



Investigation of the Moisture Recycling Ratio over South America: A Modelling Approach using HadCM3

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It is a well-known fact that precipitation relies on terrestrial evaporation (moisture recycling). This study makes use of new definitions of moisture recycling from van der Ent, et al. 2010 to study the complete process of continental moisture feedback. Earlier studies have shown that there exist many regions over the globe that relies heavily on recycled moisture as well as that supplies moisture. In South America, the Río de la Plata basin depends on evaporation from the Amazon forest for 70% of its water resources. Stable water isotope ($\delta^{18}\text{O}$) can be used, as a good proxy for precipitation and it is a better tool to study convective processes and hydrological cycle. Analysing the $\delta^{18}\text{O}$ would help to identify the moisture source for precipitation. In this study, we try to explain the relation between $\delta^{18}\text{O}$ and the moisture recycling ratio using atmospheric component of Hadley Centre Coupled Climate Model (HadCM3). And also we analyse the impact of land cover change on $\delta^{18}\text{O}$ and the moisture recycling ratio. Further, we will analyse the changes of moisture recycling pattern from pre-industrial to the present scenario.