

# Uno studio numerico per la delimitazione dell'area di cattura di un pozzo nell'Alto Trevigiano



## A numerical study for the delimitation of a pumping well capture zone in the Treviso Province

*Enrico Michieletto – Università degli Studi di Padova, Padova, Italy*

*Year: 2019*

*Tutors: Prof. Matteo Camporese – Università degli Studi di Padova, Padova, Italy*

*Prof. Paolo Salandin – Università degli Studi di Padova, Padova, Italy*

### Abstract

The thesis is about a preliminary study on the vulnerability of an aquifer located in Conegliano (Veneto, Italy), a town of the Treviso Province famous for its Prosecco's hills.

The study has begun in August 2018, and its purpose is to determine the influence area and the interaction of some pumping wells, activated to get drinkable groundwater.

It is part of bigger research project, made by a collaboration between the ICEA Department (Department of Civil, Environmental and Architectural Engineering) and the DAFNAE Department (Department of Agronomy, Food, Natural resources, Animals and Environment): the aim is the spatial monitoring of groundwater (unsaturated and saturated zone), to get an estimate of the possible impact of pesticides on grape cultivation and on the quality of drinkable groundwater.

Another part of the study has been about the diffusion time and mode of chemical substances, penetrating among various slices of the ground's porous material.

The entire project was named with the SWAT acronym: "Subsurface Water quality and Agricultural practices monitoring".

The SWAT activities are directed to verify:

- the eventual underground intrusion of polluting substances, in relation to the morphology and soil composition of the examined zone, subjected to grape cultivation
- the way of sub-vertical water motion in the unsaturated zone, made mainly by organic material, and characterised by the presence of three phases: solid phase, liquid and aerial phase.
- for the saturated part of porous media, the areal extension of draw-down cone, in other words on the plan view extent of the zone which is affected by the suction of wells.

Subject of the thesis is substantially the third item of the list, that is to say the definition of a sort of "envelope" for the capture areas surrounding the wells, setting the instant of observation from time to time.

The thesis is written in Italian language.

The thesis can be consulted upon request.

Author's contacts: Enrico Michieletto – [enrico.miki@gmail.com](mailto:enrico.miki@gmail.com)

