

Author's Accepted Manuscript

Interannual variation of spring phytoplankton bloom and response to turbulent energy generated by atmospheric forcing in the central Southern Yellow Sea of China: Satellite observations and numerical model study

Jie Shi, Yi Liu, Xinyan Mao, Xinyu Guo, Hao Wei, Huiwang Gao



PII: S0278-4343(16)30327-2
DOI: <http://dx.doi.org/10.1016/j.csr.2016.06.008>
Reference: CSR3440

To appear in: *Continental Shelf Research*

Received date: 31 December 2015

Revised date: 1 May 2016

Accepted date: 15 June 2016

Cite this article as: Jie Shi, Yi Liu, Xinyan Mao, Xinyu Guo, Hao Wei and Huiwang Gao, Interannual variation of spring phytoplankton bloom and response to turbulent energy generated by atmospheric forcing in the central Southern Yellow Sea of China: Satellite observations and numerical model study *Continental Shelf Research*, <http://dx.doi.org/10.1016/j.csr.2016.06.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Interannual variation of spring phytoplankton bloom and response to turbulent energy generated by atmospheric forcing in the central Southern Yellow Sea of China: Satellite observations and numerical model study

Jie Shi^{1,2}, Yi Liu^{3,4}, Xinyan Mao⁵, Xinyu Guo^{1,2,6}, Hao Wei⁷, Huiwang Gao^{1,2,*}

¹ Key laboratory of Marine Environment and Ecology, Ocean University of China, Ministry of Education, 238 Songling Road, Qingdao 266100, China

² College of Environmental Science and Engineering, Ocean University of China, 238 Songling Road, Qingdao 266100, China

³ State Key Laboratory of Tropical Oceanography, South China Sea Institute of Oceanology, Chinese Academy of Sciences, 164 West Xingang Road, Guangzhou 510301, China

⁴ University of Chinese Academy of Sciences, Beijing 100049, China

⁵ College of Oceanic and Atmospheric Sciences, Ocean University of China, 238 Songling Road, Qingdao 266100, China

⁶ Center for Marine Environmental Studies, Ehime University, 2-5 Bunkyo-Cho, Matsuyama 790-8577

⁷ School of Marine Science and Technology, Tianjin University, Tianjin 300072, China

*Corresponding author. huiwanggao@126.com

Abstract

The interannual variations of the start timing, magnitude and duration of the spring phytoplankton bloom (SPB) in the central southern Yellow Sea (SYS) were studied using the satellite-derived surface chlorophyll-*a* concentrations (Chl-*a*) from 2000 to 2014. The correlations between the characteristics of SPB and the generation rate of turbulent kinetic energy (TKE_{RT}) supplied from the atmosphere to the ocean were examined. The start timing of SPB was delayed in years with high TKE_{RT} supplied to the ocean before SPB. The TKE_{RT} during SPB had no relationship with the magnitude of SPB, but had positive correlation with the duration. A 1-D physical-biological model was used to examine the influencing mechanisms of the TKE_{RT} on the characteristics of SPB quantitatively. The wind speeds and related TKE_{RT} before the

Download English Version:

<https://daneshyari.com/en/article/5764405>

Download Persian Version:

<https://daneshyari.com/article/5764405>

[Daneshyari.com](https://daneshyari.com)