Title

Promotion effect of Asian dust on phytoplankton growth and potential dissolved organic phosphorus utilization in the South China Sea

Members' names and affiliations

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Aim

(1) To promote the exchanges and cooperation between the College of Environmental Science and Engineering at Ocean University of China (OUC) and the Center for Marine Environmental Studies (CMES) at Ehime University.
(2) To improve the studies of ecosystem response to atmospheric deposition in the Northwest Pacific and to compare the response differences between the oligotrophic South China Sea and the Northwest Pacific.

Procedure

The principal investigator (PI) made an oral presentation "**Promotion effect of Asian dust on phytoplankton growth and potential dissolved organic phosphorus (DOP) utilization in the South China Sea**" at CMES on Oct. 9, 2018. Afterwards, the PI had an excellent discussion with the colleagues and students. From Oct. 9 to 13, Prof. Huiwang Gao had several discussions with the exchange students from OUC supervised by Prof. Xinyu Guo to understand their progress on research.

Results

The oral presentation showed our recent studies including:

(1) Nitrogen and phosphorus were both urgently needed for phytoplankton growth in the SCS, indicated by the evident Chl a response to the addition of nitrogen and phosphorus together.
(2) Almost no evident response was observed by adding phosphorus or iron alone to incubation waters.
(3) Asian dust showed an apparent promotion effect on phytoplankton growth by providing sufficient amounts of nitrogen but low phosphorus

(4) From both experimental and model perspectives, we proposed the possible existence of DOP utilization by the algae in the SCS.

Publication/conference presentation

In 2018, we had one joint paper between OUC and CMES published by JGR: Biogeosciences partly benefit from the discussions during the visit supported by LaMer project.

Chu Q, Liu Y, Shi J, et al. Promotion effect of Asian dust on phytoplankton growth and potential dissolved organic phosphorus utilization in the South China Sea[J]. Journal of Geophysical Research: Biogeosciences, 2018, 123(3): 1101-1116.

Perspectives in future

We hope from both sides of OUC and CEMS that we can work closely on new scientific interests, e.g. atmospheric deposition of Persistent Organic Pollutants (POPs) into the ocean and their distribution in coastal and open oceans, variability of fish product in coastal seas of China and Japan response to climate change and human activities.