

REVIEWER'S REPORT

Manuscript No.: IJAR-54614

Title: PHYSICOCHEMICAL TYPOLOGY OF WATERS FROM WEATHERED AQUIFERS IN THE MAN DEPARTMENT, WESTERN COTE D'IVOIRE

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: Dr. Hari Prashad Joshi

Detailed Reviewer's Report

The study effectively employs a combination of field sampling, multivariate statistical analysis (PCA), and spatial interpolation to assess groundwater quality, mineralization, and anthropogenic influences, with a particular focus on nitrate contamination. Among its principal strengths, the research addresses a highly relevant topic by examining groundwater vulnerability in a region under significant anthropogenic pressure. The methodological approach is robust, integrating field measurements with standard analytical techniques and statistical analysis. Notably, the identification of a calcium-bicarbonate hydro chemical facies are consistent with the regional geological context, and the spatial distribution maps for electrical conductivity and nitrate provide clear and useful visualizations of localized contamination.

However, the manuscript requires thorough language and technical editing to improve overall clarity and correct grammatical errors. While the PCA is informatively applied, its interpretation could be enhanced; the moderate variance (40.96%) explained by the first two axes suggests other influencing factors may be present. Furthermore, the discussion on the origins of nitrate remains somewhat speculative, and future work incorporating stable isotope analysis ($\delta^{15}\text{N}$, $\delta^{18}\text{O}-\text{NO}_3$) could substantially strengthen these conclusions. The conclusion section could also be more concise and better linked to specific, actionable management recommendations. Overall, this study provides valuable baseline data on groundwater quality in a poorly documented region. With revisions focused on language polishing, clarity, and a deeper interpretation of statistical results, this manuscript will represent a solid contribution to the hydrogeology of West African crystalline aquifers. I recommend minor revisions before acceptance.