

## **Analysis of the Aquifer Vulnerability of a Miopliocene Arid Area Using Drastic and SI Models**

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**Abstract :** Many methods in the groundwater vulnerability have been developed in the world (methods like PRAST, DRIST, APRON/ARAA, PRASTCHIM, GOD). In this study, our choice dealt with two recent complementary methods using category mapping of index with weighting criteria (Point County Systems Model MSCP) namely the standard DRASTIC method and SI (Susceptibility Index). At present, these two methods are the most used for the mapping of the intrinsic vulnerability of groundwater. Two classes of groundwater vulnerability in the Biskra sandy aquifer were identified by the DRASTIC method (average and high) and the SI method (very high and high). Integrated analysis has revealed that the high class is predominant for the DRASTIC method whereas for that of SI the preponderance is for the very high class. Furthermore, we notice that the method SI estimates better the vulnerability for the pollution in nitrates, with a rate of 85 % between the concentrations in nitrates of groundwater and the various established classes of vulnerability, against 75 % for the DRASTIC method. By including the land use parameter, the SI method produced more realistic results.

**Keywords :** DRASTIC, SI, GIS, Biskra sandy aquifer, Algeria

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