

## **Comparison of Genetic Algorithm and Ant Colony optimization methods for optimization of short-term drought mitigation strategies**

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**Abstract** Drought represents a major threat to the security of water supplies. There is a variety of short- and long-term options to mitigate drought impacts. In this paper, short-term strategies are explored with the goal of finding the best strategies that minimize cost. The performance of two heuristic optimization methods, Genetic Algorithm and Ant Colony, is investigated. The results show that the Ant Colony method is sensitive to the choice of method representing the decision space. It was found that Ant Colony methods were more robust and efficient than Genetic Algorithms, particularly when the number of function evaluations is limited.

**Key words** drought management; optimization; genetic algorithms; ant colony optimization