Sampling of suspended sediments flowing in a river: design and test of methodologies aimed at bulk sediment sampling for chemical analysis

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Introduction: Evaluation of Total Suspended Solids (TSS) and TSS flow in river water can assume an important role in the sediment management and characterization. Transport dynamic of TSS can indeed influence not only physical processes (sedimentation rate, erosion, etc) but also ecological processes (such as nutrients cycling, chemicals fate, transport and diffusion, benthic community structure etc).. However, TSS investigations can be challenging, due to sampling complexity, seasonal and hydrological variability and analytical limitations.

The poster will present advantages/disadvantages of different TSS sampling methodologies, evaluated and tested during environmental characterization conducted on River Toce by ARPA and Syndial

The scope of the studies was to monitor and to understand the role of suspended sediments on the DDT transport along the River Toce to the Lake Maggiore.

Methods: River Toce suspended sediments monitoring started since 2010 and many different kind of technical solutions have been studied and applied in order to obtain bulk samples of suspended sediments.

In details, the poster will present methods, limitation/advantages and possible application of the following approaches:

- isokinetic sampler (DH59), used on a monthly base to quantify the suspended sediments during different hydrological phases;
- bulk sampling monitoring through Cartene Shells sampler (modified from Galas 2008)
- riverside pumping and filtration system
- passive sampler, both floating or deposed on the river bottom, developed on the basis of different experiences