

Hydrological changes in Arctic Environments and water-driven biogeochemical FLUXes (ICEtoFLUX)

ICEtoFLUX project focuses on hydrologic dynamics and related effects in the Bayelva catchment (Ny-Ålesund, Svalbard), from its glaciers and proglacial system down to the Kongsfjorden sector affected by the river.

Experimental activities on hydrology, geo and environmental chemistry, microbiology and geophysics, and numerical modelling, will concern water cycle components to quantify Arctic hydrologic processes and related biotic-abiotic transports.

The main goal consists in the **quantitative characterization of hydrologic processes and related transport of inorganic-organic chemical compounds (counting pollutants) and microbial biomass, in Arctic.**

On-site activities will be performed from the beginning to the end of melting period, in order to:

- 1) **quantify the dynamics of feeding to the proglacial water network**, by characterizing, chemically and physically, main water sources and their interaction;
- 2) **investigate presence, extension and evolution of underground water-active layers**, both above and below the permafrost, as possible groundwater resource or input to river flow;
- 3) **quantify the mobilization of organic tracers and pollutants**, suspended solids and microbial biomass, and their transfer to the fjord;
- 4) **define relationships between meteorological variables and water quantity and quality parameters** to provide forecasting on the system evolution.

Data from experimental and modelling activities will allow enhancing knowledge on the changes occurring into the hydrosphere in Polar Regions and the impacts on water resource quantity and quality.

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PROJECT DURATION

24 months
(From 07/03/2022 to 06/03/2024)

WEB AND SOCIAL MEDIA

www.iceatoflux.eu

PARTNERS

- Istituto di Geoscienze e Georisorse (IGG-CNR) (Coordinator)
- Politecnico di Torino - DIATI
- Istituto di Scienze Polari (ISP-CNR)
- Università di Bari - Dipartimento di Scienze della Terra e Geoambientali (DISTeGEO)

FUNDING INSTRUMENT

Bando Programma di ricerche in Artico (PRA) 2020

BUDGET

Total funding: **103,158 € (13,327.80 €** allocated to DIATI)

POLITO and DIATI's role:

Politecnico di Torino – DIATI is partner of the project

Scientific supervisor for DIATI:

Prof. Alberto Godio