Moving Research Boundaries by Enhancing Access to Swiss Environmental Data

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International Research

Global trends towards

- International collaboration
- Reproducibility/traceability
- Open Data

WSL Environmental Data Treasure

- **Wide range of research areas**: forests, terrestrial ecosystems, biodiversity, landscapes, natural hazards, snow and ice

- **From long-term measurements to large-scale monitoring**: some data sets covering over 100 years
What we don’t want

- collect data for solely the purpose of collecting
- store data out of sight of colleagues and other researchers
- lose track of WSL data
- foster **data archaeology**
Aims of the WSL EnviDat Portal

- **Balance interests** of data producers and data users
- Enable WSL data producers to **exploit the data and publish**
- Share WSL data and **benefit from added value** – as individual researchers and as institution
- Increase national and international **collaborations**; increase numbers of **publications and citations**
- Overcome barriers and **foster environmental science**

WSL acknowledges the responsibility to make publicly funded research data accessible & we are committed to ensure long-term access to our data
EnviDat Conceptual Framework
Working Draft November 2017

NATIONAL GOVERNMENT / PROJECTS
- Opendata.ch
- openresearchdata.ch (CKAN instances)

INTERNATIONAL
- DataCITE (publishing)
- GCOS (data networks)

FUNCTIONALITY
- Metadata records configurable at group level to ensure relevance.
- Metadata service that allows harvesting and providing.
- Data repository for diverse data types.
- Full text + map search for easy data discovery.
- DOI minting and publishing of datasets.

METADATA

INSTITUTION
- URL to existing data resource

RESEARCH GROUP
- Data repository
- QAI-PHR protocol

LEVEL OF COMPLEXITY

METHODS OF INTERACTION

DIRECT SUBMIT

DYNAMIC METADATA

URL LINK

PRINCIPLES
- Leverage existing software as far as possible (CKAN / standard libraries).
- Connect to existing resources by several flexible methods of interaction.
- Distributed data management (research group concept).
- Connect to the wider data management community / adopt best practice.

EnviDat Conceptual Framework Working Draft November 2017

Swiss Federal Institute for Forest, Snow and Landscape Research WSL
Control over Publication – DOIs, Metadata, & Licensing

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Identifier
Creator
Title
Publisher
PublicationYear
Subject
Description
Contributor
Date
Language
ResourceType
Size
Format
Version
GeoLocation
Rights

+ Subject and Research Dataset Specific

Image courtesy of Southampton Web and Data Innovation Team
https://blog.soton.ac.uk/webteam/2013/05/01/research-data-onions-and-envelopes/

Swiss Federal Institute for Forest, Snow and Landscape Research WSL
EnviDat is the WSL portal providing **unified and managed access** to environmental monitoring and research data. EnviDat has the capability to **host and publish** data sets.

- User-friendly data discovery through text and map search
- Publishing of datasets and DOI minting
- Repository for diverse data types
Tree measurements 2002-2016 from the long-term irrigation experiment Pfynwald, Switzerland

To study the performance of mature Scots pine (Pinus sylvestris L) under chronic drought conditions in comparison to their immediate physiological response to drought release, a controlled long-term and large-scale irrigation experiment has been set up in 2003. The experiment is located in a xeric mature Scots pine forest in the Pfynwald (46° 16' N, 7° 36' E, 615 m a.s.l.) in one of the driest inner-Alpine valleys of the European Alps, the Valais (mean annual temperature: 9.2°C, annual precipitation sum: 657 mm, both 1961-1990). Tree age is on average 100 years, the top height is 10.8 m and the stand density is 730 stems ha⁻¹ with a basal area of 27.3 m² ha⁻¹. The forest is described as Erica Pinetum sylvestris and the soil is a shallow pararendzina characterized by low water retention. The experimental site (1.2 ha; 800 trees) is split up into eight plots of 1'000 m² each. During April-October, irrigation is applied on four randomly selected plots with sprinklers of 1 m height at night using water from an adjacent water channel. The amount of irrigation corresponds to a supplementary rainfall of 700 mm year⁻¹. Trees in the other four plots grow under naturally dry conditions. Soil moisture has been monitored since the beginning of the project at 3 soil depths (10, 20 and 60 cm). The crown condition of each tree is being assessed each year since 2003. Tree measurement data such as diameter at breast height, tree height, and social status were assessed in 2002, 2009 and 2014. The duration of the irrigation experiment is planned for 20 years.

Citation:
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## EnviDat – www.envidat.ch

### Metadata

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EnviDat – Technical Overview

HTML5 | CSS3 | JAVASCRIPT | RESPONSIVE

ckan Architecture

EnviDat

Landesforstinventar
Inventaire forestier national
Inventario forestale nazionale
Inventari forestal nazional
National forest inventory

PostgreSQL

Apache Solr

Swiss Federal Institute for Forest, Snow and Landscape Research WSL
EnviDat – System Architecture
geodata4edu.ch Experience: Core Design Principles

- Easy search and find
- Efficient filtering of results
- One-click access to data
Concluding Remarks

EnviDat is the WSL portal providing **unified and managed access** to environmental monitoring and research data. EnviDat has the capability to **host and publish** data sets.

- WSL aims to **foster national and international collaboration**
- EnviDat will **facilitate the publishing and the sharing** of WSL and, possibly, ETH Domain environmental data
- WSL is committed to **contribute to the world-wide trend towards shared data** across research fields, space and time. Ultimately **the value of data lies in their use!**
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