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Chemical properties of spring water from different lithology and the related carbon cycle

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The earth's surface environment is determined by the interaction of the atmosphere, the ocean and the land. The river plays an important role on controlling ocean chemistry by chemical weathering. The transportation of dissolved material and particles chemical by the river is one of essential components to the ocean chemistry through the geological time scale. The research field in this study is Fukushima Prefecture, Ibaraki Prefecture, and Shizuoka Prefecture. According to surface geological map, I got spring water samples from the catchment of several lithologies, andesite, basalt, granite, granodiorite, gabbro, mafic metamorphic rock, limestone, and the sedimentary rock. 25 samples were collected. This water quality characteristic of 25 samples could be divided into three groups: Ca-HCO₃ type, Na-HCO₃ type, and Ca-(SO₄+NO₃) type. The alkalinity in ground water is an index that shows the level of the progress of chemical weathering. High alkalinity provides a good proxy for the degree of the reaction with more minerals. The alkalinity was associated with high concentration of calcium ion.