

Annual report 2020 for domain Polar CORDEX

Scientific highlights

At the Polar CORDEX workshop in October we had seven science presentation in the Arctic CORDEX session, which focused on new modelling efforts, key drivers of Arctic cyclones, simulations of future climate change, and teleconnections. One of the highlights was an improvement in simulation of temperature at the snow/ice surface in the CCLM model.

We had four science presentation in the Antarctic CORDEX session of the Polar CORDEX workshop, which focused on new modelling efforts, improved understanding of clouds, and efforts to model surface mass balance. One of the highlights was details of a new model to Antarctic CORDEX, the polar region climate model NHM-SMAP (Japan Meteorological Agency).

The 'Polar CORDEX: Next Steps' session had four presentations, as well as a period for discussion. One of the science highlights of this was two presentations on how the Polar CORDEX simulations will be used for the IPCC Interactive Atlas. Additionally, the period for discussion was valuable as it identified key ways that the Polar CORDEX could collaborate in the future, especially involving both the MOSAiC and the YOPP supersite observations. Furthermore, the benefit of a closer link to the satellite community e.g. via the ESA Climate Change Initiative (CCI) was discussed. A further important outcome was an agreement to increase the size of the Antarctic CORDEX domain to encompass more of the Southern Ocean, so that output from the model simulations could be used more for impact studies (e.g. forcing sea-ice and ocean models).

Summary of each workshop/activity held during the year

Title, date, short description, location, website, links	Responsible persons	Funder
<p>Polar CORDEX Workshop 5-7 October 2020</p> <p>This is the annual joint Arctic and Antarctic CORDEX workshop. This workshop allows polar regional modelers to provide updates on their activities over the past year and to plan coordinated polar CORDEX activities for the upcoming year. The workshop was held as an online Zoom meeting this year due to COVID.</p> <p>https://drive.google.com/drive/u/0/folders/1pa22xJ3t-0HPSMc0AkObT4YdOb4NzwG8</p>	John Cassano, Annette Rinke, Andrew Orr	Online meeting was facilitated by the International Project Office for CORDEX

Domain related publications during the year

Title, journal and link to publication	Author/-s	Date
<p>Confronting Arctic troposphere, clouds, and surface energy budget representations in regional climate models with observations. Journal of Geophysical Research: Atmospheres, 124. https://doi.org/10.1029/2019JD031783</p>	Sedlar, J., Tjernström, M., Rinke, A., Orr, A., Cassano, J., Fettweis, X., Heinemann, G., Seefeldt, M., Solomon, A., Matthes, H., Phillips, T., Webster, S.	2020

Planned activities for next year

The following are ongoing or planned activities for the next year:

- Polar CORDEX simulations will be used for the IPCC Interactive Atlas
- Initial plans have been made for coordinate simulations and analysis using MOSAiC and YOPP supersite observations
- The Polar CORDEX community will explore closer links to the satellite community e.g. via the ESA Climate Change Initiative (CCI)
- The size of the Antarctic CORDEX domain will be increased to encompass more of the Southern Ocean
- We are hoping to have an in-person Polar CORDEX workshop in Fall 2021 in the Netherlands, hosted at Utrecht University by Willem Jan van de Berg

Additional relevant information

The Polar CORDEX workshop organizers (Cassano, Rinke, Orr) want to thank Lindha Nilsson and Iréne Lake at the International Project Office for CORDEX for their assistance in hosting a successful online Polar CORDEX workshop in 2020.

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The report should be sent to ipoc@cordex.org before the 15th December each year.