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Association of Polar Early Career Scientists (APECS): An overview of the first 15 years

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Summary

The Association of Polar Early Career Scientists (APECS) was founded in the 4th International Polar Year (IPY) 2007-08 with the mission to provide a platform for early career researchers (ECRs) to connect internationally, inspire and develop ECRs as future leaders in polar science and promote education & outreach (E&O). This paper briefly summarizes the global distribution of APECS members and its National Committees (NCs) and how APECS promotes diversity, equality and inclusion. Furthermore, this paper looks in detail at the role of APECS in E&O, sustaining the momentum started in the 4th IPY. Lastly, this paper presents the future perspectives that the current Executive Committee (ExCom) has for the near future with a special emphasis on the 5th IPY.

APECS and its membership

The Association of Polar Early Career Scientists (APECS) is one of the major legacies of the 4th International Polar Year (IPY) and was officially founded in 2007. It is recognized as the major voice for early career researchers (ECRs) within the polar community and strives to:

1. promote an interdisciplinary and international network;
2. develop effective future leaders for polar research; and
3. promote education and outreach (E&O) about polar and alpine regions (Hindshaw et al., 2018).

APECS is structured at an international level with the Executive Committee (ExCom), Council, and Project Groups (PGs), and since its foundation it has been represented in more than 100 countries/regions through individuals and National Committees (NCs). The APECS International Directorate is currently hosted in Tromsø, Norway¹.

APECS membership has increased continuously since 2007 having, as of 18/02/2023, 4713 active members from 84 countries distributed across five continents (Figures 1 and 2). Similarly, APECS leadership, i.e. the ExCom and Council, is composed of members representing the five continents. This diversity presents a unique opportunity for ECRs to expand their network to include people from different regions and cultures, but also from different scientific backgrounds. Furthermore, 57% of APECS members confirmed at their registration that the Antarctic is one of the focus regions of their research.

APECS and its role in equity, diversity and inclusion (EDI)

In contrast to the typical overrepresentation of male-identifying individuals in science, especially concerning leadership positions (Larivière et al., 2013), it is noteworthy that APECS has 13 female-identifying presidents during the past 15 years. Furthermore, a recent survey of 20 NCs showed a general 2:1 ratio of female-:male-identifying individuals in their boards. This illustrates the tendency of female researchers to volunteer in leadership roles, increasing their

¹ <https://www.apecs.is/who-we-are/leadership/international-directorate.html>

opportunities and international visibility. We hypothesize APECS leadership positions are popular with females given the difficulty this group faces in securing leadership roles in formal employment (e.g., tenure track positions, roles as heads of programs, departments, and institutes). In addition, APECS aims to support under-represented groups through many activities. In 2022, a project group with a mandated to identify and work to overcome barriers to Indigenous early career researchers was formed. APECS has important ties to Pride in Polar Research, and though some challenges exist in maintaining productive partnerships, APECS is dedicated to understanding its role in the support of LGBTQIA+ groups. As an international organization, APECS is also uniquely poised to consider the challenges of communication and collaboration across linguistic, cultural, societal, and disciplinary barriers. In addition to the existing DEI project group, APECS is piloting a new workshop combining research practices and EDI with a focus on collaboration. This is the first year the workshop is proposed, and as long as the funding proposal is successful, it will bring together 25 ECRs from around the world to tackle these topics in a 2-day workshop in the fall of 2023. Finally, in recognition of the growing mental health pandemic, APECS has formed a Mental Health Resources project group to support ECRs.

APECS and its National Committees

Regarding NCs, APECS is officially represented in 31 countries, with 3 new emerging NCs being in the process of establishment (Fig. 2). These include countries that are not ATCM parties, supporting APECS as a major platform for ECRs to engage in treaties, processes and organizations, regardless of the status of their home country. NCs are an important part of APECS because they can directly address the needs of ECRs in specific countries, extending new network channels and bringing a deeper understanding of the polar regions from diverse perspectives to the local community. Moreover, it facilitates the organization of APECS activities like development training, ECR fellowships, conference participation, capacity sharing and access to training and courses with collaborations to other NCs and APECS PGs. Ultimately, it allows for all of these opportunities to be held in the native language of ECRs, reaching a wider audience.

APECS and its Partners

APECS partners with more than 60 institutions internationally, including:

- Antarctic organizations (e.g., the Scientific Committee on Antarctic Research (SCAR); Council of Managers of National Antarctic Programs (COMNAP); Southern Ocean Observing System (SOOS)),
- Arctic organizations (e.g., International Arctic Science Council (IASC)), other ECR organizations (e.g., Permafrost Young Researchers Network (PYRN)); and
- International and political institutions (e.g., European Polar Board (EPB), the Climate and Cryosphere Project of the WMO co-sponsored World Climate Research Programme).

The collaboration with these institutions gives ECRs unique opportunities to actively engage in groups and their meetings (e.g., IASC Working Groups), committees (e.g., SCAR strategic plan) and document writing (e.g., IPCC report) in which ECRs would otherwise not participate. APECS' (members) contribution to the organization of field courses, e.g., UK Polar Network (UKPN)'s and APECS Russia's ARCTIS2019, webinars, training sessions, publication of books and guidelines, and the APECS online conference, where many polar ECRs do their first international presentation, place APECS as a major player in the formation of the next generation of polar scientists. Besides opportunities to engage within the organizations, these partnerships also provide financial support to APECS that enable the support of ECRs in the most diverse ways, e.g. the organization of events by the NCs and PGs, awards, or the support an international directorate. APECS is regularly sponsored by the Netherlands Polar Programme, Antarctic Science Ltd. and TÜBİTAK MAM Polar Research Institute (KARE).

Furthermore, many APECS NCs secure their own funds through donations, often from polar programs and institutes within the NC country. In addition, individual donors contribute to APECS’ Adrian Dahood-Fritz Memorial Fund.

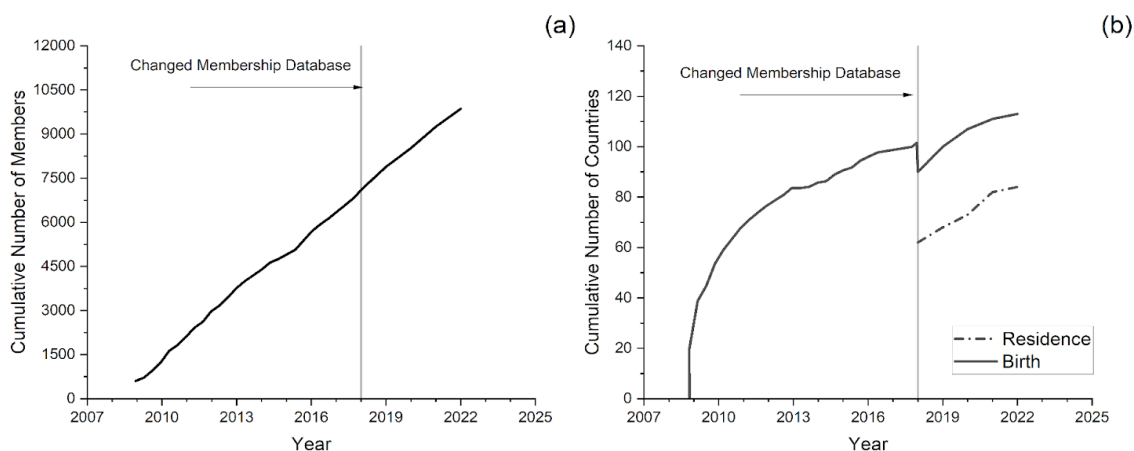


Figure. 1. Number of subscribed APECS members (a) and number countries represented in APECS membership (b).

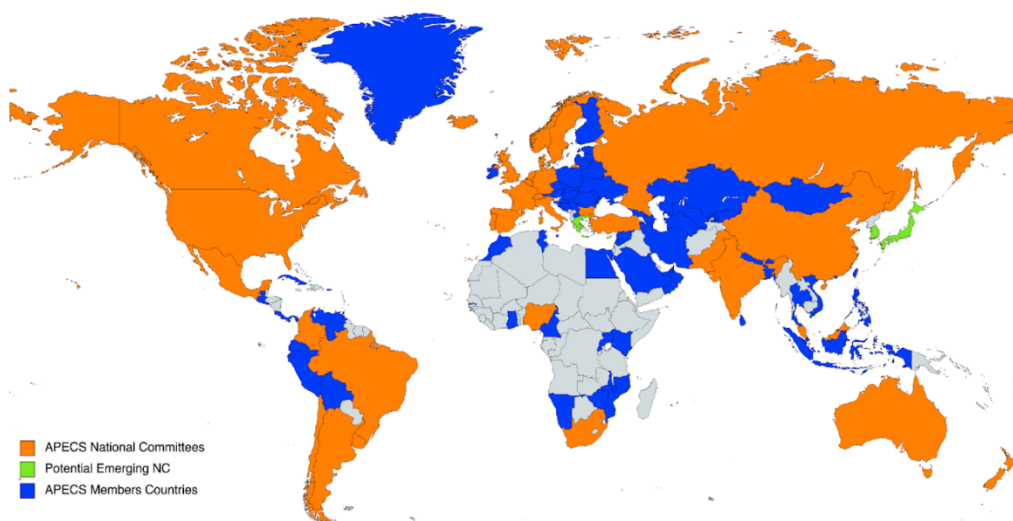


Figure 2. Map representing the distribution of APECS National Committees (orange), potential emerging National Committees (green) and countries with APECS members but not with an official National Committee (blue).

Education and outreach: a place for ECRs and APECS to shape the future

Education and outreach (E&O) is accepted as an important tool to raise awareness among the general public about polar regions and the ways in which they are changing more rapidly than the rest of the planet due to amplified climate trends and fragile ecosystems (Xavier et al., 2016). E&O plays a key role in inspiring the next generation of students and researchers. It was during the 4th IPY that a campaign was developed to prioritize E&O. In the following years, several organizations started to include E&O in their agendas, e.g., the first E&O workshop associated with ATCM was held at ATCM XXXVIII, and the CEP raised E&O in its list of

priorities in 2013 (Xavier et al., 2018). Subsequent analysis of the IPY proved that ECRs played a major role in the success of the IPY E&O program and that APECS would play a pivotal role in continuing the momentum of E&O in polar research in the years to come (Provencher et al, 2011).

APECS E&O activities include two major events: Antarctica Day to celebrate the signing of the Antarctic treaty, and the International Polar Weeks (happening twice a year around the equinoxes), which grew out of the IPY International Polar Days. These activities are conducted both by the APECS and the NCs, and have reached more than 200,000 people over 15 years. Common E&O activities led by APECS and its NCs include lectures from ECRs and established researchers and activities with school children, like the Antarctica Day Flags initiative. New strategies are continuously being adopted, e.g. APECS Belgium is running a science-art collaboration and introduced a movie to the Anima festival in Brussels, and APECS Portugal has its monthly “Open Science” articles in which ECRs “translate” scientific articles to plain language for a non-specialized audience.

Many E&O activities are conducted throughout the year; a recent survey indicated that 14 APECS NCs conducted at least one E&O activity between September 2022 and January 2023, reaching more than 3000 people in total. To an increasing extent, social media plays an important role in E&O. APECS social media accounts have more than 25,000 followers, supporting the high impact that APECS has in engaging the general public in polar science. Besides activities run by APECS and its NCs, several E&O resources can be found on the APECS website to help and inspire scientists, educators and students.

Future goals

Given its role of inspiring future leaders in polar research, APECS shares the responsibility of shaping how future polar research is conducted. APECS works strategically to make the organization and polar research overall more inclusive, diverse and equitable. APECS also aims to contribute to strategies and approaches to limit the human footprint by scientific research on the Antarctic environment and wilderness values, for instance by preventing duplication of research and joint use of data and facilities. APECS has several current initiatives contributing to these efforts:

- Increase APECS’ presence in regions like Africa, the Middle East and Southeast Asia where countries such as Namibia, Zimbabwe, Kazakhstan and Indonesia have many engaged APECS members, but no NC;
- Maintain diversity in APECS’ leadership, encouraging members from all continents to apply to positions in the Council and/or ExCom;
- Improve communication across linguistic barriers by providing resources to address language barriers and training on conducting meetings in English which are inclusive for native and non-native speakers;
- Support interdisciplinary dialogue and foster collaborations between fields of polar research;
- Support guidelines on sustainable and low-carbon emissions research practices;
- Solidify APECS’ role as a player in the future of polar research through engagement in significant polar initiatives by maintaining partnerships and establishing new ones with the goal of mutual benefit.

As a partner for the 5th IPY in 2032-33 and an important actor in E&O, APECS will continue organizing the International Polar Weeks and the celebration of Antarctica Day, but also promotes new, innovative E&O activities, like podcasts, polar storytelling, film festivals and social media campaigns. Moreover, APECS has a partnership with Polar Educators International (PEI) on the project Polar Science and Global Climate: An International Resource for Education and Outreach (commonly called the Polar Resource Book (PRB)), alongside other actors (see <https://polareducator.org/resources/prb-2/>). The PRB was created in 2010 and addressed climate change-related issues from the perspectives of the Indigenous population in the Arctic. APECS

is working with PEI to develop the next edition of the PRB, which is full of opportunities for students from kindergarten through university to learn about the polar regions. This book features APECS members and their research. The already announced joint SCAR-IASC conference in 2030 is a great opportunity to gather polar ECRs to discuss the 5th IPY and supercharge ECR engagement in APECS and the polar community overall. APECS is excited to continue shaping the future of polar research through these aforementioned activities.

Concluding remarks

APECS is continuously increasing its diversity and geographic reach. The global distribution of APECS members and NCs provides the unique opportunity for ECRs to increase their network. Furthermore, due to its structure (e.g., NCs, PGs) and partnerships, APECS creates opportunities for ECRs to develop their skills, such as leadership and communication, that are integral in their future careers. Besides developing ECRs, APECS is recognized to have an important role in raising awareness of polar regions through E&O activities. The International Polar Weeks and Antarctica Day are highlights of APECS E&O efforts, but a variety of activities take place all year approaching polar topics from many perspectives and delivering material in new and exciting ways. In the future, APECS aims to increase the representation in additional regions, maintain and establish partnerships, and utilize the 5th IPY and E&O to increase awareness of polar regions and the challenges they face in the general public.

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