

## **Abstract**

In Alentejo region, southern Portugal, differences in groundwater samples from six groundwater bodies covered with different land uses were analysed based on the monitoring plan of the Alqueva multi-purpose project, created in the sequence of the construction of the Alqueva Dam on the Guadiana River, in South Portugal. For most of the groundwater bodies there is a statistical significant difference between magnesium, sulphate, chloride, and phosphate. All of these ions are strongly correlated with land use management. Groundwater, where land is covered by olive groves, has high levels of electric conductivity, calcium, potassium, sulphate, and phosphate. Dry land crops are correlated with calcium, magnesium, chloride and consequently, electric conductivity, phosphates and sulphate. Vineyards are strongly correlated with high sulphate and phosphate levels. This study clearly shows that different land uses within a certain groundwater body influence the water quality in a different way. Therefore, an appropriate soil management should be adjusted to each situation, taking into account the aquifer matrix and the overlying soil.

## **Keywords**

Groundwater Land use Groundwater quality

Full paper in:

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