

Dissolved Organic Carbon Cycling at the Land-Ocean Continuum with a focus on Extreme Precipitation Events in Galveston Bay

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Coastal zones serve as critical interfaces where human development intersects with natural ecosystems, exerting increasing pressure on carbon dynamics. This dynamic interplay shapes the cycling of dissolved organic matter (DOM) within coastal systems, with ongoing changes affecting the overall carbon cycle. Understanding the importance of these coastal regions and their carbon dynamics is paramount. This paper revisits existing knowledge, drawing on seminal works such as Bauer (2012) to underscore the evolving nature of the coastal ocean's carbon cycle. Building upon this foundation, we review how various disturbances, including storms, water fluctuations, fires, and urban development, influence the carbon cycle. Through a comprehensive analysis, we aim to expand upon the findings of previous studies, such as Ge et al. (2018), by investigating DOM sources and processes following major storm events in coastal systems. Our study focuses on Galveston Bay, USA, examining the impact of Hurricane Harvey on chromophoric dissolved organic matter (CDOM) and elucidating the intricate relationship between storm events and coastal carbon dynamics. Through detailed assessments of DOM composition and optical properties, we aim to enhance our understanding of carbon cycling in coastal environments and its response to disturbances.