La qualité scientifique des produits “temps réel” à Mercator Ocean

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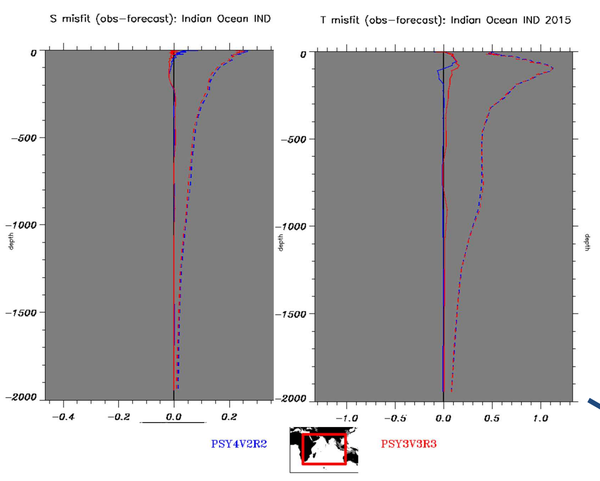
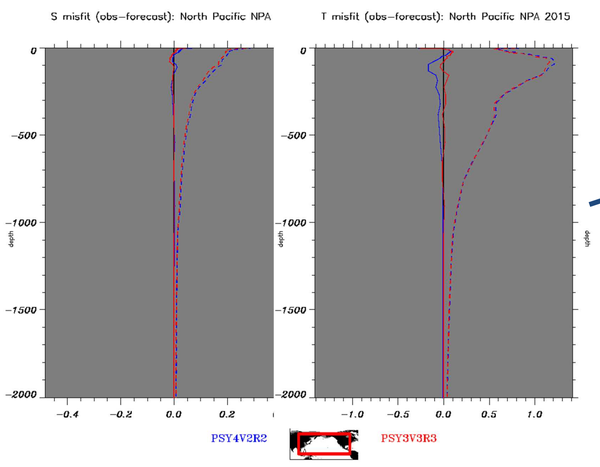
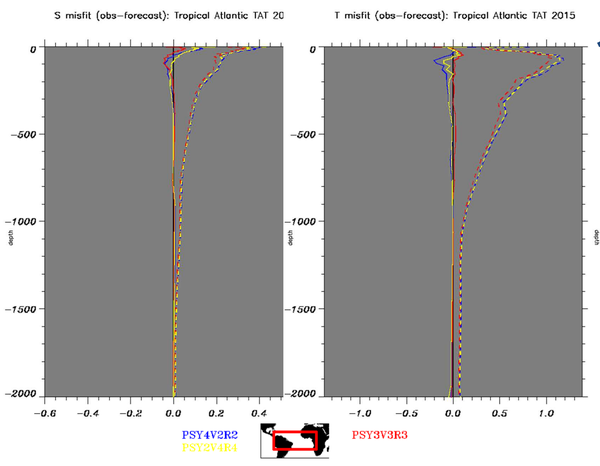
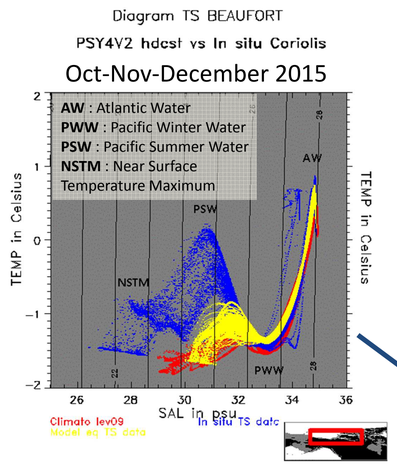
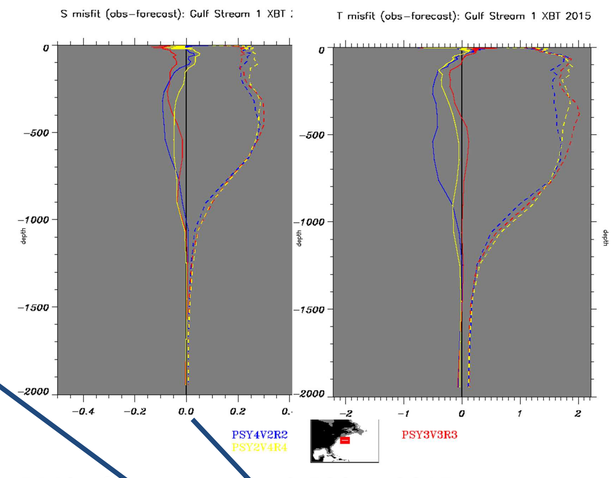
Water masses

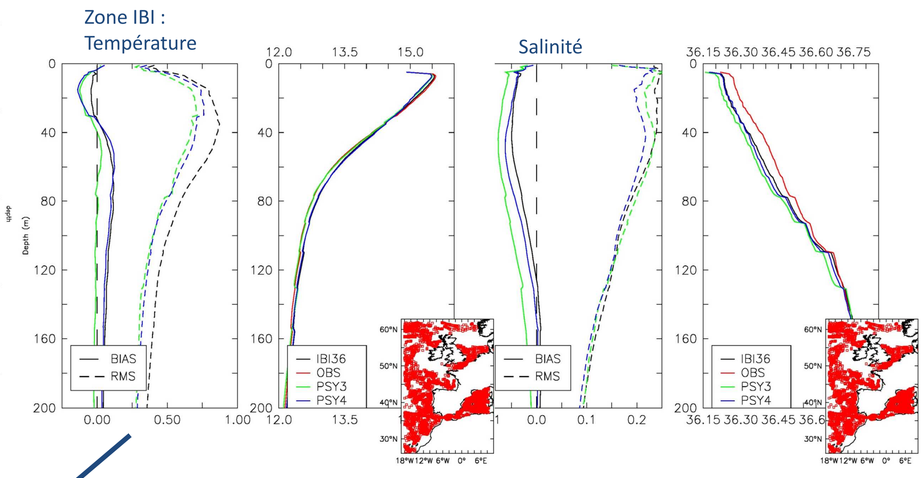




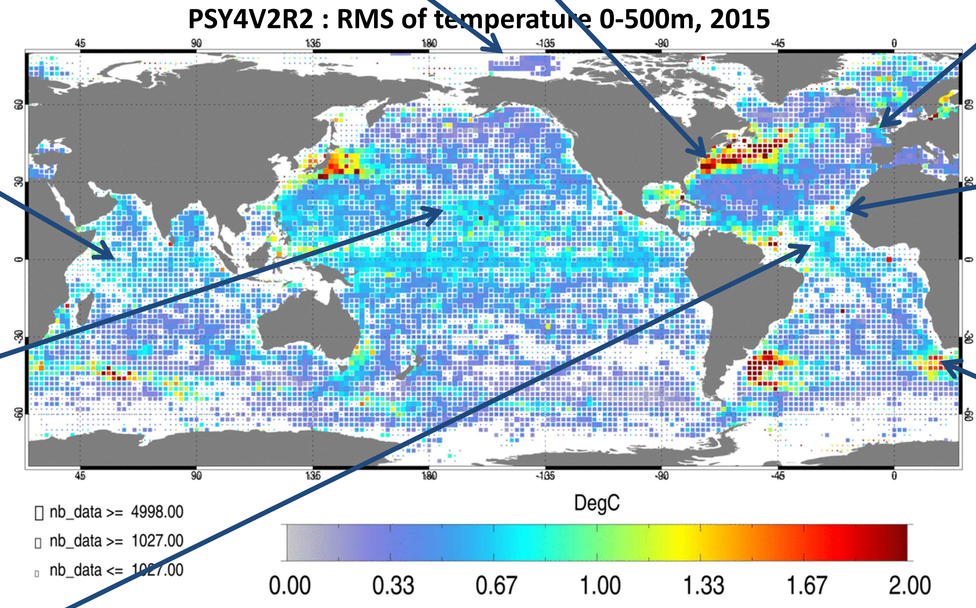


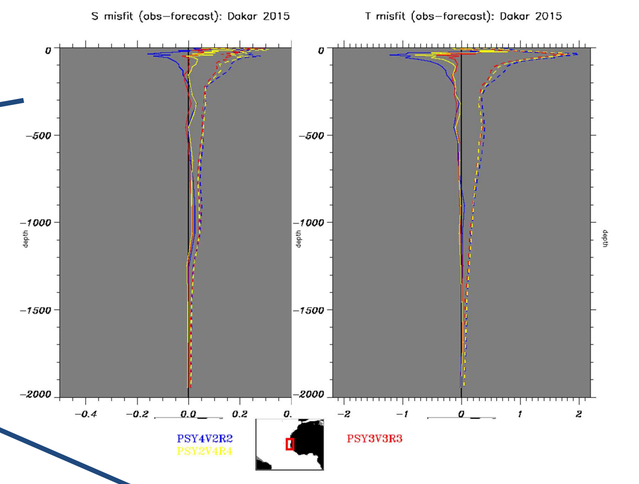


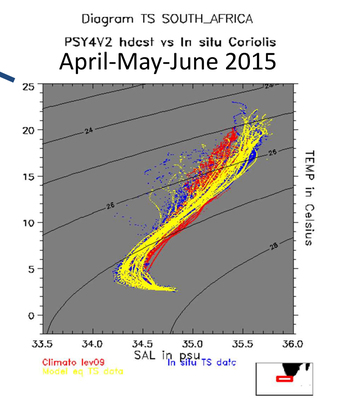




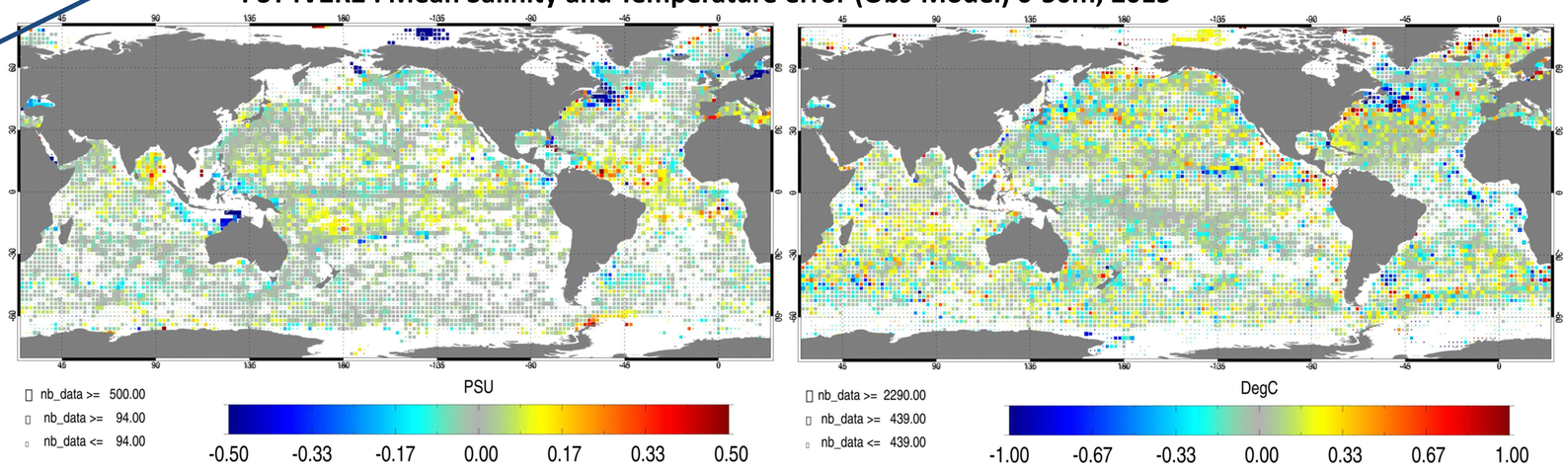
PSY4V2R2 : RMS of temperature 0-500m, 2015



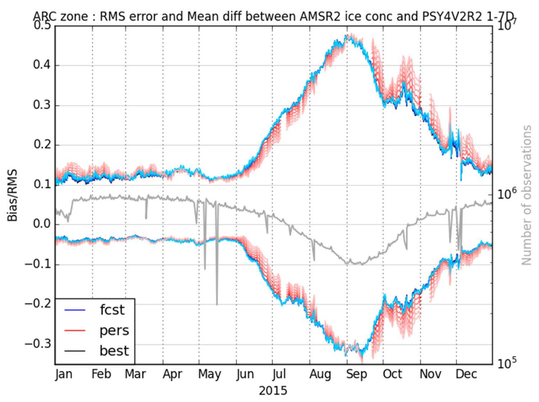




PSY4V2R2 : Mean Salinity and Temperature error (Obs-Model) 0-50m, 2015

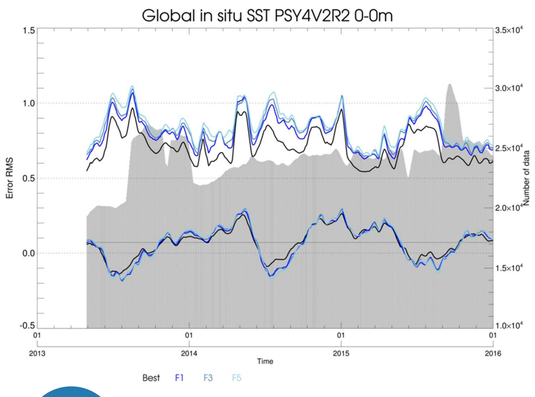


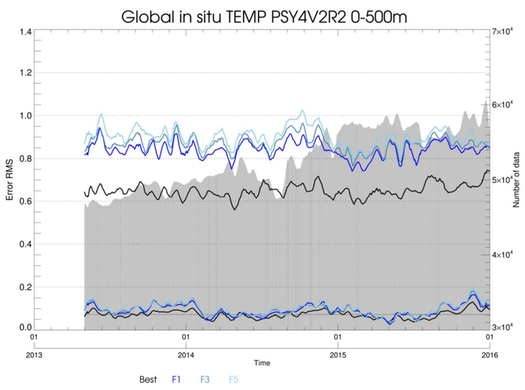
Forecast scores



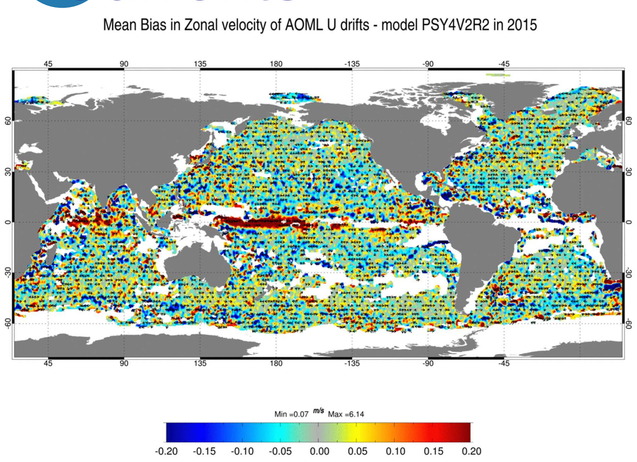
Mercator-Ocean systems:
- Ocean water masses very accurate on global average
- Departures from *in situ* less than 0.1 °C and 0.05 psu
- Average and RMS errors are larger in regions of high spatial and/or temporal variability
- Temperature and salinity forecast have significant skills
- Warm SST bias of 0.1 °C on global average
- Warm bias in mixing layer (too diffuse thermocline)
- Fresh bias in tropical oceans
- Surface currents are underestimated in the mid latitudes and overestimated at the equator

Perspectives:
- New systems coming soon! (see Lellouche, Garric, Parent)
- New *Quo Va Dis?* : yearly expert bulletin
  + web site with monthly plots
  + online CMEMS monitoring

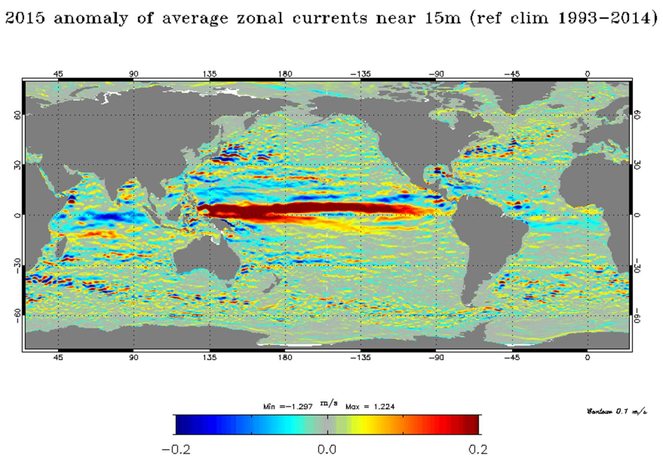




Currents

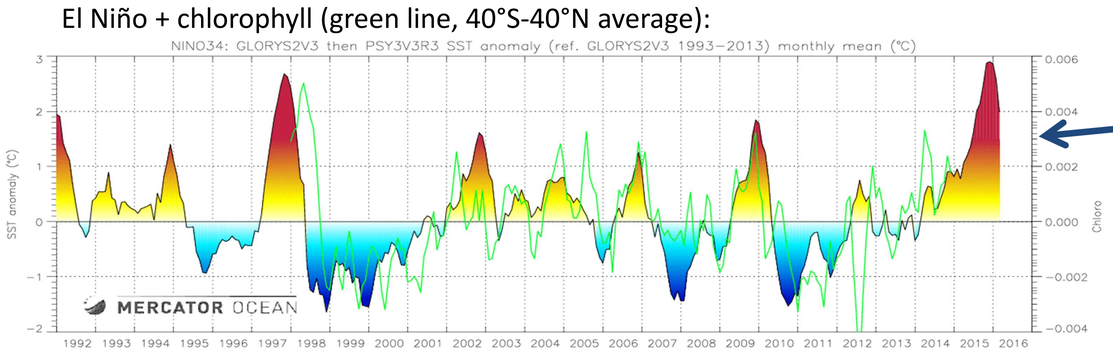


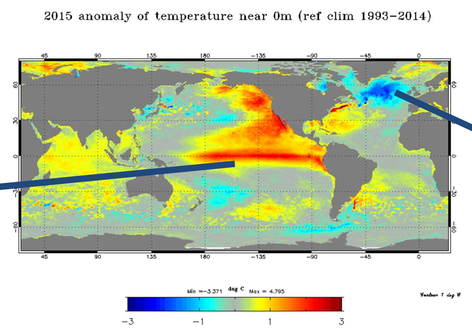
The 2015 El Nino event has a large signature on surface currents. The climatology obtained from drifters is very similar to the one displayed by the 3D ocean reanalysis on the 1993-2014 period. Spurious strong currents are diagnosed by the reanalysis off New Guinea, which is a known bias of the Mercator Ocean monitoring system (Lellouche et al, 2013). The tropical Pacific current system experiences a large positive eastward anomaly in 2015, associated with the transfer of heat from the warm pool to the central and eastern tropical Pacific . This results in a slowing down of the westward North and South Equatorial current, and in the strengthening of the north equatorial countercurrent. In the Equatorial Indian Ocean a strong westward circulation anomaly takes place in 2015.



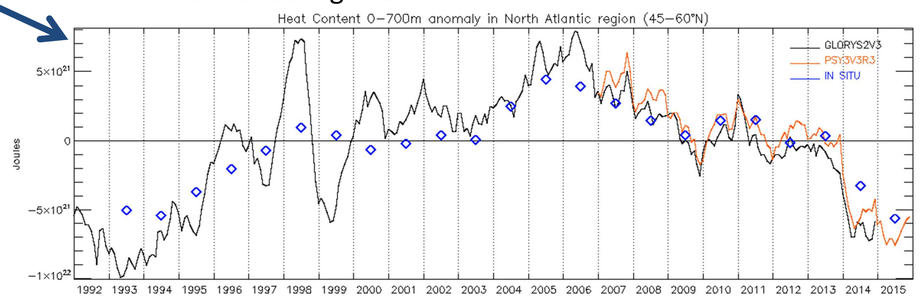
Climate events

El Niño + chlorophyll (green line, 40°S-40°N average):





North Atlantic cooling event :



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