

The paper on Monetizing the role of water in sustaining watershed ecosystem 2 services using a fully integrated subsurface–surface water model by Tariq Aziz et al presents an interesting case study of integrating subsurface–surface water model with valuation of ecosystem services. However, there are few queries about the methodology adopted as well as the results presented and discussed. A line-by-line comment is given below:

Introduction

Page 1, L 24-25: What is the relationship between subsurface water and ecosystem services? Kindly extend on this point in the introduction to provide a clear picture of how subsurface water is linked to ecosystem function and, as a result, the production of ecosystem services. Furthermore, a conceptual diagram connecting subsurface water with various ecosystem services would help readers connect the paper by providing a clear picture.

Methodology

217-219: How the observed data is used to run the model. Did you run the model for all 9 sites for surface water flow calibration, or did you run it in an integrated fashion? This is unclear. Please clarify the same for Groundwater Monitoring Network wells.

217-219: It would be better to indicate on what time scale the model is calibrated/validated? Daily, Monthly, Hourly?

219: 221: Is the model validated? if yes, mention years for calibration and validation

Results

The paper makes no mention of the model's performance. For instance, how the model behaved at various gauge stations.

268-271: Are these value aggregate for all gauge station and observation well?

277-280: Check figure 5(a), Can you show the observed and simulated graph of the stream flow? Similarly for surface water storage as well and mentioned the NSE and PBIAS value for each zone/site.

277-280: Check figure 5 (b), Is the watershed evaporation one of the outputs from the model? What are others? mention either in methodology or results?

289 : Table 1 : Is this value calculated or obtained from secondary sources ?

Discussion

The discussion section focuses heavily on the results and very little on the validity of the findings. Most important, the authors provide little reflection on uncertainty in their data, models, and underlying assumptions. What does that mean in terms of reliability of the modelled results? The authors should consider where their modeling efforts shine versus where they fall short, and how the shortcomings can be addressed. I would suggest the authors to discuss the results based on model uncertainty, and future implications of the study in terms of valuation of ecosystem services as well.

Conclusion

The conclusion may be subsequently modified.