

Algae blooms in the surface and subsurface water induced by typhoon in the South China Sea

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Previous studies showed that typhoons often induce chlorophyll a (Chl-a) blooms in the surface waters. This paper shows that Chl-a blooms can occur not only on the surface but also in the interior just above the thermocline after the passage of a typhoon. We used satellite and cruise survey data to analyze physical and biological characteristics in the South China Sea after the passage of the typhoon Nuri in August 2008. This paper shows that a subsurface (20 to 100 m depth) Chl-a bloom (≥ 1.00 mg m⁻³) occurred and lasted for three weeks, longer than the surface Chl-a bloom (≥ 0.50 mg m⁻³). The maximum value of Chl-a of 2.10 mg m⁻³ was detected at 50 m depth. This value was approximately 4-5 times higher than the background value of 0.48 mg m⁻³ measured at non blooming areas at the same time and about 5 times higher than the mean Chl-a value of 0.28 mg m⁻³ measured over the period of five years. The mixed layer depth and the thickness of the Chl-a bloom increased after the typhoon. Our analysis clearly shows that a long-lasting subsurface upwelling caused by the passage of the typhoon, uptook nutrients to the euphotic zone thus supporting the Chl-a bloom. These observations provide some insight on the effect of typhoons on marine ecosystems, especially as related to the Integrated Primary Production

Biography

DanLing TANG (Lingzis) conducted study, research and teaching in Hong Kong, USA and Japan for more than 10 years, she returned to China with award of "100 Talents Program". Now is the leading Professor of "Remote Sensing on Marine Ecology & Environment", SCSIO, CAS. Dr. Tang is working on satellite remote sensing of marine ecology and environment; her major interests include ocean dynamics of phytoplankton bloom and natural hazards. She has published approximately 70 papers in SCI, "Remote Sensing of the Changing Oceans" was published by Springer. She has organized many international conferences, also services for several international organizations. Now Dr. Tang is the President of PORSEC, Councilor of AGU, Board of Director of PACON, Vice Chairman of Ocean Committee, COASPAR.

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