



Hydrographic variability patterns in the tropical oceans during 2003-2007

K. von Schuckmann (1), F. Gaillard (2), and P.-Y. Le Traon (3)

(1) IFREMER, LPO, Plouzané, France (karina.von.schuckmann@ifremer.fr), (2) IFREMER, LPO, Plouzané, France (fabienne.gaillard@ifremer.fr), (3) IFREMER, DPCP, Plouzané, France (pierre.yves.le.traon@ifremer.fr)

Quality controlled ARGO data have been used to produce a gridded field of global temperature and salinity from the surface down to 2000m depth during 2003-2007. The analysis of this product has shown that the dominant signature of global interannual variability occurs in the upper 500m depth of the tropical oceans. In the near surface layer, interannual fluctuations are mostly associated to the strong signature under ENSO conditions and are low in the Atlantic and Indian Ocean. This is considerably different in the salinity field since there, interannual fluctuations are dominant in all three ocean basins. Previous results have also shown that the vertical maximum of temperature variability is associated with the equatorial and ventilated thermocline. Salinity fluctuations are characterized by two maxima, one is surface confined whereas the second is subsurface intensified. Seasonal to interannual fluctuations of the tropical salinity field play a fundamental role in changing the potential density field - which occurs not only in the surface layer - and thus the analysis of its variability is vital. In addition, bi-annual fluctuations characterized by vertical propagation of salinity anomalies are observed in the upper 300m, predominantly in the tropical Pacific Ocean. Those features are not density compensated as similar patterns are not evident in the temperature field.