

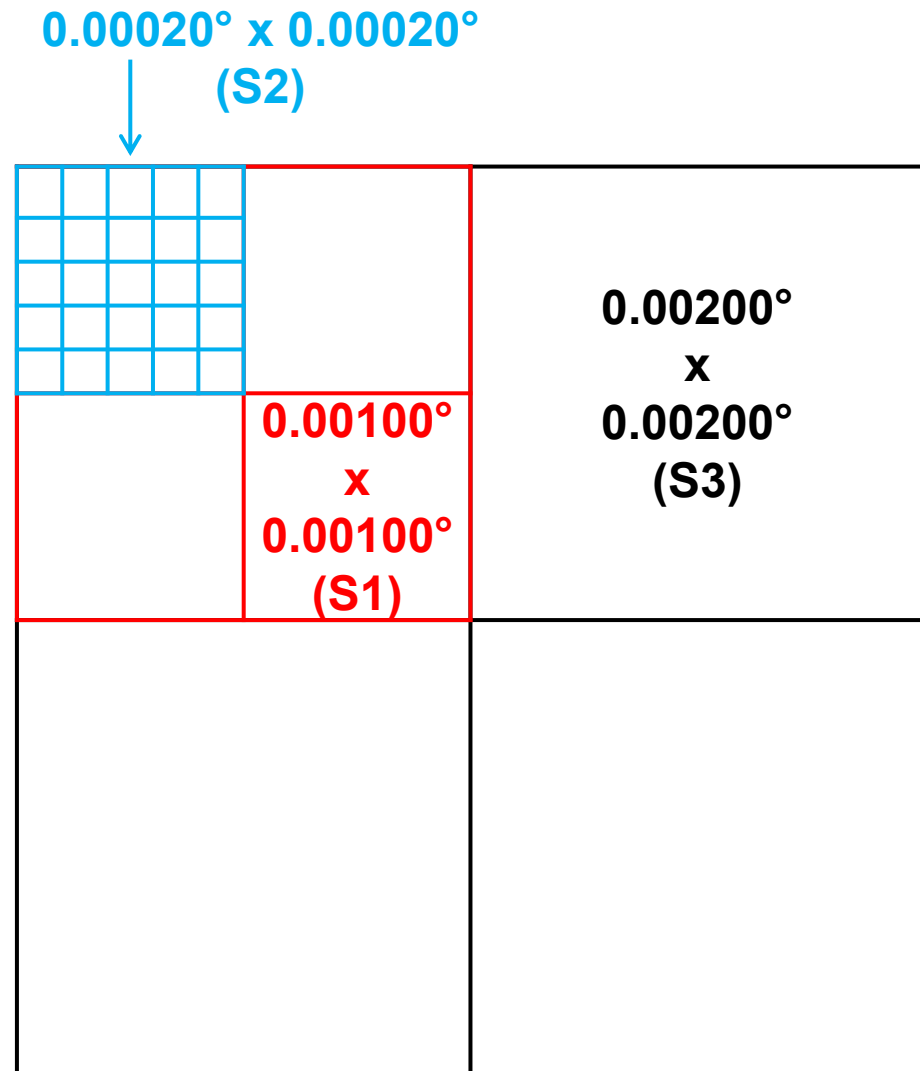
Extension of the AlpSnow products to INARCH sites

Gabriele Schwaizer, Thomas Nagler,
Maria Heinrich, Nico Mölg
INARCH Workshop

Harmonized snow product portfolio for each INARCH region for the period 2022 – 2024:

- Snow Cover Extent – high resolution (Sentinel-2)
- Snow Cover Extent – medium resolution, daily (Sentinel-3)
- Wet Snow Extent (Sentinel-1 SAR)
- Snow Albedo (Sentinel-3)
- Snow Grain Size (Sentinel-3)

- Map projection:
latitude / longitude grid, WGS84
- Hierarchical grid with same origin
per region, supporting aggregation
to coarser grid spacing
- Product format: netCDF
Note: in netCDF files, coordinates refer to
centre of pixels, while in GeoTiff files,
coordinates refer to the **upper left corner of
pixels**
- Data type: UINT08

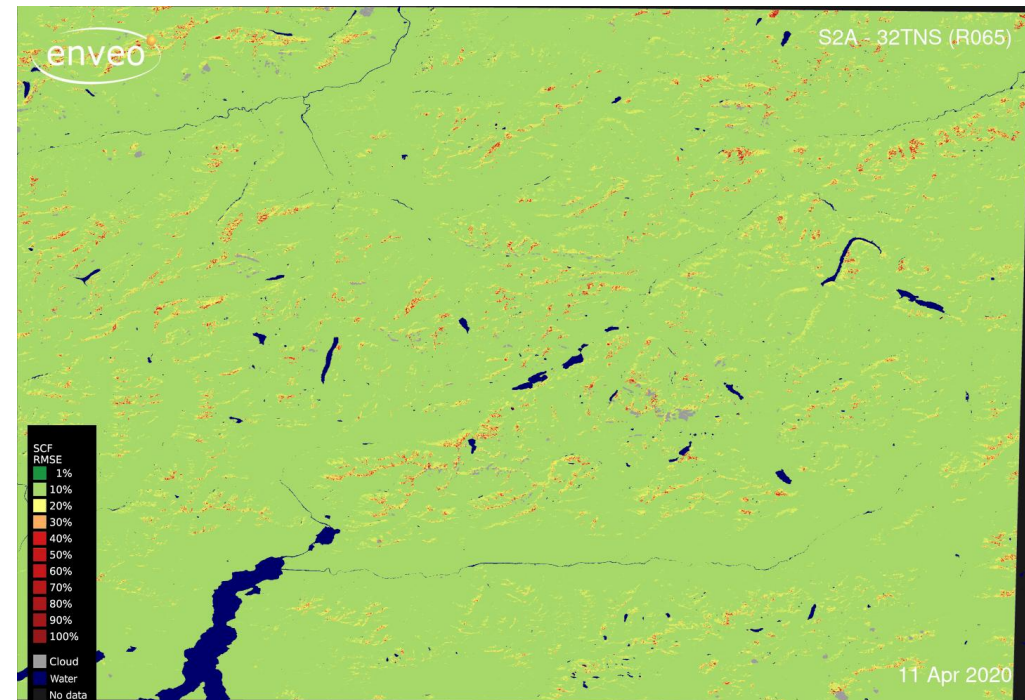


- Proposed products file name convention:

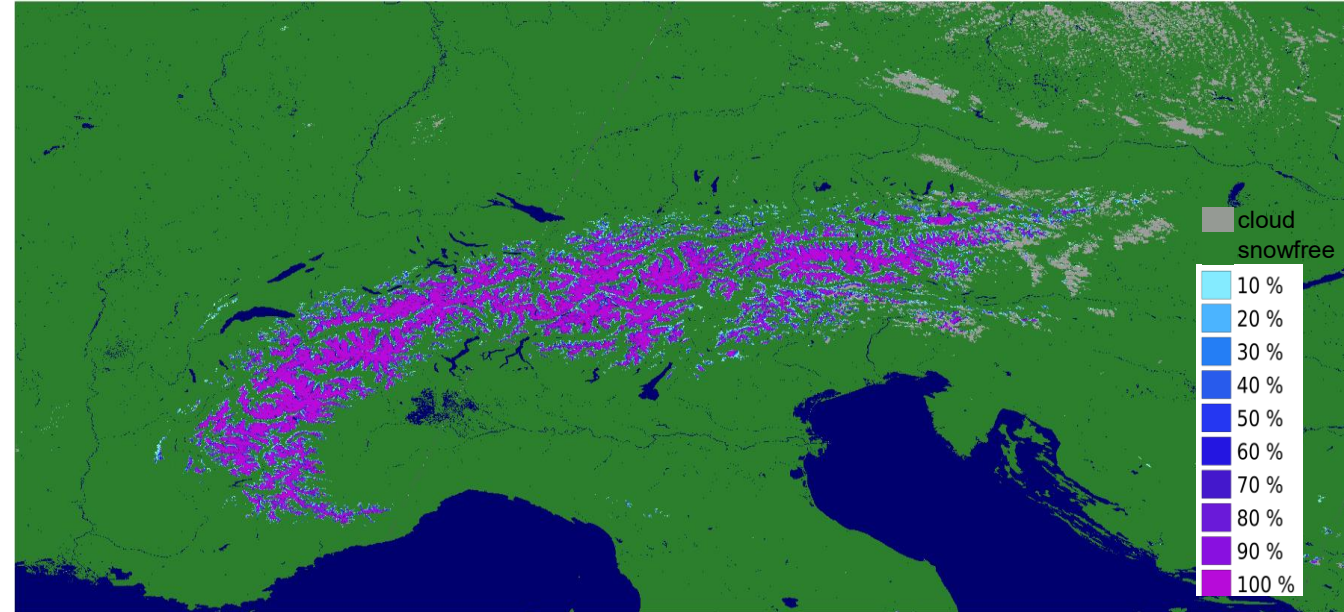
[PID]_[SAT]_[SEN]_[DATETIME]_[REGION]_v[X.X].nc

[PID]	Product ID (SCF, WSM, SA, SG)
[SAT]_[SEN]	Satellite & Sensor
[DATETIME]	Satellite acquisition date and time (YYYYMMDDhhmmss)
[REGION]	<i>Option 1:</i> INARCH ID and region name (e.g. 01_Rofental) <i>Option 2:</i> country, region name and INARCH ID (if available) (e.g. AT_Rofental_01)
v[x.x]	Product version (starts with v1.0)

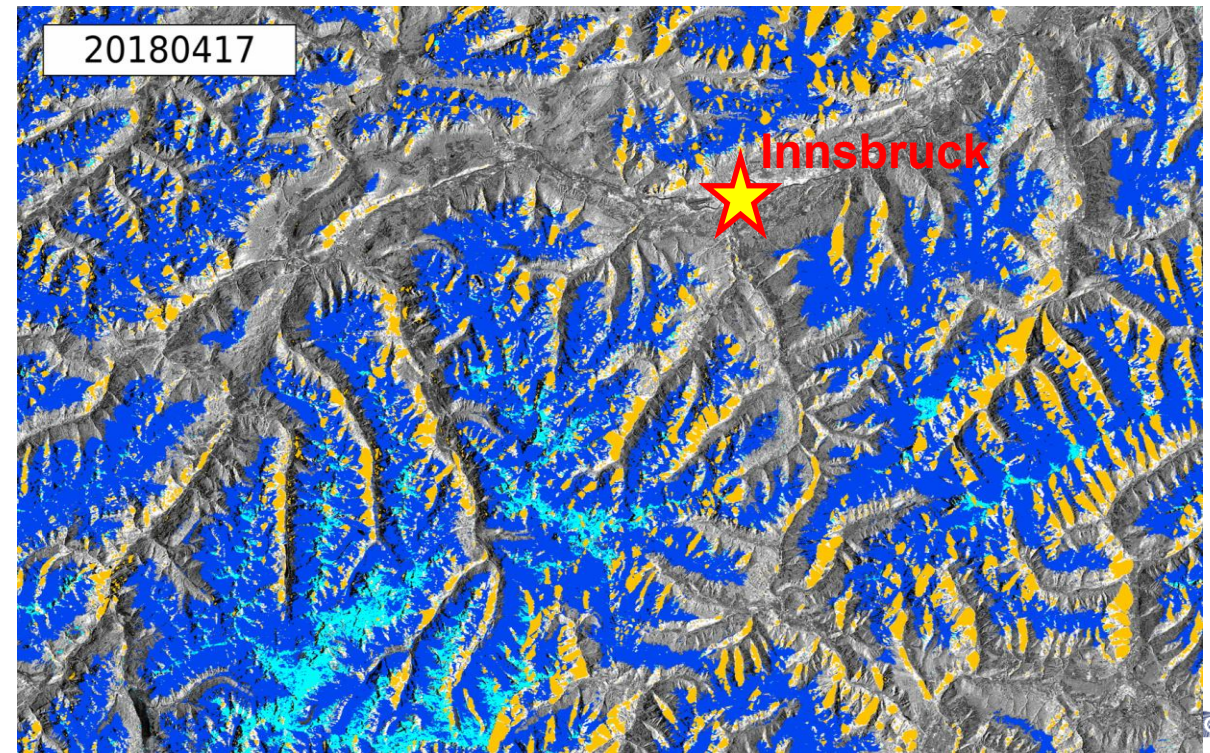
- Database: Sentinel-2A&B MSI
- Temporal resolution: 3-5 days (depending on region)
- Spatial resolution: 0.00020 deg x 0.00020 deg (ca. 20 m)
- Temporal coverage: 2022 – 2024, all year round
- Thematic information:
 - Snow Cover Fraction (SCF) per pixel (%)
 - Uncertainty per SCF pixel
 - Masks: Clouds, water, polar night



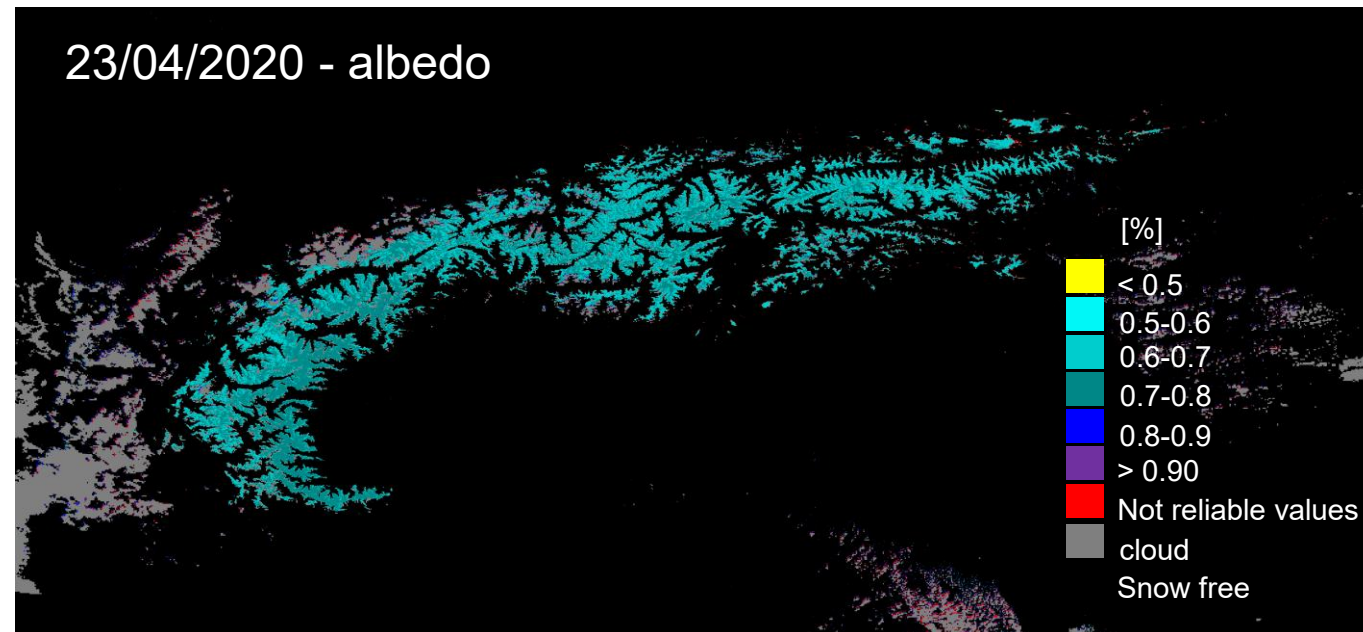
- Database: Sentinel-3A&B SLSTR & OLCI
- Temporal resolution: Daily
- Spatial resolution: 0.00200 deg x 0.00200 deg (ca. 200 m)
- Temporal coverage: 2022 – 2024, all year round
- Thematic information:
 - Snow Cover Fraction (SCF) per pixel (%)
 - Uncertainty per SCF pixel
 - Masks: Clouds, water, polar night



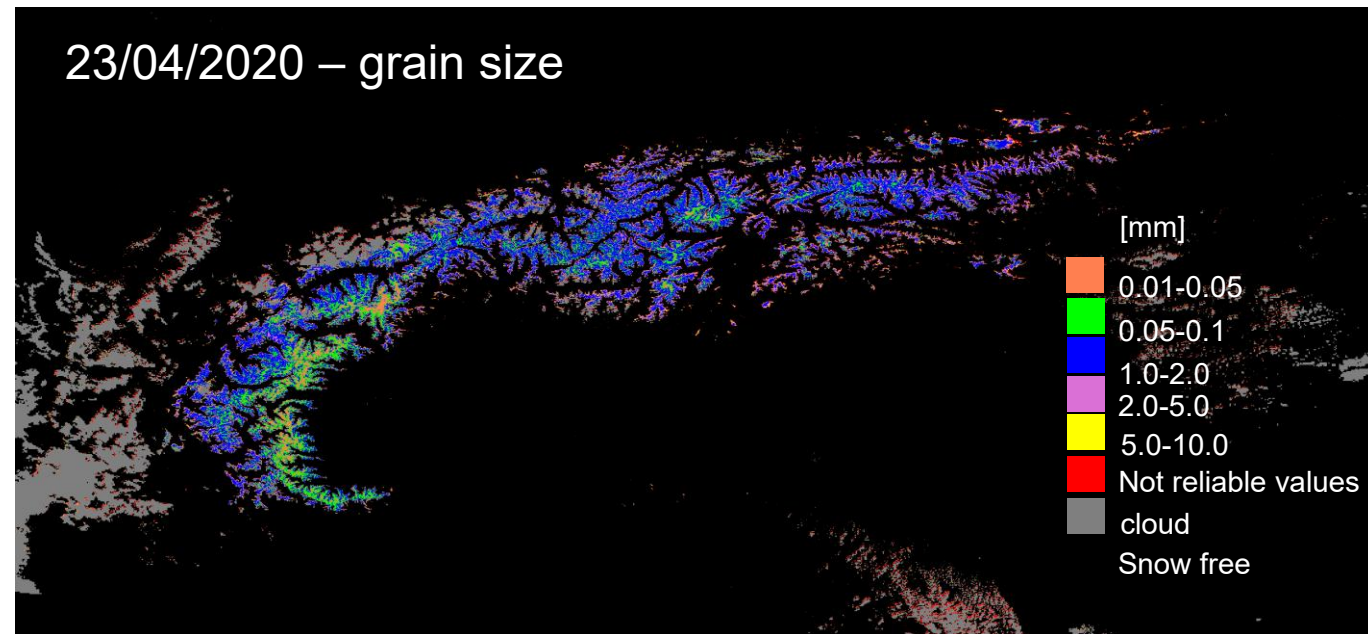
- Database: Sentinel-1A C-band SAR
- Temporal resolution: 12 days repeat pass
- Spatial resolution: 0.00100 deg x 0.00100 deg (ca. 100 m)
- Temporal coverage: 2022 – 2024, melt season
- Thematic information:
 - Snow Melt Extent (binary)
 - Uncertainty per pixel
 - Masks: Radar shadow, water, forest



- Database: Sentinel-3A&B OLCI
- Temporal resolution: Daily
- Spatial resolution: 0.00200 deg x 0.00200 deg (ca. 200 m)
- Temporal coverage: 2022 – 2024, all year round
- Thematic information:
 - Snow Albedo per pixel (%)
 - Masks: Clouds, water, snow free, polar night, not reliable values



- Database: Sentinel-3A&B OLCI
- Temporal resolution: Daily
- Spatial resolution: 0.00200 deg x 0.00200 deg (ca. 200 m)
- Temporal coverage: 2022 – 2024, all year round
- Thematic information:
 - Snow grain size per pixel (mm)
 - Masks: Clouds, water, snow free, polar night, not reliable values



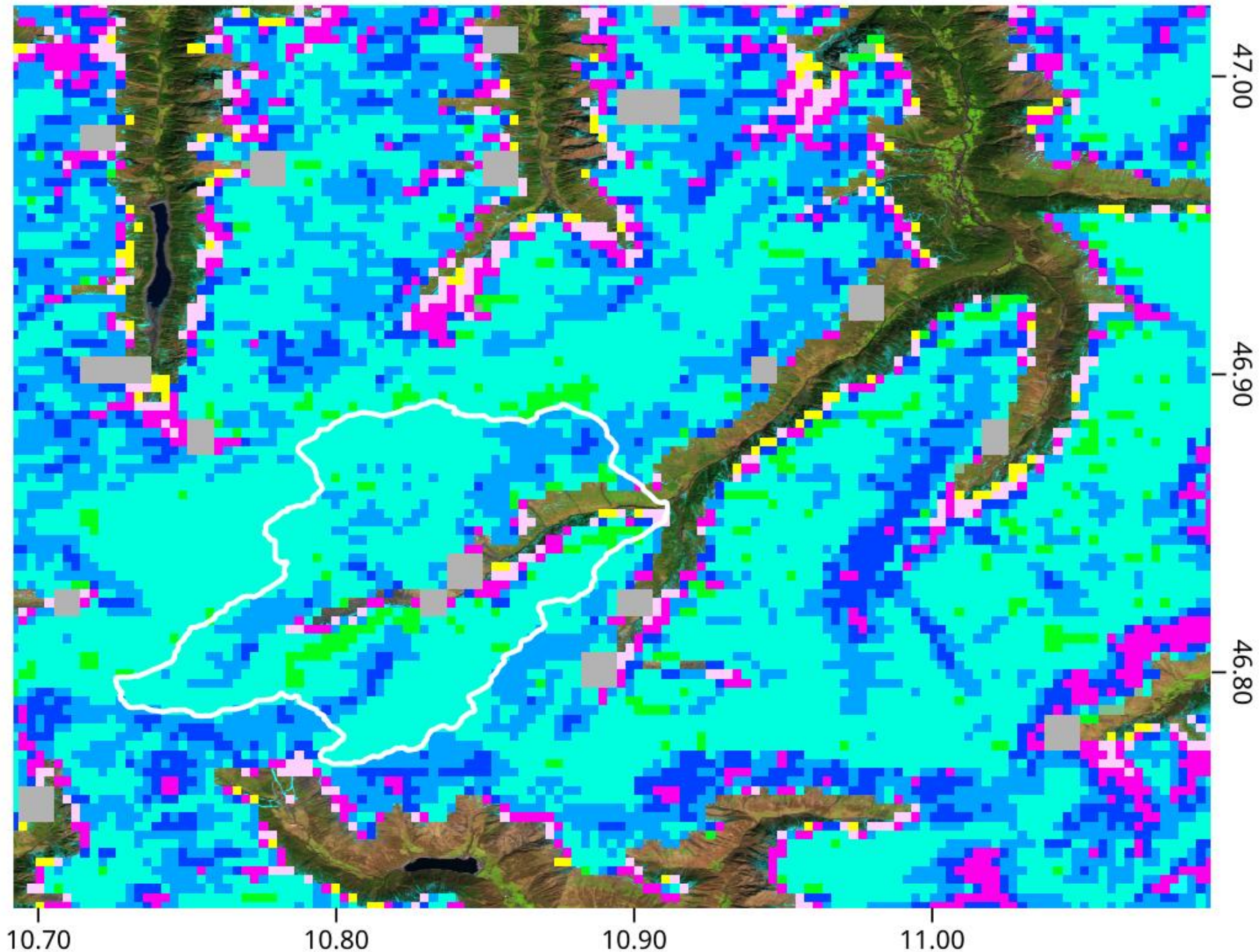
Sentinel-2 MSI, 20 m

2022-04-28

White outline:

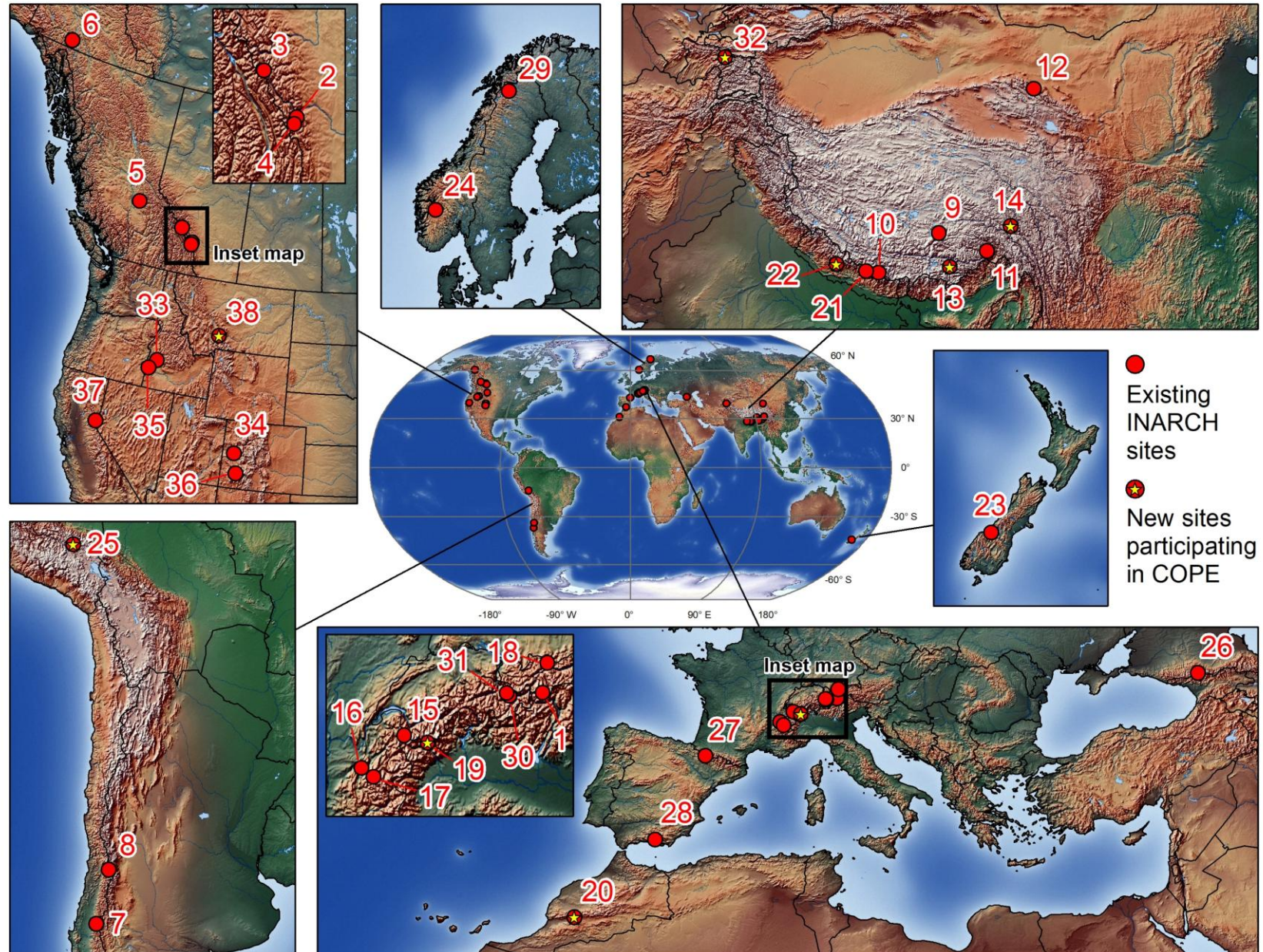
Rofental catchment

S3 - Snow Grain Size



INARCH Sites

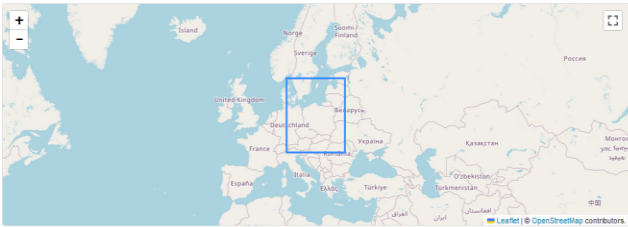
- 1 Austria
- 5 Canada
- 2 Chile
- 6 China
- 3 France
- 1 Germany
- 1 Italy
- 1 Morocco
- 2 Nepal
- 1 New Zealand
- 1 Norway
- 1 Peru
- 1 Russia
- 2 Spain
- 1 Sweden
- 2 Switzerland
- 1 Tajikistan
- 6 USA



- **SpatioTemporal Asset Catalog (STAC)** is a standardized way to describe and search for geospatial data.
- STAC makes data **discovery easier** by allowing users to search across **multiple data sources in a uniform way**.
- It is particularly useful for **cloud-based data management**, streamlining access to large datasets.

Description
Snow Cover Community Mapping Project of the MOOC Cubes and Clouds - Cloud Native Open Data Science for Earth Observation. Every item comes from a successful participant of the online course!

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Temporal Extent 12/1/2017, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC



Metadata

Scientific

Citation	Cubes and Clouds Community (2024, January 15). Data from - Cubes & Clouds - Cloud Native Open Data Sciences for Earth Observation. Cubes and Clouds - Snow Cover STAC Collection. EOX.
Publications	- Publication: Zellner, P. J., Dolezalova, T., Claus, M., Balogun, R. O., Eberle, J., Hodam, H., Eckardt, R., MeiB, S., Jacob, A., & Anghelea, A. (2024, January 15). Cubes & Clouds - Cloud Native Open Data Sciences for Earth Observation. - DOI: 10.5281/zenodo.10513915

Items 11 Ascending 12 Descending

snowcover_alfa_2024-04-14 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC	snowcover_luco_2024-04-10 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC
snowcover_cago_2024-02-09 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC	snowcover_moal_2024-02-11 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC
snowcover_clbe_2024-02-02 12/1/2017, 12:00:00 AM UTC - 12/31/2017, 12:00:00 AM UTC	snowcover_nici_2024-02-02 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC
snowcover_diba_2024-04-26 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC	snowcover_pejaze_2024-01-30 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC
snowcover_jodo_2024-05-06 1/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC	snowcover_ruomba_2024-01-30 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC
snowcover_jogo_2024-03-27 2/1/2023, 12:00:00 AM UTC - 6/1/2023, 12:00:00 AM UTC	

- Any particular requirements to be considered for product generation?
- 5 INARCH sites in different environments and climate zones will be used for quality assessment of satellite snow products
- Provide feedback on satellite snow products to ENVEO (see contacts)
- Report any identified gaps in satellite snow products to solve urgent scientific questions to ENVEO
- Workshop on feedback on products (virtual, 2026/2027 - TBC)



Contacts: [*\[gabriele.schwaizer@enveo.at\]\(mailto:gabriele.schwaizer@enveo.at\)*](mailto:gabriele.schwaizer@enveo.at)

[*\[thomas.nagler@enveo.at\]\(mailto:thomas.nagler@enveo.at\)*](mailto:thomas.nagler@enveo.at)

[*<https://alpsnow.enveo.at>*](https://alpsnow.enveo.at)