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Evidence of Asian Dust-Associated Phytoplankton Bloom in the Northwest Pacific Ocean

I-I Lin[1], Jen-Ping Chen[2], and Yi-Chiu Lin[2]

[1]*National Center for Ocean Research, Taipei, Taiwan (email: linii@ncor.ntu.edu.tw)*

[2] *Dept. of Atmospheric Sciences, National Taiwan University, Taiwan*

(email: jpchen@webmail.as.ntu.edu.tw)

The role of Asian dust as an atmospheric forcing in the biogeochemical cycle and primary production in the Northwest Pacific Ocean and neighbouring Seas (Yellow/East China Sea and South China Sea) is a long-been speculated scientific issue (Wong *et al.*, 2002). Dust may contribute to ocean biogeochemistry in various ways. Firstly, the nutrients in the dust may stimulate phytoplankton growth by adding nutrient to the water. Secondly, if nutrients is present in the ocean in abundance, the deposited iron in the dust may stimulates nutrient uptake and leads to higher primary production. Thirdly, if the ocean is devoid of nutrients, the iron deposited may stimulate atmospheric nitrogen fixation. However, due to the lack of observational evidences, it remains unclear what specific role does Asian dust plays and to which extent such processes can be quantified. This research combines multiple remote sensing data sets including NASA/SeaWiFS (Sea-viewing Wide Field-of-view Sensor) ocean colour data, TRMM (Tropical Rainfall Measuring Mission) cloud-penetrating microwave Sea Surface Temperature (SST) data, NASA/QuikSCAT sea surface wind scatterometry data, TOPEX/Poseidon and JASON-1 satellite radar altimetry data, together with the Taiwan Air Quality Model (TAQM) (Chen *et al.*, 2004) to systematically investigate dust episodes and associated ocean biogeochemistry responses between 2002 to 2004. Preliminary results from our investigation will be presented.

References

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