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Extended Abstracts

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title: **Groundwater recharge in the fractured massif of Gardunha mountain (Central Portugal)**

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Serra da Gardunha (central Portugal) belongs to a great mountain system, the Iberian Massif. In highland areas such as the Serra da Gardunha formed by predominantly low permeability igneous and metamorphic rocks, the bedrock itself may be a potential source of groundwater.

Detailed hydrogeological studies have been carried out in the Serra da Gardunha in order to estimate the natural recharge rate of crystalline bedrock.

Part of the rainfall in the region rapidly flows downhill towards the drainage areas of the principal rivers and streams. The rest infiltrates in the bedrock moving mainly through secondary openings, such as joints, fractures and faults. Traditionally, horizontal wells and springs are used to abstract these groundwater resources.

The methods used to estimate groundwater recharge include the analysis of daily data of spring base flow and its comparison with data provided by the chloride mass balance method. Chemical data from rainfall and groundwater were also collected.

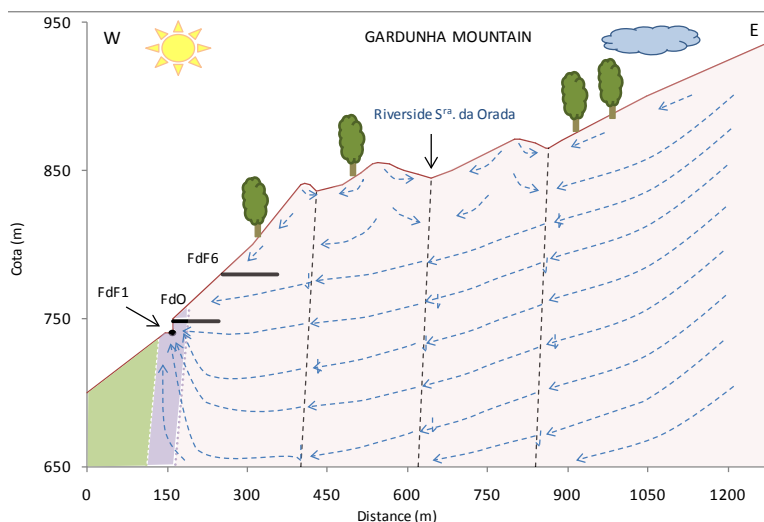


Figure 1. Schematic cross-section of the region in study.

The results contributed for the development of the hydrogeological conceptual model of the region (Fig. 1) and show that about 15% of the rainfall recharges shallow groundwater resources. This recharge values may not be of significance at regional level, but certainly constitute an important local source of water for drinking supply.

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