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中文題目：馬祖海域矽藻群聚組成的時間變動並著重在 *Pseudo-nitzschia* 藻華

英文題目：The temporal variation of diatom communities in Matsu archipelago, with emphasis on *Pseudo-nitzschia* blooms

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### Abstract

Diatoms are unicellular photosynthetic eukaryotes, which can transfer CO<sub>2</sub> into organic carbon and then sink into deep ocean. *Pseudo-nitzschia*, a genus of diatoms, produces domoic acid that may affect human health. Matsu archipelago located off Minjiang River in a eutrophic estuarine where HABs occur frequently. The China Coastal Current water occupied the studied area from September to June, and the Taiwan Warm Current intruded the area from the beginning of summer. The freshwater was brought into by Minjiang was found the end of May and June. The objective of this study is to investigate the temporal variation of diatom communities, emphasis on *Pseudo-nitzschia* blooms, in Matsu archipelago using 18S rRNA V4 amplicon (qualitative method) and microscopic observation (quantitative method) and to understand the mechanism that triggered the bloom formation. The sampling was conducted more than 40 times from August 2021 to June 2022. During the studying period, diatom abundance reached a maximum of  $4.3 \times 10^5$  cells L<sup>-1</sup>, occurred in early June, 2022, and the dominant genera were *Chaetoceros* and *Pseudo-nitzschia*. Another diatom bloom was observed on 25 September, 2021 and *Pseudo-nitzschia* contributed 88% of the total diatom abundance. Based on 18S rRNA amplicon data, the dominant *Pseudo-nitzschia* species were *P. cuspidata* and *P. pungens* in September and June, respectively, different water masses appear to play important roles in triggering distinct *Pseudo-nitzschia* species blooms.