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Using Argo Temperature Profile Data to Improve Understanding of the North Atlantic Heat Budget

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Early results from a study of the North Atlantic heat budget using Argo float data are presented. Work to date has assumed a simple balance between air-sea flux and heat content change. Profile temperature data from the Argo programme have been used to calculate heat content and the implied heat flux from the difference between successive monthly heat content values. Comparisons between the Argo implied heat flux and flux fields from the National Centres for Environmental Prediction (NCEP) reanalysis are made. Mean differences were 73 Wm-2 and 66 Wm-2 during the summer and winter months respectively. Mean differences between NCEP and inferred fluxes based on climatological fields without the Argo data were 5-10 Wm-2 higher. The improvement of the former over the latter was consistent throughout most of the North Atlantic. Additionally, inclusion of the Argo data helped resolve some of the interannual variability evident in the NCEP fluxes. The implications of this study in resolving the mixed layer heat budget will be discussed.