

Annual Overview of Bolin Centre Funding and Impact, 2024

Introduction: In 2024, the Bolin Centre provided crucial financial support to several institutions, including Stockholm University, KTH, and SMHI. This funding played a significant role in advancing climate science research, supporting a range of research positions, and fostering collaboration across different departments and institutions.

Financial support overview: The total budget for 2024 was approximately 22 million SEK. This funding was allocated as follows:

- KTH and SMHI: Each received around 2.1 million SEK.
- MISU, NG, IGV, and ACES: Each received about 2.02 million SEK.

Additional allocations included:

- IGV: Approximately 1.5 million SEK
- NG: Around 1.8 million SEK
- MISU: About 0.8 million SEK
- ACES: Approximately 4.4 million SEK for Directorate activities and salaries.

Bolin Centre funding supported over 40 positions across various affiliated institutions (mostly part-time), including PhD students, researchers, professors, and technical staff. This financial support contributed to salaries, facilitated climate research activities, and enabled cooperation across departments and disciplines.

Achievements and activities:

- **Climate Modelling:** Major advances across EC-Earth3-ESM-1 (historical evaluations; TIPMIP idealised runs) and ongoing EC-Earth4 development (OpenIFS 48r1 tuning for CMIP7). MISU–KTH work strengthened boundary-layer momentum budget understanding relevant to IFS/OpenIFS and EC-Earth.
- **Technological & methodological progress:**
 - NEXTGEMS/km-scale evaluations of boundary layers; extension of NEK5000 toward atmospheric use with a path to Neko (CPU/GPU).
 - New Euro-CORDEX-CMIP6 16-member HCLIM ensemble for Europe; expanded ML tools for seasonal forecasting, extreme-event detection, and downscaling.
 - CASCADE database migration to PostgreSQL with a new front-end, enhancing data access and reuse.
- **Collaboration & engagement:** Strong cross-institutional activity via RT1–RT4 (e.g., RT1–RT3 LIG workshop), international links (e.g., ESA Earth Explorer candidate mission ECO; PalaeoArc conference), and MISU–KTH–SeRC cooperation.
- **Staff & capacity:** Targeted salary support for PhD students and Postdocs at MISU, NG, IGV, ACES, SMHI, and KTH and Bolin Fellows co-funding strengthen early-career researcher engagement in 2025.

Publications and Database

Researchers mentioning affiliation with the Bolin Centre contributed to approximately 250 publications in 2024, while members listed on the website collectively authored around 600 publications during the year. The Bolin Centre Database expanded significantly and now hosts close to 500 datasets, providing a platform for accessible and visualised climate data.

National Modelling Coordination:

Discussions progressed on Bolin Centre involvement in coordinating **NAISS** climate-modelling activities to streamline HPC use and integrate efforts across Swedish institutions.

Conclusion:

In 2024, Bolin Centre funding continued to be crucial in supporting researchers, building capacity in climate modelling, and fostering cross-institutional collaboration across six Stockholm University departments, SMHI, and KTH. This financial support remains essential for sustaining communication and coordination, ensuring high-quality research, and training the next generation of climate scientists.