



REVIEWER'S REPORT

Manuscript No.: IJAR- 57403

Title: Évaluation de l'aptitude à l'irrigation des eaux souterraines du Quaternaire de la partie sud du Marais Poitevin (Nouvelle-Aquitaine France) et de son substratum carbonaté de l'Oxfordien supérieur.

Recommendation:

Accept as it is

Accept after minor revision

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity			✓	
Significance			✓	

Reviewer Name: **ANAPANA GOPAL**

Reviewer's Comment for Publication.

General Comments

The manuscript investigates the irrigation suitability of groundwater in the southern Marais Poitevin (France) using hydrochemical analysis and standard irrigation indices. The study is relevant for water resource management in agricultural wetlands, especially under salinization risk.

The paper is scientifically valuable, but it requires moderate to minor revisions, particularly in clarity, data interpretation, and presentation.

Content and Originality

The study addresses an important environmental and agricultural issue—groundwater salinity and irrigation suitability.

Use of multiple irrigation indices (SAR, SSP, KR, IP, MAR, DT, EC, TDS) is appropriate and comprehensive.

The comparison between:

Quaternary aquifer

Oxfordian aquifer (within and outside marsh)

adds good analytical depth.

Concerns:

The work is largely method-driven and confirmatory, applying well-known indices without introducing new methodological innovation.

Limited novel conceptual contribution; similar hydrochemical studies are common.

The discussion lacks strong linkage to broader scientific debates or recent international studies.

Technical Quality

Methodology is well described and reproducible (sampling, preservation, analytical techniques).

Quality control using ionic balance ($\pm 5\%$) is appropriate (p. 13).

Use of Piper diagram (p. 14) effectively classifies hydrochemical facies.

Tables (e.g., Table 2 & 3) provide detailed datasets.

Concerns:

Sample size is relatively limited (17 samples) for such spatial variability.

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Data are based on a single sampling campaign (February 2007), which is outdated and lacks seasonal variation.

No advanced statistical tools (e.g., PCA, correlation matrix) are used.

Interpretation sometimes repeats results rather than explaining processes (e.g., salinity sources, marine intrusion, geochemical evolution).

Language and Presentation

The manuscript is generally clear but has numerous language issues, especially in French sections:

Missing spaces (e.g., "Température et l'oxygène")

Typographical errors and inconsistent formatting

Some awkward phrasing and repetition

The English abstract is well written and clearer than the main text, but consistency is needed across the manuscript.

Recommendation:

Requires thorough language editing (French and English).

Improve readability by simplifying long sentences.

Structure and Organization

The manuscript follows a standard scientific structure: Introduction → Study Area → Methodology → Results → Interpretation

Figures and tables are relevant:

Figure 1 (p. 6): study area map

Figure 2 (p. 7): sampling points

Figure 4 (p. 14): Piper diagram

Concerns:

The Introduction is overly long and descriptive; needs sharper focus on research gap.

The Results section is very detailed but verbose, making it difficult to follow key findings.

The Discussion is weak, mostly descriptive rather than analytical.

Lack of a clearly separated "Discussion" vs "Results" interpretation section.

References and Citations

The manuscript includes relevant references in hydrogeology and irrigation water quality.

Proper use of classical references (Wilcox, Richards, Doneen, etc.).

Concerns:

Heavy reliance on older literature; needs more recent studies (last 5–10 years).

Citation formatting is inconsistent.

Some references are local or grey literature, requiring balance with high-impact journals.

Overall Recommendation

The manuscript is scientifically sound but needs significant improvement in:

Language quality

Data interpretation

Scientific discussion

Updating references

Strengths:

Strong methodology

Relevant topic

Good dataset and hydrochemical analysis

Weaknesses:

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Outdated data (2007)

Limited novelty

Weak discussion

Final Decision

minor Revision