



## **Subduction characteristics over the northeastern Atlantic during the POMME experiment (2000-2001)**

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The POMME experiment (September 2000-September 2001) was a multidisciplinary effort to investigate the subduction mechanisms of the subpolar mode water in the North-East Atlantic and particularly the role of mesoscale features. With the extensive data set collected, several regional fine scale models were run and a specific reanalysis, with its coarser spatial resolution but with assimilation of all the data collected during the experiment, was produced with the MERCATOR oceanic operational model. These different numerical tools give similar results and agree to indicate that waters subducted in the range 26.8-27.0kg/m<sup>3</sup> at a mean annual rate closed to 0.5 Sv. One of the most interesting result is that depending on the scale considered, the dominant process at play in the subduction process may vary. At the domain scale (nearly 700 km time 700 km) the main process is the rapid mixed layer retreat observed during a short, one and a half month period, from March to mid-April 2001, confirming the famous "Stommel's daemon" scheme. At the local scale, the mean annual subduction field is largely dominated by small scale features resulting from the lateral induction term, which is largely conditioned by the presence of sharp mixed layer depth gradients. The spatial pattern of the lateral induction term is moreover strongly correlated and organized by the mean flow observed locally. These results point out that subduction mainly occurs in some specific and intense spots in the order of some tens of kilometers.