



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION**  
(of UNESCO)

**PUBLICATIONS FROM THE GIPME OPEN OCEAN BASELINE STUDY**

This paper is intended to inform representatives of IOC Member States attending the 21<sup>st</sup> session of IOC Assembly (Paris, 3 – 13 July 2001) of the extent of scientific literature resulting from the conduct of the IOC-GIPME Atlantic Open Ocean Baseline Study undertaken under the auspices of the GIPME.

The Assembly is invited to consider the information presented herewith and to provide guidance on a similar study for the western Pacific

## PUBLICATIONS FROM THE GIPME OPEN OCEAN BASELINE STUDY

This paper is intended to inform the members of the IOC Assembly of the extent of scientific literature resulting from the conduct of the IOC-GIPME Atlantic Open Ocean Baseline Study undertaken under the auspices of the GIPME Group of Experts on Methods, standards and Intercalibration (GEMSI) and its successors in the period 1998 to the present.

In 1985, GEMSI designed, as part of the scientific activities within the GIPME Programme, an Open Ocean Baseline Study for the Atlantic Ocean. The purpose of this study was to characterize all the major deep water masses of the Atlantic Ocean near to regions of their formation as a baseline for future change and as a means of determining the standing stock for certain contaminants for mass-balance calculations.

This study design resulted in a series of cruises on German, Canadian and US research vessels in the period 1990-1996 to occupy stations in the entire North and South Atlantic. The first IOC-GIPME Baseline Study Cruise took place in March-April 1990 aboard the German Research Vessel *Meteor* from Cape Town, South Africa to Funchal, Madeira. The second cruise began in early August 1993 aboard the Canadian Vessel *CSS Hudson* in St. Johns, Newfoundland, and ended in Reykjavik, Iceland. The cruise in May-June 1996 aboard the US Research Vessel *Knorr* started in Montevideo, Uruguay, and ended in Georgetown, Barbados. These cruises were designed, as far as possible, to sample the major water masses of the Atlantic Ocean. The cruises have been international in scope, including participants from North America (USA, Canada), Europe (the Netherlands, Germany, France, the United Kingdom, Sweden), China, South Korea, India and Australia. Participants are those whom either directly participated in the cruise or received samples collected on their behalf

These oceanographic cruises resulted in a number of publications in the open scientific literature. The scientific investigations undertaken as part of this initiative have gone far beyond the initial objectives and have developed into more thorough biogeochemical investigation of trace metals and other trace substances in the Atlantic; both in the water column and in the atmosphere.

Papers from the first cruise were published in a special issue of *Marine Chemistry* in 1995 (vol. 49) - see attached bibliography. A second special issue of *Marine Chemistry* (vol. 61, 1998) contained further papers from the first cruise and papers from the second cruise. A third special issue of *Deep-Sea Research II* (vol. 46, No. 5) contained papers from the second and third cruises. A current issue of *Deep-Sea Research II* contains papers from the 1996 South and equatorial Atlantic cruise. A paper describing the hydrographic setting of this cruise was published in the previous *Deep-Sea Research II* issue (Cutter and Measures, 1999). Other published papers and theses stemming from the IOC-GIPME Baseline Study are also listed in separate categories in this bibliography.

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#### **Ph.D. Dissertations**

- Charette, M. 1998. Thorium-234 as a tracer of the oceanic export of particulate organic carbon, University of Rhode Island.
- Kim, G. 1998. Atmospheric inputs and upper ocean biogeochemistry of trace elements and radionuclide tracers in the Atlantic, University of Delaware.

#### **Deep Sea Research papers in Press**

A number of papers in this issue focus on chemical speciation, including the role of organic matter in iron complexation (Powell and Donat) and the speciation of the metalloids arsenic, antimony, and selenium (Cutter et al., and Cutter and Cutter). Three papers (Vink and Measures; Alleman et al., and Mason et al.) discuss the exchange of elements (Al, Fe, Pb, and Hg) between the ocean and atmosphere. The remaining four papers focus on silver (Ndung'u et al.), lead in the water column (Alleman et al.), hydrogen peroxide (Yuan and Shiller) and on an intercalibration of lead determination in seawater (Ndung'u et al.).