

## **River hydrochemical information for multi-scale- analysis**

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Over the last decade, the number of regional to global scale studies of river chemical fluxes and their steering factors increased rapidly, entailing a growing demand for appropriate databases to calculate mass budgets, to calibrate models, or to test hypotheses [1, 2]. Research applying compilations of hydrochemical data may target different temporal and spatial scales, as for example the annual to centennial scale. The focus is often on the anthropogenic disturbance of land-ocean matter fluxes, in particular nutrient fluxes and their temporal evolution [2, 4], or the climate sensitivity of chemical weathering fluxes [3].

We present an overview of the GLOBal RIVER CHEMISTRY database GLORICH, which combines an assemblage of hydrochemical data from varying sources with catchment characteristics of the sampling locations [1]. The information provided include e.g. catchment size, lithology, soil, climate, land cover, net primary production, population density and average slope gradient. The data base comprises 1.27 million samples distributed over 17,000 sampling locations [1].

It will be shown how large assemblages of data are useful to target specific questions on land ocean matter transfers. An extension by isotopic data will be in the focus of future work [c.f. 5]. In addition, applications in climate change studies for understanding feedbacks in the Earth system will be discussed [6].

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- [3] Hartmann, Moosdorf, Lauerwald, Hinderer & West (2014) *Chemical Geology*, 363, 145-163.
- [4] Hartmann, West, Renforth, Köhler, De La Rocha, Wolf-Gladrow, Dürr & Scheffran (2013) *Reviews of Geophysics*, 51(2), 113-149.
- [5] Bataille, Brennan, Hartmann, Moosdorf, Wooller & Bowen (2014) *Chemical Geology*, 389, 1-15.
- [6] Goll, Moosdorf, Hartmann, & Brovkin (2014) *Geophysical Research Letters*, 41(10), 3553-3558.