

Asymmetric response of sinking biogenic flux to ENSO oscillation in the central South China Sea

HONGLIANG LI¹, JIANFANG CHEN¹, MARTIN G WIESNER²,
JINGJING ZHANG¹, ZEZHOU WU¹, LIHUA RAN¹

¹ Laboratory of Marine Ecosystem and Biogeochemistry,
State Oceanic Administration, Hangzhou 310012, P.R.
China.

² Institute of Geology, University of Hamburg, Hamburg D-
20146, Germany.

The ENSO oscillation is one of the major drivers of inter-annual global ocean-atmospheric climate system. It has been observed to affect the primary production in the northern SCS, however, the contribution to the deep biogenic flux is yet to be quantified. Based on the sinking biogenic particle collected during the 1997-1999 ENSO period in the central SCS, the response of biological carbon pump to the climate oscillation is studied. The total biogenic flux was lower than the climatological value and no significant seasonal variation during the ENSO period. This result is opposite to the observation in the Equatorial Pacific, where had dramatically recover in primary production and organic matter export during La Niña period. Hence, obvious asymmetric responses of deep sinking biogenic fluxes to ENSO events was observed in the South China Sea. Strong surface stratification and enhanced intrusion of oligotrophic surface Kuroshio could decrease nutrients available, primary production and thus biogenic flux during El Niño period. While obviously deepened thermocline may be responsible for the continuous depressed primary production and biogenic flux during la Niña period, especially siliceous plankton.