Water quality map in the lower reach of the Abe River in Shizuoka Prefecture

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The plains of Shizuoka and Shimizu, which lie on the basin of Abe River in Shizuoka Prefecture, hold a large amount of groundwater. We summarized the quality of spring, well and river waters in the area in map for the purpose of estimating the origin and recharge area of the groundwater.
The Shizuoka Plain has a typical alluvial fan and is formed with a huge amount of gravels from the Abe River. Meanwhile, the Shimizu Plain consists of delta sediments of Tomoe River originating from the northern Shizuoka Plain. In the Shizuoka Plain, the Cl^- concentration of groundwater was lower than those of surrounding mountain areas and Shimizu plain, and in contrast, the Sr concentration was higher, indicating the same tendency as the Abe River water quality. The water isotopic ratio of the Abe River is lower than that of precipitation in the plains of Shizuoka and Shimizu, and the groundwater in the Shizuoka plain shows low water isotopic ratio as well as Abe River, indicating the aquifer of Shizuoka Plain is recharged by Abe River. On the other hand, the water isotopic ratio in the Shimizu Plain was relatively high, suggesting that precipitation in the surrounding area is the main recharge source.
The strontium isotopic ratio of the Abe River and the Warashina River is about 0.7088, which would be a value characterized by old sedimentary rocks (accretionary complex) occupying the major part of the western mountains. Spring water and well water distributed in the Abe River fan area showed the same value as Abe River. On the other hand, the strontium isotopic ratio of the river flowing from the northern mountains composed of sedimentary rocks was 0.7060, and that of the spring water originating from the mountain of volcanic rocks was specifically low value, less than 0.7040.

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