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## Dynamic vs. Hybrid Seasonal Rainfall Forecasts over Central America: A Comparative Evaluation of C3S and NMME

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Seasonal forecasts present an opportunity to enhance preparedness for hydrometeorological extremes in Central America. Many seasonal forecasts are publicly available, but their comparative value is not well understood, especially over the Central American region. Knowing how best to combine the different seasonal forecast models on offer, or when and where to trust them, requires further study. This evaluation compares seasonal rainfall forecasts over Central America with a focus on hydrometeorological extremes using two of the globally leading ensembles: the Copernicus Climate Change Service seasonal forecasting system (C3S), and the North American Multimodel Ensemble (NMME). We compare the two multimodel ensemble means, eleven individual model means, and model member predictions of monthly and seasonal rainfall over different months, locations, and lead times to better understand their relative forecast quality and identify potential regional predictability limits at the seasonal scale. Direct rainfall forecasts from the models are compared with indirect dynamical-statistical forecasts using large-scale climate precursors within a statistical rainfall prediction system. Results show that C3S and NMME exhibit similar regional variability in their direct rainfall forecasts, revealing the influence of important climate mechanisms on rainfall predictability in the region, which originate in both the Pacific and Atlantic Oceans. The models with the best skill also vary depending on the season, subregion, and lead time assessed. The relative accuracy of indirect versus direct forecasts is still under consideration but we expect their accuracy to vary geographically and seasonally, depending on the associations between the regional climate precursors (e.g. El Niño Southern Oscillation and Tropical North Atlantic variability) and local rainfall. Overall, the models compared can provide useful information on upcoming rainfall, but their regional and seasonal variability affect their usefulness for different types of forecasting applications.