



Quantification and spatial distribution of nutrients in the unsaturated zone of the Tablas de Daimiel National Park

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The Tablas de Daimiel National Park is located at the end of both a 15,000 km² surface catchment and a 5,000 km² groundwater one, the “Mancha occidental” aquifer. The intensive exploitation of this aquifer has caused that groundwater discharge in the Tablas de Daimiel area has been decreasing since the 1980's decade until they completely stopped. This fact has favoured the progressive development of an unsaturated zone which had not existed before and a full inversion in the water flux direction as drainage zones of the aquifer became recharge areas. To assess the impact of this process on groundwater quality, a first approximation to the problem has been made through the quantification of the spatial distribution and concentrations of labile nutrients stored in the unsaturated zone, which are readily available to be exported to the saturated zone. Results indicate that nutrients tend to accumulate in areas consisting on charophyte layers with high organic matter content and vegetal remains mainly originated from reed (*Phragmites australis*) decomposition, and in channels filled with fluvial silts and peaty clay sediments linked to the superficial drainage network of the basin. The risk of nutrient leaching to groundwater through the unsaturated zone is favoured by shallow water tables in some areas inside the National Park and by the low quality of infiltrating waters.