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Title: On the world-wide riverine delivery of sediment-hosted

Abstract: The persistent weathering of our continents and the ensuing transport of both eroded and human-derived products by rivers accounts for almost all of the dissolved solutes, particulates and sediment-hosted contaminants delivered to the ocean. Transported within this riverine load are essential nutrients (e.g., P, N, C), (oxy)hydroxides of Fe/Mn that act as highly efficient riverine scavengers, an ever-changing suite of man-made organic and inorganic constituents, and a wide variety of natural solutes (e.g., Si, Ca, Mg, Sr). Dynamic phase partitioning between operationally defined dissolved, colloidal and particulate pools control the environmental behavior of these river-borne constituents. As most trace metals are bound onto river particulates, their fate is defined by the non-conservative nature of such solids as they move along the particle-size continuum or are exchanged and remobilized in river bed and floodplain sediments. Watershed weathering reactions also function as a net sink of CO₂, and thus play an important role in the long-term regulation of atmospheric CO₂ concentrations.

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