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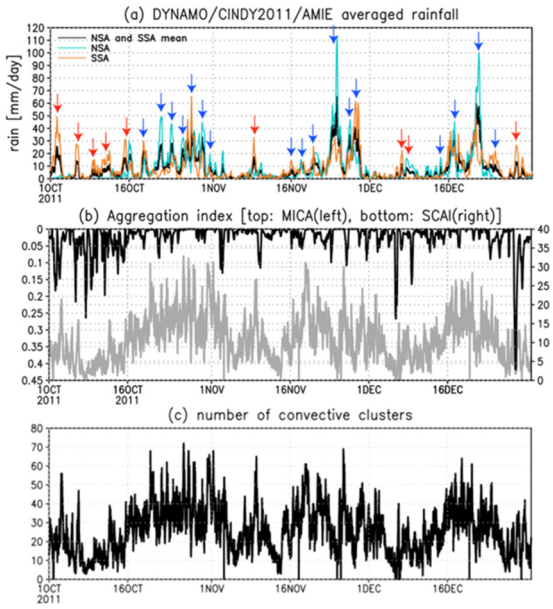

← Figure 1: Time series of (a) DYNAMO/CINDY2011/AMIE averaged rainfall over the total NSA+SSA domain (black), (b) aggregation index MICA (black, labeled on the left) and SCAI (gray, labeled on the right) with MICA plotted upside-down, and (c) the number of convective clusters for the same region. Light blue line and orange line indicate DYNAMO NSA averaged precipitation and DYNAMO SSA averaged precipitation, respectively. The arrows in (a) show the aggregation (red) and non-aggregation (blue) events, classified according to the method described in section 3.

- A new observational measure, or the morphological index for convective self-aggregation (MICA), is developed to objectively detect the signs of convective self-aggregation on the basis of a simple morphological diagnosis of convective clouds in the satellite imagery. The proposed index is applied to infrared imagery from the Meteosat-7 satellite and is assessed with the sounding-array measurements in the tropics from CINDY2011/DYNAMO field campaign data in comparison with SCAI, an existing similar index (Fig. 1).
- The composite time series show that a drying proceeds over 6-12 hours as precipitation intensifies in the aggregation events. Such a drying is unclear in the non-aggregation events.
- The moisture budget balance is maintained in very different manners between the two adjacent sounding arrays for the aggregation events, in contrast to the non-aggregation events which lack such apparent asymmetry. These results imply the potential utility of the proposed metrics for future studies in search of convective self-aggregation in the real atmosphere.