

Aqua Soil SAGE

Service for the Provision of Advanced Geo-Information on Environmental Pressure and State – GMES Project on WFD and SPI

The project aims at the GMES priority themes “Environmental Stress” and “Land Cover”. The precursor services address the European Water Framework Directive (WFD) and the Soil Protection Initiative (SPI). In order to monitor and improve environmental conditions, the cardinal needs of planners and decision makers on available, reliable, and affordable information delivered in time on environmental pressure and stress have to be served.

The implementation of the new European policies (WFD & SPI) are a challenge to most legal bodies in charge. For example, the demand for water basin management plans addressed by the WFD, and reporting schemes on GIS basis requested from the EC, will impose a real paradigm change: instead of statistical data from sampling and point measurements (today's standard approaches), spatial information on is increasingly required on national and local scales. In addition, the European Commission put strong efforts on harmonised reporting from the member states, which requires harmonisation of thematic content and data formats in order to make reports comparable on European level. Here, EO based geo-information data provided by SAGE will contribute significantly.

SAGE directly addresses the requirements of core users dealing with implementation of the WFD and SPI, and representing different environmental conditions (boreal, central European, Alpine, Mediterranean), different information levels (European, regional, national, local), and different end user-organisations (European Commission – European Environmental Agency, Ministries of Environment from member states and local end user groups; e.g. federal state ministries or regional water / soil authorities). Due to their high interest in SAGE, the core users actively participate in the project, their activities being coordinated by the ETC-TE.

To serve the needs of many different end user-segments, which have been identified during the preparation of the SAGE proposal and the first months of the project, SAGE reflects:

- hot spot mapping or sampling approaches on local / regional level
- complete coverage in significantly reduced scales on international level
- different end user infrastructures; e.g. an agency which has an information service already installed and which likes to improve their service will request only for better landcover information, while other customers may ask for a complete service on agri-environmental risk maps or indicators for planning, control and response actions. SAGE pre-cursor services comprise
- AquaSAGE with Water Quality, Water Shortage and Indicators (pressure & state indicators)
- SoilSAGE with pressure and state indicators.

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The key goal is to support the responsible authorities in establishing sustainable management of their water basins and their soils. A better understanding and the early detection of potential risks and sources of environmental degradation will contribute towards a reduction of costs for mitigation, maintenance and sustainable management of the environment as well. In addition, SAGE will be an important step towards a harmonized reporting scheme for the European Union as a whole.

The salient features to achieve SAGE’s objectives have already been identified by ESA and are recognised by the study team. They constitute the GSE’s objectives and milestones:

- The involvement of end users for “closing the loop” between the operational results obtained from the present generation of EO satellites and the definition of future systems.
- The demonstration of EO based information precursor services which are based on proven technology and which are capable to deliver in time reliable and affordable information.
- The identification of cross-cutting issues of a GSE core service basis, addressing for instance a harmonised production chain for landcover / land use (LC/LU) information as “intermediate” products.

The technical realisation of SAGE is based on an open concept for both the infrastructure (space, ground and services) and the partner network. As an overall principle, the design first of all reflects the user needs translated into SAGE’s product portfolio.

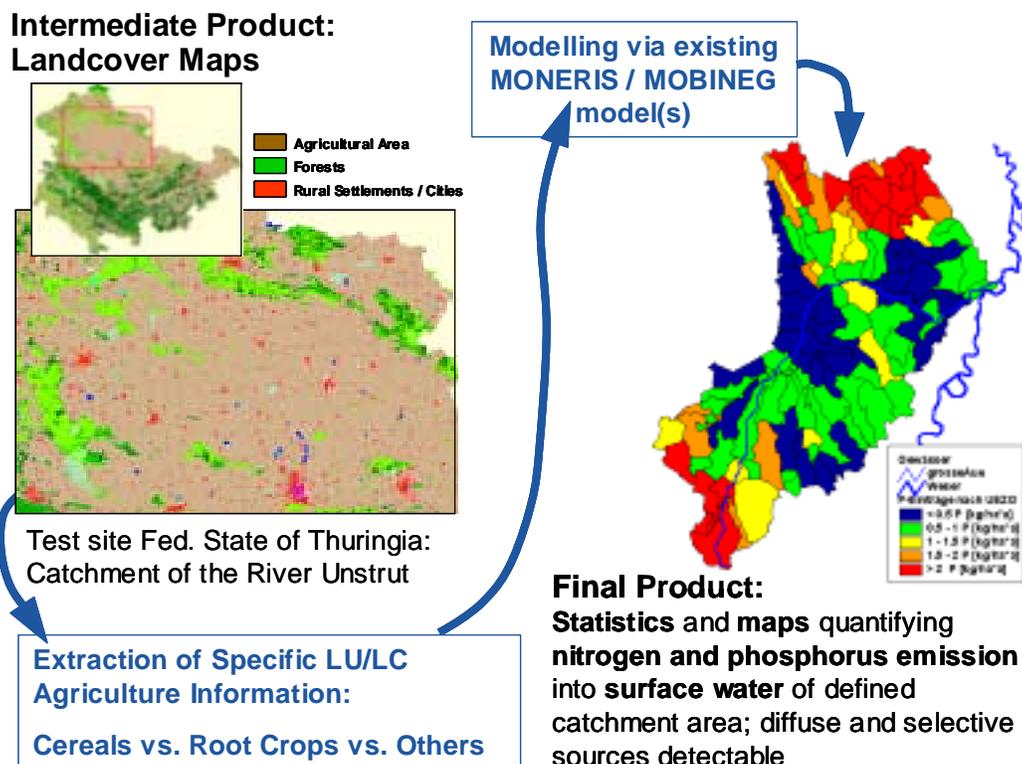


Figure 1: SAGE Product Example regarding Water Pollution