國 立 臺 灣 海 洋 大 學
海洋環境與生態研究所 專題討論

題目： The Effect of Typhoon Maria on the Primary Production of southern East China Sea

報告人： 蔡念恩 碩一

指導教授： 陳宗岳老師

報告日期： 2021 年 11 月 24 日

Abstract

Typhoons play an important role in bringing nutrients from the seabed to the surface. However, the sea circumstances before and after a typhoon passes through are very bad, so ship survey data are difficult to obtain. Reports on the impact of typhoons on marine primary productivity (PP) and percent extracellular release (PER) are scarce. In order to determine the changes in PP (including particulate primary production, PPP, and dissolved primary production, DPP) and PER affected by Typhoon Maria (July 9 - 10, 2018), data from two sampling periods: pre-typhoon (July 4 - 9, 2018) and post-typhoon (July 13 - 17, 2018), were compared. After the passage of Typhoon Maria, phytoplankton production increased, resulting in an increase in chlorophyll (increased by 51.88%). In general, compared to pre-typhoon, the total PP post-typhoon increased by 41.03%, the PPP increased by 43.73%, the DPP increased by 38.12%, and the PER increased by 5.19%. The results of studies showed that occasional typhoon events would increase PP in south East China Sea.

颱風是將海底營養鹽帶至表層的重要機制之一，然而颱風過境前後海況皆非常惡劣，因此船測資料難以取得。颱風對海洋初級生產力（primary productivity; PP）和細胞外釋放百分比(percent extracellular release; PER)的影響程度的報告更是十分稀少。為了確定東海受瑪麗亞台風（2018 年 7 月 9 日至 10 日）影響的初級生產力（包括顆粒態初級生產力和溶解態初級生產力）及 PER 的變化，比較了 2 個採樣期：台風前（2018 年 7 月 4 日至 9 日）和颱風後（2018 年 7 月 13 日至 17 日）。瑪麗亞台風通過後，浮游植物大量繁殖，導致了葉綠素的增加（增長了 51.88%）。結果表明，與台風前相比，台風後 TPP 增長了 41.03%，顆粒態初級生產力和溶解態初級生產力分別增長了 43.73%及 38.12% 。PER 增長了 5.19% 。研究證實，台風使得初級生產力有所增加。