

**Towards a European  
GMES Fast Track Service Land Monitoring  
- geoland Findings -**

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**Scope**

This position paper summarises geoland findings from the regional Observatories Nature Protection, Water and Soil, Spatial Planning and the Core Service Land Cover (CSL). It is aimed to support the on-going discussion among the European stakeholders towards an implementation of a European GMES Fast Track Service Land Monitoring. It provides arguments and rationale of possible decision options wrt technical feasibility, timeliness and related costs.

**Demand**

The obligations from new and upcoming environmental directives require a higher spatial resolution and a more frequent update as provided by CORINE Land Cover data today. However, the comparability with CORINE needs to be assured.

**geoland Core Service Land Cover**

The objective of CSL is to provide basic land cover information to the geoland regional observatories. Service providers together with the geoland user groups have analysed a large variety of different technical options wrt their scientific soundness, their technical feasibility under different European environmental conditions today and in future, and their economic viability.

Several concepts were tested in different European eco-zones. The final portfolio comprises 24 classes, interoperable with CORINE. It's content supports the identification of key driving factors of European environmental issues and reporting. The minimum mapping unit proposed is 1 ha in artificial areas and 5 ha in rural areas, respectively.

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A range of methods have been validated which can meet these mapping requirements. They range from traditional CAPI (computer aided photo interpretation; as applied for CORINE land cover) to recent pre-segmentation and pre-classification methods which can effectively reduce the interpretation and mapping effort and scale independent change detection monitoring means.

The crucial element to achieve a homogeneous quality across Europe, whatever eligible and trusted method is applied, is qualification of producers and independent (e.g. user-side) quality control mechanisms.

The positive impact of improved land cover information in a range of policy areas was validated by the geoland Regional Observatories. Their mature services addressing concrete policy needs are currently being rolled-out to larger areas of Europe through ESA's GSE Land Information Services. As a result of the *DG Enterprise Workshop on Land monitoring in October 2005*, EEA and the participating member states have accepted CSL as a starting point towards a GMES Fast Track Service Land Monitoring. In ESA's GMES Service Element "Land Information Services" already now CSL serves as for the intermediate step for high level regional mapping services.

### **Challenge**

What still remains is to achieve an agreement on a common European set of classes for the GMES Fast Track Service (FTS) across the different user groups involved. This requires a consensus among all stakeholders which thematic content and / or which level of detail shall be included in FTS and what shall be left to the responsibility of specific sectors or member states, respectively).

However, the experience gained already enables the geoland regional team in close cooperation with the Member States experts to support the currently started work of the Fast Track Service implementation group through fast assessments of options proposed by user organisations in terms of technical feasibility and related costs.

### **Open Issues to be further evaluated**

The possibility to be able to analyse historical time series in order to assure continuity between CORINE Land Cover and the new GMES Fast Track Service "Land Monitoring" is mandatory; yet this aspect needs further investigations on best methodology finally chosen. The same is true for assured continuity in support of traditional applications (e.g. indicators or land accounting). Here, the impact of the much higher resolution is likely to require correction factors to statistical analysis and model results. The IP Sustainability (named "Boss4GMES"), currently under negotiation at DG ENTR, could serve as a platform for this exercise.