

Dear GEOTRACES SSC Committee Members,

I am interested in participating in the GP15 section workshop in La Jolla, CA. I participated shipboard in the GP16 and GA06 US sections and have a strong academic interest in full ocean depth particulate trace metals (pTMs) and associated ancillary data (e.g. transmissometry), having personally collected, analyzed and utilized pTM data from pumps and bottles. My past involvement has also included broader, on-going GEOTRACES particle intercalibration efforts. My work on GP16 as a post-doc in the Twining lab at Bigelow has focused on phytoplankton metal quotas, which we will soon expand (zoom?) to the level of heterotrophic prokaryotes using improved synchrotron optics and methodologies. Prokaryotic metals will be of special interest in the GP15 section, given cyanobacterial dominance in the oligotrophic gyres and even more diverse prokaryotic mediation of metal-intensive respirations (e.g. sulfur oxidation, denitrification and annamox) in the section's subsurface oxygen minima. Using the broad suite of particulate trace elements collected via bottle particles in the upper water column of GP16, we published estimates of prokaryotic biogenic metal trends in the section's intense ODZ [L&O, in press]. This research encouraged my early consolidation and dissemination of GP16-relevant datasets which have benefited that section's participants; I hope to improve such processes from the early planning stages of GP15. As with the GA06 section, GP15 will span large gradients in aeolian/lithogenic inputs and lateral transport of refractory material into a deep basin. I have experience discerning such inputs via multi-element ICP-MS (pumps and bottle-particles) and synchrotron methods and an interest in their inclusion in the GP15 planning process. Refractory gradients will provide amazing opportunities for understanding sub-surface particle dynamics (packaging, sinking, and lateral transport), as explored in our 2015 DSR-II manuscript using African dust in GA06. I hope to continue these lines of research through Bigelow's participation in GP15 planning.

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