

Dear Editor and Reviewer,

We would like to express our sincere gratitude for your time, effort, and highly constructive feedback on our manuscript. We deeply appreciate the opportunity to revise and improve our work based on your insightful comments. We have carefully considered all the suggestions provided, and we are pleased to confirm that every point raised has been fully addressed and incorporated into the revised manuscript. To facilitate your review process, all modifications have been explicitly highlighted within the updated text: the revisions made in response to **Reviewer 1** are highlighted in **blue**, and the corrections addressing the **Editor's** comments are highlighted in **purple**. We believe that these revisions have significantly enhanced the clarity, consistency, and overall quality of our paper, and we hope the updated manuscript now meets the rigorous standards of your journal.

Reviewer 1

Please provide appropriate references to support the statements in Section 3.1.2 regarding the selection of the 19 global teleconnection indices, particularly the references to “previous climatological literature” and “prior empirical and dynamical studies.”

We sincerely thank the reviewer for pointing out this omission. We fully agree that the selection of these indices needs to be explicitly supported by prior research. Accordingly, we have revised the second paragraph of Section 3.1.2 to include key references from previous climatological and empirical studies that demonstrate the relationship between these large-scale climate signals (e.g., ENSO, NAO, IOD) and the hydro-climatological variability in Iran.

The revised text in Section 3.1.2 now reads:

“The selection of this extensive set of predictors was guided by previous climatological literature and prior empirical and dynamical studies that have demonstrated the influence of large-scale climate signals on precipitation and drought variability in Iran (e.g., (e.g., Mahmoudi et al., 2026a; Mahmoudi et al., 2026b; Barlow et al., 2016; Barlow et al., 2002)).”

These references have also been properly added to the bibliography.

Editor

1) Please ensure that the scenario labels S1, S2, and S3 are used consistently throughout the manuscript. In the Introduction, S1 appears to be described as the autoregressive scenario and S2

as the teleconnection-driven scenario, whereas in the Methods and Results sections S1 refers to the teleconnection-driven scenario and S2 to the autoregressive scenario.

We sincerely thank the Editor for this careful observation. We have corrected the scenario descriptions (S1, S2, and S3) in the Introduction section to ensure complete consistency with the Methods and Results sections. These revisions have been highlighted in purple in the updated manuscript for your easy reference.

2) Please clarify the number and naming of the forecasting algorithms throughout the text, tables, and figures. In particular, please ensure consistency in the use of LS-SVM, SVM-RBF, and SVM-Poly, and remove or clarify the mention of CatBoost if it was not included among the tested models.

We sincerely appreciate the Editor's keen eye. You are absolutely correct, and we apologize for the confusion caused by our drafting oversight.

Upon carefully reviewing the manuscript and our experimental codes, we confirm that we actually evaluated **10 algorithms** in our study, which include two different variations of the Support Vector Machine model: one with a Radial Basis Function kernel (**SVM-RBF**) and one with a Polynomial kernel (**SVM-Poly**).

The inconsistency arose because we inadvertently omitted the description of the SVM-Poly model from the Methodology section, stating there were only 9 models, while correctly reporting both models in the Results section and figures.

To rectify this:

1. We have updated Section 3.3.2 (Methodology) to explicitly introduce both SVM-RBF and SVM-Poly, and corrected the total number of evaluated algorithms to 10.
2. We have standardized the nomenclature across all text, tables (including Table 7), and figures to ensure they consistently read "SVM-RBF" and "SVM-Poly".

Regarding **CatBoost**, we confirm that this algorithm was not part of our final experimental framework. Any stray mention of it was a typographical error from an earlier draft, which has now been completely removed from the manuscript. (All corrections have been highlighted in the revised manuscript).

3) Please check Table 7 carefully, including the scenario labels and the highlighted/bold values, particularly because lower MSE and MAE values indicate better model performance.

We sincerely thank the reviewer for their meticulous attention to detail. We completely agree with your observation. We apologize for the oversight in the previous manuscript where the

optimal values for the error metrics (MSE and MAE) were incorrectly highlighted, and the scenario labels were inconsistently formatted.

To address this, we have thoroughly revised the table (now correctly numbered/referred to as Table 5 in the text):

1. **Metric Highlighting:** We have corrected the bolding throughout the table. The highest values for R^2 and the *lowest* values for MSE and MAE are now properly bolded for each station to accurately reflect the best model performance.
2. **Scenario Labels:** We have standardized the scenario labels. The label “1” has been corrected to “S1” across all relevant rows to ensure complete consistency with the text and other tables (where S1 refers to the teleconnection scenario).

We believe these corrections significantly improve the clarity and accuracy of the final comparative analysis. All changes have been highlighted in the revised manuscript.