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The challenge of reliably predicting precipitation patterns and their extremes across the western US at lead times beyond two weeks is of obvious interest to stakeholders in the region. A major obstacle in this regard, however, is the inability of current operational models to faithfully capture known sources of potential prediction skill, including the 30-60-day Madden-Julian Oscillation (MJO), whose poor simulation in the global version of the NOAA Unified Forecast System (UFS) has been linked to errors in that model’s predictions of precipitation along the US West Coast at Weeks 3–4. Here we outline an innovative strategy for addressing this issue, which entails using the “replay” capability of the NOAA UFS, as a relatively inexpensive form of data assimilation. The idea is to leverage the "incremental analysis updates" or IAUs that are needed to correct the model's first-guess 6-hr) forecast errors and which can be attributed mainly to deficiencies in the model physics. Composites of the IAUs as a function of MJO phase will be presented in the context of a 30-yr replay integration of the coupled UFS prototype HR1. Possible avenues for minimizing these short-term forecast errors, as a first step towards improving prediction of the MJO at longer leads, will then be discussed.
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