



AquaTerra

Integrated modelling of the river-sediment-soil-groundwater system; advanced tools for the management of catchment areas and river basins in the context of global change

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Description

AquaTerra is a new integrated project in the Specific Programme "Integrating and Strengthening the European Research Area", Sub-Priority "Global Change and Ecosystems" since the 01 June 2004. It aims to provide the scientific basis for an improved river basin management. This requires better understanding of the river-sediment-soil-groundwater system at different temporal and spatial scales. It primarily concerns impacts on water quality and quantity due climate change, land use and pollution.

Soil-water management at catchment and river basin scales needs improved numerical models of the groundwater-soil-sediment-river system that allow to anticipate adverse trends in soil functioning and the water cycle. AquaTerra models aim to integrate key biogeochemical and hydrological processes from laboratory to river basin scales.

The project integrates across various disciplines ranging from Geosciences, Environmental Engineering and Chemistry to Socio-Economic sciences. Selected field sites will be studied in 5 European river basins. The project involves practitioners and end-users such as policy-makers, river basin managers, regional and urban land planners.

AquaTerra has 10 sub-projects:

BASIN investigates selected sites in five contrasting European river basins (Brévilles, Ebro, Meuse, Elbe and Danube):

BIOGEOCHEM investigates soil-filter and transport functions and the fate of pollutants in soils and sediments at laboratory scale.

FLUX quantifies transport and turnover of inorganic and organic solids and solutes at the catchment scale.

HYDRO addresses impacts of climate change on the water cycle through water balances and quality parameters.

TREND aims to identify adverse soil and water quality trends by extrapolating from past and present to future.

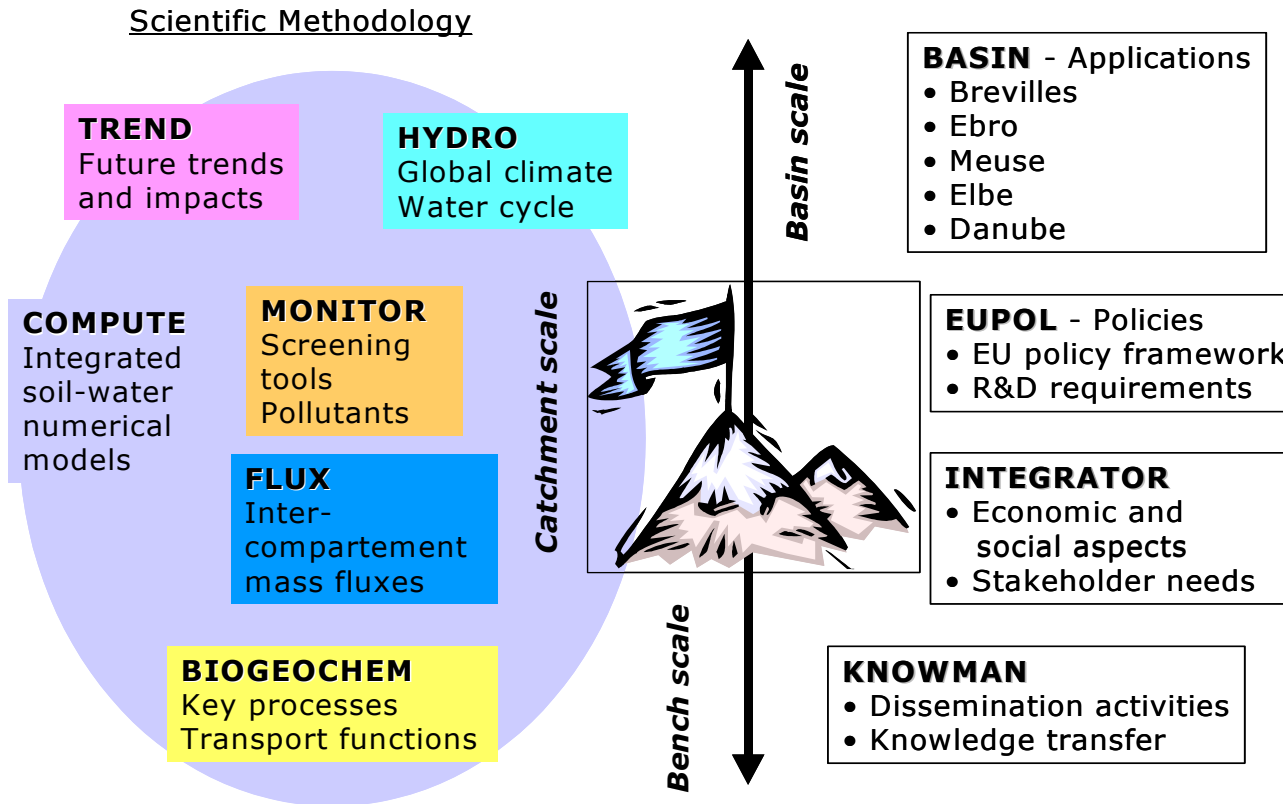
MONITOR will develop and validate new analytical techniques for persistent pollutants and emerging compounds such as pharmaceuticals and pesticides.

Results from the above subprojects will be modelled in COMPUTE at different scales from columns to river basins.

EUPOL and INTEGRATOR bridge the gap between scientists and policy makers and synthesise results of AquaTerra.

KNOWMAN disseminates results to the scientific community and end-users through workshops, seminars, publishing activities and summer schools.

Impact of Global Change on Soil and Water



Selected AquaTerra Deliverables

- Adjusted and validated soil-water numerical models applicable at different operational scales (from the local to river basin scale)
- Databases on biogeochemical parameters relevant for modelling the groundwater-soil-sediment-river system
- Training courses for the dissemination of the results
- Tools for the analysis of identified and non-identified contaminants (organic and in-organic) in water / sediment / soil compartments
- Strategies for monitoring changes and for an integrated management of the river-sediment-soil-groundwater system

Partners

Scientific and applied research institutions:

Tübingen University (D), Bureau de Recherches Géologiques et Minières (BRGM - F), Netherlands Organisation for Applied Scientific Research (TNO - NL), Consejo Superior d'Investigaciones Cientificas (CSIC - E), University of Newcastle (UK), University of Lancaster (UK), Czech Technical University of Prague (CZ), Danish Technical University (DK), Université de Neuchâtel (CH), Wageningen University (NL), Umweltforschungszentrum Leipzig/Halle (UFZ - D), Technical University Hamburg-Harburg (D), Eidgenössische Technische Hochschule Zürich (CH), Institute for Ecology of Industrial Areas (PL), University of Mining and Metallurgy (PL), University of Mainz (D), Flemish Institute for Technological Research (VITO - B), University of Natural Resources and Applied Life Sciences Vienna (A), University of Utrecht (NL), Université de Liège (B), Université Libre de Bruxelles (B), Université Henri Poincaré Nancy (F), Facultés Agronomiques de Gembloux (B), Université d'Avignon et des pays de Vaucluse (F), Free University of Amsterdam (NL), Università di Trento (I), Università di Padova (I), Technical University of Munich (D).

End users: Sociedad General de Aguas de Barcelona (AGBAR - E), Agència Catalana de l'Aigua (ACA - E), Wallonian Institute for Water Management (ISSEP - B), Netherlands Institute for Water Management (RIZA - NL), Organisation for Sustainable soil management at the Kempen (AbdK - NL), National Institute for Research and Development for Environmental Protection (ICIM - RO), Ministry for Protection Resources Environment (Serbia), Slovakian Water Research Institute (WRI - SK), Masaryk Water Research Institute Prague (CZ).

SMEs: ACTeon (F), Laboratories for Applied Organic Petrology Tübingen (D), R3 environmental technology ltd (UK), Attempto Service GmbH (D), Institute for Ecology of Waters and Applied Biology GmbH (GOBIO - D), AQUATEST Land and Water Consultancies (CZ), Slovakian Environmental Institute (SK), WASY Ltd. (D).