



Water mass analysis of the Coral Sea through an Optimum Multi-Parameter method

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In the southwest Pacific, the westward South Equatorial Current transfers waters from the subtropics to the equatorial band and could contribute to the low frequency modulation of ENSO phenomenon. The precise location of this western boundary current region provoked a new recent interest with a major implementation of observational tools. Using recent oceanographic cruises (1994-2009), we describe thermocline water masses pathways in the Coral sea from its eastern part near the Vanuatu archipelago (20S,170E) to its northwestern part at the entrance of the Solomon sea. We use the Optimal MultiParametric method developed in the 1990's by Tomczak and propose a new vision of the thermocline oceanic circulation in the region. Our results provide a quantification of the mixing of subsurface waters masses through the Coral Sea and confirm the circulation pathways mainly described by in situ observations from cruises.