

## Observed moisture variations associated with shallow convection

BELLENGER, Hugo<sup>1\*</sup> ; KATSUMATA, Masaki<sup>1</sup> ; YONEYAMA, Kunio<sup>1</sup> ; NISHIZAWA, Tomoaki<sup>2</sup> ; YASUNAGA, Kazuaki<sup>3</sup> ; SHIROOKA, Ryuichi<sup>1</sup>

<sup>1</sup>JAMSTEC, <sup>2</sup>NIES, <sup>3</sup>University of Toyama

The variability of tropospheric moisture is a key feature of tropical climate. In particular, the importance of moisture variations due to convective transport is still to be quantified on a variety of spatial and temporal scales. For instance, there is a debate on the importance of moisture convective transport in preconditioning the atmosphere prior to deep convection development associated with the Madden–Julian Oscillation (MJO). We use here high frequency observations of humidity and convection in the Indian Ocean by lidars and radars on board the R/V Mirai during the CINDY/DYNAMO campaign. Significant moisture variations on the scale of few hours are observed within the first first kilometers of the atmosphere in association with shallow convective and congestus clouds. We then compare these local tendencies with large–scale ones and discuss the potential importance of convective transport by convection in the moisture budget during the transition from convectively suppressed to convectively active periods.

Keywords: Convection, moisture, MJO, CINDY/DYNAMO, preconditioning, observation