



Towards comprehensive tool support for dynamic GAEM (Geomorphic-AgroEcosystem Modelling) data management

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Common agroecosystem prognostic tools need to include geomorphic component to improve its confident levels at field/catena scale. To examine geomorphic and agroecosystem contents as a single unit we need to invent some "spatial and temporal bridges" for existent models or to create conceptually new within the framework of Geomorphic-Agroecosystem Modelling (GAEM). The basic complication in our view consists (1) in primary presentation of data for the modelling (such as different layouts of spatial data in GIS and climatic data or quantitative description of scenarios) and (2) in data storage and automations for access and processing considering its different sources. Within the framework of the EU project GAEMASS (2011-2013) we develop a tool to carry out multi-variant scenario analysis in the semi-automatic/automatic mode, taking into account standards for spatial tools (OGS) and agroecosystem models (ICASA). The tool consists of comprehensive distributed database, which is filled in with (1) modelling algorithms, (2) experimental data and (3) simulation outputs. To operate the tool and to carry out data analysis an original data manager had been designed. The modelling part is based on well-validated Speros (spatial geomorphic model) and AgroSiTo (Agroecosystem's Simulation Tool), which take into account specific European crop production conditions and tillage and water erosion rates. To validate the models and to check tool's operability we used experimental data collected from several fields (located in North and South Europe) in the EU Teron project. We check for spatial data support using remote queries to several DBMS (Access, MSSQL, PostgreSQL, MySQL, Oracle).