Major modes of variation in particulate trace element distributions in contrasting basins

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Full water column profiles of size fractionated particles were collected from two U.S. GEOTRACES sections: GA03 in the dust-dominated North Atlantic, and GP16 in the Eastern Tropical Pacific, which passed through a major oxygen deficient zone. Particles were analyzed by ICP-MS for more than a dozen trace and minor elements, as well as for major particle composition (POC, $CaCO_3$, biogenic silica). We present the major modes of variation from principal components analysis (PCA) in particulate trace element distributions from these two sections. We will compare and contrast the main modes of variation in the two sections. The variability in lithogenic particles dominates the variance in both sections, but accounts for more of the total variance in the dust-dominated North Atlantic compared to the Eastern Tropical Pacific. Biogenic particles account for the second most variance in the dataset in both sections, but sunsequent principal components appear to diverge. We will discuss the biogeochemical features of each section that explain the unique modes of variation.