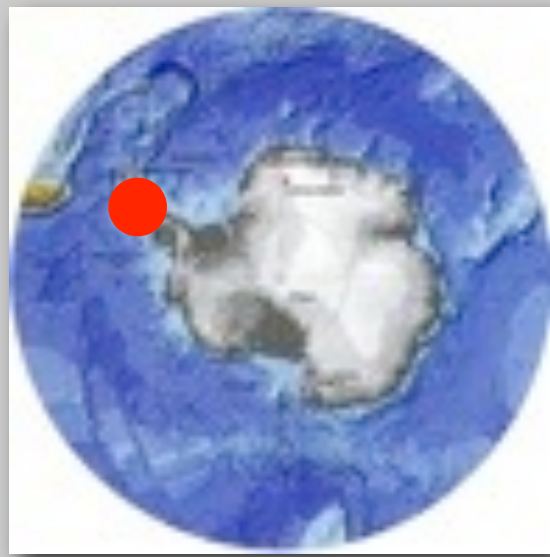


Brütende Königspinguine



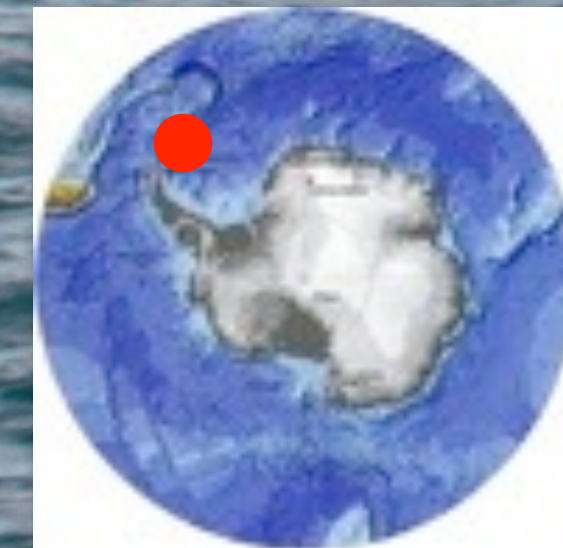
Königspinguine

photo: hans oerter, 2007

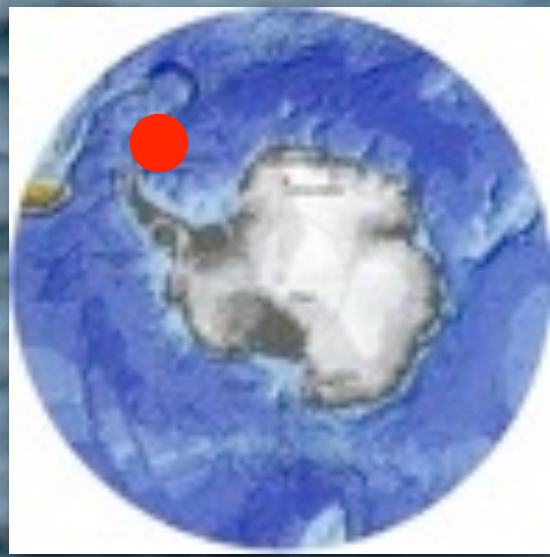


Adeliepinguin

photo: hans oerter, 2007

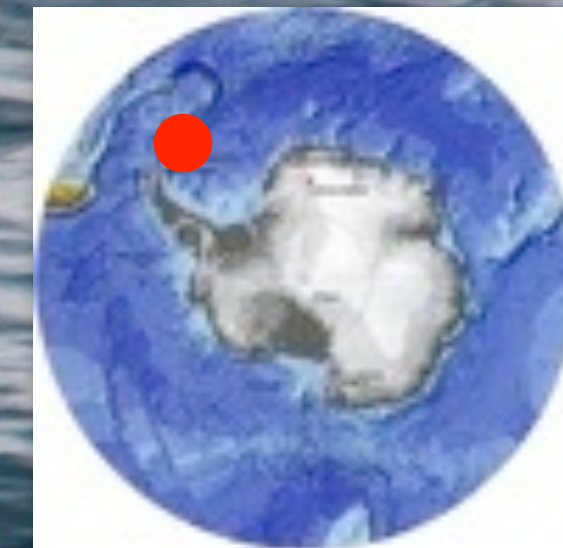


Buckelwal

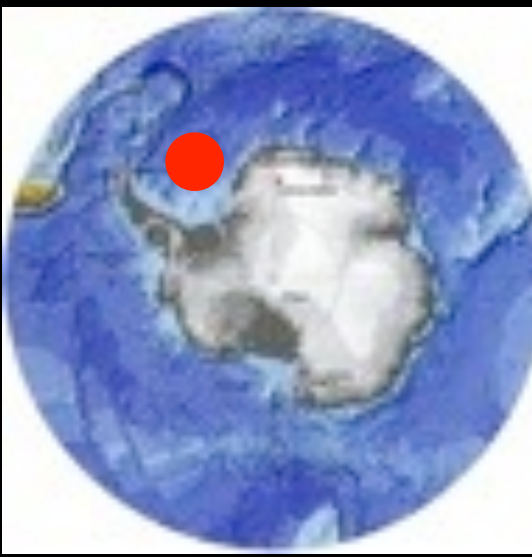


Buckelwal

photo: hans oerter, 2012



Buckelwal



video: hans oerter, 2000

Fahrt mit einem Eisbrecher durch Meereis

FS Polarstern an der Schelfeiskante



Technische Daten

Länge: 118 Meter
Breite: 25 Meter
Tiefgang: max 11,20 Meter
Verdrängung: 17.300 to
leeres Schiff: 11,820 to
Maschinenleistung
(4 Maschinen): 14.000 kW
(20.000 PS)
Max. Geschw.: 16 Knoten
(ca. 30 km/h)
Mannschaft: 39-44
Wissenschaftler: 50

Jungfernfahrt Dez. 1982



photo: hans oerter, 2001

Kaiserpinguin

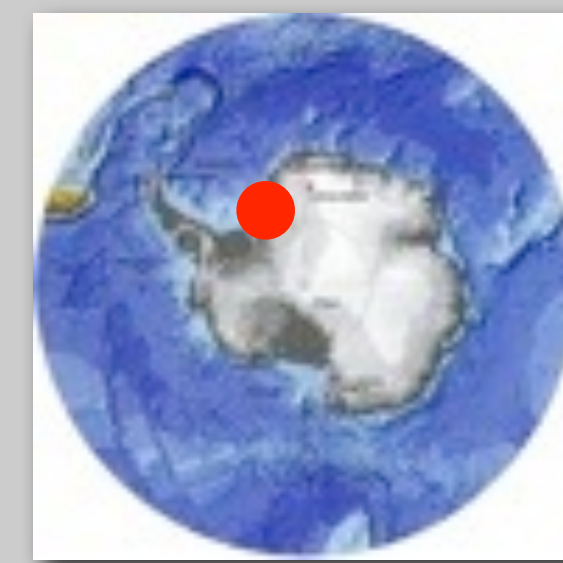


photo: hans oerter, 2001



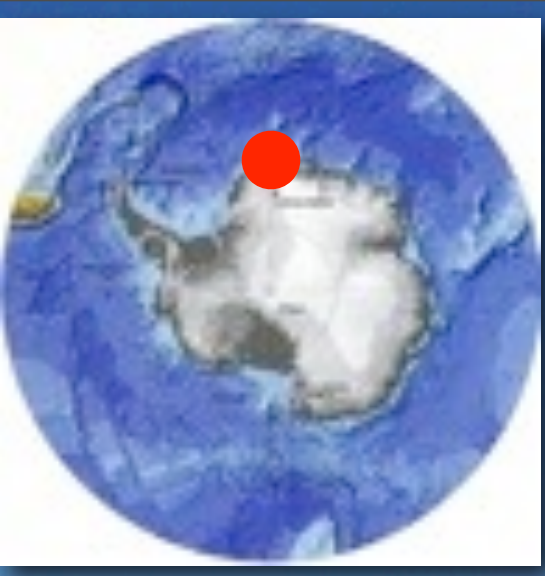
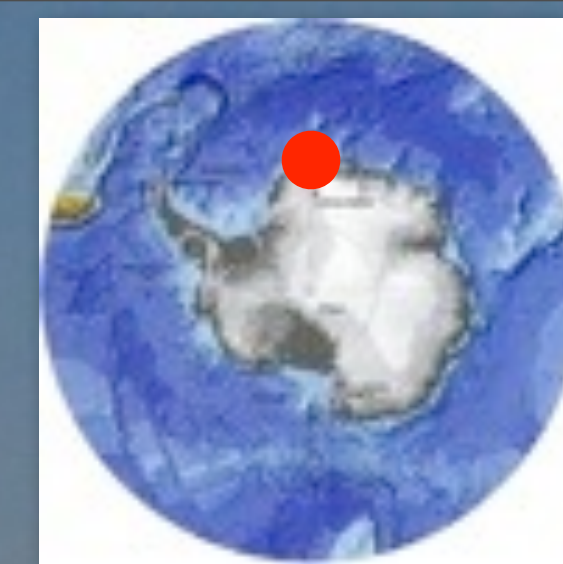




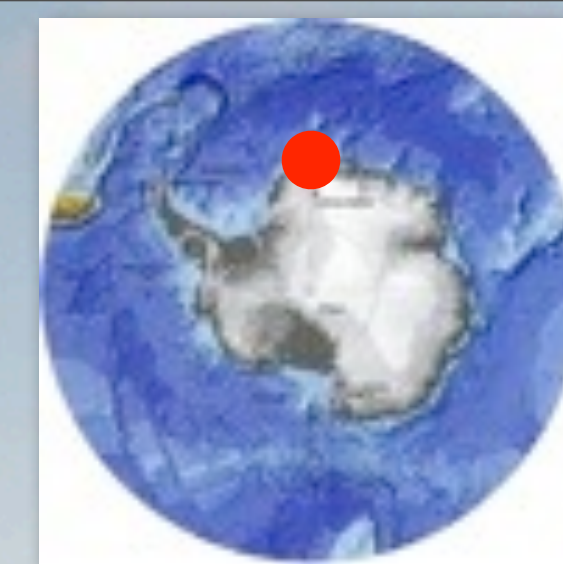
photo: hans oerter, 2008





Neumayerstation III seit Febr. 2009





Tiefe Eisbohrkerne in der Antarktis

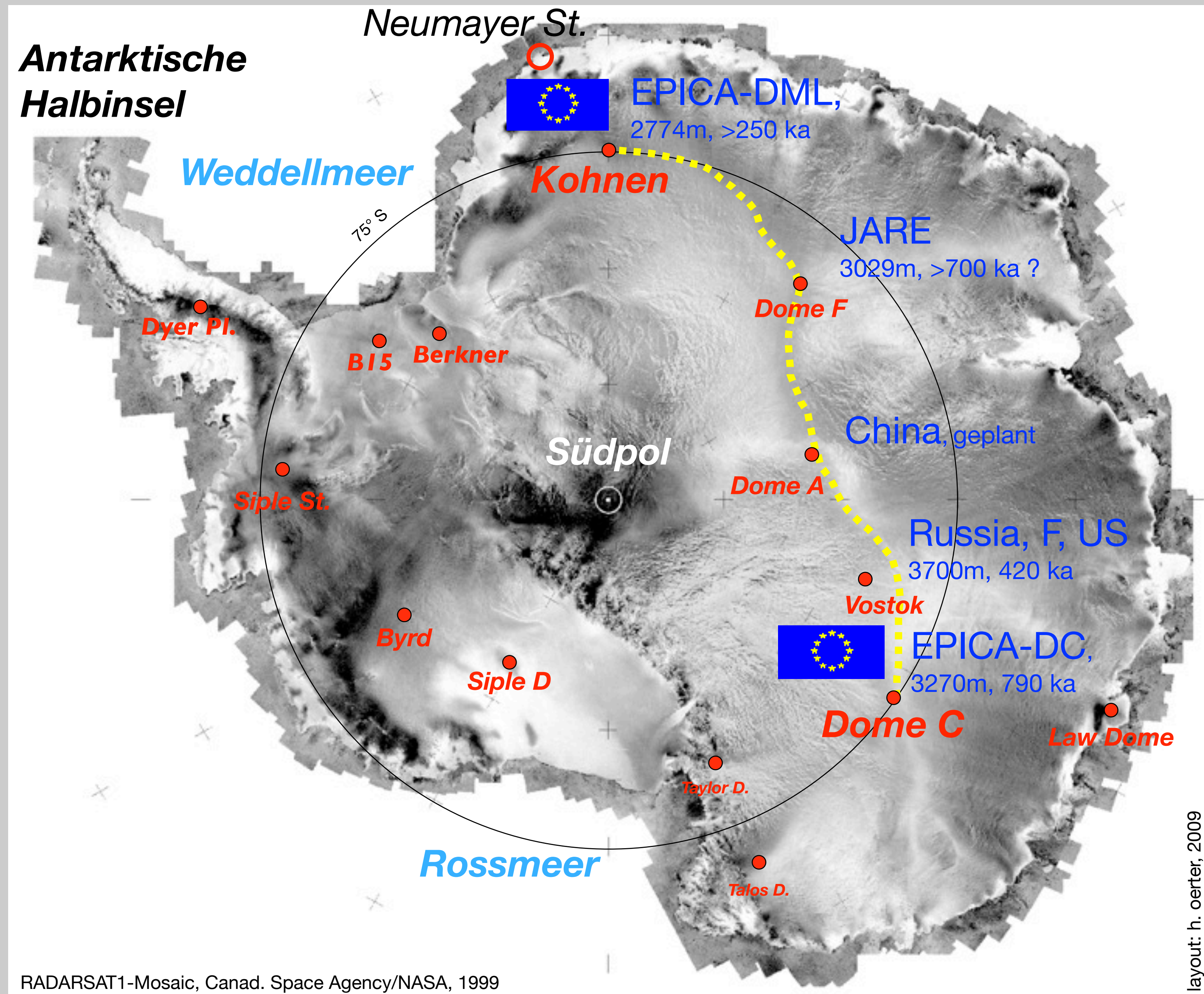
European Project for Ice
Core Drilling in
Antarctica (EPICA)
1996-2008

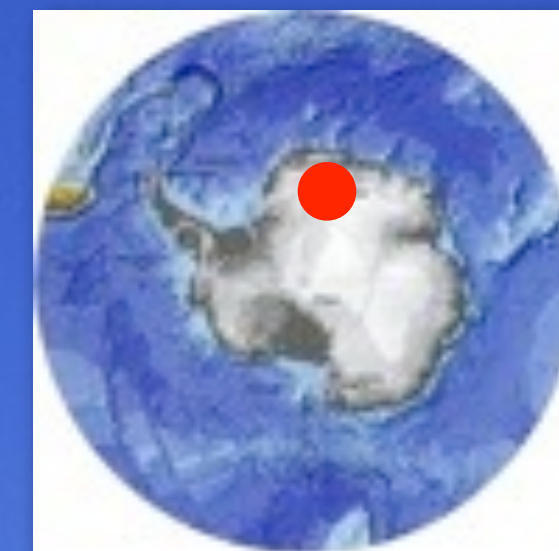


Oerter et al., *Polarforschung* 78 (1-2), 1-23 (2009)

www.polarforschung.de

 Haupteisscheide
der Ostantarktis





Traverse aufs Inlandeis

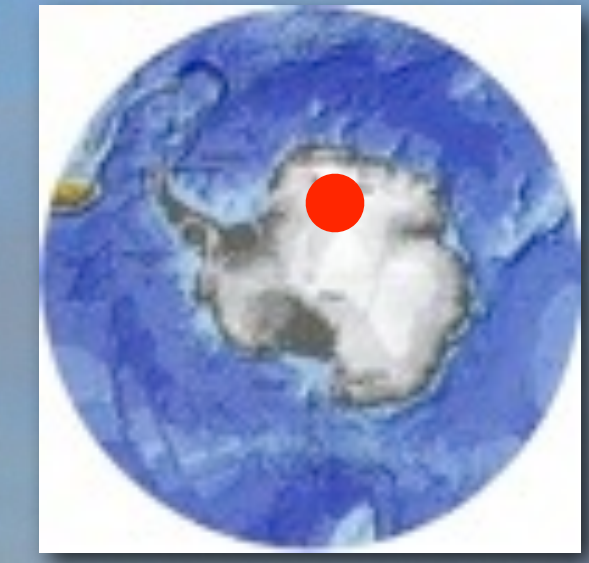
photo: hans oerter, 2001



photo: hans oerter, 1997

photo: hans oerter, 1992

Leben im Wohncontainer



- Funk, PC, e-mail
- Messe
- Küche
- Sanitärcontainer
- 2 Schlafräume
à 4 Pers.
- Schneesmelze
- Generator
- Lager
- Werkstatt

Zum Bohren

Kohnen-Station
75°S, 0 °E, 2882 m



foto: hans oerter, 2008





photo: hans oerter, 2008



Funk, PC, e-mail

Messe

Küche

Sanitärcontainer

2 Schlafräume
à 4 Pers.

Schneesmelze

Generator

Lager

Werkstatt

Zum Bohren

Kohnen-Station
75°S, 0 °E, 2882 m

foto: hans oerter, 2006

photo: hans oerter, 2006

Eiskerntiefbohrung in der Antarktis

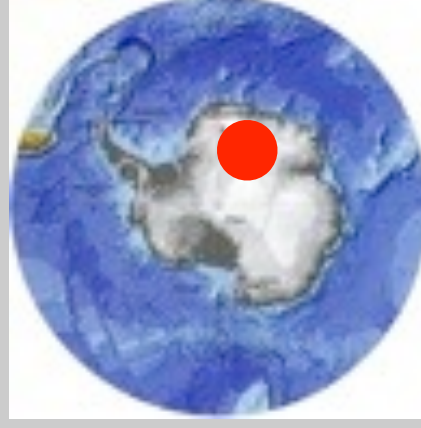
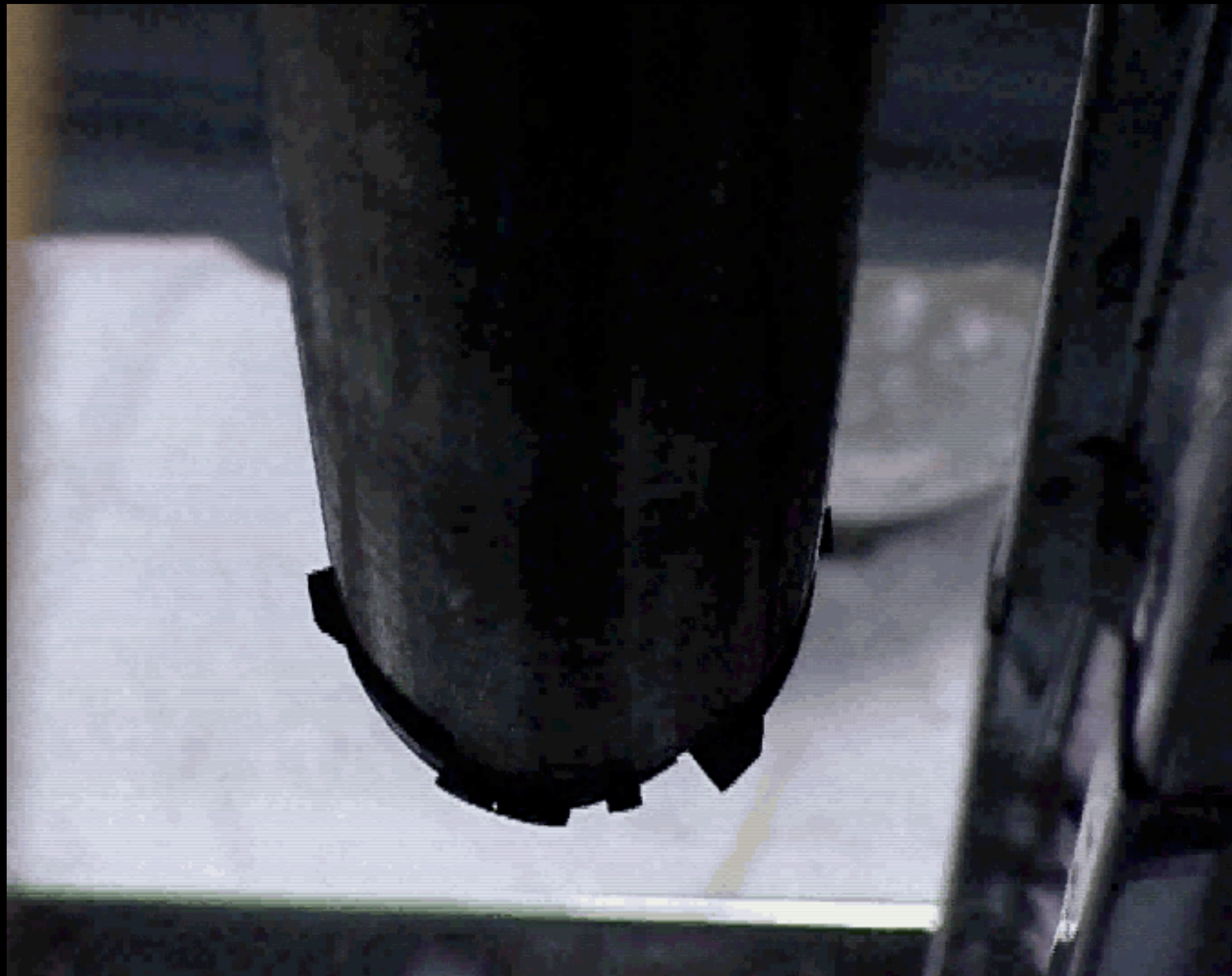


photo: hans oerter, 2006



Archiv AWI/Kipfstuhl

Bohren eines Eiskerns

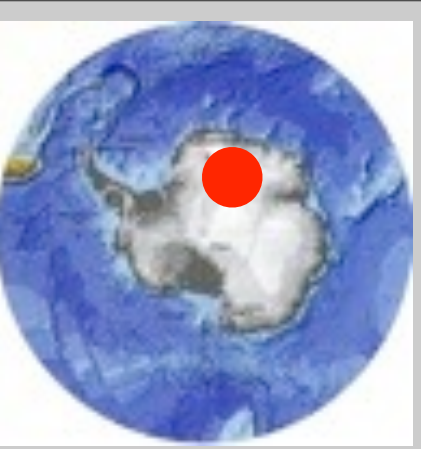
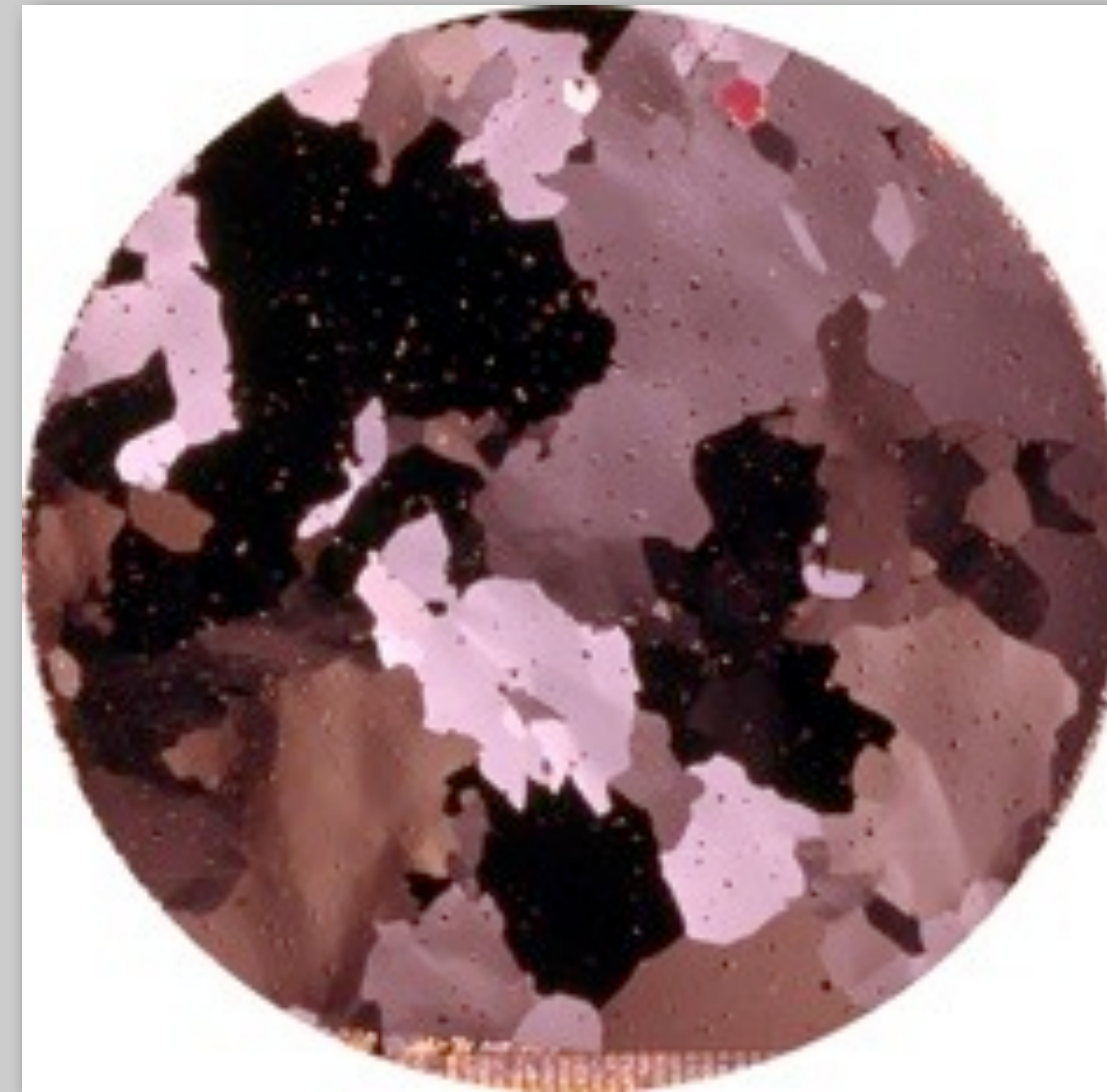
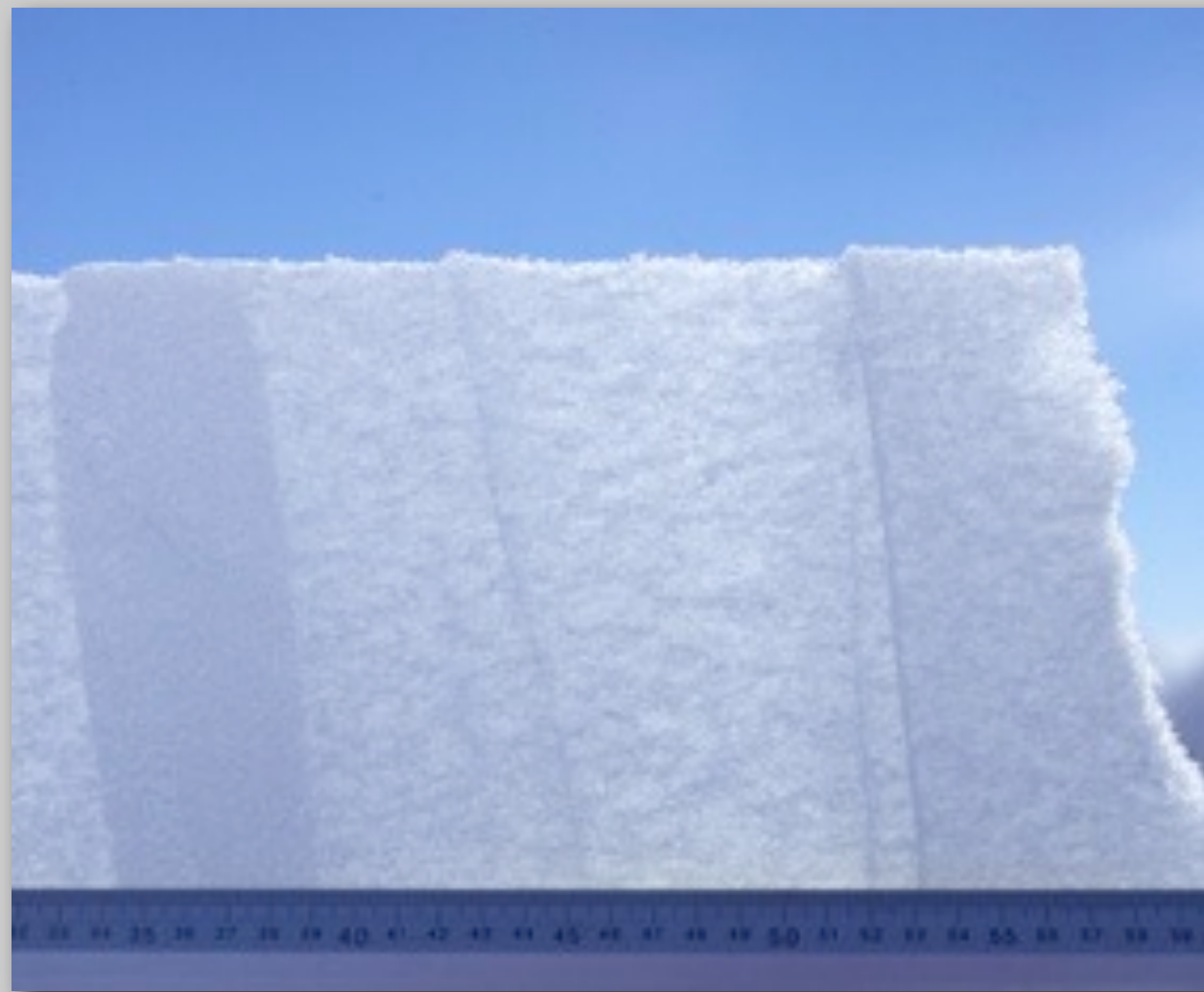
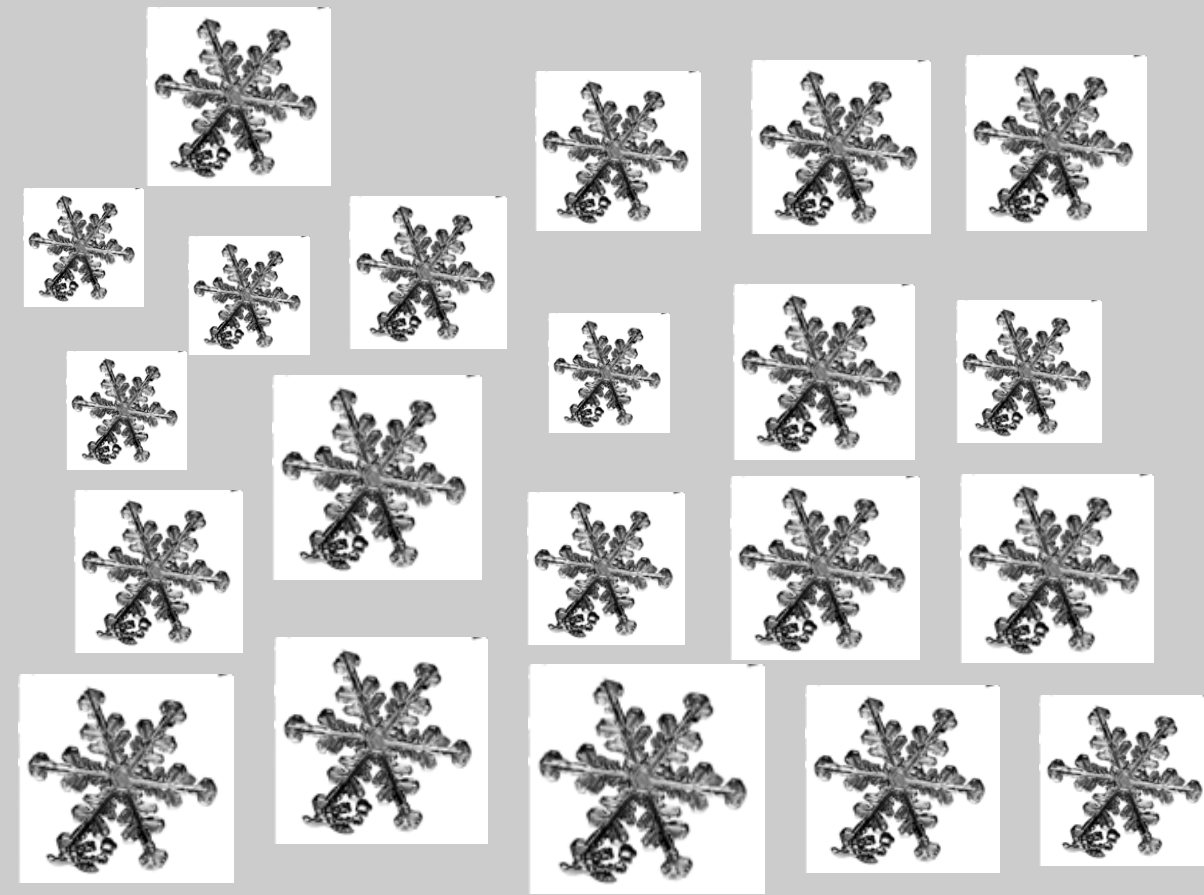
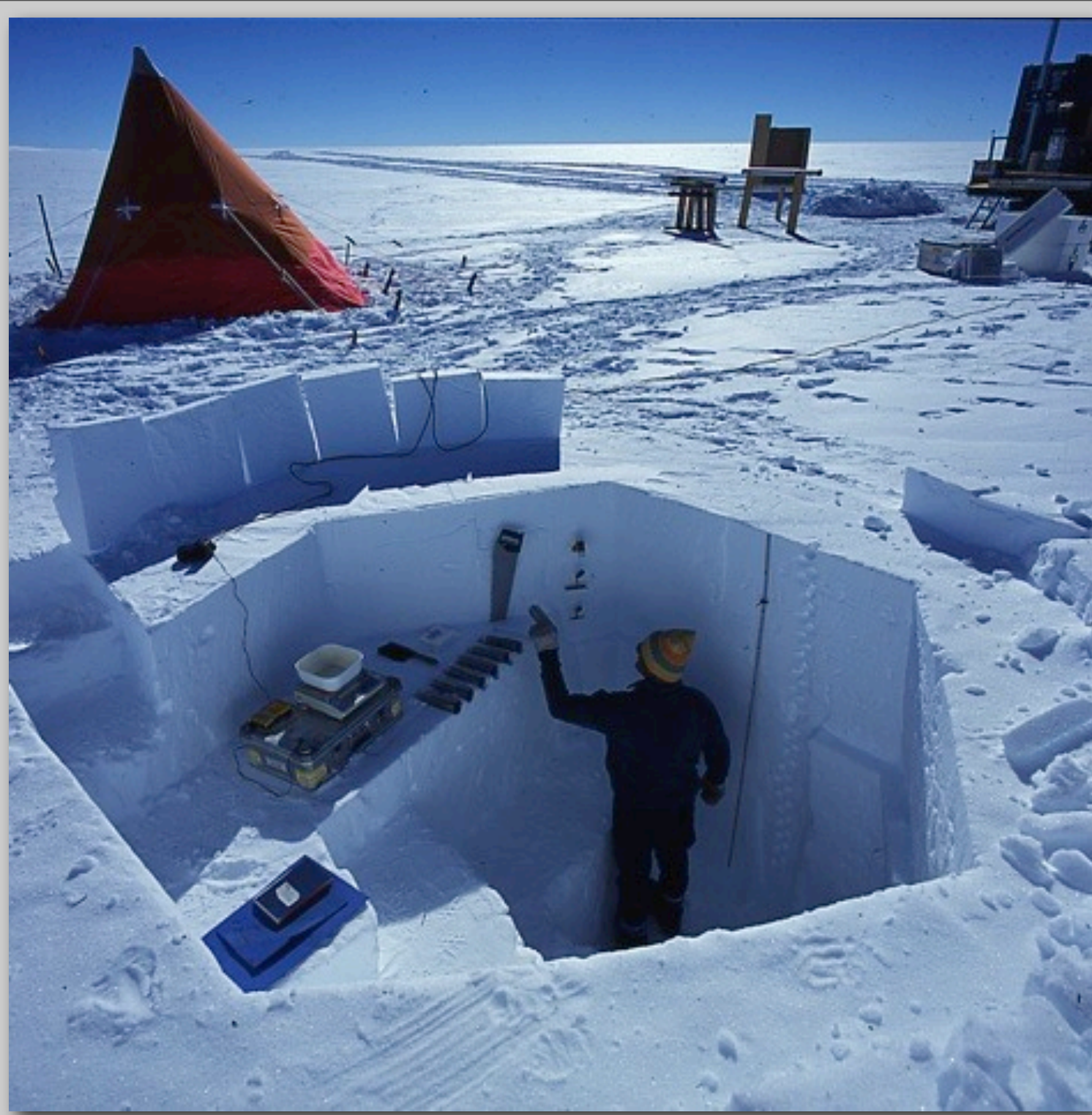


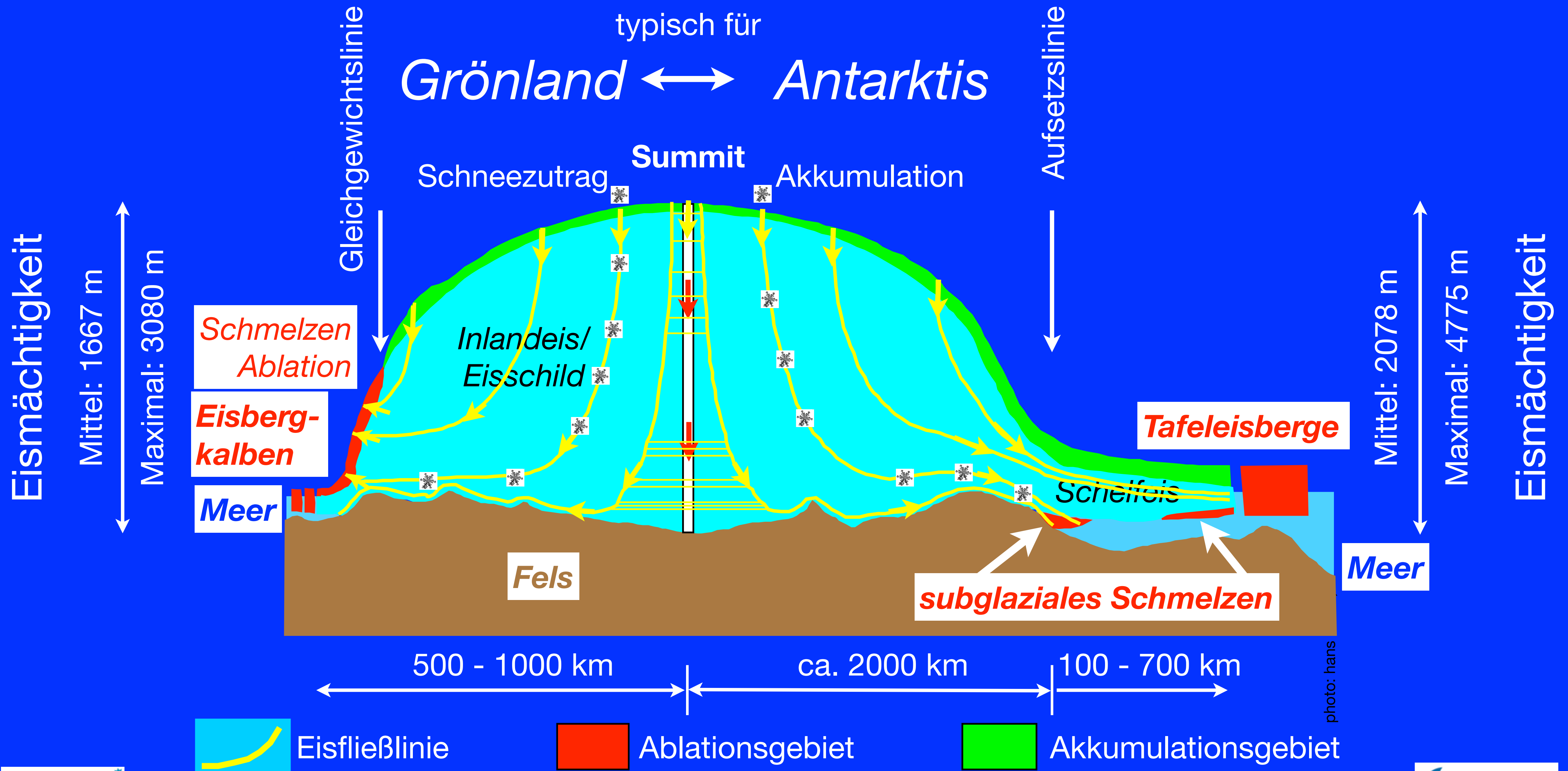
photo: hans oerter, 2006

Erste Inspektion des frischen Kerns

Ein Eisschild baut sich aus über einander liegenden Jahresschichten auf.



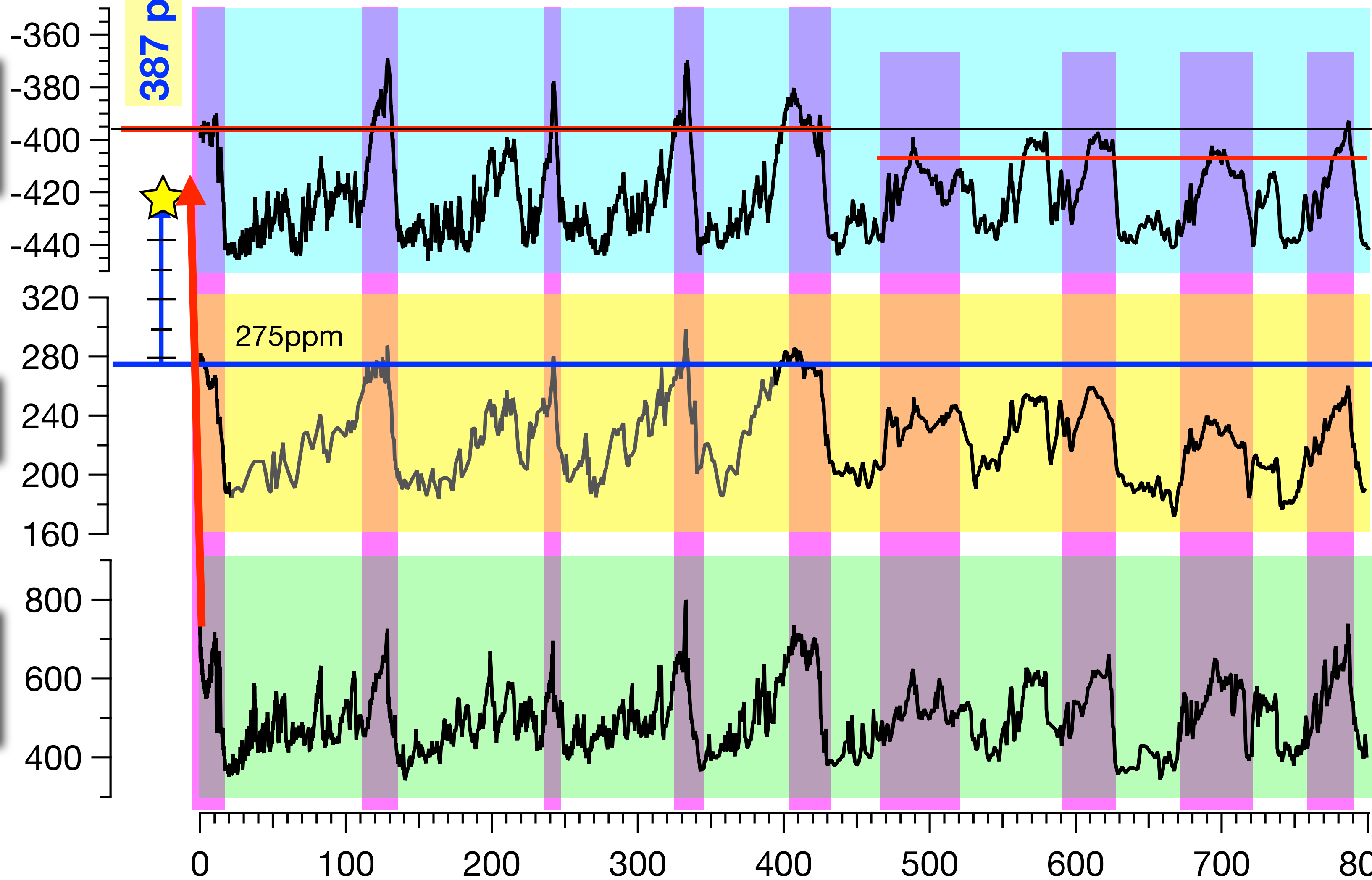
Schematischer Querschnitt durch einen Eisschild



Klimadaten aus antarktischen Eiskernen

(EDC und Vostok)

Deuterium
(‰-SMOW)



CO₂ (ppmv)

Methan
(ppbv)

+5°C
-10°C

Quellen (NOAA/WDC
Paleoclimatology):

Jouzel et al. (2007):
Science 317, 793-796

Lüthi, D. et al. (2008):
Nature 453, 379-382

Loulerque, L. et al.
(2008): *Nature* 453,
383-386

Eisalter/Gasalter EDC3-Altersmodell (kaBP)

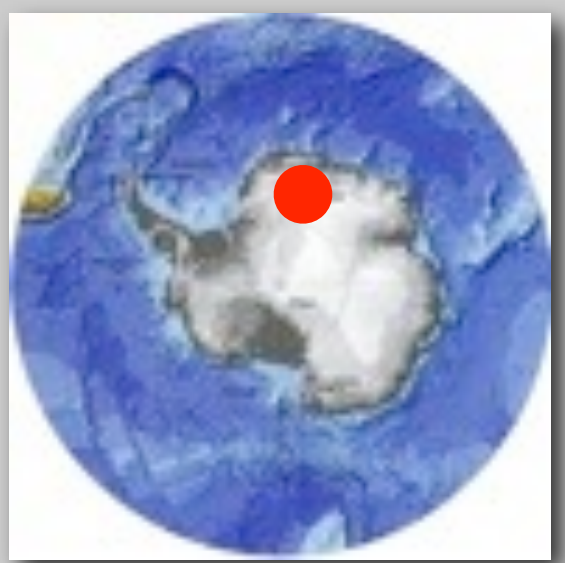


photo: günter stooß, 2008

Flugzeug Basler BT-67 (ex DC-3)

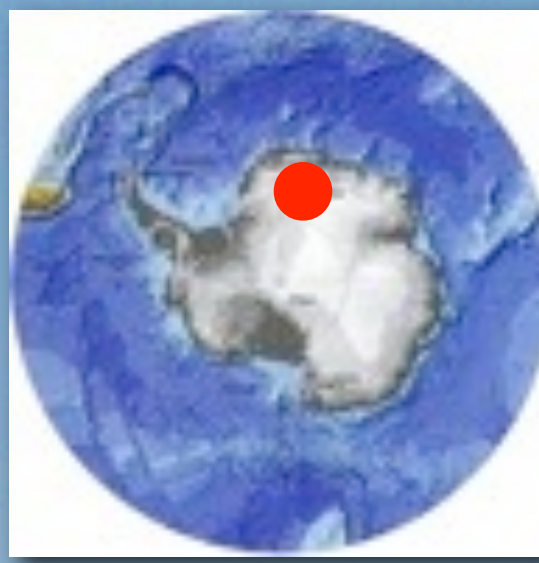
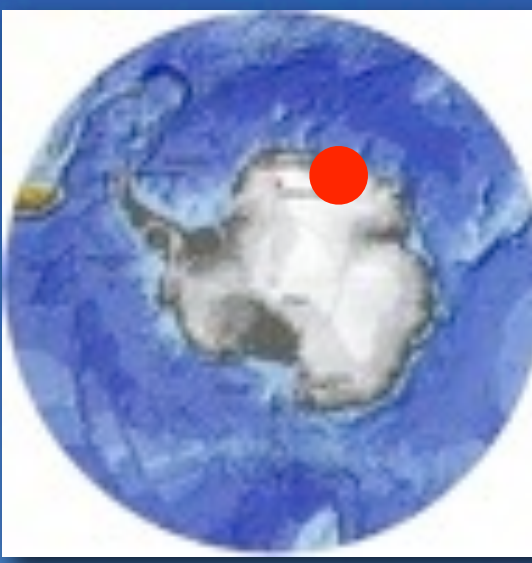


photo: hans oerter, 2008



Flugzeug IL-76TD



www.awi.de

FS Polarstern auf dem Weg zum Nordpol 1991



photo: H. Eicken, 1991

