

Major Mechanisms of Atmospheric Moisture Transport and Their Role in Precipitation Extreme Events in the Amazonia

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Abstract : The transport of moisture from oceanic sources to the continents represents the atmospheric branch of the water cycle, forming the connection between evaporation from the ocean and precipitation over the continents. In this regard two large scale dynamical/meteorological structures appear to play a key role, namely Low Level Jet (LLJ) systems and Atmospheric Rivers (ARs). The former are particularly important in tropical and subtropical regions; the latter is mostly confined to extratropical regions. A key question relates to the anomalies in the transport of moisture observed during natural hazards related to extremes of precipitation (i.e., drought or wet spells). In this study we will be focused on these two major atmospheric moisture transport mechanisms (LLJs and ARs) and its role in precipitation extreme events (droughts and wet spells) in the Amazonia paying particular attention to i) intensification (decreasing) of moisture transport by them and its role in wet spells (droughts), and ii) changes in their positions and occurrence with associated flooding and wet spells.

Keywords : droughts, wet spells, amazonia, LLJs, atmospheric rivers

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