UNEP/DEWA/GRID-Europe : GNV 45

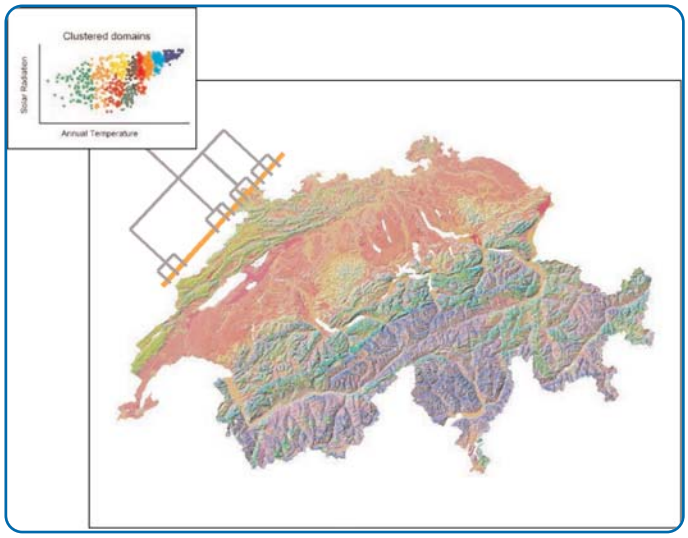
Swiss Environmental Domains (SwissED)

An innovative spatial framework for environmental reporting in Switzerland, for agencies responsible for environment, land use assessment and/or planning.

Background

Swiss Environmental Domains (SwissED) is an environmental classification intended to undepin a range of conservation and research issues. The method used to classify Environmental Domains was originally developed in New Zealand by John Leathwitck at Landcare Research (NZ).

The main scientific justification for environmental domains is that it allows to group together pixels that are close in environmental space, rather than geographically. This means, for instance, that metamorphic high mountain summits belong to the same group, as river beds on quaternary structure, or south-facing alpine slopes.



Objectives

This project aims at finalizing the Swiss Environmental Domains classification that was developed in collaboration with Landcare Research (NZ) within the framework of a Swiss National Fund project in 2003.

It was designed as a framework for conservation management by exploiting a feature of the natural world that has long been evident. Rather than occurring randomly, species distributions are sorted in relation to the environment. As a consequence of this, close environments tend to support similar groups of plants and animals, provided they have not been unduly disturbed by human activity.

Environmental domain analysis capitalises on this by identifying climatic and landform factors likely to influence the distribution of species. Environmental Domains uses these factors to define a landscape classification that groups together sites that have a similar environmental character. Such a classification can then be used to indicate sites likely to have similar potential ecosystem character - not necessarily the same in all respects, but likely to have similar groups of species and similar biological interactions and processes.

One major advantage of this approach, as opposed to directly mapping land cover for example, is its ability to predict the potential character of sites where natural ecosystems have been profoundly modified (e.g., by land clearance or fire) or replaced by introduced plants and animals (e.g., pests and weeds).

Although Environmental Domains was initially developed as a tool for biodiversity management, it has a much wider application. This is because the environmental factors that control the distributions of many land-based plants and animals (temperature, water supply, availability of nutrients, etc.) are also factors that provide major constraints on human land uses such as agriculture, horticulture and forestry.

The main result expected is the creation of three grid layers at 25m resolution representing Swiss environmental domains at three different hierarchical levels.

Partners

Project funded by the Swiss Federal Office for Environment (FOEN).

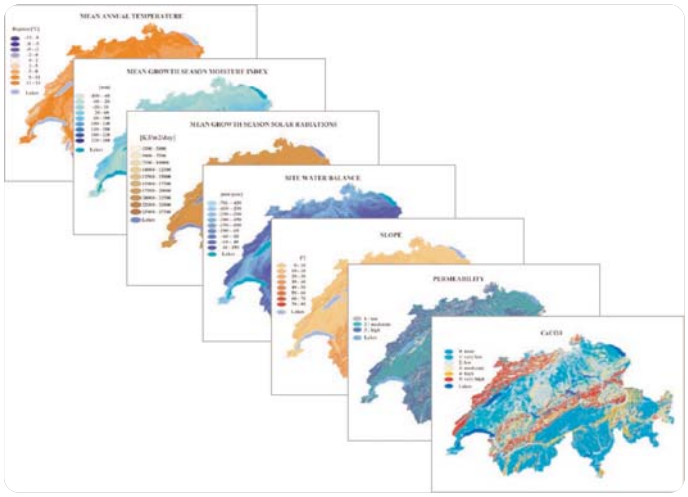
Main partners:
> Swiss Federal Institute for Forest, Snow and Landscape Research (WSL) - Birmensdorf
> Landcare Research New Zealand, National Institute of Water & Atmospheric Research (NIWA) New Zealand

www.unep.org
United Nations Environment Programme
DEWA/GRID-Europe
Ch. des Anémones 11, CH-1219 Châtelaine
Tel: +4122-9178294
Fax: +4122-9178029
infogrid@grid.unep.ch

Upcoming Activities

Environmental Domains represent an innovative spatial framework for reporting on the environment of Switzerland for all agencies in charge of environment and land use assessment and/or planning, such as: FOEN, Swiss Federal Office for Spatial Development (ARE), Swiss Federal Statistical Office, the Federal Geo-Information center Swisstopo, Swiss Biological Records Center (CSCF), Swiss Floristic Network (CRSF), WSL, etc.

Applications foreseen are:
> Reporting on the environment;
> Developing conservation strategies for biodiversity and natural resources;
> Planning reserve networks;
> Planning field sampling;
> Extrapolating results from ecological and agricultural studies; and
> Identifying environments throughout the world that share environmental conditions with those of Switzerland.



Scheduled activities

Months 1 to 3: Improve base environmental layers to be included in Swiss Domains.

Months 4 to 5: Non-hierarchical classification followed by Hierarchical classification of 64 million pixels (25m).

Months 6 to 8: Preparing a publication on Swiss Environmental Domains.

Months 9 to 11:Preparing a website, a poster, a 3D animation and proper GRID layers at three different levels of hierarchy.

About GRID-Europe

UNEP/DEWA/GRID-Europe is one of UNEP's major centres for data and information management, with a unique, "value-adding" mandate in the handling of global and regional environmental data, which in turn support the environment assessment and early warning activities of UNEP and its partners. Located in the "Maison Internationale de l'Environnement" or "International Environment House" (MIE/IEH) in Geneva, GRID-Europe serves as the unique francophone centre for the global GRID network. DEWA/GRID-Europe is supported by a "Partnership Agreement" between UNEP, the Swiss Federal Office for the Environment (FOEN) and the University of Geneva.