CryoSCOPE

PRESS RELEASE

Research Responds to Melting Cryosphere

New science advances in the Alps, Arctic and Himalayas set to improve climate predictions and water security

Brussels / Helsinki, 19 August 2025 – As the world marks the United Nations' International Year of Glaciers' Preservation and the beginning of the Decade of Action for Cryospheric Sciences (2025-2034), European and Indian scientists are stepping up efforts to understand and protect the planet's most vulnerable frozen regions.

Launched in Helsinki, Finland, the **CryoSCOPE** project brings together researchers from Europe and India to study how snow, ice, air, and water interact, and how their rapid changes are affecting the global climate.

Glaciers are now melting at double the speed recorded just two decades ago. Between 2000 and 2019 alone, they lost an average of 267 gigatons of ice each year. Scientists warn that this trend threatens long-term water supplies and could push the Earth closer to dangerous climate tipping points.

> "CryoSCOPE addresses critical challenges in quantifying and forecasting high-latitude and high-elevation cryosphere-atmosphere-hydrosphere dynamics by integrating advanced observations, multi-scale modelling, and AI. This is an interdisciplinary effort to generate robust, evidence-based insights to support climate adaptation, inform IPCC assessments, and promote the UN SDGs. CryoSCOPE offers open-source data and tools, enabling broad scientific collaboration and impactful applications for hydropower, forestry, and disaster risk management."
>
> **- Rakesh Hooda, CryoSCOPE Coordinator, Finnish Meteorological Institute**

Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences
Government of India

CryoSCOPE

PRESS RELEASE

CryoSCOPE is one of the first initiatives to study the cryosphere, atmosphere, and hydrosphere (CAH) together, recognising how their interaction affects ecosystems, water cycles, and climate feedback loops.

Key Research Activities Include:

Muon flux measurements in Finland to estimate water content in snow – vital for flood prediction and water resource planning.

Sublimation analysis in the Swiss Alps and Lapland, tracking how snow directly turns to vapor and escapes water systems.

Using coupled glacier-permafrost models, we will simulate methane release and nutrient flux transport in glacier forefields of Svalbard.

> "We're connecting fine-scale processes on the ground with global climate models. CryoSCOPE delivers sharper insights for both climate science and policy."
>
> **- Harsh Beria, Scientific Coordinator, ETH Zürich & WSL SLF**

The CryoSCOPE consortium includes partners from eight countries, supported by the EU, Swiss, and Indian governments.

Studying the cryosphere, atmosphere, and hydrosphere (CAH) in isolation is no longer enough, climate researchers call for stronger understanding in how their interconnectedness affects the planet.

Why it matters:

- Glaciers store over 60% of the world's freshwater.
- Melting glaciers contribute to rising sea levels and disrupt water cycles, as well as causing extreme events such as glacial lake outburst floods (GLOFs).
- Snow-covered surfaces reflect sunlight; when they melt, Earth warms faster.
- Understanding these changes is crucial to avoid catastrophic chain reactions.

Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences
Government of India

As the impacts of climate change escalate, scientists behind CryoSCOPE aim to equip policymakers and communities with the tools they need to adapt and protect our cold regions for future generations.

*** ENDS ***

About CryoSCOPE

CryoSCOPE explores the Cryosphere, Atmosphere, and Hydrosphere (CAH) coupled system to enhance understanding of how ice, snow, and permafrost interact with atmospheric and water systems in the cold regions of the Svalbard (Norway), Norway, Finnish Lapland, Iceland, the Swiss Alps, and the Indian Himalayas. The project utilises cutting-edge ground-based measurements and remote sensing proxies.

With 19 partners across 8 countries, CryoSCOPE analyses the real-world impacts of local to global-scale modelling and AI-driven applications for various end-users. Applications include improving winter trafficability in Finland, optimising hydropower generation in the Nordics and Switzerland, mapping glacial lake outburst flood (GLOF) hazards, and predicting drought impacts in cold regions. Through stakeholder collaboration, the project develops tailored services that integrate machine learning with physics-based models to predict snow and ice-related processes. By creating targeted adaptation and mitigation strategies, CryoSCOPE strengthens climate resilience in some of the world's most vulnerable frozen landscapes.

Images

A selection of high-resolution images is available to accompany this release. Editors are welcome to see a sample selection here and to request other options below:

Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences
Government of India

CryoSCOPE

PRESS RELEASE

Tystigbreen Glacier in Norway. Photo: Pascal Egli

Fieldwork at Rembesdalskåka, Hardangerjøkulen in Norway. Photo: Frederique Oliver

CryoSCOPE field site Rembesdalskåka, at Hardangerjøkulen, in Norway. Photo: Frederique Oliver

Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences
Government of India

CryoSCOPE

PRESS RELEASE

Press Contact

Hollie Fisher | Media Relations Manager

REVOLVE – Everything Is Changing
e. hollie@revolve.media // press@revolve.media
t. +32 2 318 3984
a. Ave. Palmerston 3, 1000 Brussels, Belgium
w. newsroom.revolve.media

Funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences
Government of India