Italian Society for Climate Sciences
SISC
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Sixth Annual Conference
Recent trends in climate sciences, adaptation and mitigation

The Archive of datasets of the NextData project

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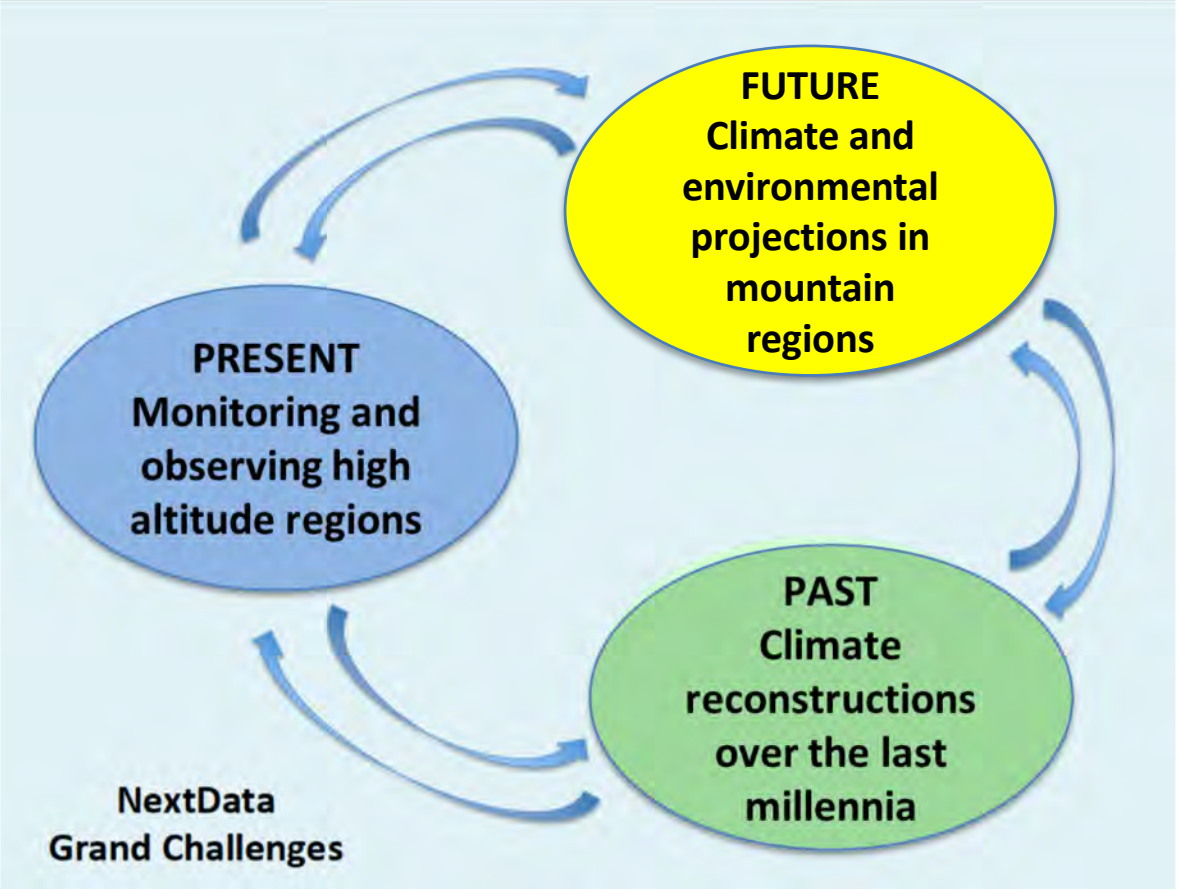
[1] CNR – IGG, [2] DISAT-UNIMIB, [3] CNR – IAMC, [4] CNR - ISAC

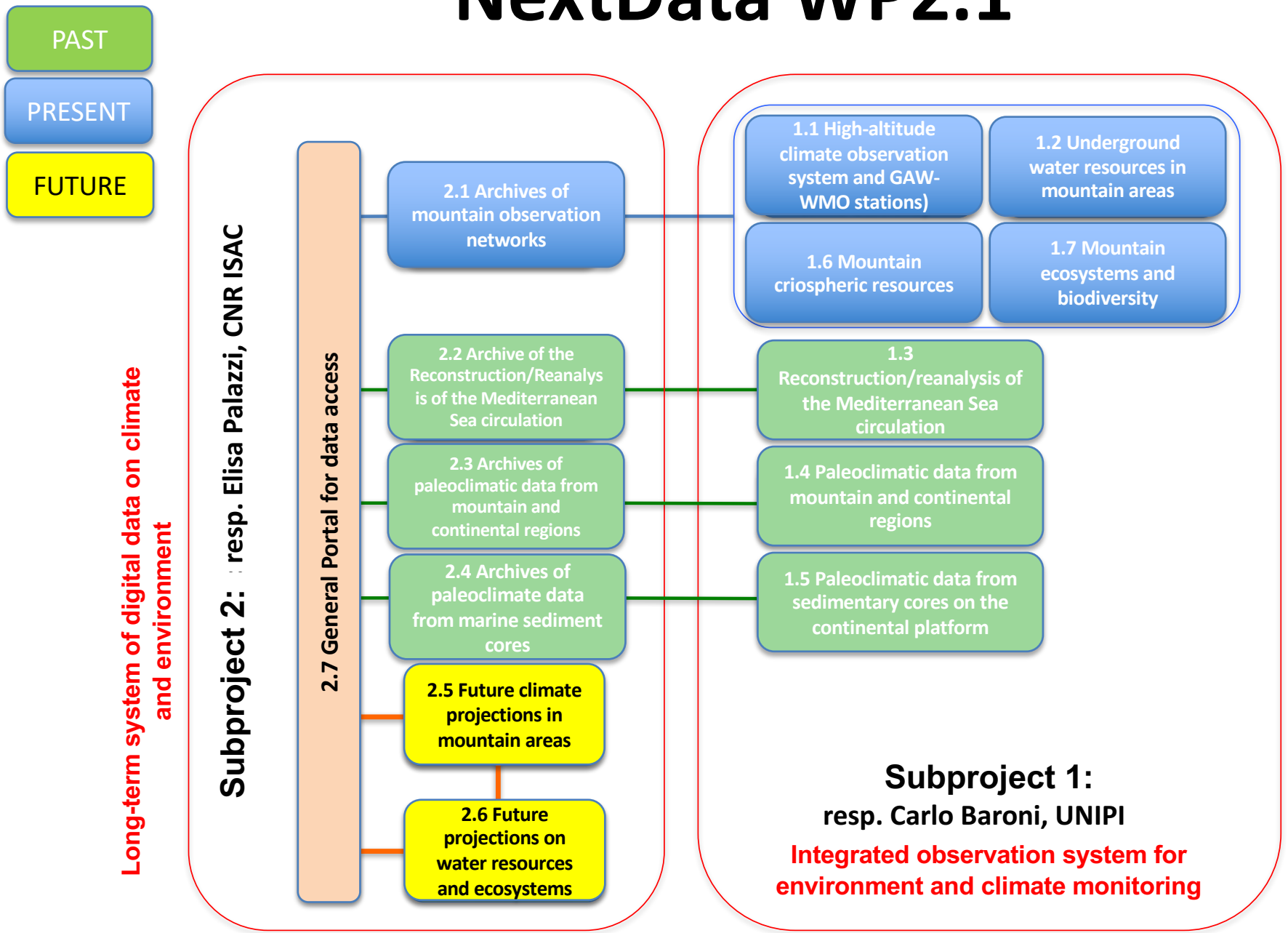
NextData structure

Aim: to provide quantitative information on the **past, present and future climate conditions, water resources and natural ecosystems in Italian mountain areas** as well as a **reconstruction of past climatic conditions in Italy**.

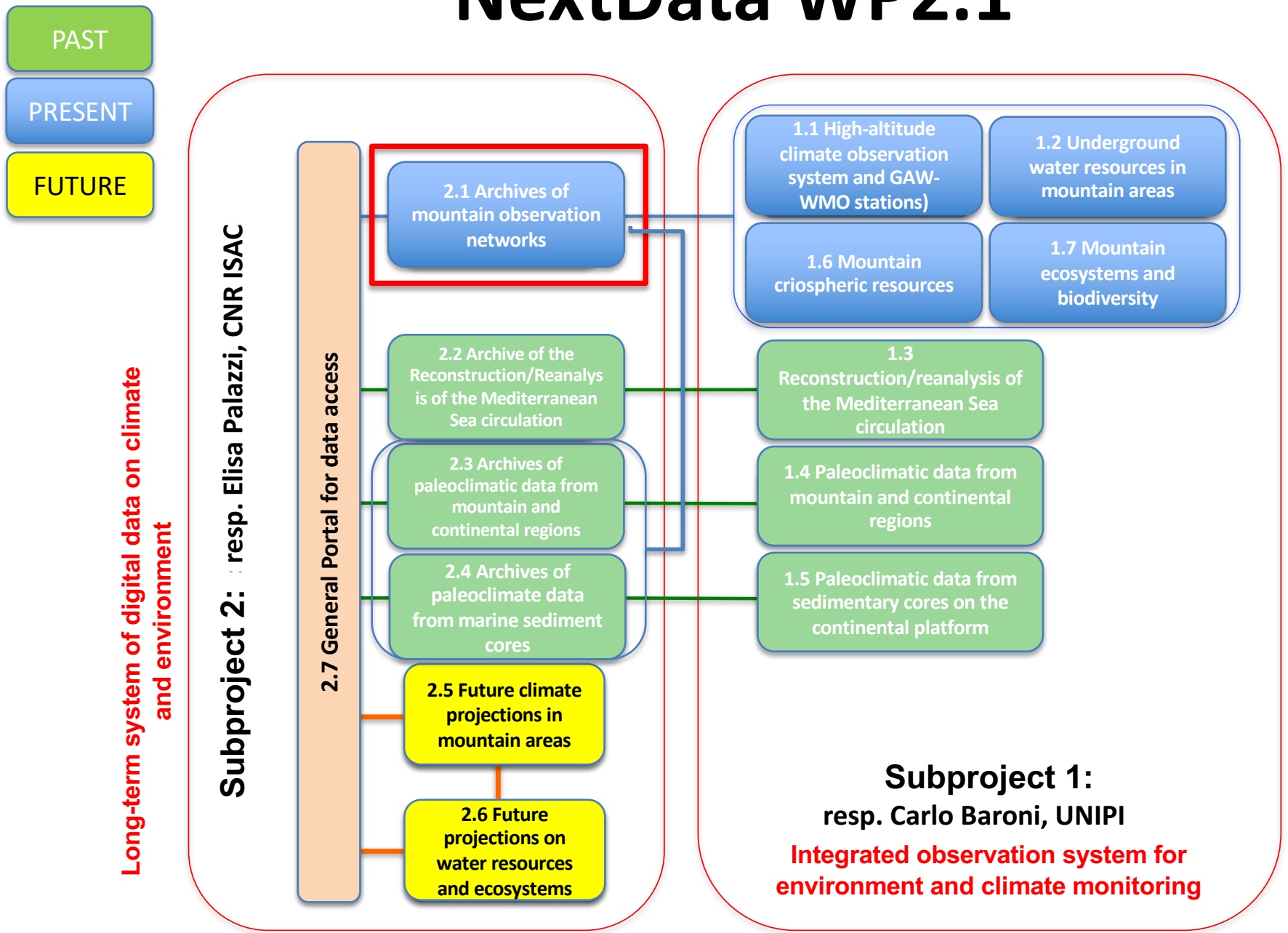
3 KEY THEMES



NextData WP2.1



NextData WP2.1



NextData WP2.1

Aim: to build a system of **accessible thematic archives**, with validated, integrated and interoperable **data and metadata,** hosted at CNR.

Task 1
Definition of the procedures for data quality control, validation, standardization and choice of the type of software for data and metadata management

Task 2
Harmonization of the data and metadata and development of thematic archives and data portals.

Types of data and metadata:

(1) Meteoclimatic and atmospheric composition data

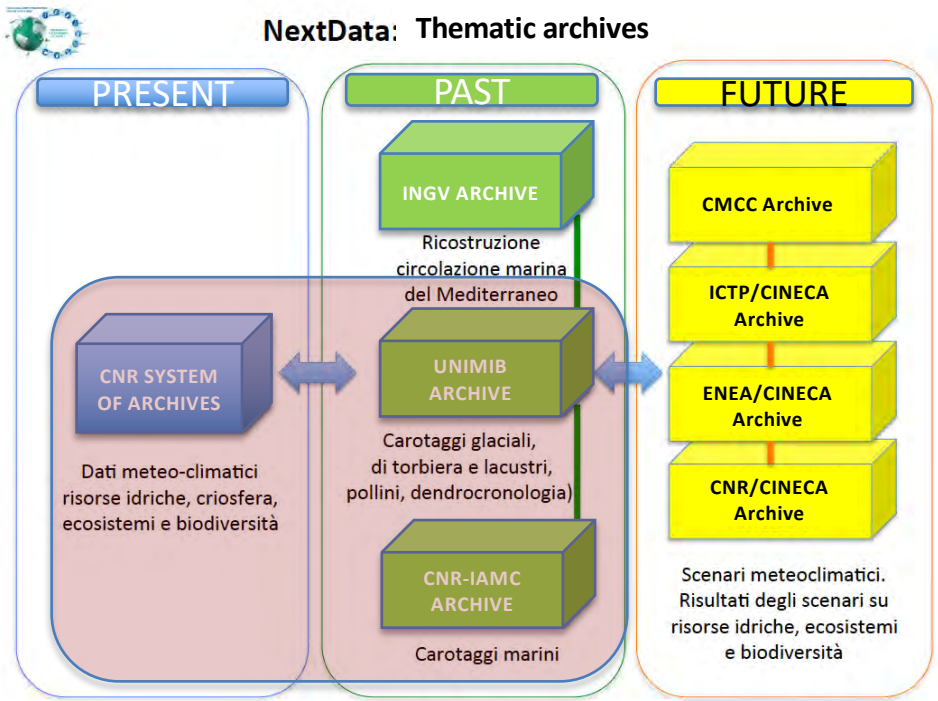
(2) Cryospheric data

(3) Hydrological resources data (surface and underground water resources)

(4) Ecosystems and biodiversity data

(5) Mountain ice cores

(6) Sea sediment cores



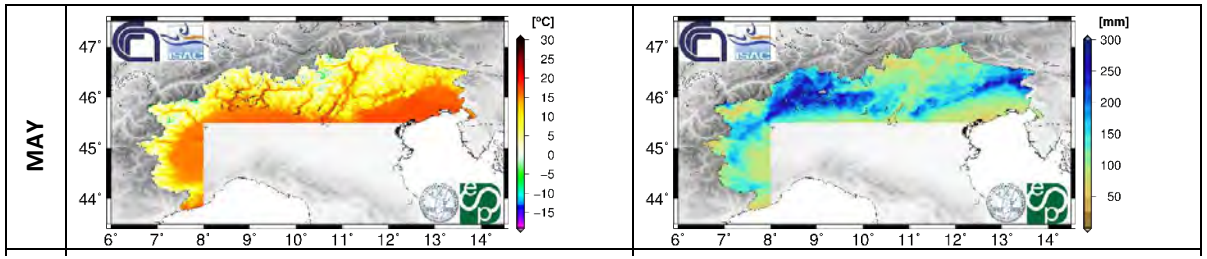
1) Meteoclimatic and atmospheric composition data

Information from high-elevation Italian stations network

- Climate stations network: (PRS: **Plateau Rosa**; MRG: **Col Margherita**; CMN: **Monte Cimone**; CMP: **Mt. Portella/Campo Imperatore**; CUR: **Mt. Curcio**; CGR: **Capo Granitola**; LMP: **Lampedusa**)
- Network of deposimeters in the dolomitic environment

Information from high density observational data-set

- Definition of a high-resolution (30-arc-second) temperature and precipitation climatology of the Alps and Apennines (elev > 1500m)

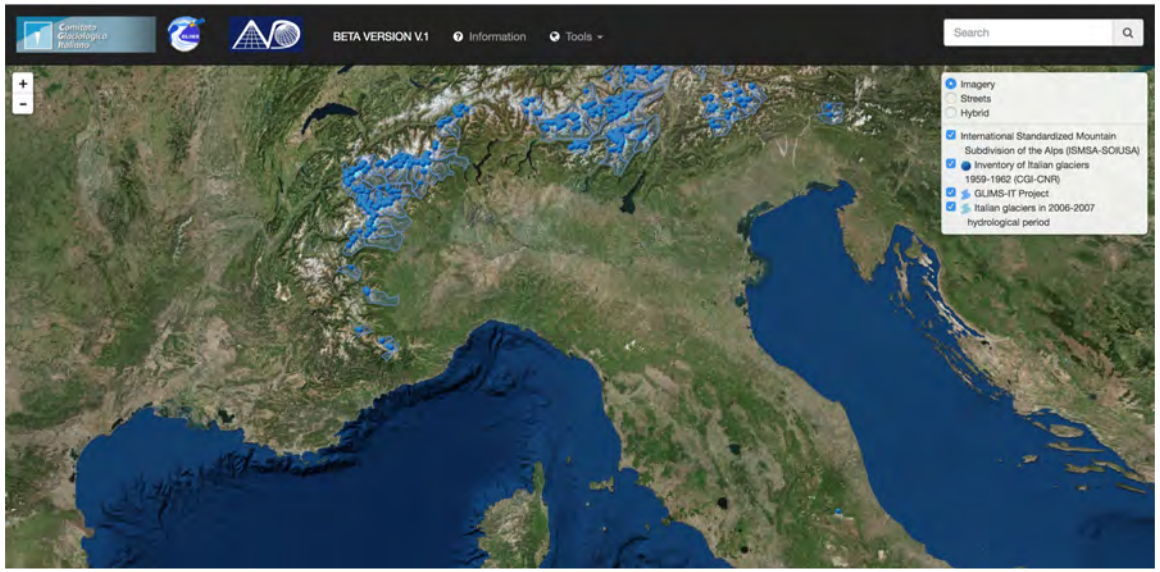


2) Cryospheric data

Information from Italian Alpine Glaciers and Snow stations

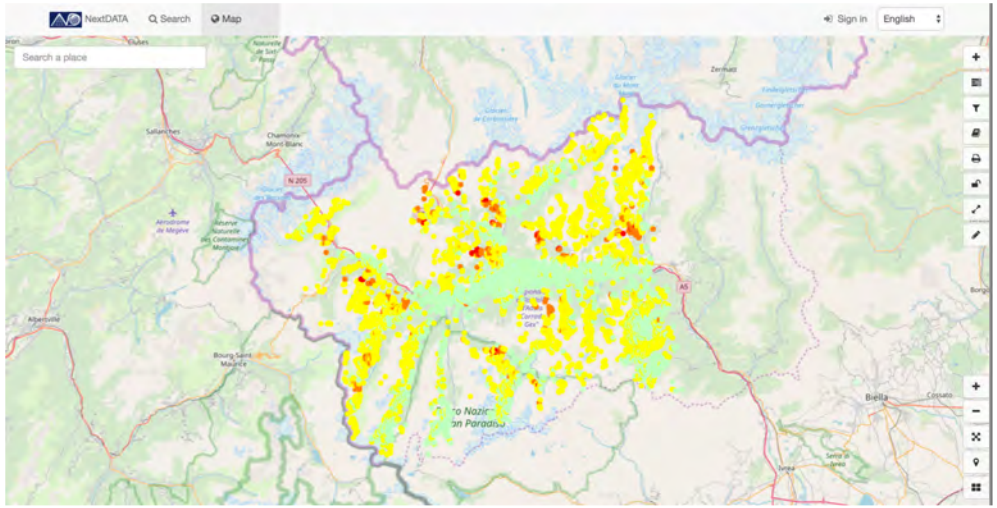
- ❑ Monitoring and quantitative census of alpine glaciers
  - Snapshots of Glaciers limits
  - Time/distance curves
  - Multi-annual mass balance measurements

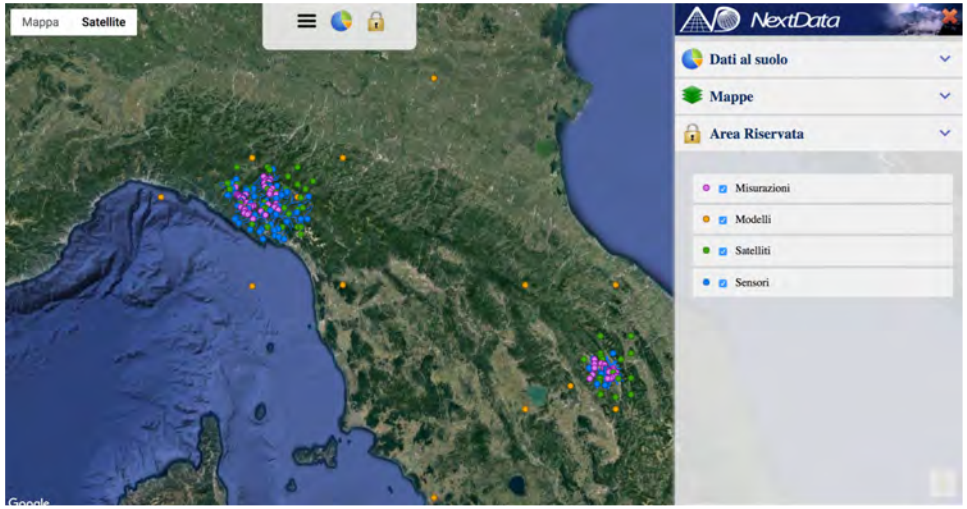
- ❑ Estimate of snow cover and depth state and changes



3) Surface and underground water resources

- Monitoring and estimate of water content and chemical/physical characteristics of aquifers
- Meteo-climatic parameters and ground surface deformation in mountain areas
- Hydrometeorological database for the Apennine basins – 'high' Chiascio and Magra

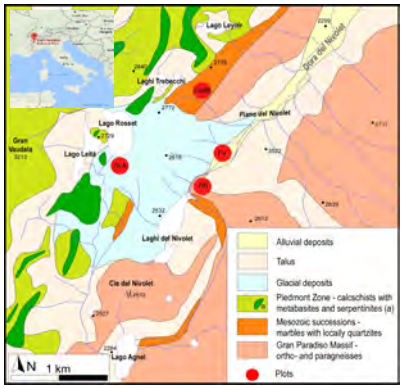




4) Ecosystems and Biodiversity

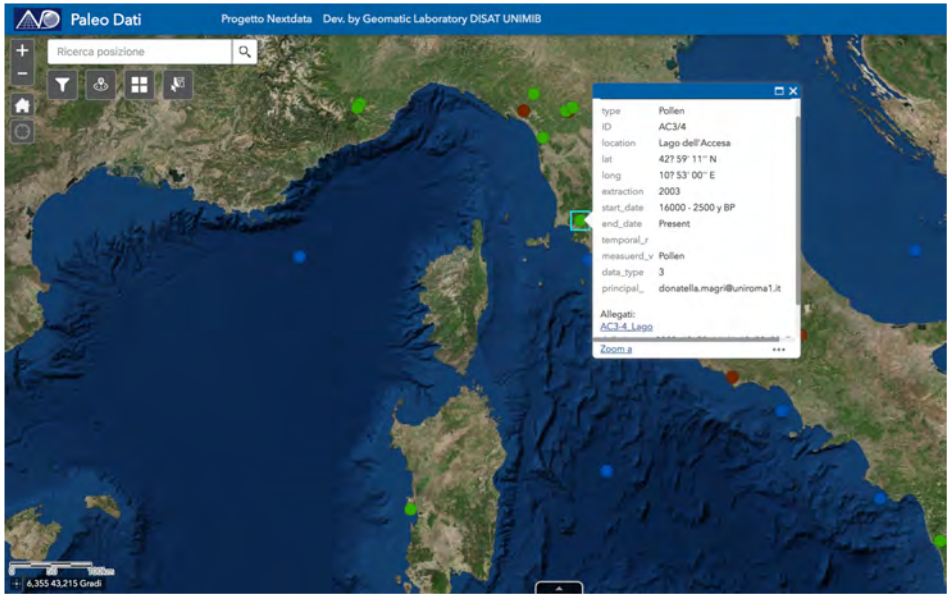
Information from:

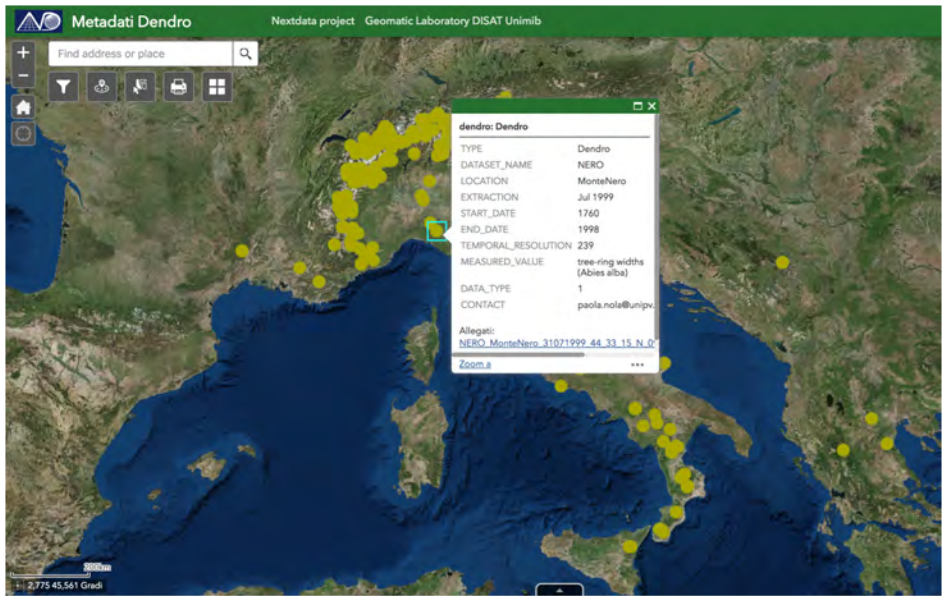
- Data from **LTER** (Long Term Ecological Research Network) mountain Italian stations
- Animal biodiversity monitoring in mountain areas (**Gran Paradiso National Park**)
- **Earth Critical Zone and Ecosystem Observatory** in the Gran Paradiso National Park
- Alpine grasslands dynamics at high altitudes at the Brocon and Torgnon stations.



5) Italy2k data – mountain climate proxies

- Information on the climatology and climate variability in Italy in the last 2,000 years, by blending information from different paleoclimatic data (ice and lake sediment cores, pollens, peat bog data, dendroclimatology)
- IDB - Ice Core Database v 2.0
- Dendrochronological data





6) Sea sediment cores

Information from single cores:

- ❑ sampling device
- ❑ water depth
- ❑ core length
- ❑ Year
- ❑ data source holder
- ❑ vessel name
- ❑ cruise name

Paleoclimatic proxies:

- ❑ planktonic foraminifera
- ❑ benthonic foraminifera
- ❑ Pollen
- ❑ calcareous nannoplankton
- ❑ magnetic susceptibility
- ❑ stable isotope
- ❑ Radionuclides
- ❑ radiocarbon data

The NextDATA Archives

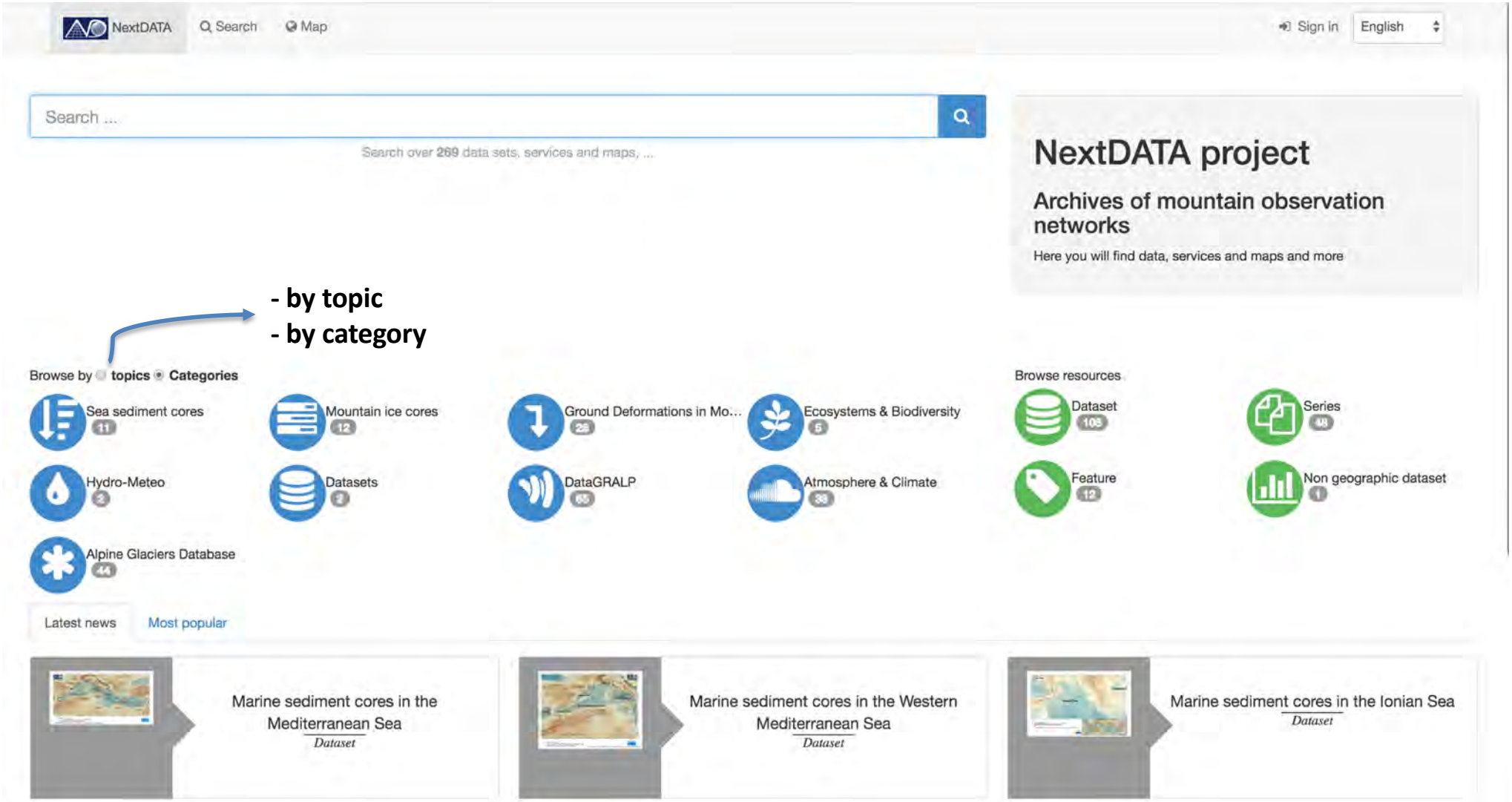
- The archives make the data available in the form of **spatial datasets**, **data tables or time series**
- **The archives include the metadata (**standard ISO19115/19139**) associated with the data**

→ **Geonetwork:** a catalog application to manage spatially referenced resources. It provides metadata editing, search options, interactive web map viewer.

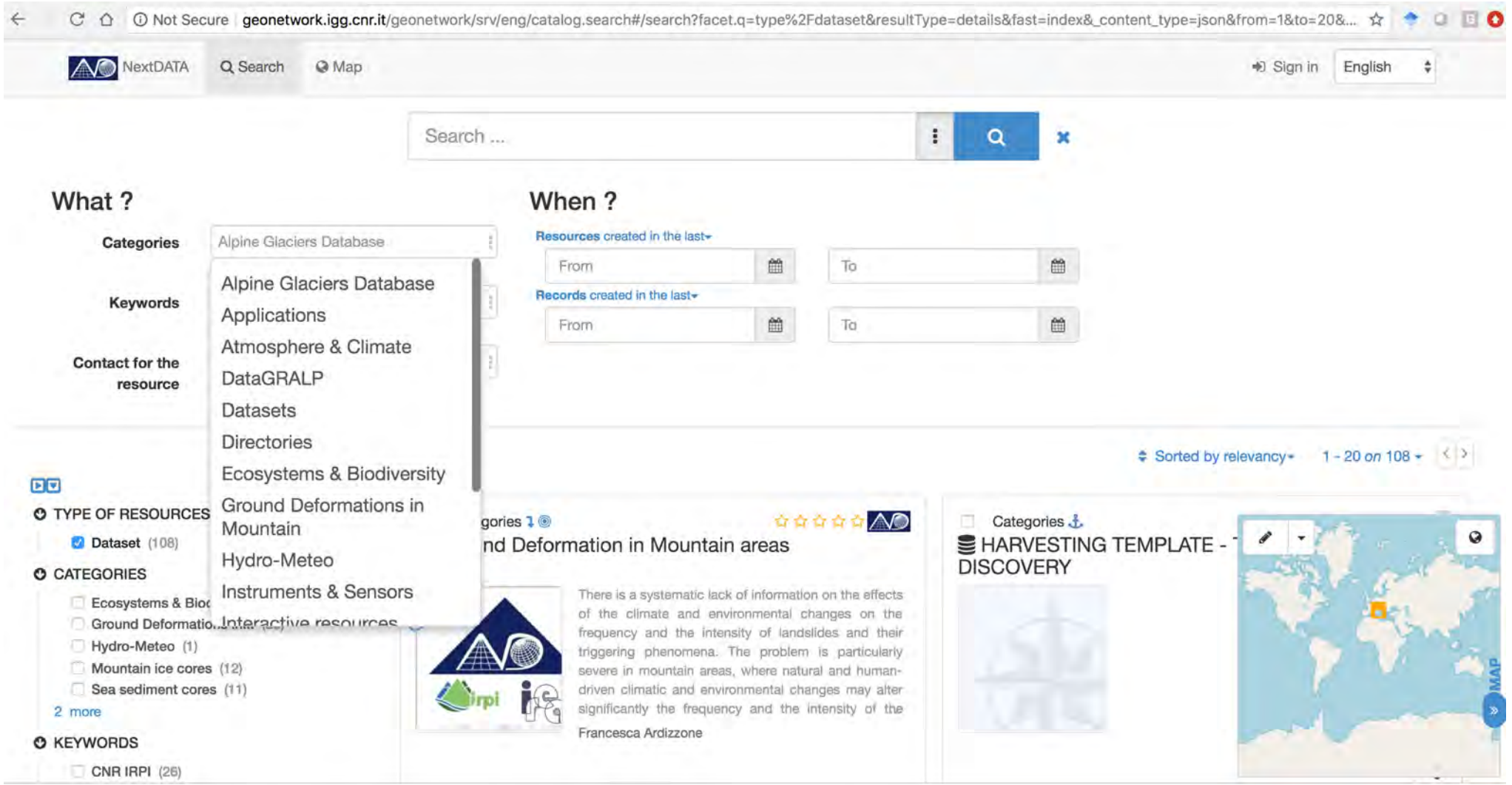
→ **Data download**

Geonetwork 3.2.1 - Home

http://geonetwork.igg.cnr.it/



Geonetwork 3.2.1 - Search



Search by

Category

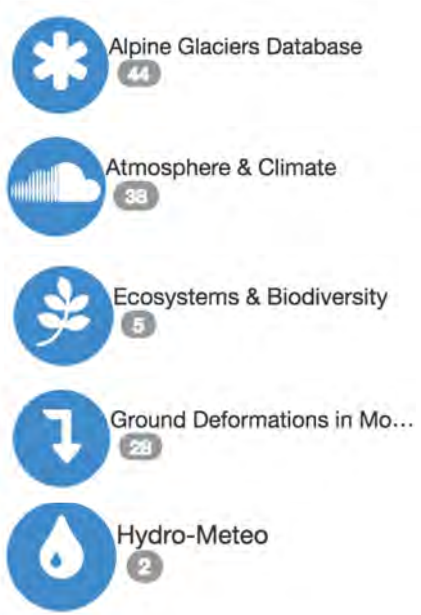
Keyword

Contact for the resource

Archive data categories

Categories:

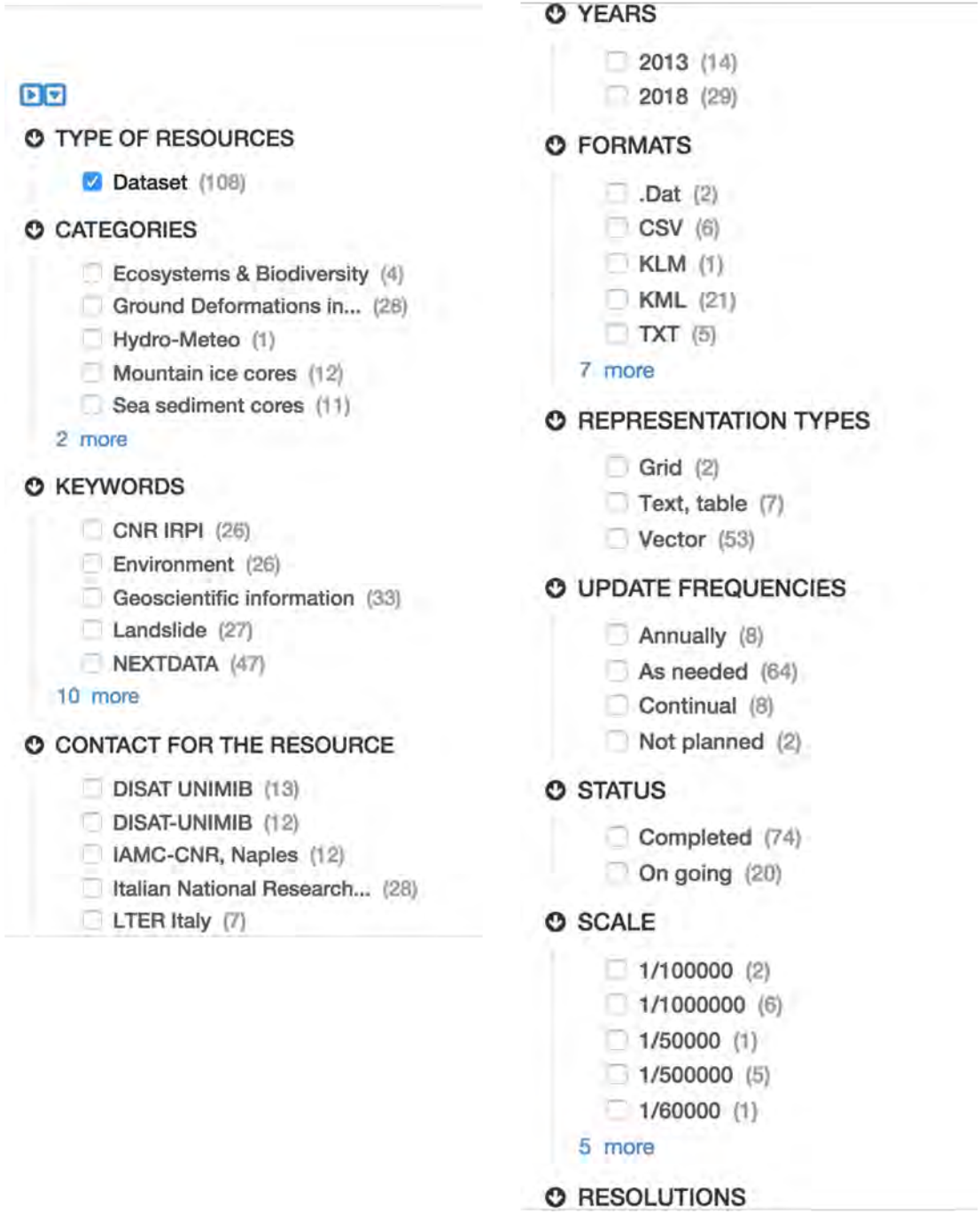
- ❑Alpine Glaciers Database
- ❑Atmosphere & Climate
- ❑Ecosystems and Biodiversity
- ❑Ground Deformation in Mountain
- ❑Hydro-Meteo



- ❑Mountain ice cores
- ❑Sea sediments cores

http://geonetwork.igg.cnr.it/geonetwork/srv/eng

Geonetwork 3.2.1 – Filter operations



Filter operations:

- Type of resources
- Categories
- Keywords
- Contact person/group
- Period of availability
- Format
- Type of data representation
- Update frequencies
- …

Search results: Dataset + Atmosphere & Climate

TYPE OF RESOURCES
- Dataset (5)

CATEGORIES
- Atmosphere & Climate (5)

KEYWORDS
- Climate change (3)
- Climatology, meteorology,... (4)
- Environment (3)
- Geoscientific information (4)
- NEXTDATA (4)

10 more

CONTACT FOR THE RESOURCE
- CNR-IIA, Institute of... (1)
- CNR-Institute of Atmospheric... (1)
- CNR-ISAC (2)
- Milan University - Department... (2)
- National Research Council... (3)

2 more

YEARS
- 2018 (1)

FORMATS
- .Dat (2)
- Csv (1)
- Dataset txt format (1)
- Unknown (1)

REPRESENTATION TYPES
- Grid (2)
- Vector (2)

UPDATE FREQUENCIES
- As needed (4)
- Not planned (2)

STATUS
- Completed (3)
- On going (1)

SCALE
- 1/0 (1)
- 1/1000 (1)

Categories

GMOS network - Mt. Curcio site, Hg measurements

The Monte Curcio CNR-IIA station is a Climatic-Environmental Observatory located in a strategic and isolated position within the Sila Grande area, one of the main three areas making-up the Sila National Park, which is officially recognized, since June 2014, as the Tenth Reserve of Italian Biosphere. It is characterized by no local sources of contamination and no access ...

Categories

Automatic Weather Station (Col Margherita)

The Col Margherita Observatory (MRG) is equipped with different meteorological sensors installed on an integrated weather station (Aluminium Tower -3m- ATW3, Campbell Scientific). A thermo-hygrometer (CS215, Campbell Scientific) measured air temperature and relative humidity, a digital barometer (PTB110, Vaisala) provided atmospheric pressure ...

Massimiliano Vardé

Federico Dallo

Categories

Optical Particle Counter (Monte Portella)

Aerosol concentration of particles with optical diameter between 0.28 and 10 µm has been continuously measurd in 8 size channel by using a OPC MONITOR MULTICHANNEL (FAI Instruments) which is based on the quantification of the 90° scattering of light by aerosol particles. By assuming typical aerosol densities PM1, PM2.5 and PM10 can

Piero Di Carlo

Eleonora Aruffo

Categories

Temperature climatology

This database consists of mean monthly values of temperature (referred to the standard period 1961-1990) for any box of dimension 30 arc-second x 30 arc-second over the italian alpine region. The database has been realized starting from a high density observational data-set and by estimating for each grid point of the domain a weighted linear fit of

Michele Brunetti

Maurizio Maugeri

Categories

Precipitation climatology

This database consists of cumulated monthly values of precipitation (referred to the standard period 1961-1990) for any box of dimension 30 arc-second x 30 arc-second over the italian alpine region. The database has been realized starting from a high density observational data-set and by estimating for each grid point of the domain a weighted linear fit of

Michele Brunetti

Maurizio Maugeri

Search results Dataset + Atmosphere & Climate → Temperature Climatology

Back to search ‹ Previous Next ›

Temperature climatology

This database consists of mean monthly values of temperature (referred to the standard period 1961-1990) for any box of dimension 30 arc-second x 30 arc-second over the italian alpine region.
The database has been realized starting from a high density observational data-set and by estimating for each grid point of the domain a weighted linear fit of the meteorological variable versus elevation. Weights are chosen to assign more importance to those stations that have geographical characteristics as much similar as possible to those of the grid point itself (close to it, similar elevation, similar slope steepness and orientation and similar distance from the sea).

Data are provided as direct-access binary files, one referred to climatologies (CLINO) and one to 95% confidence interval (CONF), together with the corresponding info file containing the following information:
Row 1 longitude resolution (XSTEP)
Row 2 latitude resolution (YSTEP)
Row 3 number of rows (NROWS)
Row 4 number of columns (NCOLS)
Row 5 no data code (NODATA)
Row 6 longitude of the central point of the upper left grid box (ULXCUT)
Row 7 latitude of the central point of the upper left grid box (ULYCUT)
Row 8 record length in bytes (BANDROWBYTES)
Row 9 file name

Completed

Download and links

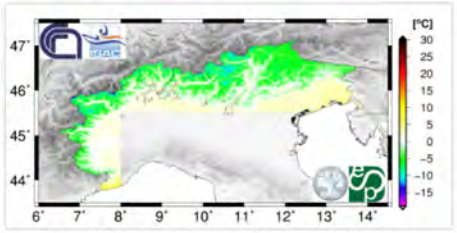
Monthly mean temperature climatology for the Italian Alpine Area — Download

About this resource

Categories: Atmosphere & Climate; Climatology, meteorology, atmosphere; Geoscientific information

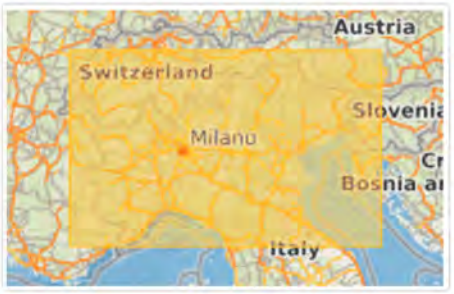
Keywords
- Mean Temperature
- Climatology
- Atmosphere
- Climate change
- NEXTDATA
- Italian Alpine Region

Overview



January Mean Temperature 1961-1990 Climatology

Spatial extent



Temporal extent

Publication date
2018-07-18

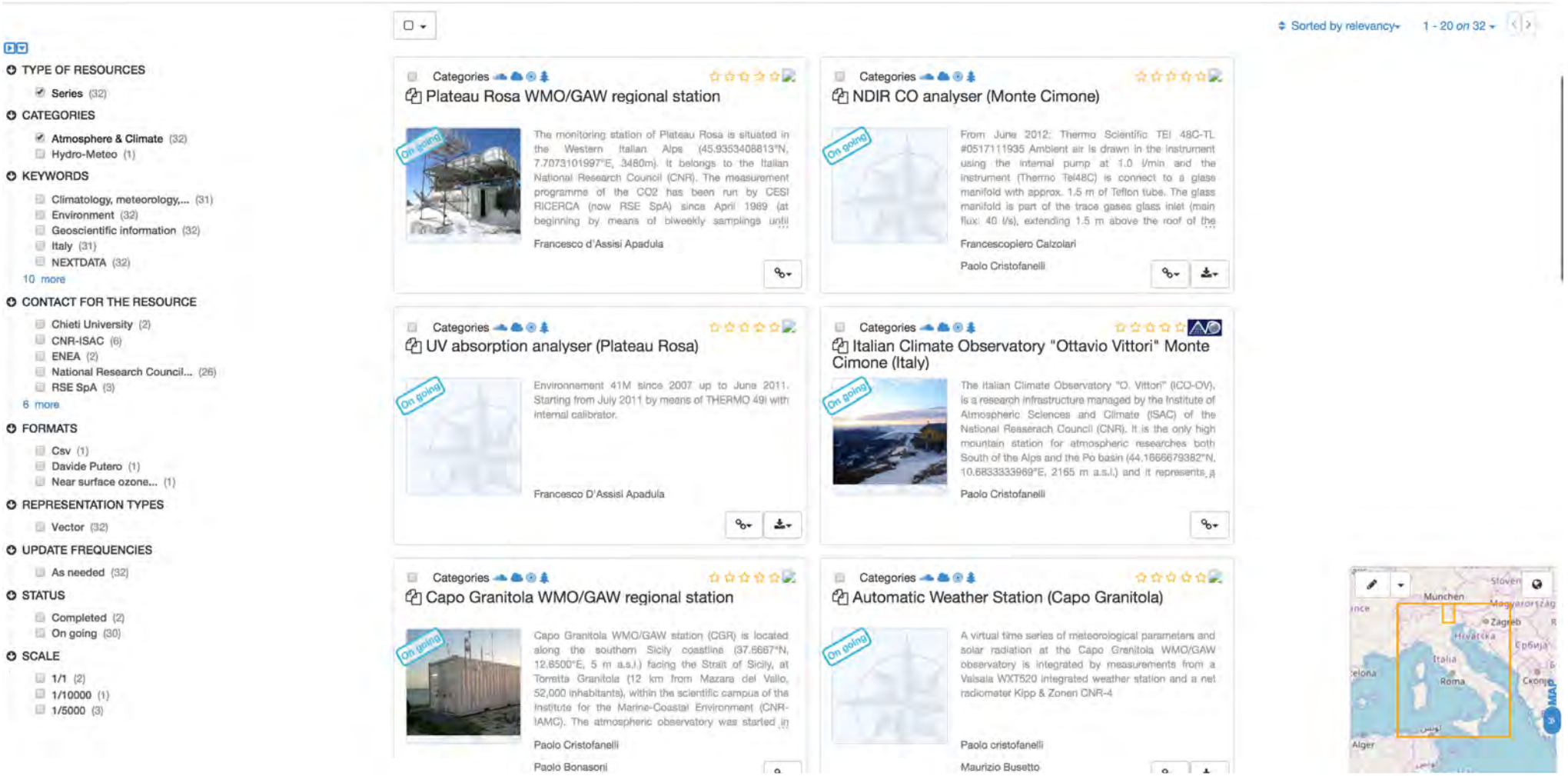
Provided by

Updated:

3 months ago

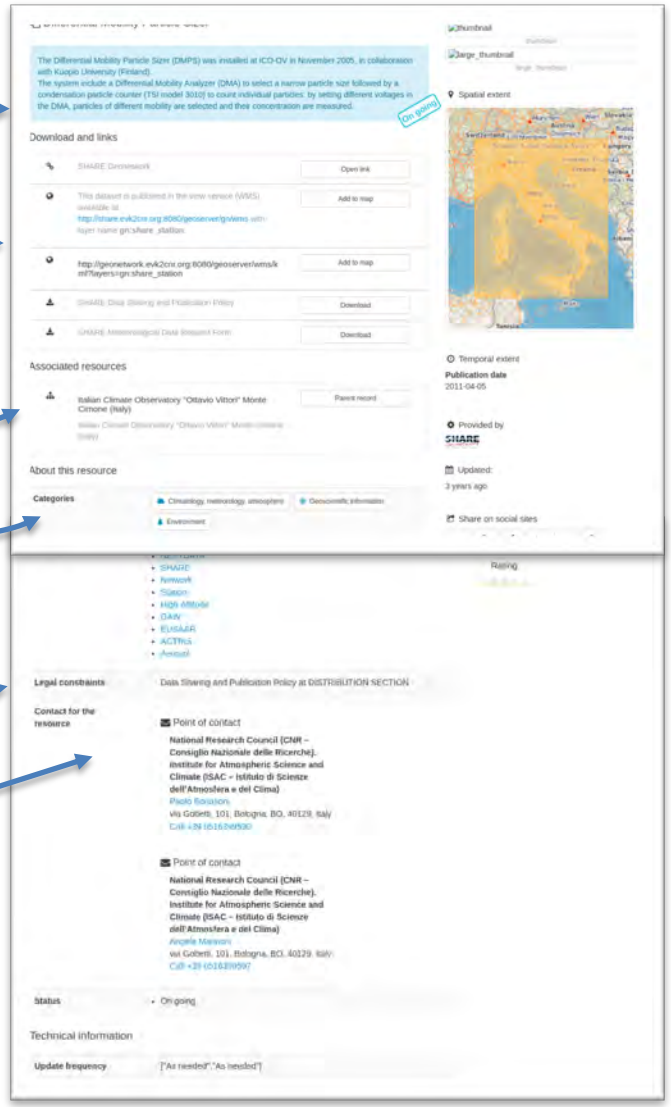
Share on social sites

Search results: Series + Atmosphere & Climate

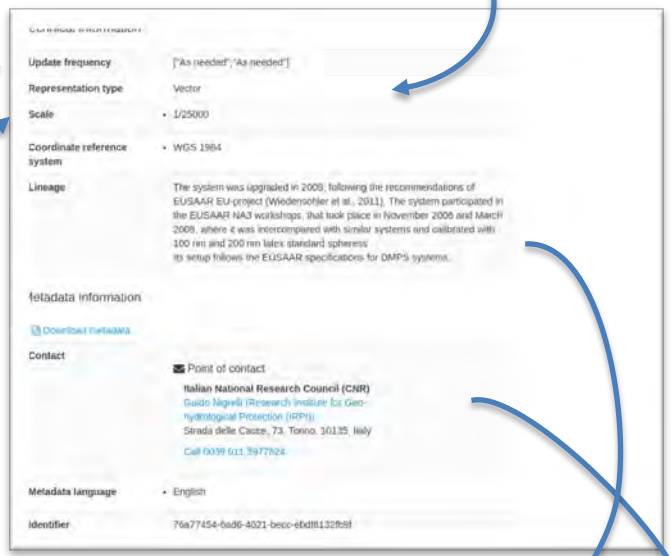


Geonetwork 3.2.1- Metadata sheet -ISO19115/19139

- Abstract
- Link to resources
- Associated resources
- Keywords
- Legal constrain
- Dataset point of contact



- Update frequencies
- Representation



- Coordinate system
- Lineage
- Metadata point of contact

Conclusions

- The first Italian digital archive on climatic/environmental data on mountains and on past climate recontructions
- GeoNetwork catalogue
- Spatial datasets and time series are available for download
- Datasets described with a common metadata standard ISO19115/19139.
- The archives could be linked to European/International repositories of environmental data and metadata (e.g., Copernicus, GEOSS) by means of OGC web-services

Thank you for your attention

e.trumpy@igg.cnr.it