



## **Spatial distribution of erosion and deposition on an agricultural watershed**

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To better understand the agricultural landscapes evolution becomes an essential preoccupation and, for this, it is needed to take into account the sediments deposition, in a distributed way.

As it is not possible in practice to study all terrestrial surfaces in detail by instrumenting sectors to obtain data, models of prediction are valuable tools to control the current problems, to predict the future tendencies and to provide a scientific base to the political decisions.

In our case, a landscape evolution model is needed, which aims at representing both erosion and sedimentation and dynamically adjusts the landscape to erosion and deposition by modifying the initial digital elevation model. The Landsoil model (Landscape design for Soil conservation under soil use and climate change), among others, could fulfil this objective. It has the advantage to take the soil variability into account. This model, designed for the analysis of agricultural landscape, is suitable for simulations from parcel to catchment scale, is spatially distributed and event-based.

Observed quantitative data are essential (notably to calibrate the model) but still limited. Particularly, we lack observations spatially distributed on the watershed. For this purpose, we choose a watershed in Belgium (Wallonia) which is a 124 ha agricultural zone in the loamy region. Its slopes range from 0% to 9%. To test the predictions of the model, comparisons will be done with:

- sediment measurements which are done with water samplings in four points on the site to compare the net erosion results;
- sediment selective measurements (depth variation observed along graduated bares placed on site) to compare the erosion and deposition results;
- very accurate DSM's (6,76 cm pixel resolution X-Y) obtained by the drone (Gatewing X100) each winter.

Besides planning what the landscape evolution should be, a revision of the soil map (drew in 1958) is organized to compare with the past situation and establish how the landscape moved in 50 years.

The first results of the sediment measurements and of the pictures of the drone will be showed in the presentation.