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Land-ocean processes traced by Rare Earth Elements in the Solomon Seas (Pandora, GEOTRACES cruise GP#12).

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A substantial amount of water formed in the centre of the South Pacific subtropical gyre transits through the Coral and Solomon seas before joining the equatorial undercurrent (EUC) thereby preconditioning the El Nino variability and equatorial biological productivity. Within the Solomon Seas, land-ocean inputs are likely to occur, resulting from the water dynamic and the fact that this area of the world is among the most weathered. While these inputs are fertilizing the EUC Cold Tongue, the mechanisms yielding them are still not constrained. Understanding these mechanisms was one of the objectives of the PANDORA cruise (July-Aug 2012, R/V Atalante; www.geotraces.org). To this end, Trace Elements and Isotopes (TEIs) were collected, among them Rare Earth Elements (REE) and Nd isotopes as pertinent tracers of water mass transformations and land-ocean inputs. Here, we are presenting 22 dissolved REE (DREE) profiles in the Coral Sea (characterizing the North Caledonian and North Vanuatu Jets), inside and at the exit of Solomon Sea (Vitiaz, St.George and Solomon straits). Dissolved REE concentrations, patterns and their anomaly will be discussed. Their reliability will be assessed by comparison with preceding studies [Zang and Nozaki (1996), Grenier *et al.* (2013)]. Vertical DREE profiles confirm their nutrient-like behaviors except for the non-soluble Cerium. DREE maxima, consistent with dissolved Al and Mn ones, reveal strong coastal effects. Comparison of filtered and non-filtered samples allows estimating these inputs. On-going analyses of Nd isotopes will allow quantifying exchange versus net input fluxes.

Grenier.M et al.(2013). *Journal of geophysical research oceans*, **118**, 1-27

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