

**Hydro-sensor-FLOWS Arctic and antarctic glacier hydrosystems
as natural sensors for recent climatic variations – Uruguay**

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This activity joints EoI n° 535 (LovenFLOWS presented by M. Griselin, France and EoI n° 233 (SUGLANET, presented by A. Eraso, Spain). The two teams worked together for a long time concerning Svalbard Hydrology and are linked by a convention between CNRS (French Scientific Research Center) and IPEV (French Polar Institute). The objective of this clustering project is to investigate the hydrology of polar and subpolar glacier basins. It is known that discharge of temperate glaciers ($1-1.2 \text{ m}^3 \cdot \text{s}^{-1} \text{ km}^{-2}$) is bigger than that coming from subpolar glaciers ($0.2-0.3 \text{ m}^3 \cdot \text{s}^{-1} \text{ km}^{-2}$), but also it is true that extension of subpolar glaciers (ca. $750,000 \text{ km}^2$) is 10 times bigger than that of temperate glaciers (ca. $70,000 \text{ km}^2$). By considering these data, the discharge of subpolar glaciers due to the global warming may be as important as those coming from temperate glaciers. However, the hydrological response of subpolar glaciers to atmospheric inputs is not well-know and may be precised by continuous monitoring of some parameters at key-locations on basins. New technologies in the fields of information and communication drastically increased the observation capacity of scientists. In very reactive environments such as polar regions, it is now possible to enhance qualitative and quantitative observations using automatic data collection sensor webs. The development of such networks is bringing new tools to answer hypothesis that were so far lacking a continuous database to be studied. Such is the situation of arctic hydro-systems for which the most data available over the last forty years are discontinuous, usually summer measurements. The originality of this program is to investigate the hydrology of glacier basins through continuous survey, over a period of several years, which is necessary to quantify the hydrosystems reactivity to climatic variations (hourly, daily, seasonally even yearly).