Geophysical Research Abstracts, Vol. 9, 08574, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-08574

Cross-equatorial structure of the intra-seasonal variability at the surface of the Tropical Atlantic Ocean

G. Athié (1), F. Marin (1), B. Bourlès (1).

(1) Institut de Recherche pour le Développement (Gabriela.Athie@ird.fr)

The intra-seasonal variability at the surface of the Equatorial Atlantic Ocean is analyzed from multi-year satellite observations of Sea Level Anomalies and Sea Surface Temperature. Two distinct signals have been identified. The first one consists of westward propagating coherent anomalies that are maximum at 5N west of 10W: they correspond to Tropical Instability Waves (TIW), with periods of 30-50 days, wavelengths close to 10 degrees in longitude and zonal propagation speeds of 35-50 cm/s. Here we demonstrate that Tropical Instability Waves are also present south of the equator, especially along 5S where they are found to be antisymmetric with respect to 5N, suggesting that a second meridional mode Rossby wave is involved in the TIW dynamics. The second intra-seasonal signal corresponds to an equatorially-trapped variability in SST, confined to the Gulf of Guinea and with periods between 13 and 17 days. This signal is present only in boreal summer, during the cold tongue season. Intra-seasonal variability with comparable periods is also observed in the meridional windstress, but throughout the year, suggesting that the 13-17 day variability in SST is directly forced by the wind in the presence of the SST front associated with the cold tongue.