geoland2 – Towards an Operational GMES Land Monitoring Core Service

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This presentation gives an overview of geoland2-project and SYKE's role in it. EU-funded geoland2-project intends to constitute a major step forward in the implementation of the GMES Land Monitoring Core Service (LMCS). The goal of geoland2 is to prepare, validate and demonstrate pre-operational service chains and products that will underpin the LMCS, and to propose and demonstrate a concrete functional organisation of the LMCS.

The architecture of geoland2 is made of two different layers, three Core Mapping Services (CMS) and seven Core Information Services (CIS). The CMS produce 'basic' land cover, land cover change, and land state products which are of broad generic use and can be directly used for deriving more elaborated products. The CMS products cover a wide variety of thematic content, spatial scales from local to global, and update frequency, from 1 day to several years. The CIS are a set of thematic elements that start from CMS products and other data sources to produce 'elaborated' information products addressing specific European policies.

The 3 Core Mapping Service tasks are:

- EUROLAND: At local scale, EUROLAND produces VHR Urban Atlas inventory and change on several tens of European cities. At continental scale, it produces over Europe and demonstration sites HR Land Cover inventory and change with 21 classes plus 4 Forest classes and Forest Density at 1-5 ha MMU.

- BioPar: BioPar produces in near real time and off-line a series of biogeophysical parameters describing the continental vegetation state, the radiation budget at the surface and the water cycle. The biogeophysical parameters are derived mostly with MR and LR data, at a global or continental scale; the time frequency of product update is on the order of 1 - 30 days.

- SATChMo: SATChMo operates at continental scale over Europe and Sub-Saharan Africa. It delivers: (i) a VHR/HR Area Frame Sampling over permanent samples representative for all European and African environmental / ecological conditions for annual statistics of land cover & land cover change; (ii) a complete MR continental coverage of seasonal and annual vegetation parameters to produce land cover change and agricultural land use. The time frequency of the product update is on the order of 3 - 12 months.

7 Core Information Services address important sectoral policies (Spatial Planning, Water, Agri-Environment, Forest, Land Carbon, Natural Resource Monitoring in Africa, Global CROP Monitoring) and show examples of GMES end-to-end services.

SYKE is participating SATChMo CMS, following tasks:

- AFS: Interpretation of VHR-images (Kompsat-2 15 x 15 km2, about 35 sites, mostly twice during project) in Nordic and Baltic countries and change detection.

- MR-products: Monitoring of vegetation phenology and crop growing conditions.