



EGUsphere, referee comment RC1
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Comment on egusphere-2022-419

Anonymous Referee #1

Referee comment on "Long-term evaluation of the Sub-seasonal to Seasonal (S2S) dataset and derived hydrological forecasts at the catchment scale" by Marianne Brum and Dirk Schwanenberg, EGU sphere, <https://doi.org/10.5194/egusphere-2022-419-RC1>, 2022

Summary

In this study, the authors evaluate the accuracy and hydrologic utility of subseasonal to seasonal (S2S) forecasts generated from the S2S project. The paper is well written and provides a good overview of the performance of the current state-of-the-art S2S forecasts. However, the paper, as it stands, is lacking in detail, and would especially benefit from better discussion of results.

Major Comments

- Why were these two study regions selected? The total area is 4100 km². However, the model grid size is 1.5 x 1.5 deg (~20,000km²) but the authors mention that the study regions encompass 4 grid points. I am not sure how this number was arrived at.
- I do not fully understand the reason behind not showing the performance of temperature. As NWP modules use different physics for simulating precipitation and temperature, similarity in performance metrics should not preclude the inclusion and discussion of the temperature results as they pertain to different aspects of the NWP model.
- Why does the performance improve after the yield point? This is very surprising and the authors should provide some explanation as to why performance improves with increase in lead times.

- The manuscript does not discuss the results comprehensively. What is the impact of ensemble member size on forecast performance? Why do ECMWF models perform better? Have other studies found out the same?

Minor Comments

- Apart from being a project, S2S is generally used to refer to a specific forecast horizon in the forecasting community. I request the authors to explicitly mention that they are referring to the project.
- Abstract: 'Results show that the S2S models have skill at the catchment-scale, particularly for lower threshold levels ...'. What does 'lower threshold levels' mean here?
- Line 30: What is 'hydrological horizon of skillful predictability'?
- ECMWF models are referred to as 'ecmf' and ISAC-CNR as 'isac' in the figures. Please maintain consistency.