Geophysical Research Abstracts,
Vol. 11, EGU2009-7488-2, 2009
EGU General Assembly 2009


# Accuracy of ARGO-derived global ocean heat content trends, interannual and seasonal variabilities.

M. Juza (1), T. Penduff (1,2), and B. Barnier (1)

(1) LEGI, Grenoble, France (melanie.juza@hmg.inpg.fr), (2) Department of Oceanography, The Florida State University, Tallahassee, Florida

One of the primary objectives of the ARGO array is to monitor the evolution of the global ocean heat content over a wide range of timescales. Our two-step OSSE study makes use of a 50-year ocean/sea-ice gobal simulation performed by the DRAKKAR consortium to evaluate the accuracy of the ARGO array in monitoring 3 important climate indexes over the years 2000-2006: the linear trend, the seasonal, and the interannual variabilities of the global ocean. The impacts of the floats' limited vertical extent and of the 2000-2006 array's geometry are evaluated sucessively as follows.

First, the model simulation is used to globally map the 3D distribution of these three 3 climate indexes, and to further estimate how ARGO's restrictions in terms of depth ranges (and thus in terms of geographical locations) may prevent the array from accessing regions of significant contributions: the aforementioned 3 indexes are evaluated both in the area potentially accessible to ARGO ("A") and over the global ocean ("G"), and compared together.
Then, the model simulation is subsampled in time and space like actual ARGO floats; the 3 climate indexes are then estimated from these model-derived ARGO profiles and compared to their full-model counterparts to estimate how the 2000-2006 array geometry has distorted their actual values in region "A".

Our approach and results are presented and discussed. Such model-based approaches may ultimately help optimize the design of future ARGO missions, e.g. in terms of vertical sampling strategies, or horizontal deployment.