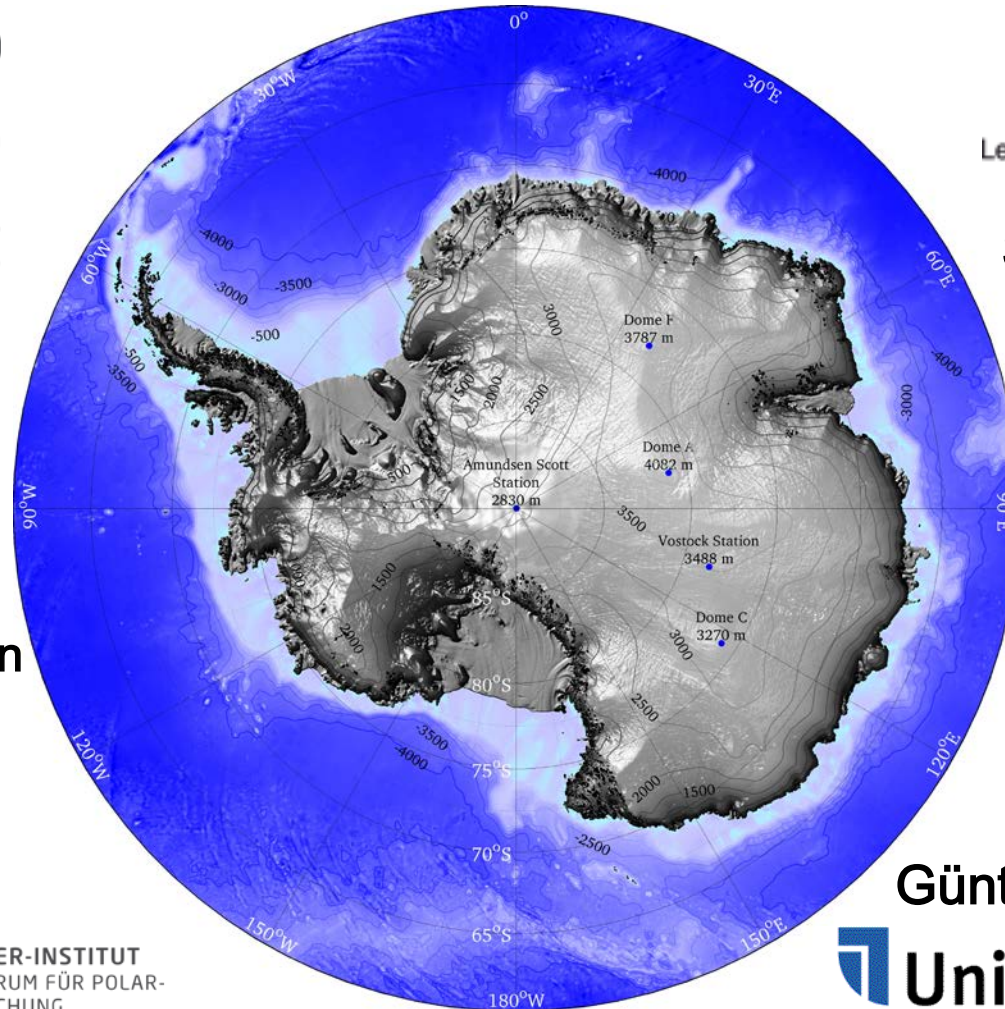


German Contribution to YOPP-SH



Leibniz Institute for
Tropospheric Research

Silvia Henning

Holger Schmithüsen
Stefanie Arndt
Marcel Nicolaus
Mario Hoppmann
Christian Haas



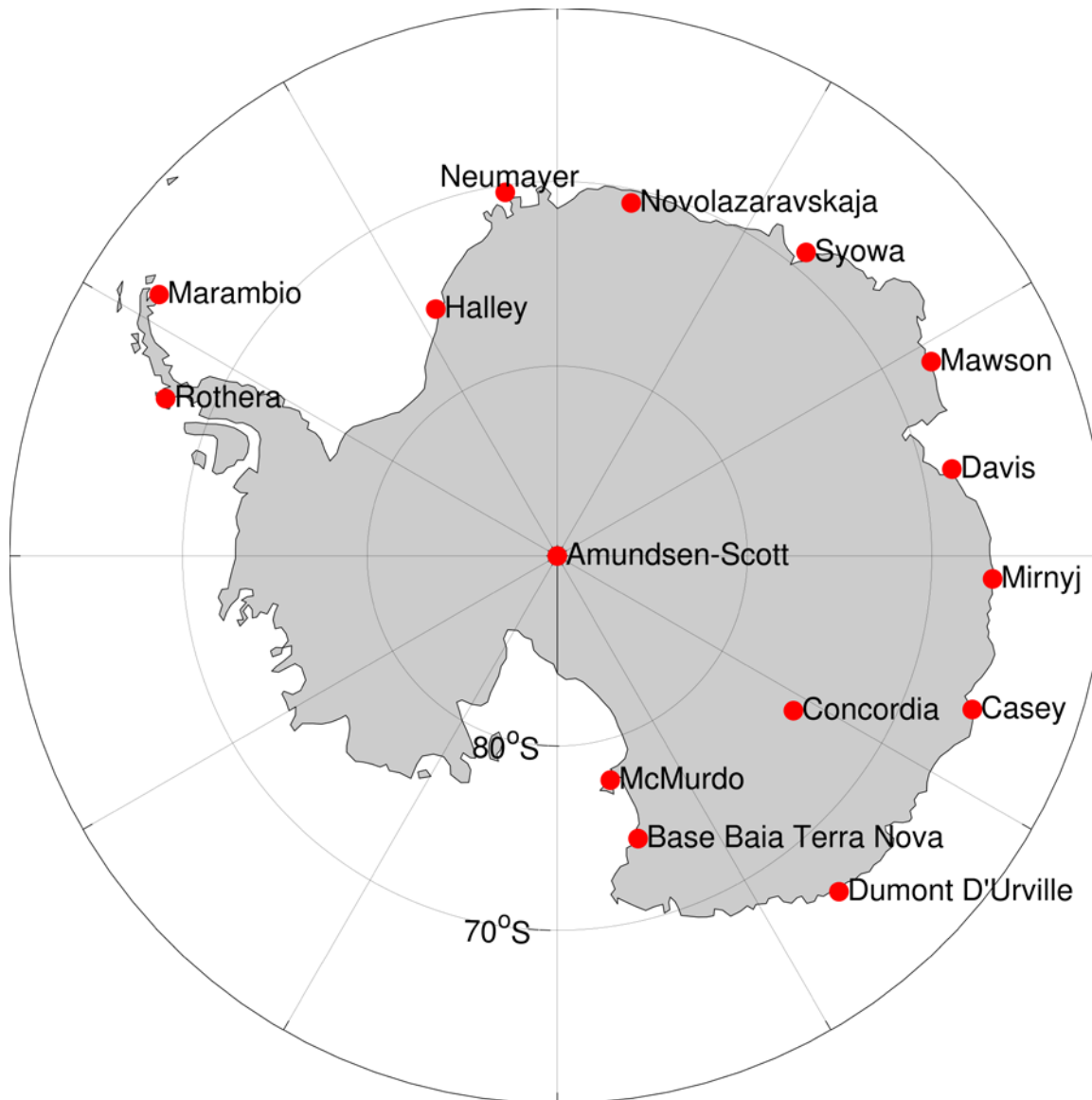
Günther Heinemann
Universität Trier

AWI met

**Additional Upper Air Soundings from
Neumayer, RV Polarstern and AWIPEV**

PI: Holger Schmithüsen, Marion Maturilli

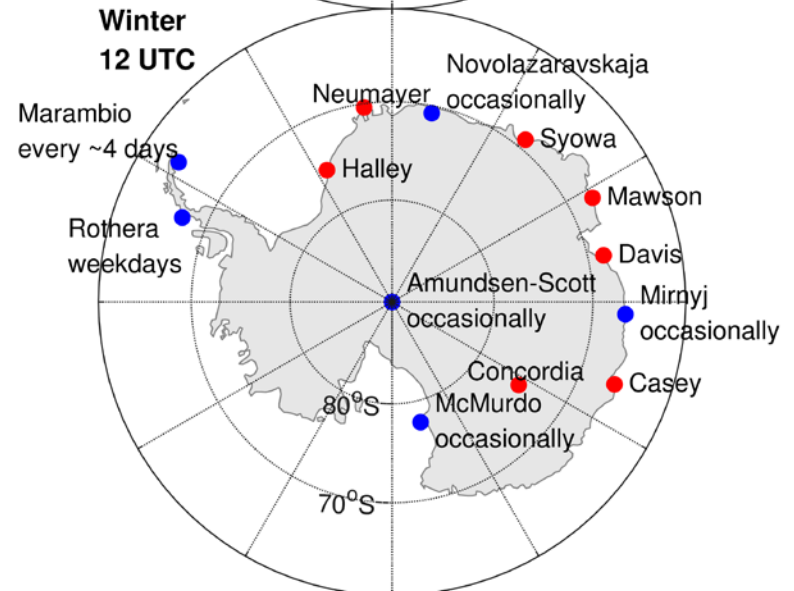
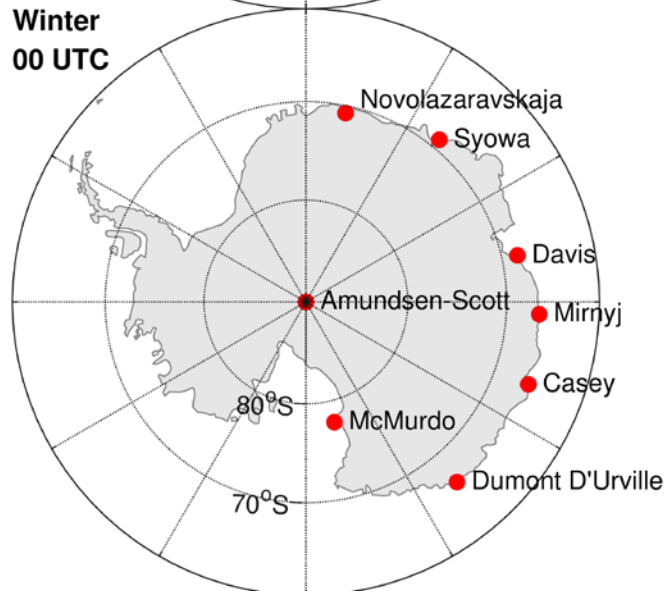
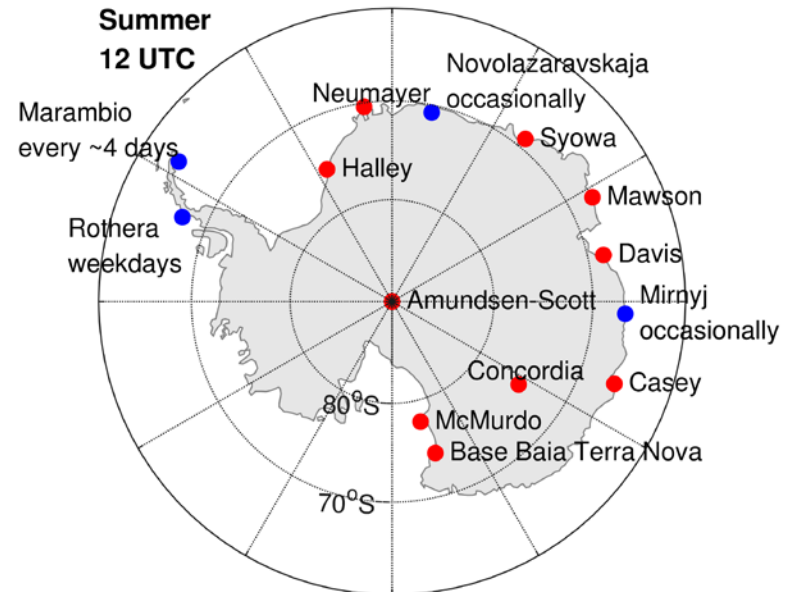
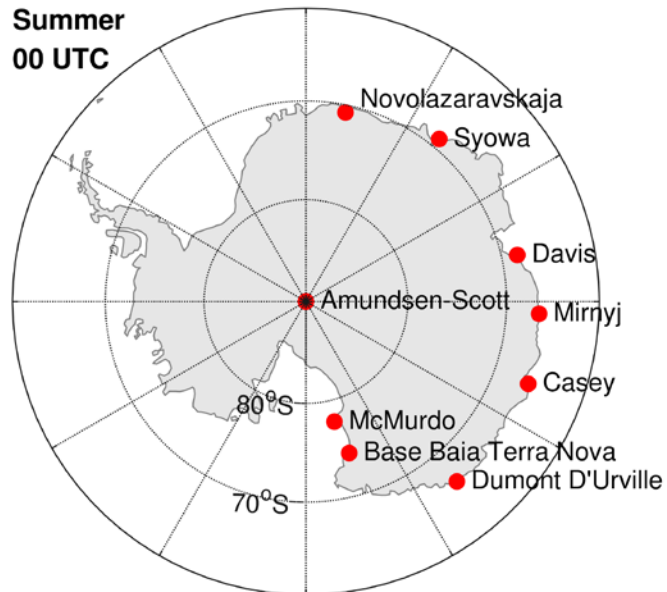
Antarctic Radiosonde Stations



- 15 Stations reporting to the GTS
- 12 station are member of GCOS upper-air network (GUAN)



Antarctic Radiosonde Stations



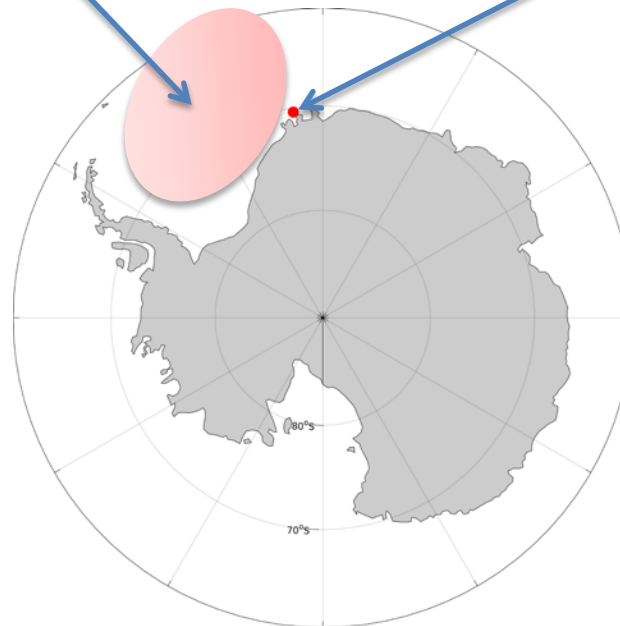
AWI soundings during SOP-SH



Copyright: Folke Mertens/ Alfred-Wegener-Institut




RV Polarstern:
From 2018-12-15 till
2019-02-15
4 launches per day
(00, 06, 12,18 UTC)



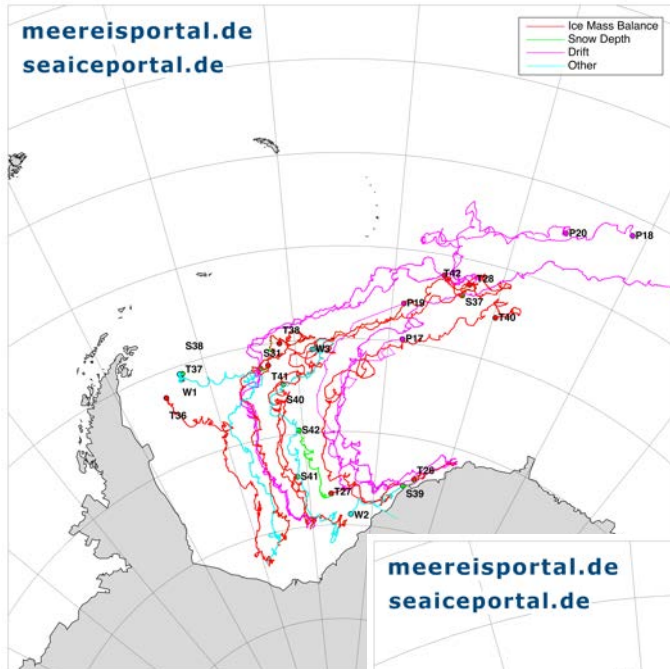
Neumayer Station:
From 2018-11-16 till
2019-02-15
4 launches per day
(00, 06, 12,18 UTC)

Stefanie Arndt, Marcel Nicolaus, Mario Hoppmann, Christian Haas,
and many more



**Contribution of the AWI sea-ice physics section
to the YOPP-SH action group**

Previous buoy deployments (Weddell Sea, 2015-17)



Weddell Sea 2015/16

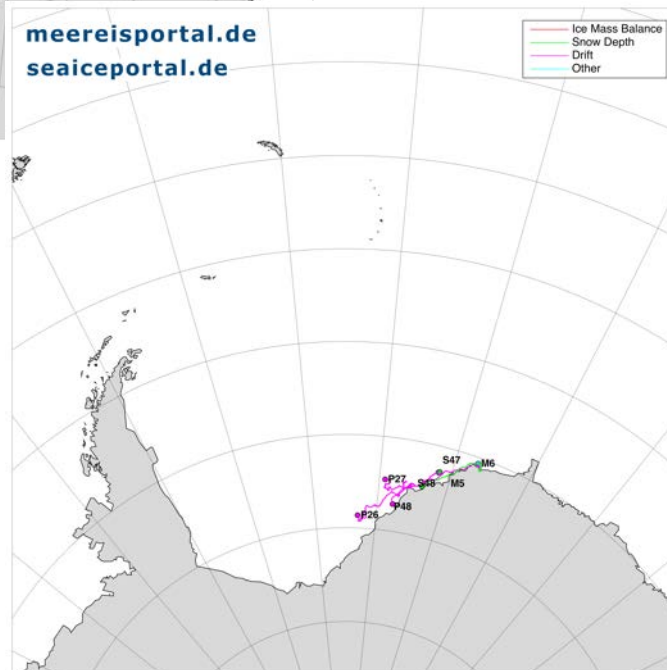
7 Snow Buoys

9 Ice Mass Balance Buoys (IMBs)

7 Surface Velocity Profiler (SVPs)

3 Automatic Weather Stations (AWS) (BAS)

4 Systems are still active (June 2017)



Weddell Sea 2016/17

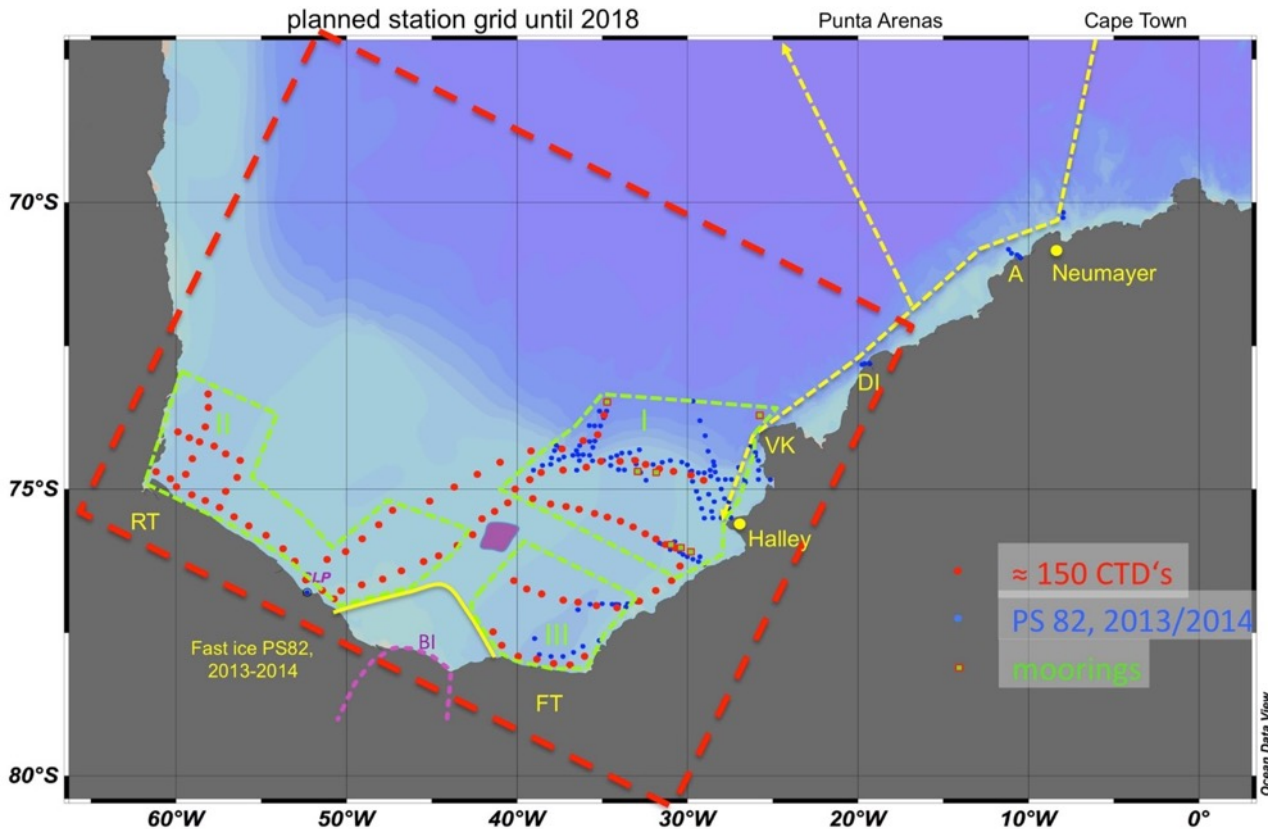
2 Snow Buoys

2 IMBs

3 SVPs

Due to poor ice conditions in the area, all deployed buoys died after days to several weeks

Planned buoy deployments (Weddell Sea, Feb/March 2018)



Expedition PS111

6 Snow Buoys

6+2 IMBs

8 SVPs

6 Salt harps

6 Opto harps

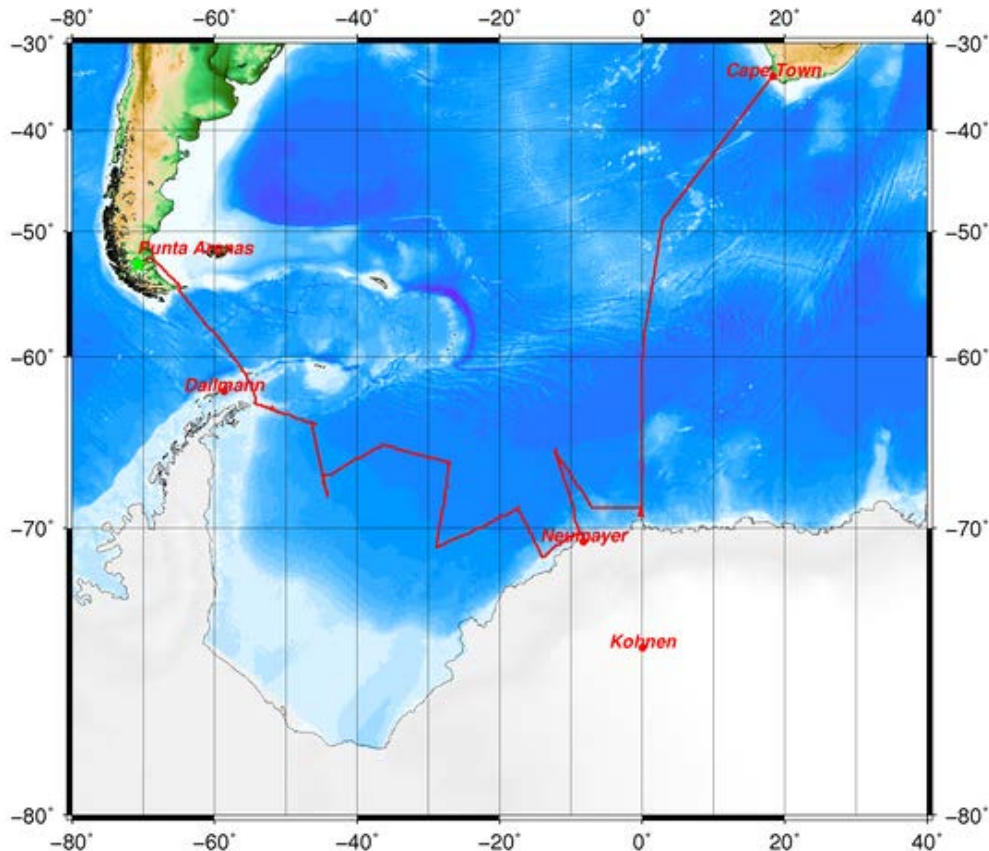
Both harp systems are developments from the Max Planck Institute in Hamburg (Dirk Notz)

**Buoys might be still alive during YOPP
Special Observing Period
(SOP-SH, 16 Nov 2018 – 15 Feb 2019)**

Contact:

stefanie.arndt@awi.de

Planned buoy deployments (Further YOPP contributions)



Cruise track PS103 (2016/2017)

Upcoming cruise in 2018/2019

- Probably similar cruise track as for PS103 (2016/2017, see plot)
- Earliest buoy deployments from January 2019 onwards (cruise leader: Olaf Boebel)

Possible buoy deployments

- No ice-tethered platforms due to pure ice conditions in the area
 - SVPs/ Drifter in open ocean
- BUT: Financial support needed – Who could provide funding for units?**

Contact:

stefanie.arndt@awi.de

mario.hoppmann@awi.de

Antarctic Circumnavigation Expedition (ACE) of the Swiss Polar Institute



ACE

- RV „Akademik Tryoshnikov“
- Cruise time: Nov 2016 to March 2017
- Cruise: Cape Town → Hobart → Punta Arenas → Cape Town

Project of **Silvia Henning (TROPOS)** within ACE: **SPACE - Study of Preindustrial-like-Aerosol Climate Effects**

- PI Julia Schmale (Paul Scherrer Institute, Switzerland)



PAUL SCHERRER INSTITUT



TROPOS

Leibniz Institute for
Tropospheric Research



UNIVERSITY OF LEEDS



Cranfield
UNIVERSITY

ETH zürich



ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



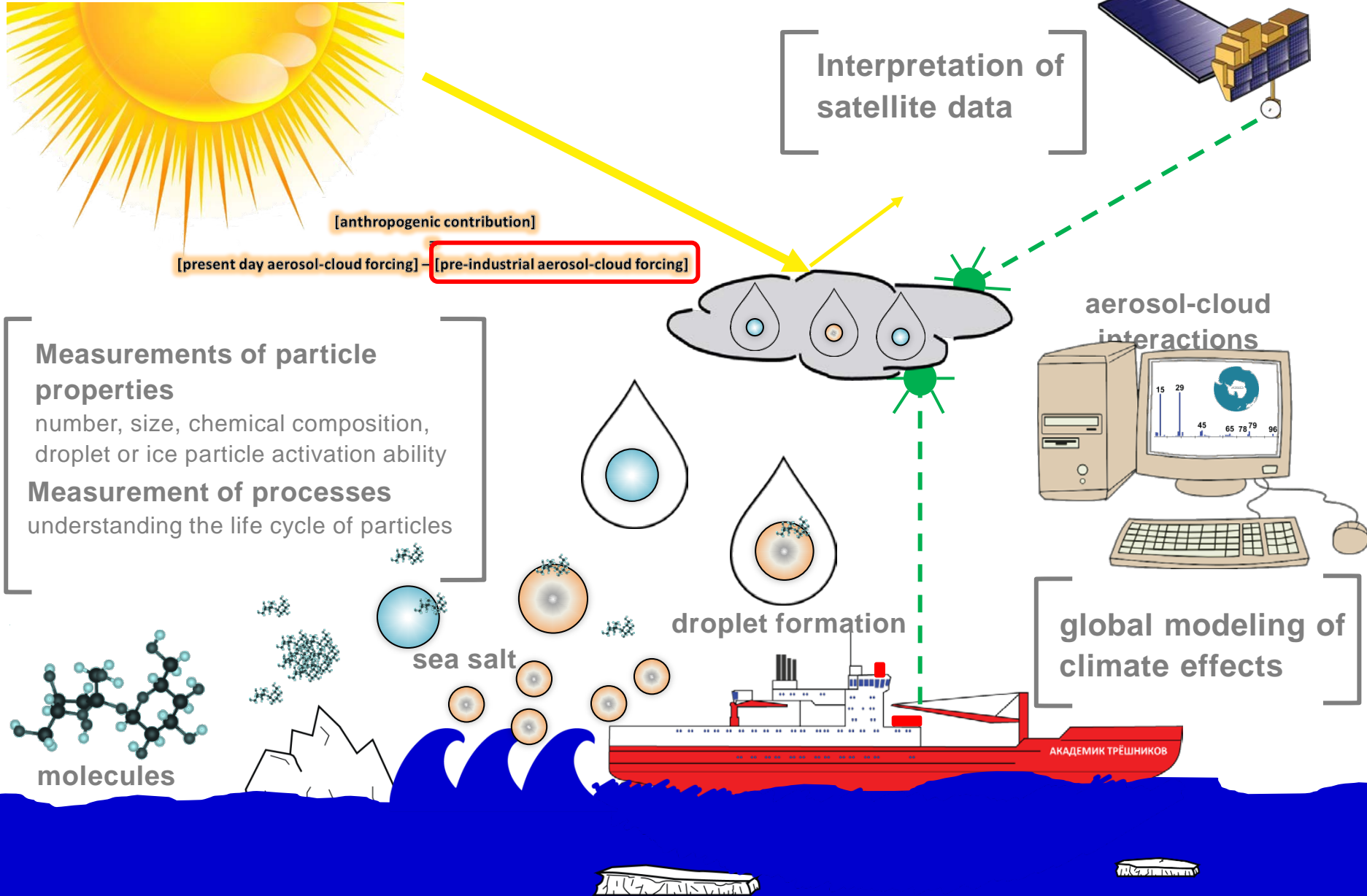
Swiss Federal Institute for
Snow and Landscape Research
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ETH zürich

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UNIVERSITÄT
BERN

Paulsen

ACE-SPACE - Study of Preindustrial-like-Aerosol Climate Effects

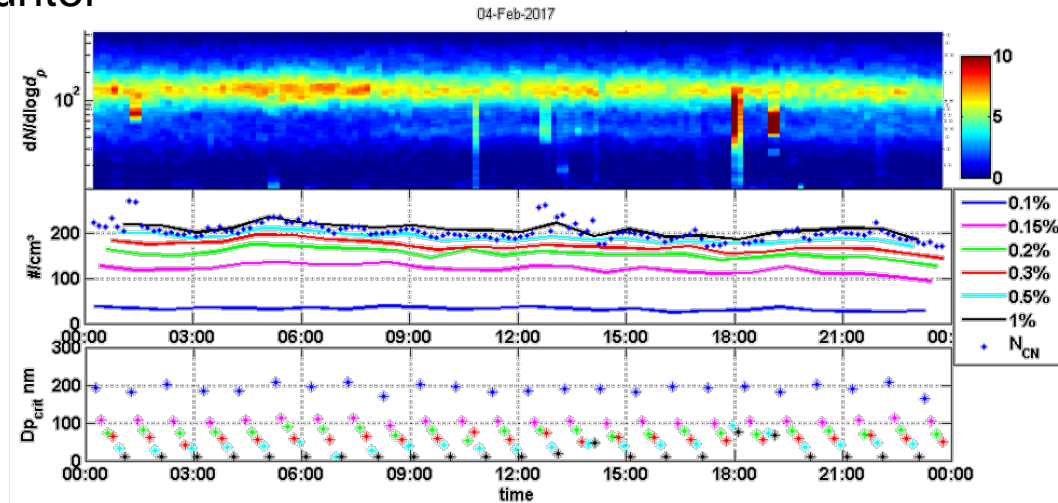
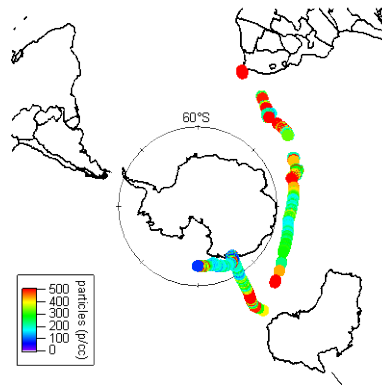


TROPOS work program within SPACE



Quantify number concentrations and hygroscopicity of **Cloud Condensation Nuclei (CCN)**

- Online **Cloud Condensation Nucleus Counter**



Expected results (work in progress)

- data concerning CCN abundance and properties in an area where data are scarce
- source apportionment of CCN via backward trajectories and air mass cluster analysis
- data for constraining and evaluating satellite retrievals and climate models

TROPOS

TROPOS work program within SPACE



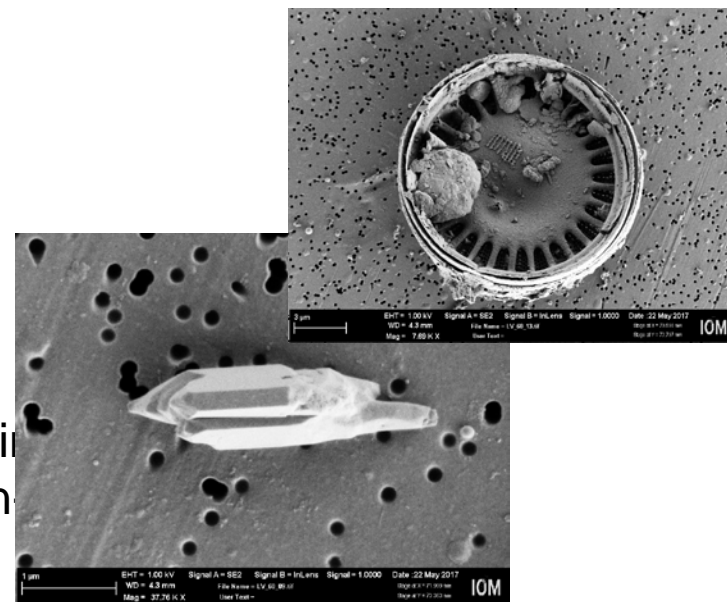
Number and nature (via freezing temperature) of atmospheric ***Ice Nucleating Particles (INP)***

- Offline from high volume filter samples applying an ice nucleation droplet array (INDA)



Expected results (work in progress)

- data concerning INP abundance and nature in an area where data are extremely scarce or non-existing
- Identification of possible INP sources
- data for constraining and evaluating satellite retrievals and climate models



TROPOS

TROPOS work program within SPACE



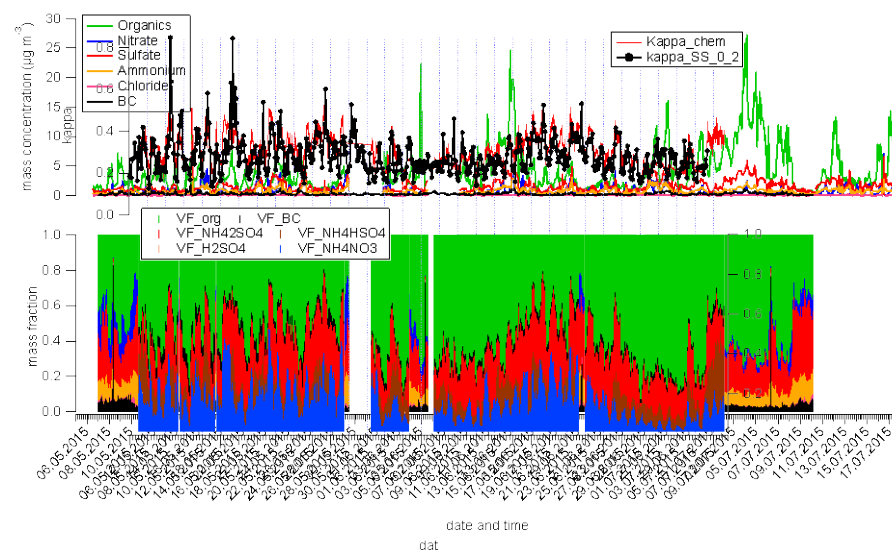
Chemical composition of aerosol particles

- Offline
from high volume filter samples

anions, cation, sugars, WSOC, OC/EC



- Online: mass spectrometer
(operated by PSI)



Expected results

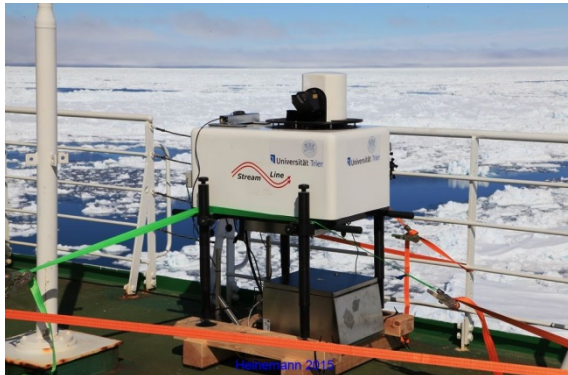
- Source apportionment of CCN/INP
via chemical composition
- CCN / hygroscopicity closure via
chemical composition from mass
spectrometer data and filter samples

TROPOS

Planned YOPP-SH contributions University of Trier

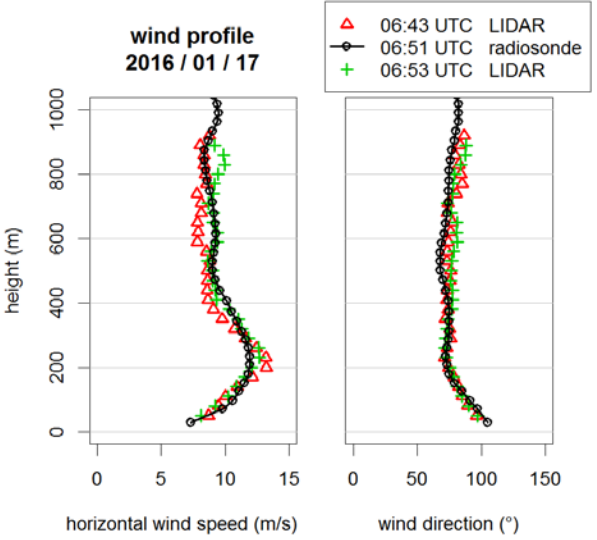
Günther Heinemann, Environmental Meteorology, University of Trier, Germany

Wind LIDAR measurements in the Weddell Sea



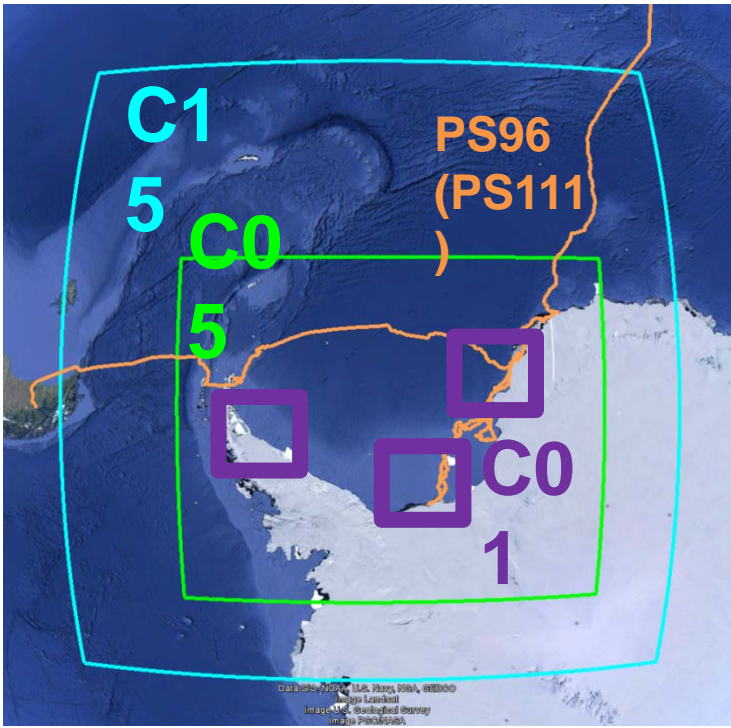
**Polarstern cruise
PS111:
19 Jan. 2018 – 14
March 2018**

High-resolution wind profiles in the atmospheric boundary layer (every 15min)



**Simulations
2002-2019**

Regional climate modelling



**CCLM 15km (C15), 5km (C05)
For case studies 1km (C01)**