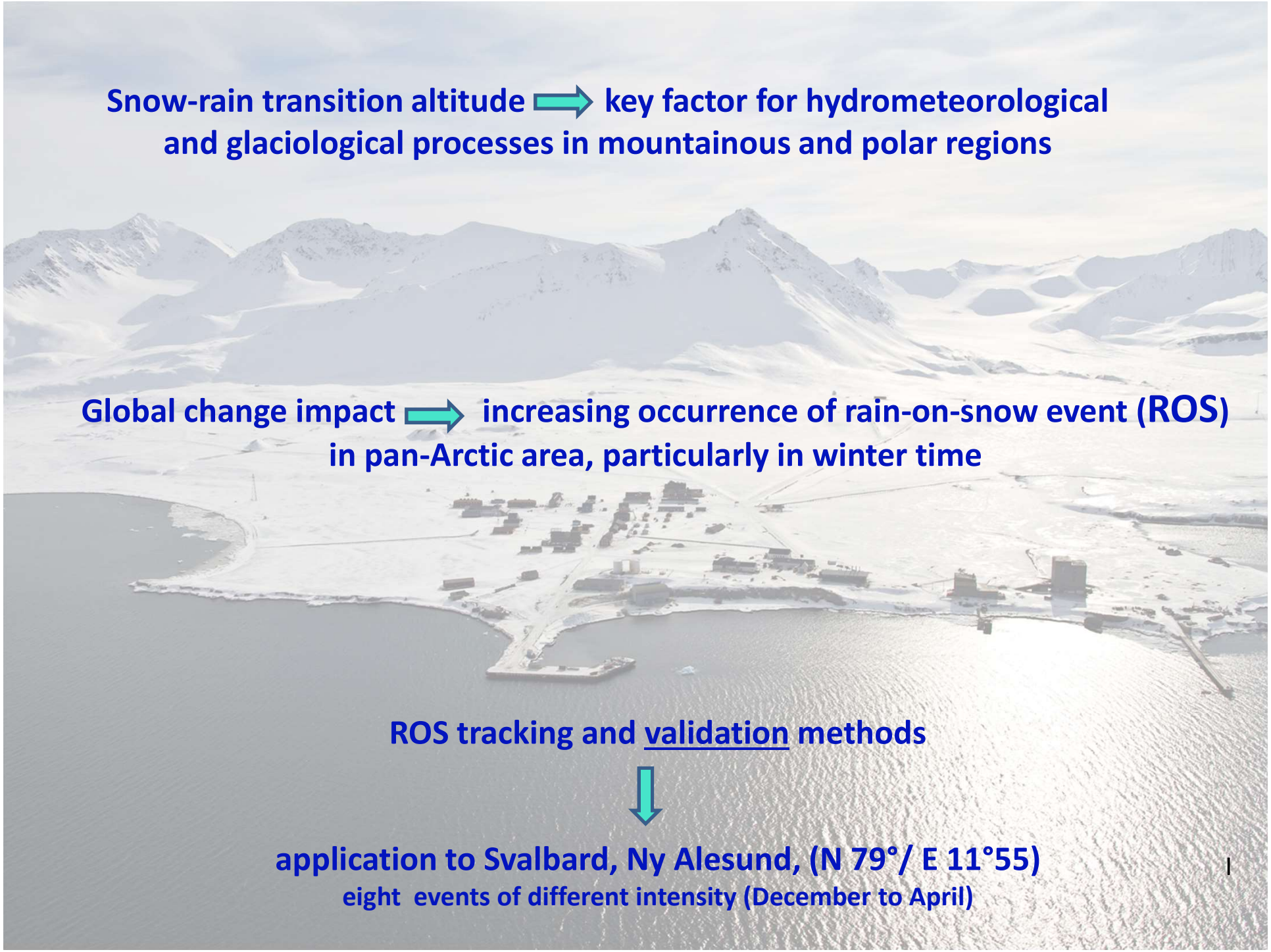


Snow-rain transition altitude ⇨ key factor for hydrometeorological and glaciological processes in mountainous and polar regions

Global change impact ⇨ increasing occurrence of rain-on-snow event (ROS) in pan-Arctic area, particularly in winter time

ROS tracking and validation methods

⇩

application to Svalbard, Ny Alesund, (N 79°/ E 11°55)

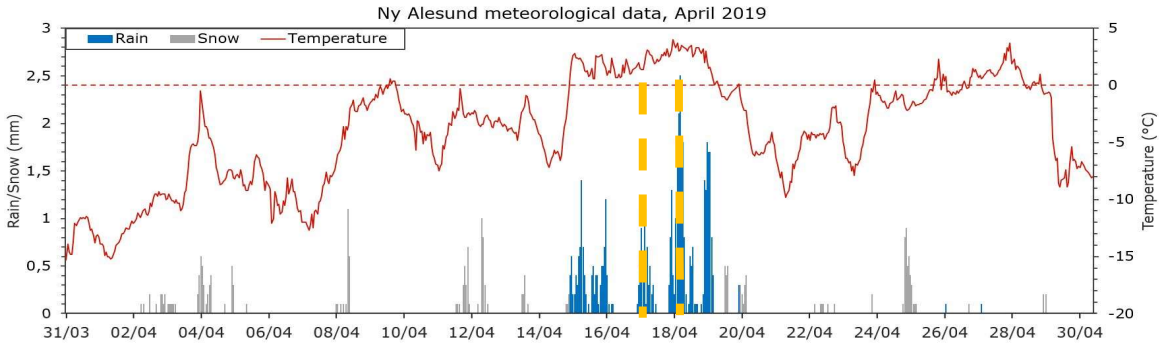
eight events of different intensity (December to April)

ROS tracking: wet/dry snow mapping using active radar (SAR) imagery thresholding

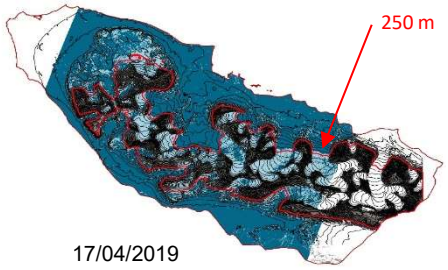
liquid/solid precipitation elevation line

Example of 17-18/04/2019 ROS event (P = 43.1 mm, T = 4.6 °C)

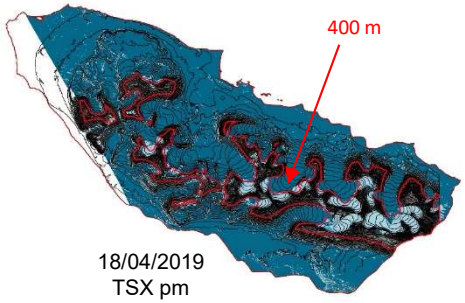
TerraSAR-X registration dates



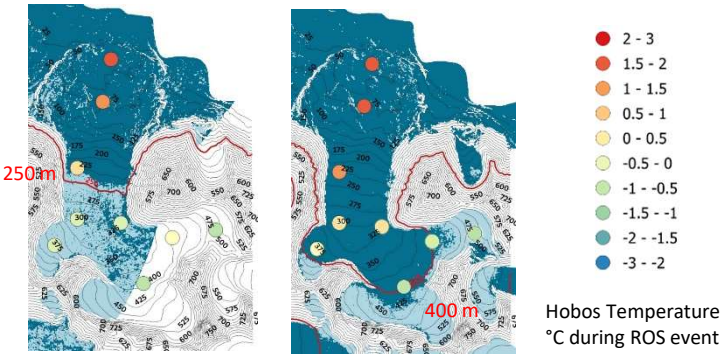
Validation accordance using ERA5 0°C isoline and in-situ temperature data (glacier)



17/04/2019
TSX am



18/04/2019
TSX pm



17/04/2019 TSX am

18/04/2019 TSX pm

Hobos Temperature °C during ROS event

Brøgger peninsula = SAR and ERA5 spatial coverage

Austre Lovénbreen snapshot = T° data loggers

Historical highlight: 20 years of EGU meetings!

The first EGU General Assembly tooks place in Nice, France, 25-30 April 2004

III