



## **Monitoring the effects of climate and agriculture intensity on nutrient fluxes in lowland streams: a comparison between temperate Denmark and subtropical Uruguay**

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Climate is changing towards more extreme conditions all over the world. At the same time, land use is becoming more intensive worldwide and particularly in many developing countries, whereas several developed countries are trying to reduce the impacts of intensive agricultural production and lower the excessive nutrient loading and eutrophication symptoms in water bodies. In 2009, we initiated a comparative research project between the subtropical region (Uruguay) and the temperate region (Denmark) to compare the hydrology and nutrient fluxes in paired micro-catchments with extensive production or intensive agriculture. The four selected streams drained catchments of similar size (7 to 19 km<sup>2</sup>). We have established similarly equipped monitoring stations in the four micro-catchments in spring (November 2009, Uruguay; March 2010, Denmark) to monitor the effects of land use and agriculture intensity on stream hydrology and nutrient concentrations and fluxes under different climate conditions. We have conducted high frequency measurements in the four lowland streams with underwater probes (turbidity, pH, conductivity and oxygen measured every 15 minutes), fortnight grab sampling of water and automatic sampling of composite water samples for nutrient analysis (total and dissolved nitrogen and phosphorus; sampled every four hours and accumulated fortnightly). Moreover, water level and meteorological information (precipitation, air temperature, global radiation, humidity) has been recorded every 10 minutes and instantaneous flow measurements have been conducted at regular intervals, to facilitate the calculation of instantaneous discharge from continuous records of water level (stage-discharge relationships). We will show results of ca. 2 years from this comparative study between Uruguay and Denmark, and the importance of differences in climate and land use will be discussed.