



Dynamic of pesticides during flood events in an intensive agricultural catchment dominated by an alluvial aquifer.

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In catchment with an important alluvial aquifer, one important part of the agricultural pollution (including nitrates and pesticides) was transported from the soil to river by aquifer drainage or directly by runoff during flood events. This study – included in the AguaFlash (<http://www.aguaflash-sudoe.eu/>) European project – aims to understand contaminants loads dynamics and the contribution of the groundwater and surface runoff to river pollution.

The dynamic transport of nitrates, suspended sediments and pesticides was investigated during one year from October 2009 to October 2010 within a large agricultural catchment in north of Spain at the outlet of the watershed. This study was based on an intensive dataset with high temporal resolution using manual and automatic sampling, especially during flood events. Two main objectives aimed at: (i) studying transport dynamic of nitrate, suspended sediments and pesticides with factors explaining their dynamics and (ii) analysing the relationships between discharge, nitrates, suspended sediments and pesticides during flood events. The relationships of nitrates, suspended sediments and pesticides versus discharge over temporal flood events resulted in different hysteresis patterns which were used to distinguish dissolved and particulate origins.

Pesticides dynamic depended of the type of the molecules and was assessed by the origin of the water (runoff or groundwater drainage). A conceptual model was proposed to explain pesticides dynamic in a large intensive agricultural catchment dominated by an alluvial aquifer.