

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
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Comment on hess-2021-328

Anonymous Referee #1

Referee comment on "Attributing correlation skill of dynamical GCM precipitation forecasts to statistical ENSO teleconnection using a set-theory-based approach" by Tongtiegang Zhao et al., Hydrol. Earth Syst. Sci. Discuss.,
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Comments: This study evaluated the precipitation forecast skill from dynamical forecast and ENSO teleconnections based on the set theory. The attribution of the forecast skill from the GCM and ENSO for different seasons is separated. Overall this study is well crafted with clear structures. Some comments need to be addressed before the potential publication of this study.

Lines 61-63: From this statement, it seems that the novelty of this study is the global scale investigation of the ENSO and GCM precipitation forecast. From the following statement (lines 64-65), the attribution of prediction skill seems to appear suddenly. Some improvement in the motivation of this study and associated novelty could enhance the argument.

Line 115: "associate P to forecast and ENSO"? This is not clear. Please clarify or revise.

Figure 2. In this figure, the $R^2(y \sim x_1 + x_2)$ decrease with $r(x_1, x_2)$. What is the meaning in the context of the GCM forecast and ENSO? (the coefficient of determination decreases with the correlation between GCM and ENSO?)

Lines 177-178: What is the lead time of this figure 4a (and the whole study)? In addition, please add the title or notation of the Figure 4(c-d) to make it clear.

Figure 8: The Venn diagrams for grid cells A and B seem to be close and are hard to distinguish.

Section 4.4. These patterns are interesting. Have you compared with other studies and see if these patterns are consistent with previous studies?