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Heat and freshwater budget closure from different modelling approch in the North East Atlantic

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During the POMME experiment (Programme Océanographique Multidisciplinaire à Moyenne Echelle, 2000-2001, Northeast Atlantic), an extended data set was collected over one year in order to document the structure and evolution of the oceanic upper layers. A heat and fresh water budget was computed from satellite, in-situ data, numerical weather prediction model observables and a bulk algorithm. A method using a one dimensional approach with fit to the mixed layer salt and heat content observed during the different cruises was then developed to adjust the precipitation and surface turbulent fluxes. The adjusted fluxes were finally used to force 3 dimensional models for physical and biological studies. In this paper we discuss (1) how these adjusted fluxes contribute to simulate reallistically the POMME area and (2) how the heat budget produced by a statistical model assimilating all the data collected during POMME is closed by applying these fluxes. Some conclusions are drawn concerning the main processes governing the upper layer evolution in this region.