CHLORDANE COMPOUNDS FOUND IN THE MARINE ATMOSPHERE FROM THE SOUTHERN HEMISPHERE

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In the atmosphere over the eastern Indian and Antarctic Oceans, chlordane compounds (*cis*-, *trans*-chlordane, and *cis*-, *trans*-nonachlor) have been detected by using GC-ECD and GC-MS, the concentration ranging from 4.8 to 19 pg/m^3. Furthermore, a chemical having *m*/*z* 407 and faster retention time than *trans*-nonachlor on mass fragmentogram has been found and it seems to be a new nonachlor compound. Levels of chlordane compounds (CHLs) in the marine atmosphere in the Southern Hemisphere were nearly the same as DDTs, which indicates that CHLs are globally distributed and dispersed. Data on the amounts of the usage of technical chlordane in the Southern Hemisphere is not available now. The nearly equal levels of CHLs in the Southern and Northern Hemispheres suggest that technical chlordane might have been used in nearly equal amounts in both Hemispheres or it may be attributed to the higher vapor pressures of CHLs than those of DDTs. (p. 59–66).

PRIMARY PRODUCTIVITY IN THE ANTARCTIC OCEAN DURING THE AUSTRAL SUMMER OF 1983/84

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During the BIOMASS/SIBEX cruise of the T/V UMITAKA MARU III to the Southern Ocean, the standing stock and the distribution of phytoplankton chlorophyll as wells as their photosynthetic characteristics were investigated in the areas between Australia and Antarctica.

Mean chlorophyll *a* concentrations along the two sections, 116° and 150°E, varied from 0.226 to 0.399 mg/m^3 and from 0.150 to 0.245 mg/m^3, respectively. At most of the stations, a clear subsurface chlorophyll maximum, 1.1–5.8 times greater than the concentration in the surface water, was detected. Total amount of chlorophyll *a* within the upper 200 m of water column in the two sections varied from 26.51 to 52.28 mg/m^2 and from 17.40 to 44.60 mg/m^2, respectively.

P *vs.* I curves indicated the evidence of the light/dark adaptation of phytoplankton in the Antarctic Ocean. The maximum rates of photosynthesis were measured under 50–64% of the surface natural light intensity. The optimum temperature for photosynthesis of the Antarctic phytoplankton was between 7.5° and 10°C, indicating the importance of water temperature as a controlling factor for phytoplankton photosynthesis in the Antarctic waters. The assimilation number obtained under near ambient water temperature was 1.31–1.45 mg C/Chl. *a* mg/h in the Antarctic zone and 3.55 mg C/Chl. *a* mg/h in the Subantarctic zone for the first leg, while in the second leg it was 0.52–0.89 mg C/Chl. *a* mg/h and 1.10 mg C/Chl. *a* mg/h in the Antarctic and the Subantarctic zone, respectively.

In situ measurements of primary production at two stations in the Antarctic zone showed 29.22 and 5.84 mg C/m^2/h. The values coincide well with those measured in the Australian sector of the Southern Ocean. (p. 67–84).