



Isotopic composition of precipitation at Ny-Alesund

Ilaria Baneschi



Marco Doveri, Linda Franceschi, Matia Menichini

CHANGING ARCTIC

Rationale

Focus: understand hydrological processes in the arctic region.

Why?

- to have indications on **climate change effects** in this very **sensitive environment** (i.e., Arctic amplification) and possible **feedback on global climate**;
- to have indications on **water resources availability** for **present and future Arctic communities**.



We perform geochemical and isotopic, hydrological and climatic measurements to **develop integrated models** (even numerical) of the **Arctic water system**.

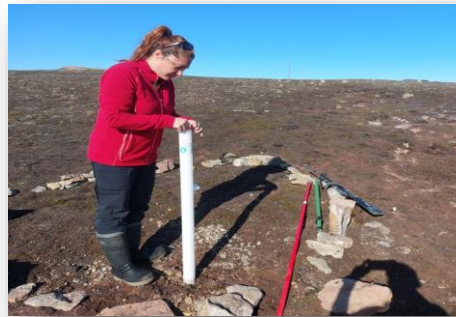
Since 2015, we have been carrying out water sampling and analysis of different component of the water system (glacial meltwater, rainwater, snow, springs), monitoring Bayelva river and groundwater, quantifying water discharge in the frame of ISMOGLAC (RiS 10298) and ICEtoFLUX (RiS 11795)



Snow



Glacial drainages



Piezometers

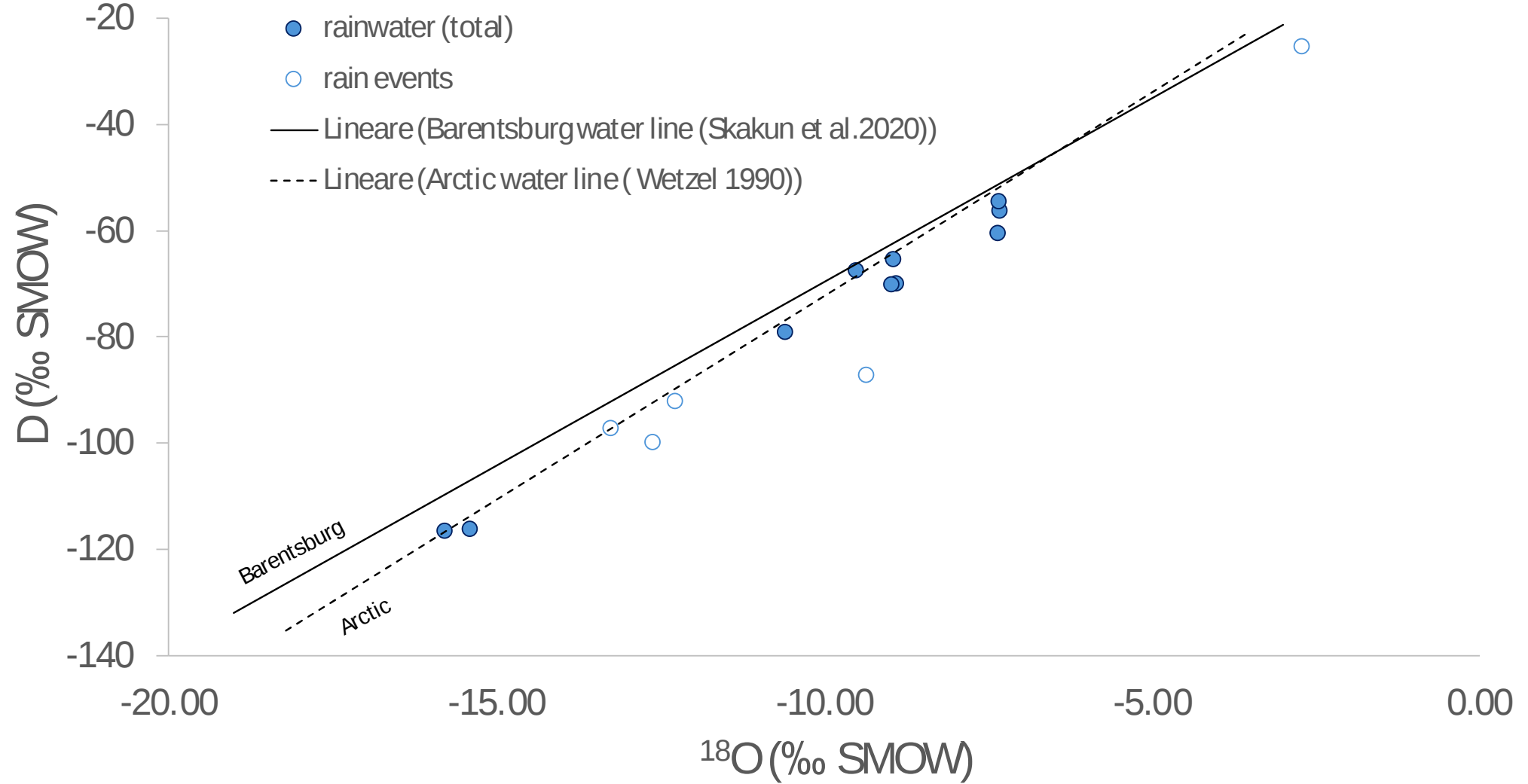


Bayelva monitoring station

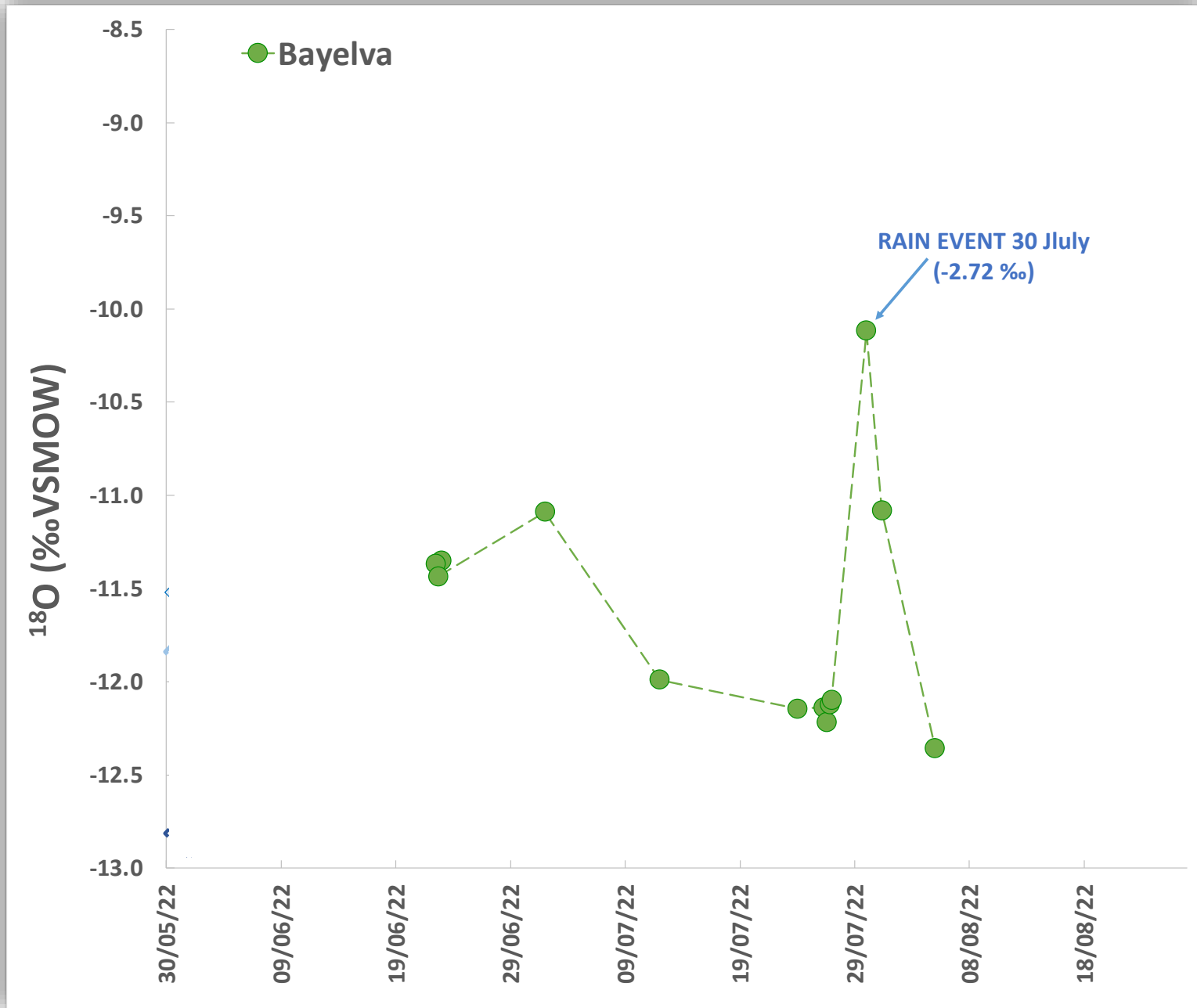


Rainwater

Rainwater – Stable isotopes



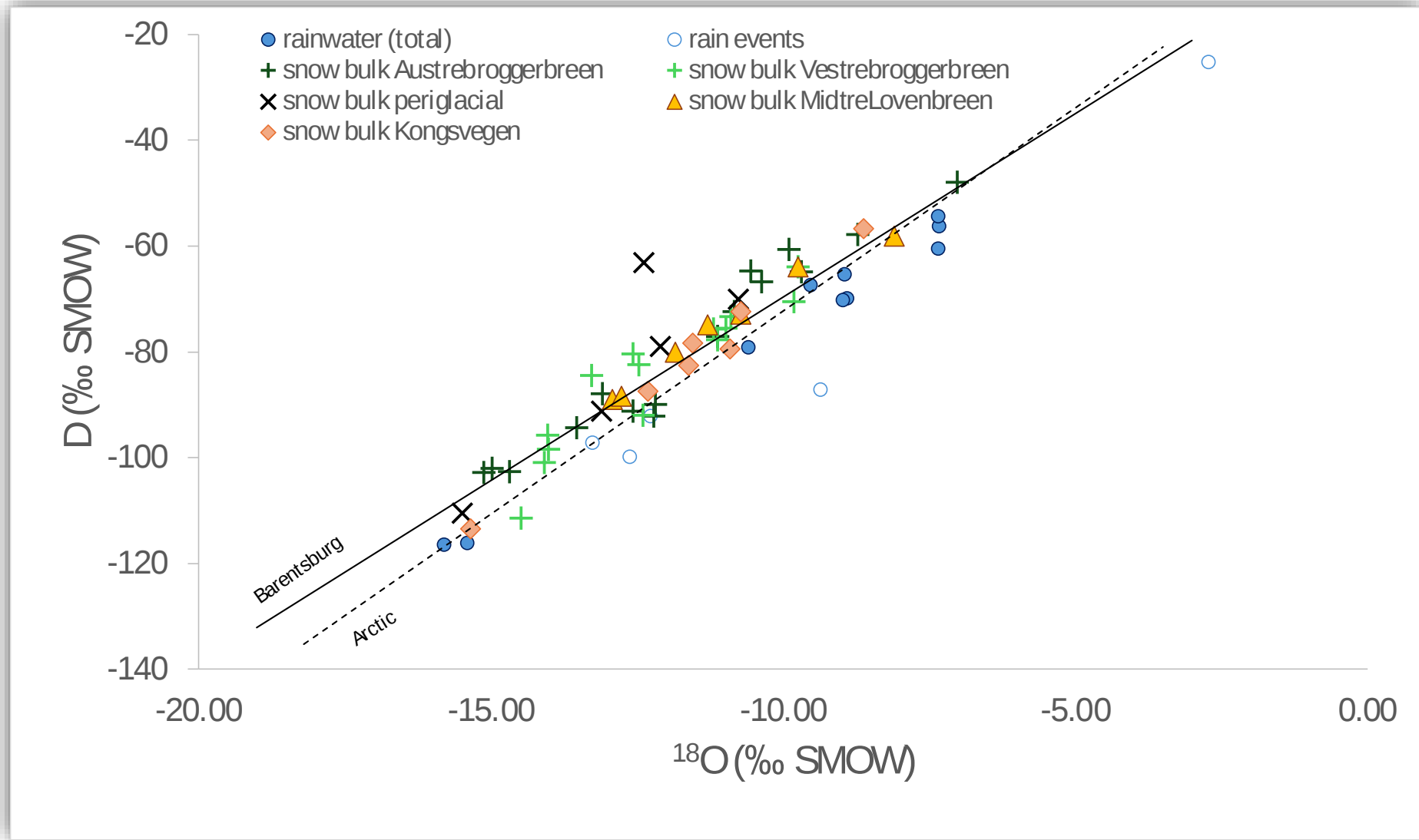
Rainwater – Stable isotopes



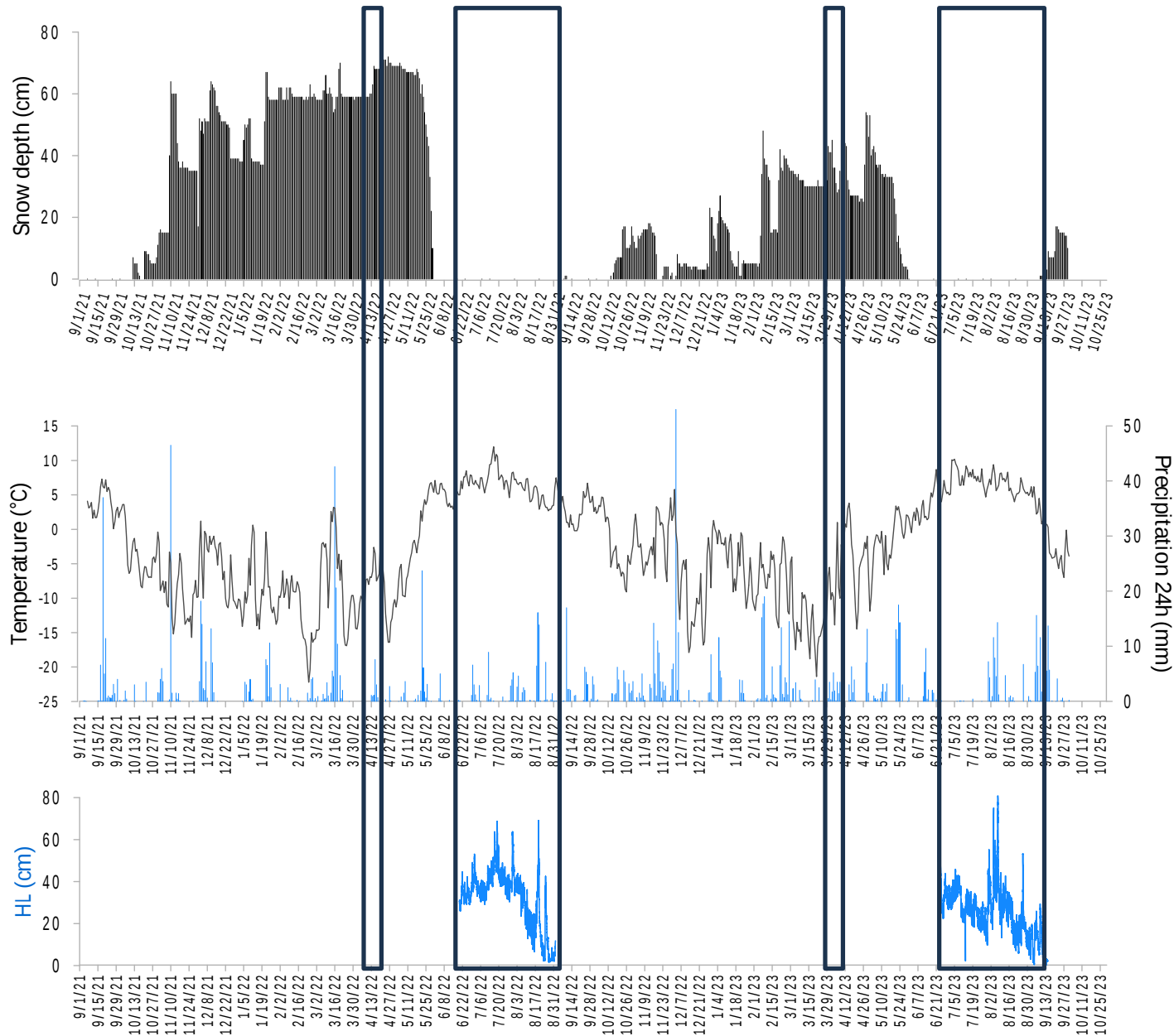
Snow – Stable isotopes



Snow – Stable isotopes



Bayelva Discharge



Bayelva discharge and snow-rain precipitation: complex system and multiple variable investigated by multi-proxies tool

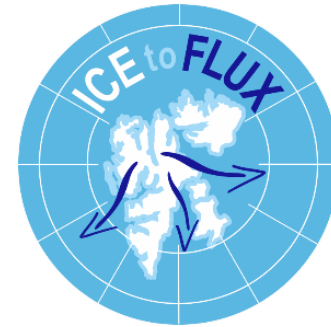
Correlation between isotopic composition and wind direction, temperature and other parameters

Comparison with previous records (Leroy-Dos Santos et al., 2020; Skakun et al., 2020)

Analyses of $\delta^{17}\text{O}$

How snow-rain precipitation changes influence river water discharge?

Thanks to the support of “Dirigibile Italia” and the Italian Minister of University and Research



Thank you for your attention

What occurs in
Arctic doesn't
remain in Arctic



Ilaria Baneschi: ilaria.baneschi@igg.cnr.it

Marco Doveri: marco.doveri@unipi.it