

## Enhanced nutrient supply and biogeochemical impacts induced by internal waves in the oligotrophic northern South China Sea

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To understand nutrient supply and the biogeochemical response induced by internal waves in the deep basin of the northern South China Sea (NSCS), nitrate, chlorophyll *a* (Chl *a*), particulate organic carbon (POC) fluxes were measured during the passage of large internal waves using drifting sediment traps attached with hydrographic sensors. Results revealed large variations in temperature, nitrate and chlorophyll *a* (Chl *a*) concentrations during and after internal waves, suggesting that cold nutrient-replete waters may be brought to the euphotic zone in the dissipation zone during and after the passage of internal wave packets, resulted in phytoplankton flourished in oligotrophic water. The result reveals that ocean mixing triggered by internal waves in warm water of the NSCS may be important for phytoplankton species composition. Most importantly, POC fluxes ( $110.9 \pm 10.7 \text{ mg C m}^{-2} \text{ d}^{-1}$ ) were significantly enhanced after internal waves compared to non-internal wave area ( $32.6\text{--}73.0 \text{ mg C m}^{-2} \text{ d}^{-1}$ ) in the NSCS. Such elevated POC fluxes may be induced by downward flourished biogenic particles, particle aggregation or converged particles from mixed layer triggered by internal waves.

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