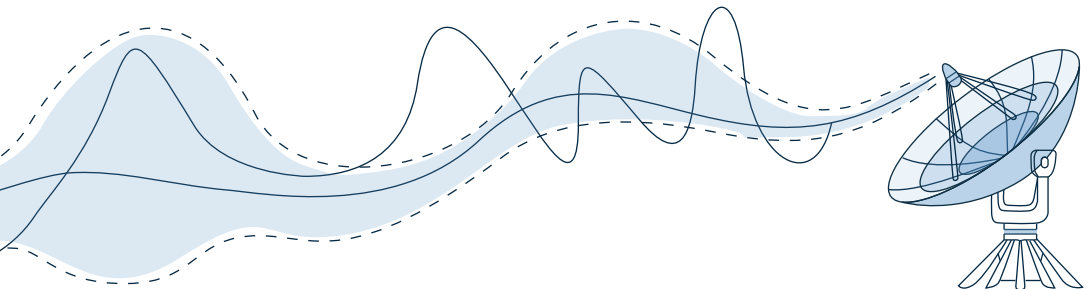


LAND COVER classification system

Land cover assessment and monitoring of its dynamics are essential requirements for the sustainable management of natural resources, environmental protection, food security, humanitarian programmes as well as core data for monitoring and modelling.

Land cover data are therefore fundamental in fulfilling the mandates of many United

Nations, international and national institutions and programmes. Despite the recognition of such importance, current users of land cover data still lack access to sufficient reliable or comparable baseline land cover data. These data are essential to tackle the increasing concerns in regards to food security, environmental degradation, and climate change.



Land Cover Meta Language (LCML)

FAO has contributed significantly to the development of the Land Cover Meta Language (LCML) which became a joint FAO/ISO standard (ISO 19144-2:2012) and is based on the original FAO Land Cover Classification System. This is a classification system which uses consistent, unique and systematically applied classification principles to fully describe the extent of feature types and their details. It provides a total coverage of the world which it can describe, the classes of which are all unique, mutually exclusive and unambiguous.

More importantly LCML is used to standardize the attribute terminology rather than the final classes. It creates a set of standard diagnostic attributes (LCML basic objects, their properties and characteristics) to describe different land cover features. A land cover class is defined by LCML object(s) «biotic» or «abiotic», organized in horizontal or vertical patterns and other temporal relationships. LCML objects can be customized by adding additional attributes of land use and land cover characteristics (climate, landform, topography, etc..).



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GOAL

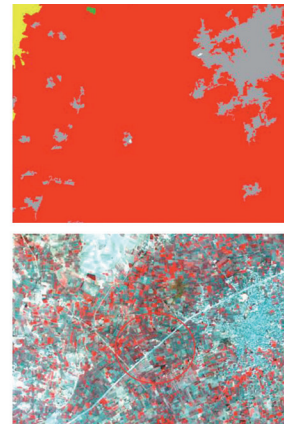
The overall objective of LCML is to ensure the semantic interoperability of land cover classifications, i.e. the ability of systems to exchange land cover data with unambiguous and shared meaning.

IMPACT AND TARGET

LCML acts as a method to bring the land cover community together to create a common understanding of land cover nomenclatures with the aim of producing global regional and national datasets capable of being reconciled at different scales and different levels of details; in different geographic locations.

Thus, a land cover class is defined by the object(s) that it contains, and their spatial and temporal relationships.

LCML is described in a UML diagram. All rules and conditions of the meta-language have been installed in a user friendly software (LCCS3) that allows the creation, edit and export of LCML-based legends. National and regional land cover databases produced in FAO can adopt the LCML standard easily.



Land Cover Classification System (LCCS)

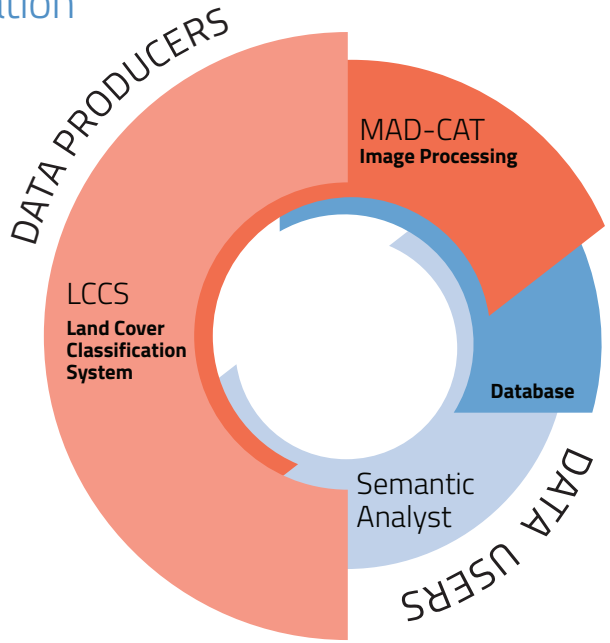
In 2004 under the auspices of the AFRICOVER initiative, FAO, UNEP and the Government of Italy created the Global Land Cover Network (GLCN) programme, with the specific aim to address the requirement of stakeholders for standardized land cover information.

Accordingly, FAO developed the Land Cover Classification System (LCCS) and a set of freeware tools for land cover mapping.

The Land Cover Classification System (LCCS) was developed to respond to the need for consistent and reliable assessment of land cover resources through the use of standards, definitions, classifiers, methods, approaches, semantic interoperability and preparation of interoperable, scalable and interchangeable land cover products at various levels.

The FAO methodology was perpetuated in many areas of the world at global, regional and country levels and in many fields of study.

FAO has developed these standards with the creation of global and national datasets, including the Global Land Cover SHARE 2014 (Global harmonized DB) and the national datasets of Malawi, Sudan, South Sudan, Afghanistan, Pakistan, Senegal, Lesotho and applied them in agriculture, forestry and natural resources.



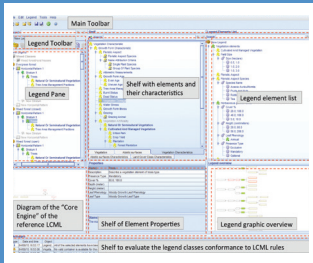
OBJECTIVES

-  to establish a global collaboration for developing a fully harmonized approach;
-  to make the required reliable and comparable land cover and land cover change data accessible to local, national and international initiatives;
-  to support the production and dissemination of reliable, consistent and updated land cover information;
-  to strengthen the capacity of stakeholders in developing countries.

Land Cover TOOLBOX

The LC Toolbox is a free set of desktop tools for interpretation, legend generation and statistics analyses that includes:

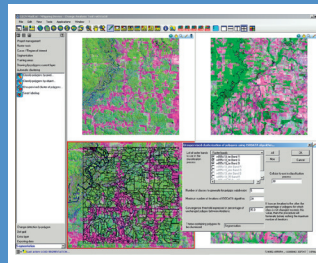
1



LAND COVER CLASSIFICATION SYSTEM V.3 (LCCS)

A sophisticated description engine to classify the land cover features of the Earth. It became an ISO standard in 2012.

2



MAPPING DEVICE-CHANGE ANALYSIS TOOL (MAD-CAT)

A stand-alone application to support the land cover mapping from remotely sensed images.

3

SEMANTIC ANALYST

It is the future querying software that will substitute the actual ADG (Advanced Database Gateway). The major advanced functions of the Semantic Analyst will be the following:

- decoding an LCML (LCCS v.3) based database into the basic objects (with properties and characteristics);
- automatic assessing of the details of each legend classes;
- querying the database by objects according to user's defined specifications;
- similarity assessment of the database legend classes according to the classes defined by the user.

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