



The Mercator global ocean high resolution model (1/12°) : validation and meso scale representation in an interannual experiment

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Mercator Ocean has developed for operational oceanography application a global ocean high resolution model (1/12°), coupled with a sea ice model, based on the NEMO OGCM. A first interannual experiment, driven by atmospheric ECMWF analyses over the period 1999 to 2007, has been performed. Evaluation of this eddy resolving experiment through comparisons with insitu and altimetric data is discussed. The Gulf Stream, its separation at Cape Hateras and its penetration in the North Atlantic is particularly well simulated. Other high energetic areas like the Aghulas Current, the Zapiola anticyclone, the circumpolar current, ... are also represented with the same level of energy as in the altimetric data. The impact of the resolution is also evaluated thanks to comparisons made with a similar experiment performed with an eddy-permitting global model. Although modelled mesoscale variability is generally in good agreement with altimetric data, a special focus on the eddies formed in the eastern part of the Indian Ocean is presented. The eddies' contribution to the total heat and salt transport by the south equatorial and the Leeuwin currents is further analysed and quantified. Statistics made on eddies' features in the model and in the altimetric data show around 10 cyclonic and anticyclonic eddies with a 60-90km radius formed during the 2003-2005.