



International

10 April, 2011

Executive Committee
Scientific Committee on Oceanic Research

Greetings,

We are writing to support the proposal to form a SCOR working group “**Organic Ligands – A Key Control on Trace Metal Biogeochemistry in the Ocean**”. Such a working group has potential to add substantially to our knowledge of the factors that regulate the supply of essential micronutrients to marine organisms as well as the implications for marine ecosystems. The objectives of this working group nicely complement those of the GEOTRACES program.

GEOTRACES aims to identify relevant processes, and quantify key fluxes, associated with the supply, removal and physical transport of trace elements and their isotopes in the ocean. Indeed, it is the prospect of obtaining a quantitative picture of the global marine biogeochemical cycles of trace elements and their isotopes that has motivated international collaboration under GEOTRACES. These geochemical mass budget terms will be derived in large part by applying inverse models of ocean transport to measured distributions of trace elements in the ocean.

Bioavailability and internal cycling of trace elements is governed by their chemical speciation, which is often dominated by organic complexes. This is particularly important for micronutrient elements, such as Fe, Co and Zn, which are thought to regulate the growth of certain organisms and thereby influence the biogeochemical cycles of carbon and major nutrient elements. However, a detailed investigation of the composition, structure and origin of organic ligands is beyond the scope of GEOTRACES. Furthermore, simply from a pragmatic point of view, a detailed knowledge of metal-organic complexes is not essential for evaluating the rate constants for supply and removal of trace elements. Another strategy to examine speciation is required, and the proposed working group brings a high level of skill to initiate work on that objective.

In summary, the proposed working group would be of outstanding value as a complement to GEOTRACES, leveraging new knowledge about trace element distributions to guide future research on the sensitivity of marine ecosystems to varying supply of essential micronutrients.

Sincerely,

Two handwritten signatures in black ink. The first signature is "Robert Anderson" and the second is "Gideon Henderson".

Robert Anderson and Gideon Henderson
Co-Chairs, GEOTRACES SSC