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## Space-time groundwater level distribution estimation in a complex system of aquifers

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A geostatistical analysis based on a machine learning method was conducted to generate reliable spatial maps of groundwater level variability and to identify groundwater level patterns over the island of Crete, Greece. Geostatistics plays an important role in model-related data analysis and preparation, but has specific limitations when the aquifer system is inhomogeneous. Self-Organizing Maps can be applied to identify locally similar input data and then by means of Ordinary Kriging to estimate the spatial distribution of groundwater level. The proposed methodology was tested on a large dataset of groundwater level data in a complex hydrogeological district, and the results were significantly improved if compared to the use of classical geostatistical approaches.

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