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## PERMEABILITY MUTATION MECHANISM OF HYDRO-GEOCHEMICAL CONDITIONS IN SEA AND FRESHWATER TRANSITIONAL ZONE

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### Abstract

Taking the sandy aquifer intruded by seawater in the lower reaches of Dagu River as the research object, the samples of underground freshwater, seawater and aquifer media were collected, and their composition and properties were determined. The seepage device was used to simulate the displacement process of seawater and freshwater. The relationship between permeability change of aquifer and hydrologic-geochemical action was studied. The mechanism of water sensitivity was explained by a hydrologic-geochemical process for the first time. The results show that the exchange and migration of multi-component ions occur in the process of mutual displacement of saline and freshwater, accompanied by clay release and complex hydrologic-geochemical processes. The reason for clay release is not the enhancement of diffusion and dispersion, but the enhancement of clay expansion and diffusion by hydrologic-geochemical action, which results in the decrease of permeability of the aquifer.

*Key words:* hydrologic-geochemistry, permeability, sea and freshwater displacement, water sensitivity

*Received:* October, 2019; *Revised final:* March, 2020; *Accepted:* April, 2020; *Published in final edited form:* September, 2020

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