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# Applying Multiple-Criteria Decision-Making of TOPSIS in Droughts Zoning of Gilan Province

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## Abstract

Owing to the rise in water demand and looming climate change, recent years have witnessed much focus on global drought scenarios. Drought as a complex natural hazard is best characterized by multiple climatological and hydrological parameters and the assessment of it is important for planning and managing water resources. So understanding the history of drought in the area is essential like investigating the effects of drought. In this study, the droughts were rated by TOPSIS index with 9 effective factors on drought by MATLAB software in Gilan province. The output was compared through t-test from SIAP to validate the method and the results show that there is a significant relationship in these two methods at 95% probability. At the end, the droughts in the area were zoned for 3 separated periods by IDW method in

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GIS 9.3. Results show that in 3 periods, expanse of normal situation has decreased and upon violence and expanse of drought has increased in the area.

**Keywords:** Drought, Zoning, TOPSIS, SIAP, Gilan.

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