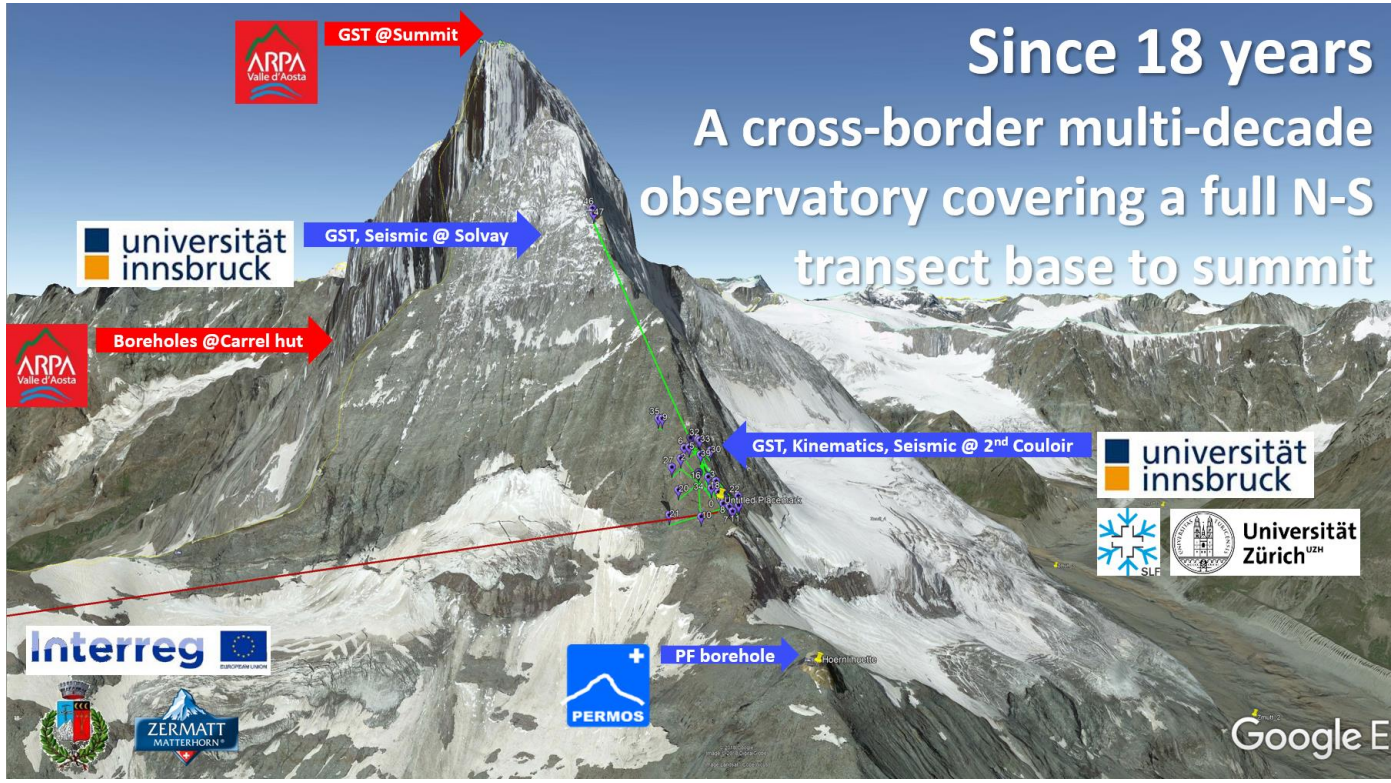
Matterhorn Cryosphere Observatory

- Parameters (since 2008)
  - Air temperature
  - Wind speed and direction
  - Water vapor
  - Pressure
  - Precipitation
  - Surface radiation budget
  - Permafrost Temperature (PT)
  - Active Layer Thickness (ALT)
  - Surface kinematics
  - Broadband seismic
- Data Access – online, quality controlled
  - http://data.permasense.ch
  - https://essd.copernicus.org/articles/11/1203/2019/ https://doi.pangaea.de/10.1594/PANGAEA.967586
  - https://networks.seismo.ethz.ch/networks/1i/
- Ongoing
  - Further consolidation with international partners
  - Integration to Virtual Alpine Observatory (VAO)



Rock Glacier Velocity (ECV)

- Establishment of continuous GNSS measurements as means for reliably assessing surface kinematics
- Collaboration with permos.ch
- IPA Action Group/Standing Committee: Rock glacier inventories and kinematics
  -> RGV ECV since 2022
- Management of 40+ stations (mainly in CH)
- Data Access – online, quality controlled
  - http://data.permasense.ch
  - https://doi.org/10.5194/essd-14-5061-2022
    https://doi.pangaea.de/10.1594/PANGAEA.932761
- Ongoing:
  - First continuous GNSS in Austria
    Inneres Hochebenkar since 08/2024
- Future
  - Further GNSS for RGIV pending funding
  - Salvage of two 10m PF boreholes (Hintereis)

Since October 2022, Rock Glacier Velocity is a new Essential Climate Variable (ECV)

PERMOS Swiss Permafrost Monitoring Network

GCOS

WORLD METEOROLOGICAL ORGANIZATION

ipcc