



## Deliverable 5.10: Report1 on coordination with other relevant projects



TiPACCs and related projects. Credits: Petra Langebroek (NORCE)

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### About this document

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## Summary for publication

In the first reporting period of the TiPACCs project (18 months), we connected and consolidated collaboration with several relevant Horizon 2020 projects and other large initiatives. The other Tipping Point projects (COMFORT and TIPES) started at a similar time and are therefore in a similar phase of their projects. We align with these projects towards a general understanding of tipping points in the Earth's system. Strong ties are present with the SO-CHIC project, where we link understanding of observational records (SO-CHIC) with process understanding through numerical modelling (TiPACCs) in the Southern Ocean. Another tightly linked project is PROTECT, which studies all components relevant for sea-level rise. Joint researchers work on understanding the tipping point processes (TiPACCs) and its impact on sea-level rise (PROTECT). Coordination with Blue-Action is primarily on linking Arctic climate change to lower latitudes and on Dissemination activities. TiPACCs researchers and project office furthermore actively participate in other networking projects, such as FRISP, EU Polar Cluster and EU PolarNet.

## Contribution to the top-level objectives of TiPACCs

**Objective 1 - Determine the changes in surface forcing required to switch the Antarctic continental shelf seas from cold to warm state (TP1), and to quantify the resulting changes in ocean-induced ice-shelf basal melting.**

**Objective 2 - Determine the stability regime of the grounding lines of the Antarctic Ice Sheet and the existence of tipping points with respect to ice-shelf melting (TP2).**

**Objective 3 - Determine the impacts that a switch in the ocean state from cold to warm (TP1) has on the stability regime of the grounding lines (TP2) and the resulting implications for global sea level.**

**Objective 4 Provide a list of early warning indicators for the initiation of both tipping points (TP1 and TP2) and disseminate our improved understanding of the processes and impact of the tipping points to general public, policy makers and governmental panels.**

This deliverable contributes to all TiPACCs Objectives, by informing and discussing our scientific work with other scientists, stakeholders and policy makers.

## Work carried out

TiPACCs researchers have been collaborating with various other Horizon 2020 projects as well as with other large initiatives. The most relevant EU projects are the Tipping Point projects COMFORT and TIPES, SO-CHIC, PROTECT and Blue-Action. Additionally, we actively participate to FRISP, the EU polar cluster projects, and EU PolarNet.

A short explanation of how TiPACCs links to these projects is given below, followed by a chronological report of specific cooperative activities.

## Relevant projects:

### **COMFORT**

Funding source: H2020, Grant agreement: 820989

Coordinator: Christoph Heinze (University of Bergen, Norway)

We collaborate with COMFORT towards a general understanding of tipping points in the Earth's climate system. Furthermore, we participated jointly in activities organized by the EC, and we communicate on administrative and project management aspects.

### **TIPES**

Funding source: H2020, Grant agreement: 820970

Coordinators: Peter Ditlevsen (Niels Bohr Institute, Denmark) & Niklas Boers (PIK Potsdam, Germany)

We collaborate with TIPES towards a general understanding of tipping points in the Earth's climate system. We foresee joined policy and outreach activities.

### **SO-CHIC**

Funding source: H2020, Grant agreement: 821001

Coordinators: J.B. Sallée (Sorbonne University, France)

We collaborate with SO-CHIC on Southern Ocean process understanding and observations. Svein Østerhus is leading WP3 in SO-CHIC focussing on deep ocean ventilation in Weddell Sea.

J.B. Sallée is furthermore in the Advisory Board of TiPACCs.

### **PROTECT**

Funding source: H2020, Grant agreement: 869304

Coordinator: Gaël Durant (UGA – ICE, France)

PROTECT focusses on all aspects of sea-level rise, including the Antarctic Ice Sheet component. We strongly collaborate with PROTECT on modelling the Antarctic Ice Sheet and its relevant processes. Key TiPACCs researchers Ricarda Winkelmann and Nicolas Jourdain lead work packages in PROTECT, and in return, PROTECT coordinator Gaël Durant, is also strongly involved in TiPACCs. We are additionally looking forward to organizing joint dissemination activities.

### **Blue-Action: Arctic Impact on Weather and Climate**

Funding source: H2020, Grant agreement: 727852

Coordinators: Steffen Olsen (Danish Meteorological Institute, Denmark) and Daniela Matei (Max Planck Institute for Meteorology, Germany)

Svein Østerhus is contributing to WP3 "Linkages of Arctic climate changes to lower latitudes" and WP8 "Communication and Dissemination".

### **FRISP – forum to discuss ice shelf processes and related problems**

This strong network organizes annual meetings. TiPACCs researchers are amongst the founding fathers of this network, which is running in various forms since 1984. TiPACCs researcher Ricarda Winkelmann was the lead organizer of the 2020 annual meeting, which was held entirely digital due to COVID-19 measures.

### **EU Polar Cluster and EU-PolarNet**

These networking and clustering projects help with communication and collaboration between TiPACCs and other polar projects. We participate on a weekly to monthly basis in meetings both in the main meetings of the cluster and in special task force groups.

## Coordinated activities in the first reporting period:

### **FRISP meeting 2019 (15-18 Sept 2019, Oxford, UK)**

Introducing the TiPACCs project to the FRISP community.

### **TiPACCs kick-off meeting (2-4 October 2019, Bergen, Norway)**

Invited speakers Christoph Heinze (COMFORT) and J.B. Sallée (SO-CHIC) presented their projects, laying foundations of further collaboration.

### **COMFORT kick-off meeting (9-11 October 2019, Bergen, Norway)**

Petra Langebroek attended the COMFORT kick-off meeting.

### **TiPACCs annual meeting (10-12 June 2020, digital)**

Gaël Durand presented the PROTECT project.

### **PROTECT kick-off meeting (30 Sept – 1 October 2020, digital)**

Petra Langebroek presented TiPACCs and the connections between TiPACCs and PROTECT.

### **EU Parliament briefing (14 October 2020, digital)**

Svein Østerhus contributed to the Blue-Action briefing on “Tipping points, extreme events and uncertainty: How can studying the Arctic help us predict future European climate beyond the mean?”, hosted by MEPs Mr. Urmaz Paet and Ms. Christel Schaldemose.

### **H2020 Polar Cluster meeting (27 October 2020, digital)**

Petra Langebroek presented TiPACCs to the cluster.

### **EU Climate science2policy event (17 November 2020, digital)**

Svein Østerhus and Petra Langebroek organized the Tipping Point session, together with Christoph Heinze (COMFORT). In this session, relevant for other H2020 climate project scientists, stakeholders and policy makers, we coordinated presentations on TiPACCs, COMFORT and TIPES. Recommendations were collected and made available by EASME.

## Main results achieved

There are two main direct results achieved:

- 1) Communication and collaboration with relevant projects on Antarctic tipping points and related processes.
- 2) Sharing of knowledge and experience on CDE activities, with particular focus on policy makers and stakeholders.

## Impact

Collaboration and communication with other (EU) projects supports several of the expected impacts of TiPACCs. Discussions of our scientific work create platforms on which future IPCC-like assessments build on, it leads to enhanced understanding of the ocean and ice sheet tipping points, and creates awareness of the severity of the possible future sea-level increase. Furthermore, by linking to other European initiatives and projects, we help sustaining Europe's leadership in climate science and additionally train the future generation of European climate scientists.

## Links built

Over the last 18 months we have established and/or consolidated our links with COMFORT, TIPES, SO-CHIC, PROTECT, Blue-Action, FRISP, the EU Polar Cluster projects and EU-PolarNet (see description of activities in "Work carried out").