Session: C15 Poster: T85B

## Identifying equatorial disturbances using cloudiness data

Juliana Dias[†]; Stefan Tulich; George Kiladis
[†] CIRES Colorado University, USA
Leading author: juliana.dias@noaa.gov

We devised a method for identifying convectively coupled equatorial waves using brightness temperature data as a proxy for convection. The method consists of detecting contiguous convective regions (CCRs) along the equatorial band where brightness temperature falls below a certain threshold. A range of threshold values are used and we retain only CCRs that satisfy given conditions on their span in latitude, longitude and time, and on their shape. Here we focus on mesoscale and synoptic scale zonally propagating disturbances from 15S to 15N. We describe the general features of these zonally propagating CCRs such as location, phase speed and amplitude. Consistent with previous studies, there is a westward bias in the zonal propagation speed of these convective disturbances. In particular, the most frequent CCR speed is 8m/s westward. Apart from the fact that the latitudinal variability of these disturbances can be tracked, another advantage of this method in comparison to latitude-time spectral filtering is that only disturbances in the raw data with a definite propagation direction and coherence are retained. A large fraction of these zonally propagating CCRs last for about 2 days and span an average distance of about 1500 km. Organized convection at synoptic scales is detected both as coherent sequences of these mesoscale CCRs, and less frequently, as a single CCR. Composite analyses along different longitude sectors are presented and we compare these to previous studies where waves are identified using time-space spectral filtering. Statistics of the relationship between the Madden-Julian Oscillation, synoptic and mesoscale disturbances are also generated and these show substantial geographic and temporal variability.