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Life+ EnvEurope DEIMS – improving access to long-term ecosystem monitoring data in Europe

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Long-term ecological (LTER) studies aim at detecting environmental changes and analysing its related drivers. In this respect LTER Europe provides a network of about 450 sites and platforms. However, data on various types of ecosystems and at a broad geographical scale is still not easily available. Managing data resulting from long-term observations is therefore one of the important tasks not only for an LTER site itself but also on the network level. Exchanging and sharing the information within a wider community is a crucial objective in the upcoming years. Due to the fragmented nature of long-term ecological research and monitoring (LTER) in Europe - and also on the global scale - information management has to face several challenges: distributed data sources, heterogeneous data models, heterogeneous data management solutions and the complex domain of ecosystem monitoring with regard to the resulting data.

The Life+ EnvEurope project (2010-2013) provides a case study for a workflow using data from the distributed network of LTER-Europe sites. In order to enhance discovery, evaluation and access to data, the EnvEurope Drupal Ecological Information Management System (DEIMS) has been developed. This is based on the first official release of the Drupal metadata editor developed by US LTER. EnvEurope DEIMS consists of three main components:

1) Metadata editor: a web-based client interface to manage metadata of three information resource types - datasets, persons and research sites. A metadata model describing datasets based on Ecological Metadata Language (EML) was developed within the initial phase of the project. A crosswalk to the INSPIRE metadata model was implemented to convey to the currently on-going European activities. Person and research site metadata models defined within the LTER Europe were adapted for the project needs. The three metadata models are interconnected within the system in order to provide easy way to navigate the user among the related resources.

2) Discovery client: provides several search profiles for datasets, persons, research sites and external resources commonly used in the domain, e.g. Catalogue of Life , based on several search patterns ranging from simple full text search, glossary browsing to categorized faceted search.

3) Geo-Viewer: a map client that portrays boundaries and centroids of the research sites as Web Map Service (WMS) layers. Each layer provides a link to both Metadata editor and Discovery client in order to create or discover metadata describing the data collected within the individual research site.

Sharing of the dataset metadata with DEIMS is ensured in two ways: XML export of individual metadata records according to the EML schema for inclusion in the international DataOne network, and periodic harvesting of metadata into GeoNetwork catalogue, thus providing catalogue service for web (CSW), which can be invoked by remote clients.

The final version of DEIMS will be a pilot implementation for the information system of LTER-Europe, which should establish a common information management framework within the European ecosystem research domain and provide valuable environmental information to other European information infrastructures as SEIS, Copernicus and INSPIRE.