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SSpCO₂ Distribution in Tropical Indonesian Seas and Its Implication to Blue Carbon Proposal

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Blue carbon mechanism proposed by UNEP is one of the most powerful approaches to intelligently measure the role of ocean in binding polluted atmospheric CO₂. With a basic assumption of nature's ingenuity of ocean as carbon capture and storage, the proposal brings spirit to keep the healthy ocean away from anthropogenic environmental threat. From our observation data, we found that during northwest and first transition monsoon season, surface water of Java, Flores and Banda Sea had pCO₂ of around 391 ppm. In average, ocean had 11 ppm higher than the mean of CO₂ in Indonesia's atmosphere during these periods, 380 ppm. That means that 13 billion tons of CO₂ per month were emitted to the atmosphere during these periods from the area of the measurements of 2500 km². Those results agree with predictive assumption that tropical oceans act as CO₂ source rather than CO₂ sink. The condition is worse in coastal area, where biological pump never take place, even though photosynthesis from marine vegetation in coastal tropical sea is abundant. Therefore, policy instruments of carbon credit in marine, especially for tropical oceans that naturally emit CO₂, should be different from those for land. The policy should take into account the capability of tropical ocean to absorb anthropogenic CO₂.

キーワード: blue carbon, SSpCO₂, sink-source, Indonesian seas

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