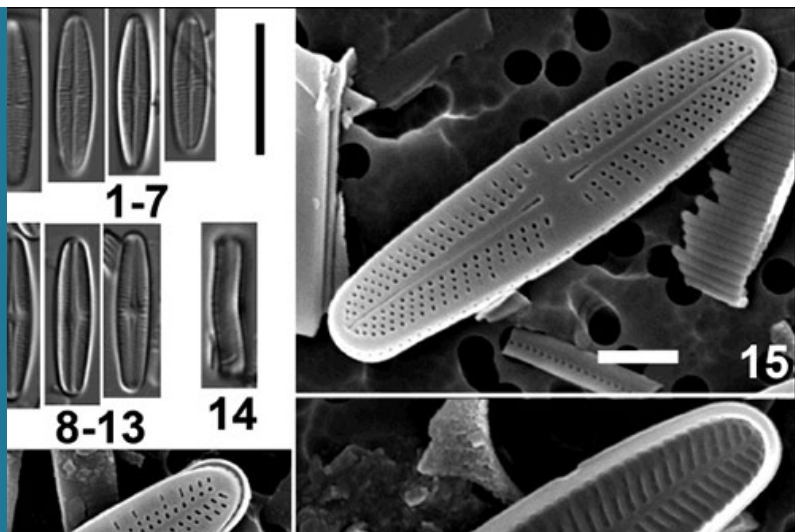


## ECSTREAM

Eco-hydrological couplings for investigating streamflow generation processes



### CONTEXT

The ECSTREAM research project is based on the results obtained as part of the BIGSTREAM project, a preliminary study that sought to demonstrate the potential of terrestrial diatoms for tracing surface runoff. Clearly interdisciplinary, the ECSTREAM project will pursue additional objectives in hydrology and ecology, objectives that are at the leading edge of research in these two disciplines:

- hydrology objectives: the team sought to study the hypothesis of the transportation of terrestrial diatoms via a network of macropores in the first few centimetres of the ground. In addition to this aspect, the plan was also to study to what degree the stock of terrestrial diatoms is affected by a sequence of successive rains, and how quickly this same stock is replenished;
- ecology objectives: the potential of terrestrial diatoms for the assessment of soil quality – just the same as the use of aquatic diatoms as bioindicators for assessing water quality – will be estimated.

The ECSTREAM project will be able to entirely rely on the sampling and analysis protocols for terrestrial diatoms that were developed as part of the BIGSTREAM project. The results obtained as part of the project are being used in a doctoral project in hydrological modelling carried out by Anna Scaini in collaboration with Professor Keith Beven of Lancaster University (UK).

### INNOVATION

The ECSTREAM project pursues an interdisciplinary approach that is clearly part of the multi-year research development programme within the ERIN department. In addition to the complementarity of the research subjects pursued by the hydrologists and ecologists, it also touches on subjects that are at the leading edge of research: firstly connectivity in the watershed system – riparian zone – stream and, secondly, the virtually embryonic status of the knowledge with regard to terrestrial diatoms.

### IMPACT

The results for 2013 related to the initiation of the calibration of the MIP (Multiple Interactive Pathways) model, as part of Anna Scaini's doctoral work, and to the study of the transfer of diatoms to surface waters via the macroporosity of the soils, with the latter work relying on laboratory-based experiments.

### Partners

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