

Observing System Evaluation activities under GODAE OceanView

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One of the goals of GODAE OceanView (GOV; www.godae-oceanview.org) is an ongoing demonstration of the impact of ocean observations on short-range ocean forecasts and reanalyses. To achieve this goal, the GOV Observing System Evaluation task team (OSEval-TT) was established. The OSEval-TT seeks to undertake various coordinated efforts to assess the impact of observations on GOV systems, and to contribute to the design of future observing systems. A key activity of the OSEval-TT is routine monitoring of the global ocean observing system, delivered through inter-comparisons of model fields in observation-space, and delayed-mode and near-real-time (NRT) observing system experiments (OSEs). OSEs involve the systematic with-holding of observations from assimilating systems to quantify the degradation of the system's performance when those observations are neglected. Several GOV groups have undertaken OSEs. Delayed-mode OSEs have clearly demonstrated the critical importance of altimeter data and sea-surface temperature data for short-range ocean forecasting. The neglect of Argo data has also been shown to significantly degrade the system's performance. Preliminary results from a suite of recently completed NRT-OSEs demonstrate that the neglect of SST, altimeter, Argo, TAO/TRITON, and XBT data. It is shown that the neglect of XBT data can degrade the skill of a short-range mesoscale forecast system by several degrees in the vicinity of the data (Figure 1). Furthermore, it is shown that the neglect of XBT not only degrades the forecasts at the time of assimilation in the vicinity of the observations – but also for some time in the future, due to the propagation and advection of degraded fields.

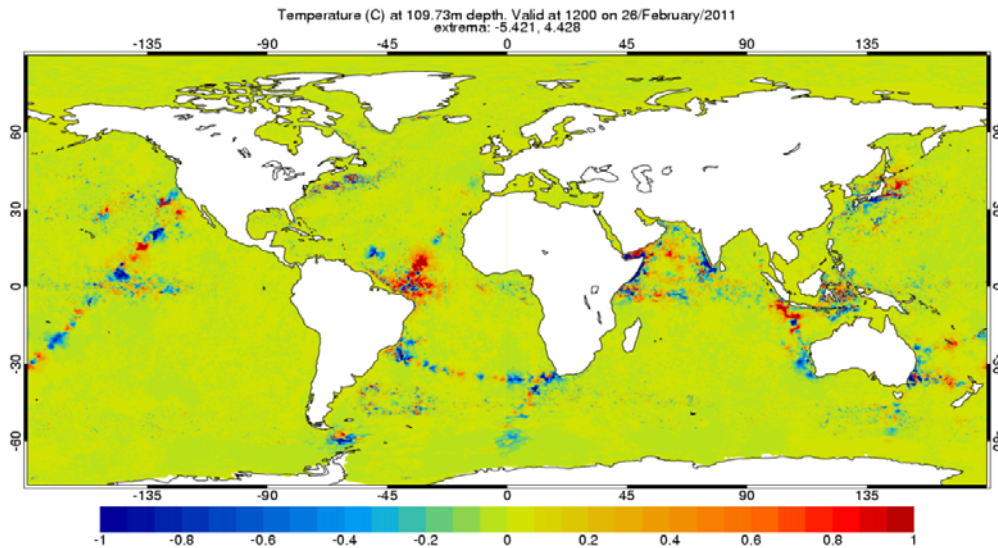


Figure 1: Difference in temperature at 100 m depth for an operational forecast that neglects XBT data and the forecast that assimilates XBT data, using the operational FOAM system (courtesy of D. Lea, UKMet Office).