

Ge/Si ratios indicating hydrothermal and sulfide weathering input to rivers of the eastern Tibetan plateau and Mt. Baekdu

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Concentrations of dissolved silicon in river waters reflect a complex interplay among chemical weathering of primary silicate minerals, uptake in secondary clay minerals, hydrothermal input and formation and dissolution of opal phytoliths. We applied the Ge/Si ratio to assess the different sources of dissolved Si in rivers hailing from the eastern Tibetan Plateau – the Salween, Mekong, Chang Jiang (Yangtze), Hong (Red) and Huang He (Yellow) – and from Mt. Baekdu. Elevated riverine Ge/Si ratios were observed in areas of high geothermal activity in the Salween, Chang Jiang and Mt. Baekdu streams. In the Huang He and Hong River basins geothermal influence was not as pronounced but weathering of sulfide- and coal-bearing minerals seemed to be responsible for the high Ge/Si ratios. In rivers where input from hydrothermal and sulfide weathering are minimal, intensity of weathering has an effect on the Ge/Si ratios.