CHROME - EA – 7352

TITRE : ***PERSIST: Persistence and fate of emerging contaminants and multi-resistant bacteria in a continuum of surface water groundwater from the laboratory scale to the regional scale (2014-2016)***

- **Coordinateur du projet :** ***Corinne Le Gal La Salle***
- **Partenaires du projet : *Catalan Institute for Water Research – ICRA, Helmholtz Zentrum München, Institute of Groundwater Ecology***
- **Financeur : [ONEMA] – Water JPI european project**
- **Dates : 2014 - 2016**
- **Contact Unîmes : corinne.legallasalle@unimes.fr**

Descriptif du projet :

Emerging organic contaminants are compounds recently detected in the environment, newly developed or recently classified as contaminants. Currently, their concentrations are not regulated by environmental policies due to a lack of knowledge. Over the last dozen of years, pharmaceutical compounds raised a high concern from the population and the water managers, as it was found in many water bodies all around Europe. Though they represent a great public health concern, their transfer and fate are not yet well known in water bodies.

In this context, the PERSIST project aims to increase knowledge on the behaviour of a selection of emerging organic compounds (targeted pharmaceutical products) in both surface and groundwater. Two complementary hydrogeological field studies, in Spain and France, are supported by laboratory column experimentations. In addition, multiresistant bacteria will be investigated in surface water as it could be due either to wastewater treatment plant outlet or due to the presence of residual antibiotics.

The project will be performed following 3 technical tasks answering the following objectives: (i) to determine the sorption parameters and degradation rates of EOCs in controlled laboratory experiments using in-situ sediments, (ii) to identify the influence of previous parameters during transfer process from stream water to groundwater (iii) to upscale the results found in the laboratory experiments to understand the fate and migration of EOCs at the catchment scale.

To better understand sources and transfer processes of these compounds in a surface water/groundwater continuum, the characterization of their occurrence will be compared to environmental tracer analyses.
Expected results from the field studies, in the Empordà and Vistrenque basins, include an improved understanding of the processes that control EOCs and resistant pathogen transfers from stream water to groundwater and during migration in aquifers. The relevance of non reactive and reactive transport will be highlighted.
In addition, relating the factors that control the hydrological system, contaminant movement with potentially contaminating land-uses allow identifying areas of vulnerability.
Finally, results will be useful to delineate guidelines for groundwater pollution prevention and aquifer restoration contributing to the development and implementation of EU directives for EOCs occurrence in water bodies.