

Global ocean oscillation as seen from Argo-inferred surface velocities

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ABSTRACT

Since 2007, in the world's oceans there are over 3000 Argo floats that transmit position data typically once every 10 days. This represents some 100.000 positions yearly that lead to an equivalent number of velocity vectors. This massive amount of velocity data allows us constructing monthly-mean fields with spatial resolution of the order of 1° in latitude-longitude. Here we present, for the first time, the monthly sea-surface velocity fields for all oceans, unravelling the spatial distribution of the seasonally evolving fields. The velocity fields are predominantly zonal except for the western boundary subtropical regions. Further, these zonal fields change spatially following the evolution of the Intertropical Convergence Zone and the accompanying low- and high-pressure centres in both hemispheres. The resulting patterns appear as a transoceanic meridional seasonal pulse, typically propagating from south to north and from east to west. This work illustrates the potential of the Argo-inferred velocity data for an improved description of the surface currents at regional and, most remarkably, global scales.

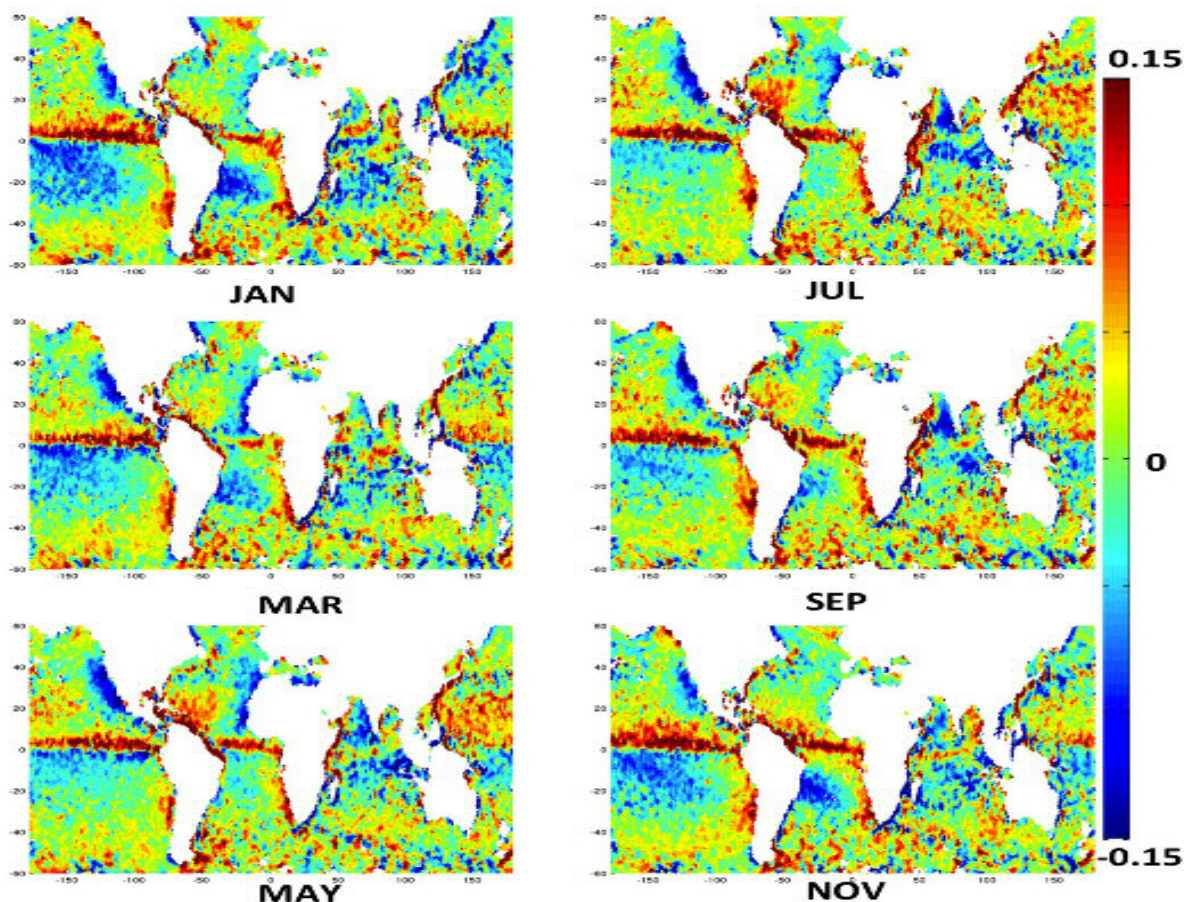


Fig. 1. Meridional velocity fields (90-day averaged), centred on the specified months.

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