

Authors response

The authors have done very well to address the reviewer comments.

Response: We sincerely thank the two referees again for their constructive comments, which have helped us improve the quality and clarity of the manuscript.

Referee #1:

In Section 4.1, the differences between CNN-lo and ERA5-o are much smaller than H120-o-ERA5-o. It should be acknowledged either in Section 4.1 or the conclusions that the H120-o-ERA5-o differences would be much smaller if H120-o was rescaled to the ERA5 climatology using a CDF matching technique, rather than scaling using saturated moisture content. This might be a fairer comparison, although this would not affect the correlation coefficients and the relative performance against in situ data.

Response: Thank you for your comment. We have revised Section 4.1 to acknowledge this scaling distinction:

“... On the other hand, H120-o shows substantially larger discrepancies relative to ERA5-o, as indicated by the prevalence of dark red and blue regions in the fourth column. It should be noted that H120 was not trained on ERA5 and is therefore more independent of it than CNN-lo. Furthermore, the absolute spatial differences between H120-o and ERA5-o would be notably reduced if H120-o were rescaled to the ERA5 climatology using a cumulative distribution function (CDF) matching technique, rather than the current scaling based on saturated moisture content. ...”