

REVISITING LITHOGENIC LAND-OCEAN INPUTS

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Quantification of the sources and sinks of chemical species in the modern oceans remains challenging. Along the coasts, the weathering of lithogenic material and its further transformation while deposited on the beaches, shelves and slopes stands among the most overlooked source of chemical species to the ocean. In three steps, this talk will discuss 1) how radiogenic isotopes revealed that lithogenic inputs are underestimated in the ocean, and attributed to submarine weathering of deposited lithogenic material¹ 2) more broadly, that this underestimation also likely affects macro and micronutrient inputs to the ocean^{2,3}, hypothesis assessed by mineral dissolution kinetics under experimental controlled conditions, which -associated to physico-chemical models- revealed that significant dissolved Si flux could be released by silicate submarine weathering⁴ and 3) because this estimate directly relies on a proper quantification of coastal weathering, how recent estimates of the rocky shore erosion⁵ is questioning our present understanding of the land-ocean inputs in terms of fresh sediment supply.

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