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EVIDENCE FOR SEA WATER INTRUSION IN KARSTIC AQUIFER OF KARABURUN PENINSULA, NW TURKEY

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Abstract: Karstic aquifers are considered to be significant sources of groundwater and are mostly under threat due to sea water intrusion in many parts of the world. Seawater intrusion is also a common problem on karstic aquifers of Karaburun Peninsula in north of Mediterranean Region. The hydrogeology of Karaburun Peninsula is fairly complex and is mostly characterized by highly permeable karstic formations with significant water storage in an otherwise water scarce area. The karstic aquifers of the region were recently found to be under severe salt water intrusion, which significantly altered the position of fresh water/sea water interface as a result of excessive pumping and fault zones controlling the karstic network.

In this study, structural, tectonically, hydrogeological and hydrochemical properties of the groundwater resources of Karaburun Peninsula were evaluated and the status of salt water intrusion was assessed. The results indicated that significant levels of karstification in the carbonates of the region created a number of karstic structures which are tectonically controlled. Karstic aquifers in Ildırı region were found to be affected by sea intrusion with electrical conductivity values reaching to levels as high as 30000 $\mu\text{S}/\text{cm}$. The high levels were attributed to direct saltwater intrusion towards the karstic cavities along the fault lines from at least two directions in the Ildırı well field region.

Keywords: Coastal aquifer, groundwater, karstic aquifer, seawater intrusion, Karaburun Peninsula

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