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Title:	Signals of intense primary production in response to <i>Ulva prolifera</i> bloom in the Yellow Sea during summer 2021
Authors:	Yunus, Ali P. (/jspui/browse?type=author&value=Yunus%2C+Ali+P.)
Keywords:	<i>Ulva prolifera</i> bloom Climate Yellow Sea
Issue Date:	2022
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Citation:	Physics and Chemistry of the Earth, 128,103257
Abstract:	The variability in changing climate has been predicted to lead to significant changes in the world's oceans primary productivity. Recent years have experienced more intense algal blooms during the spring-summer months in many coastal waters. Here we present results from the analysis of satellite ocean color products from MODIS-Terra datasets during June 2 to July 20, 2021, corresponding to the most intense period of the <i>Enteromorpha</i> (<i>Ulva</i>) <i>prolifera</i> algae (<i>U. prolifera</i>) bloom in the Yellow Sea. Because the studies on sea surface temperature (SST) variability over the <i>U. prolifera</i> bloom have not yet been fully explored by satellite measurements in the offshore waters of Qingdao, China, we analyzed the MODIS SST and their relationship with the <i>U. prolifera</i> blooms in the 2021 summer months. Analysis of SST showed a variation in the range of 18–24 °C in near-shore waters in response to the bloom of green algae. We find that a significant thermal front with a gradient magnitude of 0.03 °C/km was developed over the shelf and offshore regions during the algal bloom period. The observed changes in thermal fronts are driven by high-wind speed and Ekman pumping-velocity processes. We concluded that the changes in SSTs with a range of 20–23 °C, high-magnitude thermal fronts and wind speed, and Ekman pumping velocity resulted in the intensification of the largest bloom of <i>U. prolifera</i> in the Yellow Sea during the study period.
Description:	Only IISER Mohali authors are available in the record.
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