Geophysical Research Abstracts
Vol. 12, EGU2010-14594, 2010
EGU General Assembly 2010

Mixing in the Amazon estuary

M.O. Bezerra

Laboratorio de Oceanografia Fısica (LOF), Faculdade de Oceanografia Instituto de Geociencias do Mar (LABOMAR), Universidade Federal do Ceara (UFC) Fortaleza, Brazil

The research area of this work is located at the estuary of the
Amazon River (Brazil), near the river mouth.
The results of air movement analysis on the surface atmospheric circulation over the Mouth of the Amazonas River, salinity and temperature measures as well as measurements of currents, carried out along a longitudinal section in the navigation canal region
of the Northern Bar of the Amazon River (Barra Norte do Rio Amazonas) in June 2006, during the river flood season in the quadrature tide. The dynamics effects affect hydrodynamic,meteorological and hydrographical parameters at the river mouth. The conclusion
drawn include that: a) the saline wedge-type stratification can be detected approximately 100km away from the mouth of the Amazon River during the end of the rainy season in the quadrature tide; b)
probably, at the Amazon estuary the quadrature entrainment processes are dominant and they are the ones responsible for increased salinity detected in the surface layer, whereas turbulence
scattering mixing is not so important. c) The large flow of fresh water from the Amazon River at the end of the rainy season implies the displacement of the saline front position over the internal Amazon continental platform, and d) The tidal wave
shows a positive asymmetry in the canal, with floods lasting less than in the ebb tide.
This asymmetry decreases towards the ocean, eventually becoming reversed in the presence of a saline wedge. The speeds, however, have a negative asymmetry, with more intense ebb tides, due to the river flow and is more evident by the existence of quadrature tides.