Re-review of "Assessment of seasonal soil moisture forecasts over Central Mediterranean" by Silvestri et al.

I have carefully reviewed the authors' responses to my earlier comments, which I find to be generally satisfactory. The inclusion of ERA5-Land data and the added memory analysis (Fig. 3) have enriched the manuscript, making it more comprehensive. Additionally, the expanded discussion section provides valuable insights. Below, I outline three comments that the authors may wish to consider incorporating into the final version of the manuscript:

1. **Memory-Based Prediction Model Reference:** In one of their responses, the authors requested a reference for the memory-based prediction model. The signal component in such a model can be represented as follows:

$$S(t + \tau) = S(t) * \rho(\tau)$$

Here, $S(t + \tau)$ represents the predicted soil moisture anomaly at a lead time of τ, $S(t)$ is the initial condition soil moisture anomaly, and $\rho(\tau)$ is the autocorrelation value at lag time τ. The authors might consider calculating the autocorrelation values using ERA5-Land data and using initial condition anomalies derived from the SEAS5 system to generate a memory-based forecast.

For example:

   o   If for January 2010, S(t)=1.5
   o   And the 6-month lag autocorrelation from ERA5-Land data is 0.60
   o   Then the memory-based prediction at 6-month lead time, i.e., for June 2010 is 1.5·* 0.6=0.9

For reference, the authors might consult Supplementary Fig. 3 in Esit et al. (2021).

2. **Clarification of Ground-Well Data Comparison (Figure 14):** It appears that one of my earlier comments was not fully addressed, possibly due to a misunderstanding. Specifically, my comment referred to "two ground-well data separate in (a) and (b)." The updated Figure 14 does not reflect this separation.

To clarify:

   o   In plot (a), could the authors compare ground water well data at **Umbria** with the corresponding ERA5-Land reanalysis?
   o   Similarly, in plot (b), could the authors compare ground water well data at **Veneto** with the corresponding ERA5-Land reanalysis?

This modification would provide a clearer, location-specific analysis, improving the interpretability of the results.

3. **Rebound in Autocorrelation (Figure 3):** Based on the new Figure 3, I notice an interesting feature in the autocorrelation structure: after an initial decay (as expected), the autocorrelation shows a rebound, reaching a secondary statistically significant maximum at a lag of approximately 300–350 days. This phenomenon merits further exploration.
   o Is this rebound indicative of a seasonal cycle, or could it signify the reemergence of soil moisture anomalies, as hypothesized by Kumar et al. (2019)?
   o A brief discussion of this aspect in the manuscript would be valuable for readers.

   Furthermore, given the observed rebound in autocorrelation, the authors might consider exploring the feasibility of longer lead-time forecasts (e.g., a 12-month lead forecast), which could be highly impactful for applications.

Reference

Esit, M., Kumar, S., Pandey, A., Lawrence, D. M., Rangwala, I., & Yeager, S. (2021). Seasonal to multi-year soil moisture drought forecasting. *npj Climate and Atmospheric Science*, *4*(1), 16.

Kumar, S., Newman, M., Wang, Y., & Livneh, B. (2019). Potential reemergence of seasonal soil moisture anomalies in North America. *Journal of Climate*, *32*(10), 2707-2734.