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## Tracking the sources of water isotopes in water vapor and monsoon precipitation over India using iCESM1.2 simulations

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Stable isotopes of water are common proxies used to reconstruct the past precipitation in the tropics, based on the climate-dependent fractionation of the water molecule. Hence, an investigation of the factors affecting the present-day isotope ratios in precipitation in the tropical monsoon regimes could aid the interpretation of the paleo-proxies. Along with the degree of rainouts and strength of convection, the isotope ratios in precipitation over a region depend on the source of water vapor. We use the water vapor-isotope tagging capabilities in the isotope-enabled earth system model iCESM1.2 to estimate the relative contribution of different oceanic sources and regional land water recycling to the present-day distribution of precipitation and isotope ratios in precipitation in the Indian land region. We choose two major precipitation seasons for our study – the Southwest monsoon [SW, June to September], the major contributor of annual precipitation in the region, and the Northeast monsoon [NE, October to December] that is important for the annual precipitation in the southern Indian region. It is expected that these two monsoon seasons should have different major sources of water vapor because of the reversal in monsoon circulation between these two seasons. Preliminary results suggest that the model can reproduce the seasonal distribution of precipitation and water isotopes in precipitation in the Indian region. The water-tagging method successfully identifies the sources of precipitation in the Indian region. The detailed results of this study will be presented at the meeting.