

into each local site.

A similarity in isomeric pattern of PCBs (Swackhamer et al., 1988) and chlordanes was seen between in technical product and environmental samples (Muir et al., 1988). PCB in the surficial sediment were also analyzed considering the following factors : physical and chemical property of the sediment, distance from the source, bottom topography, and tidal effect. As the result, it is elucidated that the fine particle is playing an important role in the diffusion of contaminants. The PCT/PCB ratio increased as the percentage chlorine of the PCB composition in sediments increased. It was considered that "constant flows" affect the diffusion of PCB, and that the difference in contamination patterns between each sea area results from bottom topography and tidal effect.

Twenty sediment cores from the Harimanada Inland Sea were collected to investigate environmental fate and transport of contaminants historically. The sedimentary profiles of PCBs corresponding with historical input record were exactly similar to production and consumption data. The PCB production and the concentrations of the total PCB are plotted versus sediment depth and age in Fig.2. The total PCB concentration peak for a single core close to the source occurs sharply in the sediment of 20cm depth. The peak became wider, as the distance from the source increases. If it is assumed that time lag for the diffusion is negligible, it is possible to estimate the sedimentation rate roughly. Its rate at the sampling site close to the PCB source was estimated about 17 mm/year, and the rates at each sea area range between 6 and 17 mm/year. These rates agreed approximately with the values obtained by <sup>210</sup>Pb method.

The typical congeners (Nakano et al., 1989) selected for the comparison were as follows : No.18, No.31/28, No.44, No.49, No.52, No.66, No.91, No.101, No.118, No.138, No.149, No.153, No.180 (IUPAC No.). As a result of comparing the ratio of typical congeners observed in this study, it was possible to consider that the congener distributions were similar between PCB products and environmental samples.

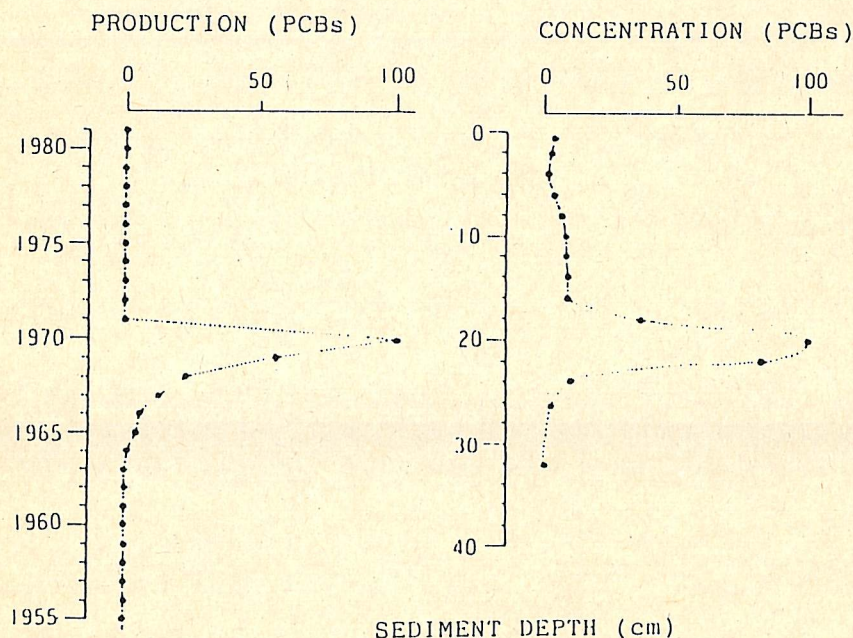


Fig. 2. PCBs concentrations versus sediment depth and age for the core.

#### CONCLUSION

PCBs were analyzed simultaneously by GC/MS-SIM. The PCB composition in sediments reflect historical input. The fine particle is playing an important role in the diffusion of contaminants. It was considered that