



## **Groundwater Nitrate Contamination Risk Assessment in Canicattì area (Sicily)**

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Groundwaters play a dominant role in the Sicily, because as most part of Mediterranean countries this island is interested by the phenomenon of desertification and the quality of the groundwater reservoir is one of the most important aim for the management policy strategies.

During last decade most of the Italian regions the nitrate levels in river and groundwaters have increased gradually over mainly as a consequence of large-scale agricultural application of manure and fertilizers, thereby threatening drinking water quality.

The excessive use of chemicals and fertilizers increases the risk to pollution of surface and groundwater from diffuse source, an important reflex to human health and the environment.

The studied area is located in Canicattì (central Sicily, Italy), the current land use (grape, olive grove and almond) is the main source of groundwater pollution.

In order to investigate the effect of the over farming on the groundwater quality we report the study on the potential risk of contamination from nitrate of agricultural origin through the join of the application of two parametric methods: the IPNOA method (the intrinsic nitrate contamination risk from Agricultural sources) applied to define the Nitrate Vulnerable Zones and the SINTACS method applied to determine the aquifer vulnerability to contamination.