

TEI content of suspended particles collected from GO-Flo bottles

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Scientific interest

I plan to submit a proposal to NSF to participate in the 2018 US GEOTRACES Eastern North Pacific section (P16) to **collect suspended particles** for determining the trace element content of the marine particles along the transect. These analyses address several GEOTRACES goals, including fluxes at air-ocean-sediment interfaces and internal cycling (biologic uptake and regeneration).

Analyses of total and labile fractions of TEIs (elements in Table 2 of GEOTRACES Science Plan plus Co, Ni, Mo, V and P) will be performed on particles collected from GO-Flo bottles at **all depths at each station**, to examine the changing **trace-element composition of marine particles** across lateral and vertical gradients in dissolved TEI and nutrient concentrations in the eastern North Pacific. These measurements will be of particular interest through several different oceanographic interfaces and regimes, including continental shelves, low oxygen waters, and oligotrophic gyres. In addition, several major surface and subsurface water masses will be sampled, including the Kuroshio Extension which transports material from the SE Asian coasts into the Gulf of Alaska and the North Pacific Intermediate Water whose density and composition are especially sensitive to climate changes in the western North Pacific Ocean.

Sample collection and water budget

We will propose collecting particles from a single GO-Flo bottle onto a single **25-mm (0.4- μm pore size) Supor membrane**, as during the previous US Arctic, Atlantic, and Pacific cruises. The filtrate from these membranes has been shown to be clean and can be used for analyses of dissolved constituents.

Synergy/collaboration

I anticipate that this work will benefit from collaboration with (and enable synergies with) other groups studying particles via in situ pumping and dissolved trace elements collected concurrently from the GTC sampling system.