Managing groundwater extraction for irrigation in Tarn-et-Garonne (France)

From a hydrodynamic model to a groundwater extraction management tool

- In France, in one of the watershed districts from the European Water Framework Directive, the Adour-Garonne basin, alluvial aquifers make for strategic water resources.

- These aquifers are closely linked to the rivers and support their low flows.

- In Tarn-et-Garonne, alluvial aquifers are highly exploited for agricultural irrigation. Since several decades, lower rainfall has led to more severe low flows, resulting in conflicts of use.
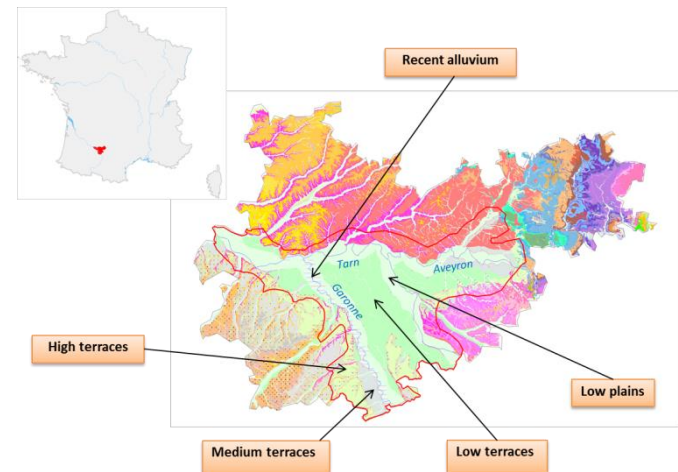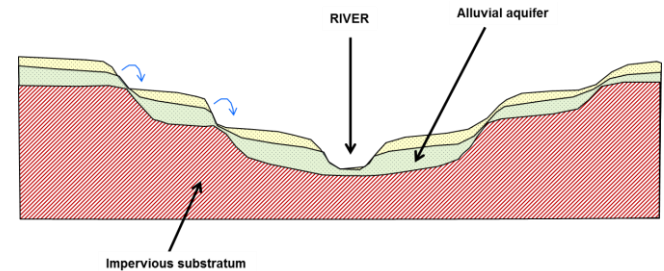
➢ Several hydrodynamic models were built for the alluvial aquifer in Tarn-et-Garonne

➢ The last model has two layers and 36,500 active cells; it simulates the water level and flow of 41 rivers in a 20-year span and takes into account 750 agricultural pumping wells.

Total number of cells : 150 300
Number of active cells : 36 442

LAYER 1 : ALLUVIUM
16 874 cells

LAYER 2 : MOLASSE
18 221 + 1 347 cells

Cell dimensions :
250 x 250 m

N°abstract : 2014

25-29th
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Montpellier, France
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➢ Creation of a groundwater agricultural extraction management tool based on the model

➡ Goal : The tool must help French authorities know available groundwater volumes each year and adjust authorized pumping volumes accordingly.

Piezometric monitoring and return periods (Source : ADES website)

Home page of management tool

Comparison of available volumes to requested ones