

## LATIN AMERICAN GEOTRACES WORKSHOP: FINAL STATEMENT

GEOTRACES is an international programme studying the chemistry of trace elements and isotopes in the oceans. These trace elements include nutrients critical for marine life; contaminants with potential to damage ecosystems and human health; and proxies used to reconstruct past climates. GEOTRACES seeks to understand the sources, transport and fate of these elements in marine settings around the globe, including their exchange between the land, atmosphere, and ocean. This research will improve knowledge of carbon and nutrient cycles in the open and coastal ocean, and their response to changing global environments.

The first GEOTRACES Latin American Workshop was held in Rio de Janeiro in November 2012 and brought together scientists from eight Latin American countries, along with leading scientists from Europe and the USA. The workshop established a network of contacts across the region and identified common scientific and training priorities for marine chemistry in Latin America.

Trace elements in seawater have great significance for Latin American societies. Arsenic, mercury, copper, nickel and other elements are toxic pollutants and have fluxes to the coastal environment that are increasing due to mining and other industries. Such fluxes are now increasing off-shore as oil exploration and production extends into deeper water. Understanding the sources, distribution and fate of these contaminant metals is required to ensure maintenance of the coastal ecosystems critical for fisheries, and to ensure that fish consumed by humans are not damaging to health. In addition, pollutant trace elements damage water supplies and can have negative impacts on the tourist industry.

High-profile basic scientific questions can also be addressed through study of the oceans surrounding Latin America. There are significant fluxes of nutrient metals (e.g. iron) in Latin American rivers and ground-waters: these nutrients support ecosystems in broad regions of the Southern Hemisphere. There are also significant and changing aerosol sources in South America with widespread oceanic impacts. And there are extensive regions of intensely low-oxygen seawaters with complex element behaviour and biogeochemistry. There are major discoveries of international interest to be made through study of the chemistry of the oceans surrounding Latin America.

Expertise in trace-element and isotope oceanography is lacking in most Latin American countries, limiting the regions ability to monitor and manage the local environment, and the ability to make high-impact scientific discoveries. The international GEOTRACES programme is committed to developing and expanding the expertise and technical know-how of Latin American scientists. GEOTRACES also offers possible exchange of equipment and research platforms to enable study of trace-element cycles in Latin American waters where such equipment is otherwise not available. The programme offers the potential to extend the widespread coastal monitoring conducted across Latin America to the study of trace-elements and isotopes. This would inform policies to allow economic development while protecting societies and the environment.

Further details about the GEOTRACES programme are available at: <http://www.geotraces.org/>