WaTEM-SEDEM modelling of soil erosion and sediment yield

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Soils are the largest terrestrial reservoir of organic carbon and nutrients such as nitrogen and phosphorus. They underpin the functioning of all terrestrial ecosystems and are key to improve food security and soil carbon sequestration. In many areas cultivation lead to increased rates of soil degradation through soil erosion. Soil erosion still constitutes one of the major threats to soils in Europe and its spatial prediction still poses a challenge to the soil science community.

Today, the mainstreaming of geospatial technologies like Geographic Information Systems (GIS), satellite imagery and robust spatial interpolation methods are creating an enabling environment to make the necessary quantum leap in modelling both soil loss rates and sediment yield. In the frame of this project we work on methodologies including beyond the state-of-the-art techniques to:

- integrate spatio-temporal variation of vegetation phenology in soil loss prediction models;
- moodel sediment origin and transport dynamics;
- narrow the knowledge gap regarding the lack of thorough approaches to upscale high-resolution input parameters to catchment- and regional-scale.