# Evaluation of uncertainties on water quality management of an agricultural catchment for different time scales

A. Pinheiro(1), F. Cernesson(2), M.G. Tournoud (3), P. Kosuth (2)

(1) Universidade Regional de Blumenau – SC Brazil (pinheiro@furb.br), (2) UMR Tetis – Montpellier – France (flavie.cernesson@teledetection.fr, pascal.kosuth@teledetection.fr), (3) Université Montpellier II – France (tournoud@msem.univ-montp2.fr)

Tools for surface water quality management need different data basis in regards to scales of time and space, for their calibration and/or validation. Hydrological data are usually available at short time steps. However, it does not happen often to water quality data. The analysis of pollutant substances demands complex structures and monitoring cost is high: monitoring management is very difficult to hold, especially for short time steps and small space units. Within this context, this essay presents a study of uncertainties on pollutant loads, for an agricultural catchment, taking account the information quality for water quality data at different time steps. The considered pollutant substance is nitrate, collected from the Auradé catchment. This catchment (3.22 km$^2$), located in the South of France, presents 4 measurement stations. The land use is essentially intensive agriculture (cereals). During flood periods, sampling was held at an hourly time step. During low water period, sampling was daily. Data were collected during 7 years. In this work, data were disaggregated for time steps varying from 1 to 30 days. The annual loads were determined by the expression $F=(\Sigma(C_i.Q_i)/\Sigma Q_i)Q_m$, where $C_i$ is the instantaneous concentration associated to individual samples, $Q_i$ is the corresponding instantaneous discharge and $Q_m$, annual mean discharge. We will discuss the uncertainties generated by the desaggregation of the information and will try to define a minimum information requirement for management of agricultural non-point pollution. The conclusions must contribute to elaborate monitoring programs of water quality that could be held by the managers of water resources, at the catchment scale, with scarce material and human resources.