



Interactions between Rossby waves breakings and cyclones in the south west Indian ocean.

A.Réchou and S. Westrelin

LPA-CRC(Laboratoire de Physique de l'Atmosphère-Cellule Recherche Cyclone)

Université de la Réunion - Météo France

Réunion Island, France (arechou@univ-reunion.fr / Fax: 262 262938254)

The main source of energy for tropical cyclones is the condensation latent heat coming from the ocean. Near the surface the cyclones intensify themselves by a positive retroaction between the wind and the enthalpy provided by the ocean. In the upper levels, the observed anomalies of PV (Potential Vorticity), corresponding to Rossby waves breakings (RWB), probably contribute to the thermodynamic budget of the cyclones and so participate to their cyclogenesis or modify their trajectory, their propagation velocity, their structure or their intensity.

In our study, these phenomena are studied over the South West Indian Ocean with the ECMWF (European Center of Medium range Weather Forecasts) reanalysis fields. The potential vorticity on the 350K isentropic level (Postel et Hitchman, 2001) is chosen to track the altitude anomalies which correspond to the intrusion of stratospheric air from extratropical latitudes into the tropical troposphere.

The climatology of altitude anomalies and cyclones will be presented and completed by a synoptic scale analysis of their interactions. We will study the spatial and temporal correlations between the RWB and the cyclones, and the variations of intensity of the cyclones in relation to the PV anomalies characteristics and their respective distance to the cyclones.