

Mission Model Canvas

Project title:

GLACIA - Glacier-Lake Analytics through Copernicus and Intelligent Algorithms

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Partners & Support 🤝

Which persons and organizations support your project and act as intermediaries?

ESA, Copernicus Programme
Swiss glacier research institutions WSL, ETH Zurich)
Local water authorities, NGOs, and alpine municipalities
Swiss authorities

Activities 🛠️

What are the three main activities needed to create/realize your project?

Process and analyze Sentinel-1/2 satellite data with Google Earth Engine
Develop machine learning models to track lake surface dynamics
Design and deploy a cloud-based dashboard/application for users

Ressources 🏗️

Which three skills and resources are central to the implementation of your idea?

Access to Copernicus Sentinel data
Expertise in Earth Observation, remote sensing & ML
Scalable cloud computing infrastructure (e.g. GEE, alternatives)

Project 📦

How do you explain your project to a stranger in 1 minute?

GLACIA is a satellite- and AI-powered platform that monitors glacier-fed lakes using Copernicus data. It detects seasonal changes, interannual trends, and potential risks due to climate change. The tool supports smarter water resource management and climate adaptation across alpine regions.

Relationship, Community ❤️

How do you actively involve your community in your project (beyond just looking/listening)?

We involve the community through open-data access, interactive dashboards, and workshops with local stakeholders. End-users will co-design features to ensure relevance and usability.

Channels 📱

What channels will you use to reach your community? How will the target group find out about your project?

**Web-based interactive dashboard
Public talks, social media, climate conferences
Partnerships with institutions and scientific publications**

Target Groups 👥

Who do you want to address with your idea or project? Who will jump at it? Name your main target groups

**Water resource managers and civil protection agencies
Climate researchers and glaciologists
Local communities in glacier-fed regions
Environmental NGOs and policy makers**

Budget 💰

Impact 🌱

What costs do you expect to incur to realize your idea?
What are the costs?

Cloud computing and storage (GEE alternatives)
Data analysis & software development
Outreach and stakeholder engagement

Estimated cost: ~75k–100k CHF

1. **Impact:** What does your idea do for the climate? How do you measure/verify the impact?
2. **Scaling/Expansion/Unfolding:** How to increase the impact of your project?

Impact: Enables climate-smart decisions through accurate monitoring of glacier-fed lake dynamics. Measured via lake area change detection, adoption by users, and stakeholder feedback.

Scaling/Expansion: The tool is already replicable to other alpine/glacial regions; modular design supports integration with flood models and global datasets. Open access fosters community reuse.