



## ANNUAL REPORT 2018



## Annual Report 2018

### FOREWORD BY THE DIRECTORS

In this annual report, we have compiled facts and figures about the numerous activities of the SPI in 2018. In many ways, one can say that 2018 was the year of the “proof of concept” for SPI. Calls and events have been met by great interest with growing support by the Swiss polar community..

In 2018, the initiatives to fund and support polar science in Switzerland have started their yearly cycles of calls for projects, evaluations, panels of experts, grant agreements and reports. In view of these experiences, first modifications and improvements were defined and undertaken by the SPI team based on advice from the panels and the SPI Science and Technology Advisory Board - STAB.

In parallel, the preparation of the first circumnavigation expedition of Greenland – GLACE – has occupied much of the year and led to the recruitment of two additional persons at SPI. GLACE will be a highlight for Swiss polar science in 2019 with 6 projects led by scientists based in Switzerland and a large number of Swiss scientists participating in the international projects. Through its interdisciplinary approach and highly collaborative nature, GLACE also demonstrates the importance of such flagship projects for the future.

With a view to the future, much of the work of 2018 was devoted to the preparation of activities to help develop and support the Swiss polar community. A community consultation in the form of a “Call for Ideas” was launched and analysed, much of the STAB’s work as well as the Swiss Polar Day 2018 were dedicated to discussing possible future priorities and ways for SPI to help grow and support the Swiss polar community’s needs. This work is crucial in view of the SPI’s future establishment and funding within Switzerland. In addition, the definition of national priorities is also important in order to support the international collaborations and networks within which SPI has now managed to establish itself to represent the Swiss polar community and develop new linkages and opportunities.

We would like to thank the members of the SPI Board of Directors and the SPI Science and Technology Advisory Board (STAB) for their support and engagement during 2018. We look forward to continuing our effort to promote Swiss polar research..

Our sincere gratitude also goes to the excellent collaboration with and trust of the BNP-Paribas Swiss Foundation and to the Swiss Polar Foundation which have both been central in enabling the SPI to grow its activities.

Prof. Konrad Steffen  
SPI Scientific Director

Danièle Rod  
SPI Executive Director

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## SPI ACTIVITIES AND HIGHLIGHTS 2018

In 2017, the SPI Board of Directors adopted a set of instruments designed to support the Swiss polar community in accordance with the SPI's mission. Funding instruments, complementary to existing sources, community support measures and outreach activities were thus put into place in 2018.

### A) Funding activities

In 2018, the Swiss Polar Institute started to roll out a focused portfolio of support activities for the polar community in Switzerland. All funding instruments described were designed by the SPI's Technology and Science Advisory Board (STAB) on the basis of identified gaps and an analysis of the needs of the community. A particular accent was laid on younger researchers as well as the funding of logistical needs or short-term scientific opportunities in polar regions.

All activities are published as calls for proposals (repeated annually) and proposals are evaluated by independent panels of experts. Grant agreements are concluded on the basis of the SPI's budget allocation and managed by SPI with the support of the EPFL financial and legal departments.

#### SPI Polar Access Fund

Funded jointly by the SPI and the Fondation BNP Paribas Suisse, the Polar Access Fund enables young researchers (see definition below) to undertake their first field trip to a polar region. Such a field trip must be inserted into a wider research project and empower young researchers to start their own activities related to polar regions and topics.

#### Call for proposals 2018

December 2017	Call for proposals out
1 March 2018	Submission deadline (10 submissions)
4 April	Evaluation panel (Zurich) (selection of 5 projects)
6 April	Information of STAB and BNP-Paribas
27 April	Approval by Board of Directors
May	Information to all applicants and grant agreements

#### Call for proposals 2019

November 2018	Call for proposal out
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#### List of 2018 grantees

Grantee	Fieldtrip	Region	Financial Support (CHF)
<b>Alizée Le Moigne, PhD student, University of Zurich</b>	Diversity of microbial community structure and function in Arctic thermokarst ponds: 3 weeks in the north-eastern Siberia, in the Kytalyk nature reserve.	North-Eastern Siberia	6'000.-
<b>Carla Perez Mon, PhD Student, WSL</b>	Sampling and establishment of a warming experiment in Permafrost from Villum Research Station (81°36'N, 16°40' W)	Northern Greenland	19'400.-
<b>Eef van Dongen, PhD Student, ETH Zurich</b>	Monitoring of the calving glacier Eqip Sermia, West Greenland, using UAVs	West Greenland	9'800.-



<b>Andrea Baccarini, PhD student, PSI</b>	Participation in the MOCCHA campaign in the high Arctic on board of the ODEN Icebreaker	High Arctic Ocean	19'600.-
<b>Sonam Wangchuk, PhD Student, University of Zurich</b>	Bathymetric survey of glacial lakes; GPS measurements of lake shoreline; ground penetrating radar (GPR) survey of moraine dams and glacier tongues; turbidity and surface temperature measurements	Bhutan (Vertical Pole)	10'000.-



### SPI Exploratory Grants

The SPI Exploratory Grants were designed by the STAB to support Swiss scientists active in polar regions (including remote high-altitude regions) by allowing them to launch short-term new ideas (for example pilot projects), fund additional field work or launch new collaborations with financial support for logistics. The first call for this instrument was launched in 2018 and was met with a high success and demand.

#### Call for proposals 2018

August 2018	Call for proposals out
22 October	Submission deadline (18 submissions)
30 November	Evaluation panel (Bern)
19 December	Approval by Board of Directors (written procedure) for 6 projects

#### List of 2018 grantees

Grantee	Project	Region	Financial Support (CHF)
<b>Dr. Jan Henneberger, ETH Zurich</b>	Cloud microphysics measurements with HoloBalloon at Ny Ålesund	Svalbard	26'000.-
<b>Prof. Dr. Alexis Berne, EPF Lausanne</b>	A transect of micro rain radars to investigate Antarctic precipitation in complex terrain	Antarctica	33'000.-
<b>Prof. Dr. Fabian Walter, ETH Zurich</b>	Confirming seismogenic stick-slip flow of a Greenland outlet glacier using helicopter-borne GPS installations	Greenland	20'000.-
<b>Dr. Guillaume Juvet, ETH Zurich</b>	Automated in-situ ice flow monitoring of Bowdoin Glacier through a network of GPSs deployed by UAVs	Greenland	20'000.-
<b>Dr. Basil Davis, Uni Lausanne</b>	Holocene climate and environmental records from the Central Siberian Plateau	Central Siberian Plateau	35'000.-
<b>Dr. Akçar Naki, Uni Bern</b>	DEAIS: Changes in the Drainage Pattern of the Eastern Antarctic Ice Sheet through Time	Eastern Antarctic Ice	39'750.-

### Maritime and field universities

In collaboration with international partners, the SPI issued two calls in 2018 to allow Swiss students to join field universities in polar environments. These calls were seen as pilots and raised interest on the side of students in different fields. In the end, only one student was successfully selected by SPI's partners and then funded by SPI to attend the said courses.

In order to make this instrument more predictable and attractive in the future, SPI decided to prepare a list of such summer/field/maritime courses in many fields related to polar research for which successful Swiss students can obtain funding from SPI. This was published in the autumn 2018.

#### List of 2018 grantees

Grantee	Maritime or field university	Region	Financial Support (CHF)
<b>Ms Carla Perez Mon, WSL</b>	Sentinel North PhD School	Canadian Arctic	1500.-

### Grants for Swiss projects in international expeditions

The SPI also has the mission to support Swiss groups to participate to large international research initiatives in polar regions.

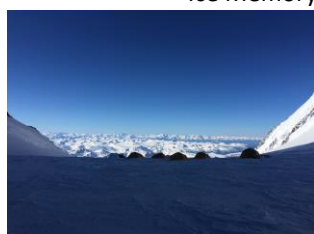
In 2018, two Swiss projects were selected by the international scientific committee of the MOSAiC initiative (Multidisciplinary drifting Observatory for the Study of Arctic Climate) which will be the single largest research expedition ever in the Arctic. This multinational initiative will involve freezing the German Polarstern into the central Arctic for about one year. The SPI Board exceptionally decided to devote some unspent budget from 2017 to the support of these two projects.

Additionally, the SPI also supported a Swiss project related to the "Ice Memory" initiative aiming at creating a sanctuary of ice-cores from vanishing glaciers worldwide. The funding by SPI enabled the project to fund the coring of a second ice-core during its June 2018 campaign at the Belukha glacier, Altai Republic, Russia in order to obtain an ice-core that will be stored in Antarctica (no cooling required) as a "reference core" for analysis in the future with new technologies.

#### List of 2018 grantees

Grantee	International initiative	Project name	Financial Support (CHF)
<b>Dr. Julia Schmale, PSI</b>	MOSAIC	Measurement-Based Understanding of the aeRosol budget in the high Arctic and its Climate Effects, MBRACE	70'000.-
<b>Dr. Martin Schneebeli, WSL</b>	MOSAIC	SnowMOSAIC - the Swiss snow contribution to MOSAiC	70'000.-
<b>Prof. Margit Schwikowski, PSI</b>	Ice Memory	Ice Memory Switzerland	40'000.-

Ice Memory team in the field (Belukha glacier)



## B) Expeditions

### GreenLand Circumnavigation Expedition (GLACE)

After a complicated starting phase and long negotiations with Canadian, Swedish and Russian partners, SPI moved in organising the GLACE expedition since July 2018.

A call for research projects has been issued and evaluated, grant agreements have been signed, a science programme established and permit discussions have moved forward at high pace as well as all the preparations for the organisation around the expedition (communication, logistics, safety, etc).

GLACE is entirely funded by the Swiss Polar Foundation and organised by a dedicated team at SPI in collaboration with the Swiss Polar Foundation and the team of Dr. Frederik Paulsen.

#### Summary of GLACE main milestones in 2018

2-3 February	Meeting of the Scientific Committee (12 participants)	Paris, France
26 April	Meeting with AARI regarding vessel lease	Moscow, Russia
4 July	Publication of call for proposals	
30-31 August	GLACE management group meeting	EPFL Campus, Lausanne, Switzerland
10 September	Call deadline	
10 September	Meeting with data management	Lausanne, Switzerland
11-12 October	Visit of Akademik Tryoshnikov	Kiel, Germany
15-16 October	Scientific Committee Panel meeting	EPFL Campus, Lausanne, Switzerland
7 November	Information to STAB and Board (Board meeting)	
8-9 November	Meeting on permits for GLACE	Nuuk, Greenland
December	Grant agreements to selected PIs	

Visit Ak. Tryoshnikov, Presentation at Arctic Forum of Science ministers, visit to Nuuk



### Antarctic Circumnavigation Expedition (ACE)

The ACE expedition finished in Cape Town at the end of March 2017. However, an important task of the SPI is to ensure that the most is made out of the scientific projects funded and carried out on board. For this reason, the SPI has hired the ACE data manager Jen Thomas and worked closely with ACE Chief Scientist David Walton in order to support projects in sharing data and ideas as well as manage the ACE-DATA project funded by the Swiss Data Science Center.

Additionally, to the activities listed below, the SPI published the ACE cruise report (380 pages) which is referenced on zenodo (DOI) and helps to communicate the science performed on ACE, and providing insight about the execution of the expedition..

23-24 January	Data management meeting with all ACE project to discuss data sharing and publications	Lausanne, Switzerland
22 June	ACE results presentation symposium in the framework of the POLAR 2018 conference	Davos, Switzerland

24 June	Meeting and working session with ACE PIs	Davos, Switzerland
3-6 September	NOSASSO workshop - Meeting ASAD ACE	Plymouth, England
5-6 November	ACE Data meeting	Lausanne, Switzerland
23 November	Publication of ACE cruise report (zenodo)	
December	Annual reporting to SDSC for ACE-DATA	

ACE-events 2018



### C) SPI and the Swiss polar community

One of the missions of the SPI is to support the Swiss scientific community performing research in polar regions under the high safety standards. Additionally, a core part of SPI's work is to support the networking and synergies within the community in order to bridge disciplinary gaps and work together more efficiently.

#### Support and logistics

##### ▪ Health and Safety

Together with the GRIMM (Groupe d'intervention médicale en montagne), SPI has organised a set of health and safety related activities for the Swiss research community. They include two-days field courses (in snow / tundra environments), the possibility to lease and get trained in using a customised field pharmacy, pre-expedition medical checks and telemedicine support for field work. Some activities are funded fully by SPI whilst others must be funded by each research group with SPI facilitating access to the service.

A first two-day course with 8 participants took place on 11-12 December 2018 in Sion/Plan-du-Fou.

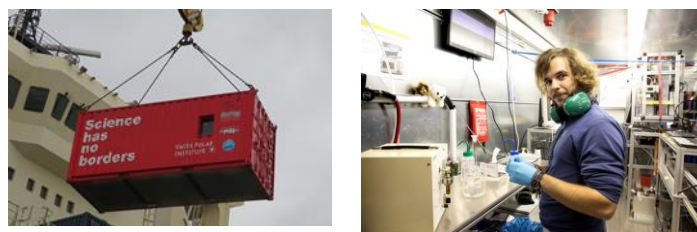
GRIMM Health and Safety in the field course, Dec. 2018



##### ▪ SPI container

During the ACE campaign, the SPI supported the purchase and fitting of a container fit to hold scientific instrumentation on a research vessel. This allows for fairly self-contained projects and lower levels of risk in the implementation of the project.

This container co-owned by PSI is at the disposal of Swiss groups who need such an infrastructure. When not in use SPI can support some logistical costs related to the use of this infrastructure. In 2018, SPI supported with a small amount of funding the transport of this container to be used during the summer campaign on the Swedish ice-breaker Oden.



Credits: J. Schmale and K. Alfredsson

## Outreach activities

The Swiss Polar Day 2018 deserves a special mention as it proved a tremendous success both in terms of attendance but also as a concept for a science oriented yet generalist polar community event. SPI organised a number of additional events in 2018 with partners throughout Switzerland.

Reaching out to the wider public, SPI collaborated with the Museum d'Histoire Naturelle de Neuchâtel for its exhibition "Pôles Feu la Glace" and launched a pilot programme of collaboration with schools in Western Switzerland with the help of the polar sailing boat ATKA. In total 370 pupils from 20 classes in Switzerland enrolled to the ATKA pedagogic programme received pedagogic material, received visits and organised activities, notably corresponding with schools in Greenland during the year 2018. SPI funded the programme and helped select and set up the collaboration with schools participating in this pilot activity.

ATKA Polar Schools 2018	Classes involved:	Activities include:
	4 classes (primary level) in Sierre	Development of pedagogic material (games, etc)
	3 classes (secondary level) in Sierre	Class visits
	1 class in Vers-Chez-Les-Blancs	Activities for kids linked to the exhibition in Neuchâtel
	2 classes in Lausanne	Correspondence with a Greenlandic school (about ten parcels sent)
	5 classes (primary level) in Renens	A photo exhibition to transmit the ATKA experience
	5 classes (primary level) in Bussigny	

## Events

Both towards the science community and towards international partners, events are an important component of growing a community by enabling networking and sharing.

### Events organised by SPI in 2018

12 March	"The Arctic: Closer than you think" evening event and debate on the input of Switzerland in polar research and new role in the Arctic Council – 75 attendees	Bern	co-organised with the Norwegian Embassy and Foraus
4 April	Swiss Polar Day – 170 attendees	ETH Zurich	
7 June	"The poles are warming up. Why should we care?" Round table at BNP Foundation – 80 attendees	Geneva	co-organised with BNP-Paribas Foundation Switzerland
22 June	ACE results presentation symposium in the framework of the POLAR 2018 conference – est. 350 attendees	Davos	
24 June	Meeting and working session with ACE PIs – 25 attendees	Davos	
1-2 December	Antarctica Day week-end: 2 days of activities organised and sponsored by SPI (scientific "speed-dating", debate about	Neuchâtel	co-organised with the Museum d'Histoire Naturelle, Neuchâtel



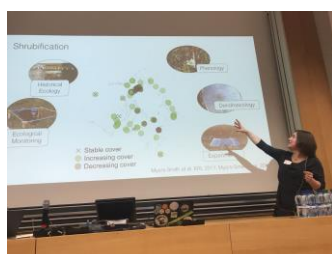
	climate change, workshops for children, etc) -est. 400 attendees		
18 December	IPCC SROCC Information Event for Early Career Scientist on how to contribute to IPCC processes – 60 attendees	Bern	co-organised with PAGES and Mountain Research Initiative

**Attendance at external events and conferences in 2018**

25 March	Presentation of a film "Capitaine de l'Utopie"	Lausanne	ATKA, a polar sailing boat visits Greenland - communication activities with SPI on next voyage 2018-2019
27 March	General Assembly EU-Polar Net	Tallinn, Estonia	Preparation of EU-wide polar research agenda, exchange on national priorities, networking – presentation of SPI
29 March	Canadian delegation at EPFL	Lausanne	Academic delegation visiting Switzerland – presentation of SPI
20 April	Swiss Polar Foundation	Lausanne	Board meeting – presentation of SPI
20 April	SDSC	Bern	Research Projects Information Day – presentation of SPI
20 April	SKPH	Bern	Annual meeting – presentation of SPI activities
6 June	Landsgemeinde of the Arctic	Bern	Organised by FDFA – presentation of the SPI activities
10-13 June	COMNAP AGM	Garmisch-Partenkirchen	Annual meeting – SPI invited as observer delegate
17 June	FARO – Forum Arctic Research Operators	Davos	General assembly – presentation of SPI
18-24 June	POLAR 2018	Davos	Annual meeting - Presentation of SPI through booth Mini-symposium on ACE
9 July-3 August	Arctic Floating University 2018	White Sea, Barent Sea, Kara Sea	Summer School, supervision of scientific projects of students
31 August	Meeting with KOPRI (Korean Polar Research Institute) and Antarctica New Zealand representatives	Lausanne	Courtesy visit and presentations – presentation of SPI
7 September	Opening of the SPI sponsored "Feu la Glace" exhibition	Neuchâtel	Event – speech by SPI
11 September	Meeting of the Network Arctic Collections	Zurich	Annual meeting – Network development
13 September	Meeting with TARA oceans management on opportunities for Swiss scientist in view of TARA arctic drift (2021- 2025)	Lausanne	Visit and presentation of Swiss projects related to polar oceans
5 October	SeaDAS Workshop	Dubrovnik, Croatia	Software workshop
6-13 October	Ocean Optics XXIV	Dubrovnik, Croatia	Scientific conference – oral and poster presentation
25-26 October	Arctic Science Ministerial meeting and forum	Berlin	Conference of Arctic Council and EU science ministers on Arctic research priorities – SPI invited to contribute to science forum and part of Swiss delegation
23 November	Meeting of SKPH Committee	Bern	Presentation of SPI activities 2018

17 December	Meeting of future collaboration with ATKA polar boat (GLACE collaboration and schools programme)	Lausanne	Wrap-up and planning meeting
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#### SPI events 2018



### Collaborations in Switzerland

As a (relatively) new organisation, SPI continues to work on increasing its visibility and networks. Within Switzerland, SPI is an ex-officio member of the Swiss Committee on Polar and High-Altitude research (SKPH). Exchange with institutions such as the Swiss National Foundation as well as the Swiss Federal administration has continued to be a priority in 2018. Informal exchange and collaboration is also carried out with different organisations related to climate research and mountain environments, as notably shown in the events table.

### International collaborations

In 2018, SPI joined the work of EUPolarNet (<http://www.eu-polar.net.eu/>), a network of 22 polar organisations in 17 European countries and contributed to a number of surveys launched in its context.

On a more official level, in 2018, SPI also became a member of FARO (Forum of Arctic Operators) and was admitted as an observer at COMNAP, the Committee of Managers of National Antarctic Programmes set up under the Antarctic Treaty.

### Sponsorship

In 2018, SPI continued its excellent collaboration with the BNP-Paribas Swiss Foundation and worked closely with the newly set up Swiss Polar Foundation, notably in view of the GLACE expedition's realisation.

SPI wishes to seize this opportunity to thank its partners and donors for their trust and for the open and constructive collaboration throughout 2018.

## D) Internal developments

### Institutional communication

Throughout 2018, SPI has further developed its website and social media accounts as well as invested to maintain its address database (approx. 1200 contacts). In 2018, SPI also restructured and migrated ([www.swisspolar.ch](http://www.swisspolar.ch)) its website to WordPress.

SPI activities and events are announced through a mix of channels in order to touch the broadest possible public. Careful use is made of general mailings in order to avoid spamming our list of contacts, yet keeping them up-to-date with SPI news and opportunities.

The ACE website (<http://spi-ace-expedition.ch/>) and social media has remained active to reflect new publications and activities. The website and social media for GLACE will be launched in February 2019.

**SPI communication tools in key figures**

SPI twitter account @Swisspolar	370 followers	Launched October 2017
ACE twitter account @ACEexpedition	1031 followers	Launched December 2016
SPI contact database	1200 addresses	
Mailings	7	

**SPI Secretariat**

- In May and September 2018: Hiring of Nina Schuback and Anja Schilling-Hoyle, resp. Science coordinator and Project manager for the GLACE expedition
- November 2018: Departure of N. Tofield-Pasche

**SPI staff (as of 31.12.2018)**

Konrad Steffen	Scientific Director
Danièle Rod	Executive Director
Basil Fahrlander	Scientific Collaborator
Anja Schilling-Hoyle	Project Manager GLACE
Nina Schuback	Scientific Coordinator GLACE
Jen Thomas	Data Manager ACE / GLACE (mandate)
Laurence Mottaz	Administrative Assistant

**SPI Board of Directors**

The SPI Board of Directors is the ultimate decision-making body of the SPI and is particularly tasked with decisions regarding the SPI's strategy and finances. Its members are high level representatives of the SPI's funding institutions. In 2018, the Board of Directors met on 27 April and 7 November.

**SPI Board of Directors (as of 31.12.2018)**

Prof. Martin Vetterli – Chair	EPFL
Dr. Frederik Paulsen	Editions Paulsen
Prof. Detlef Günther	ETHZ
Prof. Christoph Hegg	WSL
Prof. Christian Leumann	University of Bern

The State Secretariat for Education, Research and Innovation (SERI), the Federal Department of Foreign Affairs (FDFA), the Swiss Commission for Polar and High-Altitude Research as well as the chair of the SPI STAB and the SPI Directorate are present as guests at SPI Board meetings.

**SPI Science and Technology Advisory Board (STAB)**

The STAB of the SPI is composed of experts active in various fields of polar and earth sciences. The STAB advises the SPI on scientific activities and priorities. In 2017, the membership of the STAB evolved and was expanded in order to include international members. In 2018, the STAB met on 1 February, 5 April, 7 September and by videoconference on 10 December.

**SPI STAB members (as of 31.12.2018)**

Prof. Karin Lochte – <b>Co-Chair</b>	AWI, Germany
Prof. Thomas Stocker – <b>Co-Chair</b>	University of Bern, Switzerland
Christian de Marliave	Editions Paulsen, France
Prof. Hubertus Fischer	University of Bern, Switzerland
Prof. Philippe Gillet	EPFL, Switzerland
Prof. Gerald Haug	ETHZ, Switzerland / MPG, Germany
Prof. Gabriela Schaepman	University of Zurich, Switzerland
Prof. David Walton	BAS, United Kingdom
Prof. Heini Wernli	ETHZ, Switzerland
Prof. Konrad Steffen (ex-officio)	SPI, ETH-Z, EPFL, WSL Switzerland
Ms. Daniele Rod (ex-officio)	SPI

Lausanne, 13 March 2019