



## CO<sub>2</sub> Sink/Source in the Indonesian Seas

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Two distinct CO<sub>2</sub> sink/source characteristics appeared from the compiled observed data 1984-2013 in the tropical Indonesian seas. The western part persistently emits CO<sub>2</sub> to the atmosphere, while the eastern is rather dynamic which emits and absorbs smaller amount of CO<sub>2</sub> to and from atmosphere, respectively. The segregation is proximal to the virtual Wallace line, where in the continental shelf is located. Lower salinity and higher silicate condition in the western part influenced the higher pCO<sub>2</sub> condition in Java Sea.

Temperature is found to have a limited influence to control different characteristic in the west and east, but SST change of 2.0 °C during La Niña condition effectively reduced the source amount of CO<sub>2</sub> by 50% compared to Normal year condition. Yet, during La Niña, higher wind speed increases CO<sub>2</sub> flux twice compared to Normal year. In the continental shelf area where CO<sub>2</sub> sink area is found, 29 years data showed that pCO<sub>2</sub> trend is increasing ±0.6-3.8 μatm/year. From this study, the overall areas have a significant source of CO<sub>2</sub> of approximately 10 – 24 μatm.