

The manuscript by Li et al. focuses on the identification and analysis of groundwater-dependent ecosystems (GDEs) in a specific region. The authors propose a four-diagnostic criteria framework for identifying GDEs based on remote sensing, GIS data dredging, and hydrogeological surveys. Overall, I think this work will be of interest to the HESS readership but needs some reworking to be considered further for publication. I make a few suggestions for improvement below:

1. The result section lacks clarity and structure. It resembles a report rather than a concise summary of findings. Some materials in the results, particularly those pertaining to the authors' methodologies or rationales, such as those indicated on Page 11 Lines 337-339, Page 14 Lines 407-408, and Page 14 Lines 421-423, should be relocated to the method section to enhance organization and coherence.

2. The current version lacks substantial supporting information on ecohydrological signals aiding in mapping GDEs. Section 3.4 primarily focuses on the spatial distribution of GDEs within the study area. Sections 3.5 and 3.6 delve into detailed descriptions of hydro-biogeochemical features observed in GDEs. However, there appears to be a weak connection between these descriptions and the verification of various GDEs, as depicted in Figure 2. Strengthening this connection is essential for a more cohesive presentation of the study's findings regarding the role of ecohydrological signals in GDE mapping.

3. The proposed framework should be compared to other existing approaches to highlight its potential advantages and limitations. This discussion is crucial for providing insights into the novelty and effectiveness of the proposed methodology.

Specific comments

Page 4, Line 100: Delete ", etc".

Page 6, Line 183: Please clarify the rationale behind selecting a 10-degree angle.

Page 10, Line 285: Delete "2"

Page 16, Line 495: Font size is not consistent.