An 18-year record (1998-2016) of permafrost soil temperature, soil water content, and meteorological data from a high Arctic permafrost site Bayelva (Svalbard)

Study site
The measurement field (Bayelva® correspondents to the river) is located in the north-west of Spitsbergen Island (78.921°N and 11.826°E) at a height of 25 m a.s.l. and 2 km from the village Ny-Ålesund at the coast (Figure 1a-c). The site is part of the Bayelva river catchment and influenced by a typical high Arctic climate.

Meteorological
- West ocean current warms this area
- Average air temperatures are -13 °C in January and +5 °C in July
- Annually precipitation of around 400 mm, mainly as snow (sep-may)
- Occurrence of strong winds can lead to snow drifts

Soil and vegetation
- Continuous permafrost reaches to a depth of 100 m
- Soil is mainly composed of rocks and partly of typical glacial sediments
- Texture is classified as mainly silty loam
- Approximately 60% vegetation cover
- Lower vascular plants, such as grasses, mosses or sedges

Data
The data records cover a period of 18 years and involve different climate, soil and snow parameters (Figure 2). Since 2012 the entire measurement instrumentation is equipped with 220 V power supply, which eliminates data losses. Data logging frequency depend on instrument, but recordings are at least hourly. In addition, all data are accessible via internet connection in a real-time transfer. A daily routine of data quality checks and data visualisation is implemented. All data (raw and processed) are stored in a database and can be used in near-real-time. Hourly pictures of the instrumented field are taken to observe snow depth and spatial variability of soil surface.

Data availability
The data can be downloaded from various data sharing platforms:
- GNT-P (Global Terrestrial Network for Permafrost) http://gtnpdb.org
- CALM (Circumpolar Active Layer Monitoring)
- TSP (Thermal State of Permafrost)
- FLUXNET (European Fluxes Database Cluster) www.europe-fluxdata.eu
- PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de

Contact: Stephan.Lange@awi.de
PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de
- TSP (Thermal State of Permafrost)
- CALM (Circumpolar Active Layer Monitoring)
- GNT-P (Global Terrestrial Network for Permafrost)

The data can be downloaded from various data sharing platforms:
- PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de

The data can be downloaded from various data sharing platforms:
- PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de

The data can be downloaded from various data sharing platforms:
- PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de

The data can be downloaded from various data sharing platforms:
- PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de

The data can be downloaded from various data sharing platforms:
- PANGAEA (Data Publisher for Earth & Environmental Science) www.pangaea.de