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Figure.1 A view of the Swiss Alps and the valley city area of Davos from the peak of Jakobshorn. Photo credit: Kelsey Sherrard

Where the Poles come together: POLAR2018 Joint Open Science Conference

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Abstract. Linkages among polar research, climate change, and ecological impacts are complex, and understanding them requires knowledge that spans across scientific disciplines and geographic regions. The Scientific Committee for Antarctic Research and the International Arctic Science Committee joined together for the POLAR2018 Open Science Conference in Davos, Switzerland, in June 2018. POLAR2018 provided an opportunity for diverse scientists worldwide of all career stages to present their latest research highlights from Antarctic, Arctic, and high alpine regions while promoting opportunities for researchers and educators to connect with other community members. Attending members presented their research, established collaborative relationships for future international research projects, and were eager to learn about connections in both Polar regions to diversify research goals. Ultimately, communication is the key to success, which is why joint conferences, such as POLAR2018, continue to play an integral role in many researchers' careers, promoting a positive environment for personal growth and professional development. As researchers continue to work in Polar regions, we look forward to future opportunities to come together as a community and attack major questions about the future of Polar research and how can we continue to promote Polar research that will be highly impactful in a warming climate.

Polar research in the Arctic and Antarctic is imperative to understand our past, present, and future impact of such environments with global environmental change. Impacts from environmental change in polar regions will be felt worldwide, affecting all life on Earth on scales that previously seemed unimaginable. The last surge of polar research emphasis was generated by the International Polar Year (last conducted from 2007-2009) and Polar Research Board participants, which inspired researchers, journalists, educators, and young academics to become more involved with the innovative research projects and products in polar regions (http://nas-sites.org/us-ipy/ and http://dels.nas.edu/prb; accessed August 2018). To keep momentum moving forward, the Scientific Committee for Antarctic Research (SCAR) and the International Arctic

Science Committee (IASC) joined together for the POLAR2018 Open Science Conference in Davos, Switzerland, in June 2018. This is the first time since IPY that SCAR and IASC have come together to provide an opportunity for diverse scientists worldwide of all career stages to present their latest research highlights from Antarctic, Arctic, and high alpine regions while promoting opportunities for researchers and educators to connect with other community members. The conference stressed the importance of communication, not only with scientists working in different polar regions, but also with researchers working at both poles. Therefore, this was the premier gathering for the international community of interdisciplinary Polar scientists and educators.

The Open Science Conference (OSC) took place from June 19-23, 2018, with 3-4 days of sponsored workshops and informational meetings prior to and at the end of the conference week. The conference was held at the Congress Centre Davos, in Davos, Switzerland, a town in the Swiss Alps located within the region of Graubünden. Nearly 2500 participants traveled from all over the world to attend this special event. The conference was filled with eager researchers presenting cutting-edge scientific results to promote transformative education and predictions for future impacts. Students, postdoctoral researchers, and professional faculty/staff participants from early to senior career levels presented oral and poster presentations to fill in pertinent knowledge gaps regarding polar research as we strive to better understand Earth systems.

Oral presentations were scheduled in four main sections throughout the day and individual session topics covered diverse multidisciplinary research in biology, chemistry, and physics of the oceans, ice, and atmosphere. Keynote lectures were presented each morning featuring diverse research by Drs. Dake Chen, Elizabeth Thomas, Oran Young (IASC Medal recipient), Michael Meredith (SCAR Tinker-Muse Prize recipient), Peder Roberts, Jan Strugnell, Hajo Eicken, and Anna Wåhlin (keynote lecture recordings at https://www.polar2018.org/photosvideos.html; last accessed August 2018). Lecture topics ranged widely, including China's high alpine glacial environmental global impact, climate history from ice cores, how to govern polar regions with dramatic global changes, Southern Ocean circulation and response to change, the continuing importance of studying humanities and social sciences in Polar research, using genomic data to date the West Antarctic ice sheet collapse, the continued importance of coordinated observations of rapid Arctic change and response, and the global impact of the Southern Ocean.

Four mini-symposia were also featured during the conference week covering topics such as: 1) Diverse experiences in Polar science outreach and communication, 2) Polar science and policy: Status and future challenges, 3) Antarctic Circumnavigation Expedition ACE, and 4) The legacy and future of the International Polar Year. Posters were displayed all through the Congress Centre each day, maximizing exposure in open areas where attendees and presenters could mix and mingle in a social setting each evening at the culmination of the oral presentations. Early

career researchers volunteered to judge student poster presentations for the best poster awards that were announced at the closing ceremony social gathering on the last day of the conference.

Many side meetings contributed to the success of POLAR2018 including, most notably, the XXXV SCAR Delegates, the 2018 Arctic Observing Summit, the plenary panel, "Speaking Each Others' Language: Communicating polar science across boundaries" (https://www.iarpccollaborations.org/news/11449), and the discussion panel, "From Entering the Field to Taking the Helm, Women's Perspectives on Polar Research" (https://www.scar.org/community-news/polar-2018-womens-perspectives/). Both panel discussions were unique contributions, focused on many kinds of communication, e.g., interdisciplinary, with policymakers, and internationally, and important issues of inclusivity, access, and fairness in the Polar science community.

Open science meetings and conferences promote future collaborations, funding avenues, education, and further research planning among colleagues from diverse backgrounds (Walton 2018; POLAR2018 – Highlights from the SCAR Secretariat https://www.scar.org/general-scar-news/celebrating-polar2018/; last accessed August 2018). Excitement about the broad reach of polar research was a common theme for all participants throughout the week. Major questions and topics discussed at the conference included: Where is Polar research going? What drives more Arctic research than Antarctic? What are the major boundaries preventing Antarctic researchers from communicating with Arctic researchers and vice versa? How can we continue to promote Polar research that will be highly impactful in a warming climate? What topics are essential to include moving forward for the SCAR 2020 conference in Hobart, Australia, the next Arctic Science Summit Week 2019 meeting in Arkhangelsk, Russia, and the next potential joint POLAR conference? Participants attending this year's conference were curious to know what the world and Polar research might be like in ten years when we congregate for another joint conference. The most intriguing question that surfaced multiple times was, "How can individuals bridge the separation of research and communication among scientists working in one Polar region to begin working in both regions?" Researchers working in both Polar regions shared personal experiences and advice to resolve the segregated problems commonly associated with Polar research groups.

Ultimately, communication is the key to success, which is why joint conferences, such as POLAR2018, continue to play an integral role in many researchers' careers, promoting a positive environment for personal growth and professional development. Attendees were inspired to broaden their thinking about current research projects and begin new avenues of collaboration. As researchers continue to work in polar regions, the goal is to generate knowledge and interest in the current and future states of Arctic and Antarctic ecosystems as they change in new and not-yet-fully-understood ways.

POLAR2018, including the SCAR meetings, the Arctic Science Summit Week (ASSW) and the OSC, was hosted by the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL) under the patronage of the Swiss Committee on Polar and High Altitude Research. The WSL-Institute for Snow and Avalanche Research (SLF) organized POLAR2018. To learn more information about SCAR, IASC, and the joint POLAR2018 conference please visit: https://www.scar.org/ and https://vimeo.com/275341745 (history of SCAR video), https://iasc.info/, and http://www.polar2018.org/. For a complete list of POLAR2018 sponsors and partners, please visit: https://www.polar2018.org/sponsors-and-partners.html.

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