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Oral
(Virtual Talk)
Madden Julian Oscillation (MJO) is among the dominant predictors of weather in the Subseasonal to Seasonal (S2S) forecast models. Hence understanding the phenomenon that influences its predictability is essential. In our study we estimate the factors that contribute to enhanced MJO predictability by analysing reforecast runs from the CESM2 model initialized with climatological initial conditions for various components of the climate system such as land, ocean, and atmosphere. We found that the atmosphere contributed the most to MJO predictability followed by the contributions from the ocean. Previous studies have shown that the Easterly phase of Quasi-Biennial Oscillation (EQBO) is the major contributor to MJO prediction skill in S2S forecast models. In our analysis, however, we found that despite atmosphere being the component that contributes the most to the skill, EQBO did not cause a significant difference in the skill for the runs initialized with climatological ocean. Majority of the skill came from the memory in the atmosphere linked to La Niña years. Hence, we found that La Niña years offer better MJO prediction skill
for the runs initialized with climatological ocean. Furthermore, we speculate that the QBO-MJO relationship driven by the tropopause instability mechanism is forced by the ENSO.
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