



Project of Strategic Interest NEXTDATA

WP2.1

D2.1C – Open access thematic Archives of mountain observation networks

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The deliverable 2.1.C is the final version of the archives of mountain observation networks. This report is to certify that the Archive of mountain observation networks is up and running in its final version. It can be reached from the NextData Project website ('Data' menu, 'General Archive' item) or by the direct link <http://nextdata.igg.cnr.it>.

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1. INTRODUCTION

In the scope of the WP2.1 of the NextData project there is the implementation of a digital archive of the databases from mountain monitoring networks. The archive provides a detail frame of the on-going weather and climate changes, the atmospheric composition, cryosphere, surface and underground water resources and on ecosystems and biodiversity. It was decided also to embed in this digital archive the information from mountain ice cores and the sea sediment cores. More details on the data included in the WP2.1 archive and its capabilities are reported in the Deliverable 2.1.A of the NextData project.

The aim of this brief report is to certify that the WP2.1 archive is up and running in its final version. After this introduction, section 2 describes the update of the system architecture of the archive, section 3 describes the current contents of the archive, while section 4 presents some remarks in conclusion of the whole work performed in the NextData project.

2. ARCHIVE SOFTWARE ARCHITECTURE UPDATE

2.1. System architecture

The WP2.1 archive implemented for the needs of NextData project is hosted in a server running in the CNR computing centre in Pisa. In particular, the WP2.1 archive is served by a dedicated Virtual Machine where a Geonetwork application has been specifically set-up and configured to meet the special need of the project. The main features of the physical machine that host the virtual machine which provide the service related to the NextData digital archive and the Virtual machine features themselves are both reported in the Table 6.1.

Table 1 – Main Hardware and Software features and configurations of the physical machine and Virtual Machine hosting the NextData archive.

Hardware - Software		
	Physical machine	Virtual Machine
CPU	Intel(R) Xeon(R) CPU E5-2630 v4 10 cores 25MB Socket 2011 v3	1 CPU
RAM	64 GB	16 GB
OS	Ubuntu 18.04 LTS	Ubuntu 18.04.2 LTS
Storage	4 TB	100 Gb
Firewall	Configured to give the access only on port 22 (ssh), 80 (http standard), 8080 (tomcat standard)	Configured to give the access only on port 22 (ssh), 80 (http standard), 8080 (tomcat standard)

As mentioned, the WP2.1 digital archive was build-up in a dedicated guest Virtual Machine where Geonetwork is deployed in a Tomcat application server. A virtual machine (VM) is an emulation of a computer system. Virtual machines are based on computer architectures and provide functionality of a physical computer.

2.2. Geonetwork application update

The Geonetwork application was updated at the last released version v.3.6.0.0, see Fig. 1 and Fig. 2, which guarantees improved functionalities and the same quality standards for data and metadata (e.g., ISO19115, INSPIRE, FGDC, Dublin Core, ...). Even this final version of the NextData archive was customized. It is possible to start the data discovery by choosing the topic categories defined for the project (see D2.1A and D2.1B). Finally, the front page was personalised with the project logo.

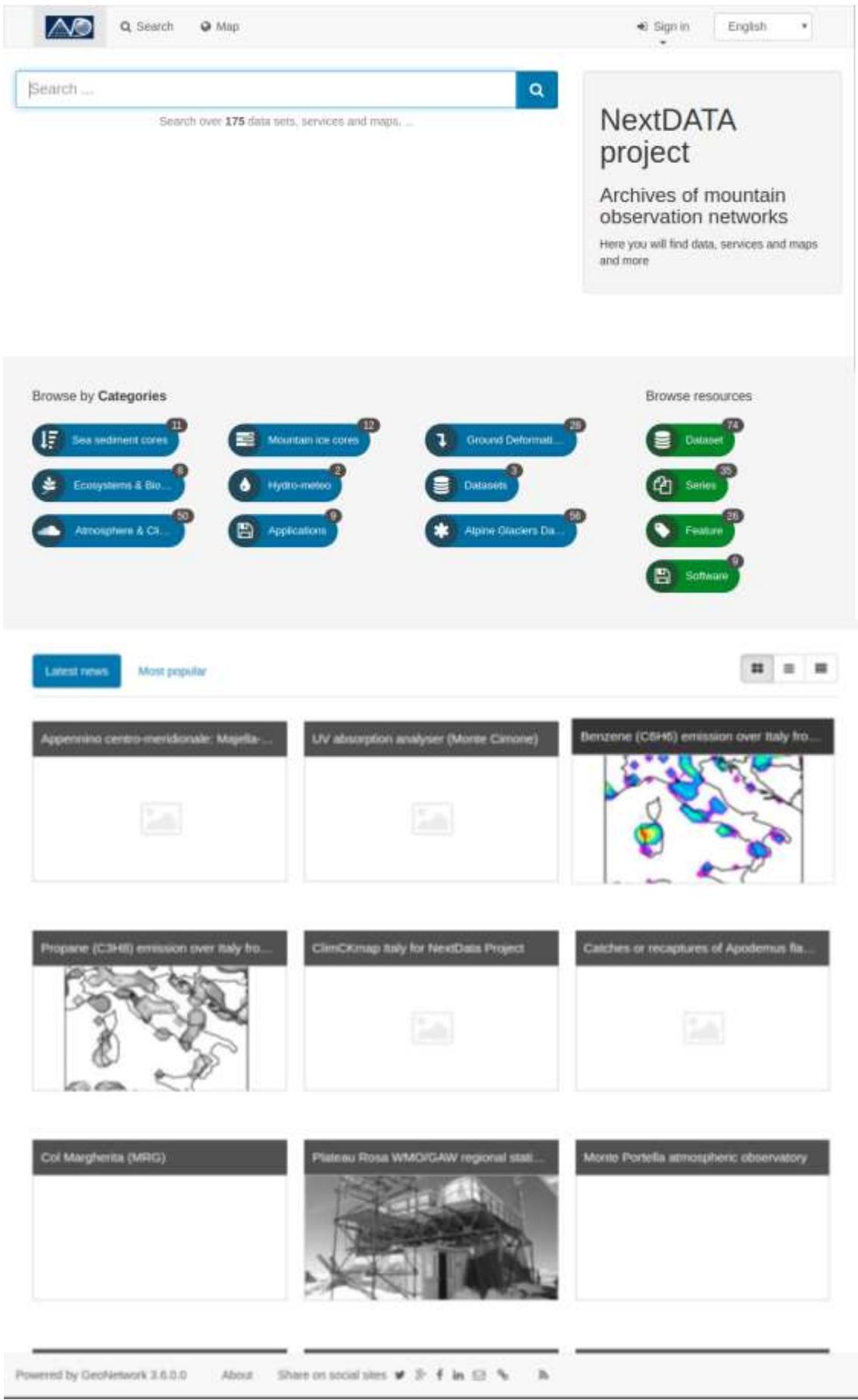


Figure 1 – NextData Archive front page in the adopted Geonetwork updated version.


 Search  Sign in English

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Download Display mode

Gas-chromatograph FID (Plateau Rosa)

The measurement programme of the CH₄ has been run by CESI RICERCA since February 1991 (at beginning by means of biweekly samplings until December 2002 and then by means of continuous measurements since January 2002). The measurements have been stopped from May 2006 to October 2007. Since 2008 the minimum temporal resolution for the mean values is based on hourly averages.
 NIRA Venus 301 operative since November 2007.

On going

Download and links

 Data visualization and analysis tool MOVIDA-Multistation http://shiny.bo.isac.cnr.it:3838/plot-multistats-en/	Open link
 Plateau Rosa WDCGG metadata https://ts.data.jma.go.jp/gmd/wdogg/cgi-bin/wdogg/accessdata.cgi?intex=PRS645N00-RSE&select=inventory	Open link
 Hourly CH ₄ mean values for year 2006-2017. More info on data format can be found at... http://nextdata.ipg.cnr.it/geonetwork/srv/api/records/36b71ded-74be-476c-8ae4-517dc44888fd/attachments/prs645n00_rse_ch4_hr.rar	Download

Associated resources

 Plateau Rosa WMO/GAW regional station (Parent record)	Parent record
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Spatial extent



Temporal extent

Publication date
 2018-05-05

Provided by


Updated:
 2 months ago

Figure 2 – NextData Archive Metadata page (here only the top part): from the Download & Links section the datasets are available for download.

3. WP2.1 archive current contents

Currently, 175 datasets are collected and registered by using ISO19115(19139) metadata standard in the archive of the databases from mountain monitoring networks.

The metadata resources were organized also by categories to facilitate the discovery of the datasets: i) Atmosphere & Climate (50); ii) Alpine Glaciers Database (56); iii) Mountain ice cores (12); iv) Sea sediment cores (11); v) Ground Deformation in Mountain (28); vi) Hydro – Meteo (2); vii) Ecosystems & Biodiversity (8); viii) Applications (9) (in the brackets the number of the current resources registered per each category).

The NextData archive looks to benefit the community, in particular the scientific one devoted to the climate studies. All data in the NextData archive tend to be as much as Open and FAIR as possible satisfying almost all the needed requirement. The datasets indeed are linked to metadata that are identified by mean of a unique ID. The metadata describe precisely the datasets in agreement with the F of FAIR. The datasets are then accessible by common protocols (e.g., http) and the same NextData archive is available as CSW (OGC, 2019) catalogue compliantly with the A of FAIR. The datasets are provided with interoperable and machine readable format (e.g., csv, netCDF, SHP, ...). In many cases controlled vocabularies, at least in the metadata keywords, are used as suggested by the I of FAIR. Eventually, many datasets have a licence of use and the scope, provenience, used standards are often described in the metadata as indicated in the R of FAIR.

4. Conclusions

The NextData digital archive is an alive system which will be maintained even after the end of the NextData project. In addition data contributors are invited to modify metadata and dataset when necessary to keep them and the archive always updated. Moreover, the upload and description of new dataset (e.g., those observed and registered over the end of the project) is highly encouraged.

In the next future the NextData archive could hopefully be part, in a federate system, of the National Data Center foreseen in the National Research Programme (PNR) implemented by the Ministry of Education, University and Research (MIUR) and in turn it could participate to European research infrastructures.