



Early career researcher perspective on the 10th International Conference on Arctic Margins (ICAM-X)

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Abstract. The 10th International Conference on Arctic Margins (ICAM-X) in 2025 was held in Bremen, Germany, and included eight sessions, covering topics from tectonics and sedimentology to tools for digital teaching and outreach, in addition to the history and geopolitics perspective. Interesting keynotes, presentations, and posters, as well as engaging discussions and breakout sessions, made the conference a valuable learning experience for everyone. The relatively small size of the Arctic geoscience community made the conference an excellent platform for international networking opportunities. Two PhD candidates from the Norwegian University of Science and Technology (NTNU) were supported by the German Society of Polar Research (DGP) in attending the conference and summarize their experience in the following.

initiating and maintaining international collaboration. The scientific themes of ICAM are Geology & Geophysics, Mapping, Remote Sensing, Plate Tectonics, Climate, societal relevance, and research related to Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS, the definition of the continental shelf).

The scientific output presented at the ICAM conferences is widely acknowledged in international literature. Two examples of this are the proceedings following the first ICAM in 1992 (Thurston and Fujita, 1994) and a special volume “Through the Arctic Lens: Progress in Understanding the Arctic Ocean, Margins and Landmasses” in the *Geochemistry, Geophysics, Geosystems* journal following the last ICAM organized in 2022 in Ottawa, Canada ([https://agupubs.onlinelibrary.wiley.com/doi/toc/10.1002/\(ISSN\)1525-2027.ARTICMASS](https://agupubs.onlinelibrary.wiley.com/doi/toc/10.1002/(ISSN)1525-2027.ARTICMASS), last access: 17 October 2025).

1 Introduction

The International Conference on Arctic Margins (ICAM) serves as a platform for scientists conducting research on the Arctic Ocean and adjacent landmasses and was initiated to promote scientific collaboration and cooperation in the Arctic geosciences. The first meeting was held in 1992 in Anchorage, Alaska, the US, followed by nine meetings at irregular 3–5-year intervals in Russia, Germany, Canada, Norway, the US, and Sweden. Showcasing the unique collaboration in the Arctic, the meetings are organized by individual scientists and their institutions, rather than being attached to big international organizations.

ICAM is one of the few meetings globally that are dedicated to transdisciplinary Arctic research. The participant size (100–150 attendees) allows for the efficient exchange of scientific findings and forms an excellent foundation for

2 Highlights of the conference

The 10th edition of ICAM was held in Bremen from 16–21 March 2025. It was jointly organized by the Universität Bremen and the Alfred Wegener Institute – two large German institutions in Arctic and marine geosciences (Fig. 1).

For this edition, 119 participants were enrolled from institutions in 14 countries, showcasing the international character of Arctic research (Fig. 2). The traditionally Arctic countries of Canada, Denmark, Norway, and the US attended. However, the global interest in the Arctic was evident by attendees from Australia, China, Finland, France, Germany, Italy, Japan, Poland, Sweden, and the UK. Encouragingly, while women are still underrepresented in Arctic science and geoscience, 40 % of the ICAM-X participants were female.



Figure 1. The logo of the 10th ICAM, illustrating the collaboration of the Universität Bremen and the Alfred Wegener Institute through their characteristic colors. © 2025 10th International Conference on Arctic Margins (ICAM-X). Used with permission.



Figure 2. The attendees of the 10th ICAM enjoying the spring sun outside the venue at the Universität Bremen. © 2025 10th International Conference on Arctic Margins (ICAM-X). Used with permission.

2.1 Scientific program

The scientific program of ICAM included eight different sessions over four days. The sessions were as follows:

1. Evolution & structure of the crust and lithosphere in the Arctic,
2. Digital Arctic,
3. Deep-time climate archives & the impacts on life and the environment,
4. Arctic Education & Outreach,
5. The Opening of the Arctic Ocean,
6. Arctic Geopolitics, Governance & Society,
7. Scientific drilling on Arctic margins: past achievements & future opportunities,
8. Open session.



Figure 3. The thematic venue for the icebreaker at the Übersee Museum Bremen.

The diverse sessions covered traditional Arctic research themes (1, 5) but also the sharing and integration of Arctic data (2), understanding past and present-day climate fluctuations (3, 7), improving Arctic science outreach and communication (4), the impact on Arctic geopolitics, (6) and, finally, an open session for novel and multidisciplinary topics.

The conference followed a single-track structure, meaning that there were no parallel talks, and all participants were able to attend all sessions. This structure facilitated plenty of interdisciplinary discussions. Additionally, the poster contributions were on display throughout the conference. This was a perfect catalyzer and opportunity for further scientific discussions, also beyond the official poster sessions.

2.2 Social program

The social program of ICAM began with a guided tour through the city of Bremen, followed by an icebreaker at the beautiful Übersee Museum Bremen (Fig. 3). This was a great way to informally kick off the conference week, by both reconnecting with old faces and making new connections. The abundance of spring sun during the conference turned the outside benches into a prime spot for further networking and socializing during the coffee breaks.



Figure 4. One of the aisles of the IODP core repository in Bremen hosted by MARUM. In this repository, more than 192 km of drill cores have been stored.

After the four days of sessions, the participants could join a post-conference excursion to the Alfred Wegener Institute or the Center for Marine Environmental Sciences (MARUM). A highlight of this excursion was the International Ocean Discovery Program (IODP) Bremen Core Repository, hosting more than 192 km of drilled cores. These data have been fundamental to our increasing understanding of the Arctic margins and was therefore a unique experience to see in person (Fig. 4).

3 Individual scientific contributions from early career researchers financially supported by the DGP

3.1 Linda Haaland

On the third day of the conference, Haaland presented her 2024 *Geology* paper on U-Pb calcite dating from the Forlandsundet basin in the Fram Strait (Fig. 5; Haaland et al., 2024). As a newly emerging tool, U-Pb dating in calcites allows the accurate dating of younger and cooler fault activity compared to other methods. The Forlandsundet basin is thought to have formed during the early stages of rifting between Svalbard



Figure 5. Linda Haaland presenting her 2024 paper on dating the rifting process between Greenland and Svalbard using uranium and lead dating in calcites.

and Greenland and serves as an excellent onshore site to study the origins of the Fram Strait, spreading along the Molloy Ridge. The calcite-bearing, eastern and basin-bounding fault that was sampled shows dextral transtensional deformation, consistent with deformation along the present-day Molloy Ridge. Three main groups of ages were presented. The oldest group of ages contained large uncertainties and were only used to conclude that the fault is long-lived. This might indicate that the position of the Forlandsundet basin, or possibly the western Svalbard margin, is controlled by pre-existing zones of weakness, possibly as old as the Permian or even older. The second group of ages spans from 41–33 Ma and overlaps with paleontological ages from the basin strata. This indicates that the main basin-forming event in Forlandsundet was during 41–33 Ma. The youngest age group indicates that faulting took place in Forlandsundet long after the main basin-forming event. This age group may indicate that faulting and spreading along the Molloy Ridge began around 13 ± 1 Ma. The findings from this study place novel constraints on the timing of the development of the western Svalbard margin, the Forlandsundet basin, and the beginning of seafloor spreading in the Fram Strait.

3.2 Fenna Ammerlaan

Ammerlaan presented a poster, on display throughout the conference, detailing her PhD project that started in late 2024 (Fig. 6). The project focuses on the deformation of continental margins in the northeastern North Atlantic. Following post-Caledonian orogenic collapse, the area went through several phases of extension and rifting before a final breakup in the Cenozoic. In her work, Ammerlaan aims to better understand the complex temporal and spatial evolution of the crust in the region from the perspective of the different do-

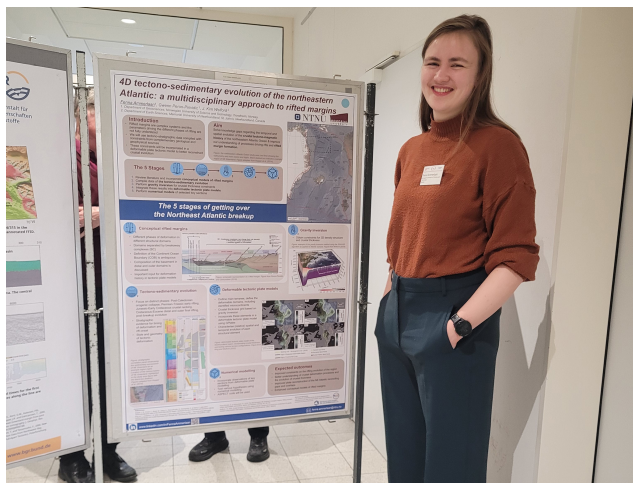


Figure 6. Fenna Ammerlaan in front of her award-winning poster on “4D tectono-sedimentary evolution of the northeastern Atlantic: a multidisciplinary approach to rifted margins”. Photo by Anders Dahlin.

mains of rifted margins. Tectono-sedimentary records will provide constraints for the timing and geometry of deformation, and present-day crustal thickness will be derived from gravity inversion. Input from both will be combined in a deformable tectonic plate model, where internal deformation in the rifting area can be modeled in order to study the rifting evolution of the region back to the orogenic collapse. This improved plate reconstruction will reconcile current gaps and overlaps in rigid tectonic plate models, provide a better understanding of crustal deformation processes, and further enhance the conceptual models of rifted margins. Her work won the award for the best student poster at the conference.

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References

- Haaland, L. C., Slagstad, T., Osmundsen, P. T., and Redfield, T.: U-Pb calcite ages date oblique rifting of the Arctic–North Atlantic gateway, *Geology*, 52, 615–619, <https://doi.org/10.1130/G52140.1>, 2024.
- Thurston, D. K. and Fujita, K. (Eds.): 1992 Proceedings, International Conference on Arctic Margins: Anchorage, Alaska, September 1992, Vol. 94, No. 40, US Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region, <https://www.boem.gov/about-boem/icam-1992-conference-proceedings-anchorage-alaska> (last access: 17 October 2025), 1994.