

COAT

Climate-ecological Observatory Arctic Tundra

Rapid documentation and management of climate change

In the high north, warming is currently four times faster than elsewhere on the planet. Here, Norway sees some of the first and largest changes in nature, and these changes will be felt worldwide. The observation system COAT reveals and documents these changes in Finnmark and Svalbard. Thus, COAT provides the scientific basis and forecasts that Norway and the international community can use to manage the consequences of the climate crisis on nature.



Photo: Moritz Klinghardt

World-leading observatory

- Advanced data-driven models that predict climate effects on ecosystems and biodiversity.
- Weather stations and other sensors that monitor the climate and ecosystem in East Finnmark and West Spitsbergen.
- Sound and photo monitoring of entire communities of mammals and birds.
- Analysis of vegetation and vegetation damage based on remote sensing from satellites and drones.
- Annual, systematic field registrations of bioproduction in entire food chains; from plants to predators.
- Three fixed and several mobile field stations, vehicles, and field equipment for summer and winter, office, storage capacity, and personnel in Longyearbyen, Ny-Ålesund, and Vadsø.
- Procedures for interaction with local communities and management authorities.

Important knowledge production

- COAT has so far provided data for nearly 300 scientific publications.
- Researchers from COAT are lead authors and data from COAT are central to the report 'Arctic Biodiversity Assessment' from the Arctic Council.
- After February 24, 2022, only COAT provides the world with ecosystem-wide data on the consequences of climate change in the Eurasian part of the Arctic.

<p>2010 As part of the government's focus on the northern regions, UiT is tasked with planning a world-leading monitoring system to document the effects of climate change on the Arctic land areas.</p>	<p>2013 COAT delivers its first report with a summary of research results so far and a plan for further work.</p>	<p>2015 COAT is included in the Research Council's 'Norwegian roadmap for research infrastructure.' External funding and internal funds from UiT Norway's Arctic University and partner institutions totaling NOK 247 million have built up the infrastructure.</p>	<p>2024 COAT receives 20 MNOK in operating funds in the budget agreement between the governing parties (AP and SP) and SV. With this funding, the collaborating partners create a long-term agreement and establish COAT as a research center.</p>
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COAT has documented, among other things, that

- Finnmark and Svalbard are rapidly moving out of the climate zone they previously belonged to.
- One million hectares of Arctic forest were severely defoliated in the 2000s because a geometrid moth species had moved northward in a warmer climate.
- Damaged and dead forests store less carbon, provide poorer feed for game and reindeer and weaken the value creation from the forestry industry. Such forests also have less biological diversity.
- Birds that breed in tundra that are overgrown are more often subjected to nest losses by increasing predator populations.
- Entire communities of Arctic species are declining.

23 MNOK in yearly allocated funds for COAT gives Norway

- Preparedness and room for action in the climate and nature crisis.
- International top research with high societal relevance.
- The position as an internationally leading knowledge provider on climate change and the effects of the climate crisis in the northern regions.



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