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## Sources of S2S and MJO predictability

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One main justification for subseasonal-to-seasonal (S2S) prediction is its identified sources of predictability. These sources include slowly varying phenomena, such as the MJO, stratospheric conditions, upper-ocean heat content, soil moisture, and sea ice. In practice, however, these presumed sources of S2S predictability have become the main targets of S2S prediction. For example, predicting the MJO, especially its propagation over the Indo-Pacific Maritime Continent, has been challenging. This raises a fundamental question: What are the predictability sources of the MJO? For global coupled prediction models, the primary sources of predictability are initial conditions and the governing laws. It is unclear, however, what elements in the initial conditions are more important to MJO prediction than others. It can be argued that the current practice of initializing forecasts using a single state of the system may not be optimal. Embedded initial conditions may provide an additional source of predictability that has yet to be fully explored.