## GHG Observation over the Sea in the Asian Region using Cargo Ships

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Carbon dioxide and other greenhouse gases were periodically measured by using cargo ships over the Pacific Ocean, South China Sea and the Java Sea. Number of data in this region is not many enough to characterize the regional distribution of GHG. But this region is very important in terms of the tropical Asian source of GHG. CGER/NIES has a monitoring project for GHG by using cargo ship in this region. We conducted flask sampling and continuous measurements of  $CO_2$  and  $CH_4$  on board. We also collected some air samples over the Indian Ocean during Jan-Feb in 2010.

Distribution of  $CO_2$  and  $CH_4$  over the ocean has valuable information on the regional characteristics of source and sink in that region and/or in that latitudinal band. The dada from the Pacific Ocean seemed to be background level, similar to the data at Maunaloa. But the data from the Java Sea sometimes showed influences from anthropogenic activities, such as forest fire and some combustion activity. In this study, we compare these data with other sites in Asia and extract the characteristics of GHG in each region.

Keywords: Greenhouse gas; ship measurement; Southeast Asia; the Pacific.



Figure 1. Sampling routes and sites