



How to prevent the interference of ship itself exhaust emissions when measurement air pollutants over the South China Sea during 2010

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This study tried to measure real concentrations of SO₂, O₃, NO₂, NO and CO, CH₄ without ship itself exhausts emissions over the ocean. Three campaigns for spatial distribution of air pollutants observation over the South China Sea and Taiwan Strait had been carried out between May 2010 and July 2010 on R/V OR1 and R/V OR3. There are some interference caused by ship itself, it depends on relatively navigational speed and direction with wind speed and direction. When relative wind speed come from stern, the air sample would be contaminated by ship smokestack. There are three procedures to avoid interference from ship itself exhaust emissions including (1) an air-extracting inlet was adopted on the mast of fore deck; (2) data quality control quality assurance (index as Qa/Qc); (3) screening out interference from vessel's smokestack by relative wind speed.

This study presents our measurements on meteorological variables, radiations, and the concentrations of airborne pollutants over the South China Sea and Taiwan Strait. The mean concentrations of SO₂, O₃, NO and NO₂ were 2 ppbv, 15 ppbv, 3 ppbv and 6 ppbv, respectively in May 2010 cruise. The highest concentrations of NO and NO₂ occurred at the outlet of Pearl River.

Keywords: South China Sea; R/V OR1; Qa/Qc, ship exhaust emissions; air pollutants