

The quality of surface water and groundwater in the eastern Haouz and Tassaout area, Morocco

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Abstract The eastern Haouz and Tassaout area of Morocco is an intra-mountain plain characterized by a semi-arid climate, where there is an increasing demand for agricultural productivity. To meet this need, local irrigation is dependent on the supply of water from surface and aquifer sources. Piezometric mapping shows that groundwater recharge is driven by anastomosis in contact with limestones outcropping in the High Atlas Mountains, and by re-infiltration of irrigation water along the upper Tassaout River. Another recharge area is located further downstream in the plain bordering the Jebilet Mountains. The hydrodynamic behaviour of the groundwater in the eastern Haouz and the Tassaout area is controlled by a divide, as evidenced by gravity anomalies. Electrical conductivity measurements and geochemical analysis have been used as a basis for mapping groundwater quality. The salinization problem is mainly caused by the presence of shales and salt Triassic deposits, whereas alternative pollution is primarily due to water contamination by nitrate leaching.

Key words Haouz plain; Tassaout area, Morocco; irrigation; geophysics; piezometric; salinity; nitrate pollution