

Underground structure and groundwater flow in Saijo plain

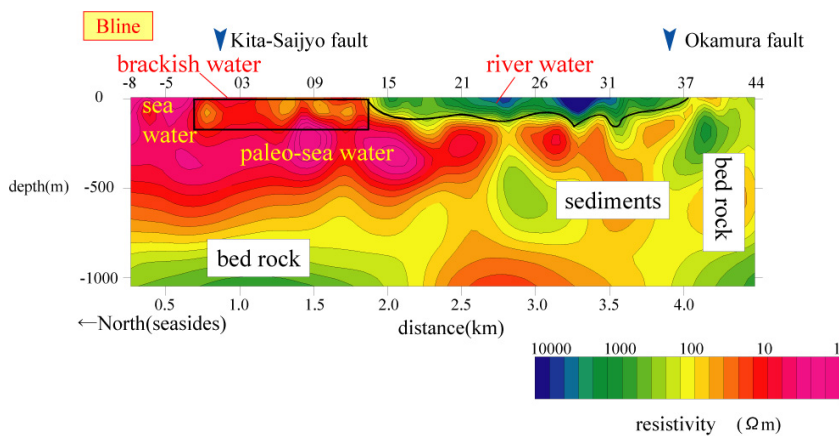
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Many flowing wells are excavated in the Saijo plain, Saijo-shi, Ehime Prefecture, which have been made use for supplying an industrial and agricultural water.

Objectives of the study is to investigate the underground structure and groundwater flow in the Saijo plain and to discuss about the relationship between geological structure and groundwater flow by CSA-MT geophysical exploration and groundwater geochemistry. The study area is composed of the late Cretaceous Izumi Group and Holocene sediments. CSA-MT method was applied to obtain the two dimensional resistivity distribution about 2 km long and 500 m deep along 3 lines with north-south direction in the Saijo Plain. As a result, the Okamura fault that displaces the Holocene and the Izumi Group with east-west strike was detected in the southern part of the area. The newly named Kita-Saijo fault that displaces the Holocene sediments with west-east strike was detected in north of the area, displacing the Kikai-Akahoya tephra (K-Ah) bed erupted at 6 Ka. River waters are penetrated from the Kamo river to the Holocene sediments in the Saijo Plain and flow on the paleo-seawater with low resistivity. Some of them were penetrated under the impermeable layer composed of silt and clay and interrupted by impermeable layer 2 m thick disturbed by the Saijo-Kita fault. Consequently, penetrated groundwater is pressurized by impermeable layer and fault. Then, pressurized groundwater erupts at the flowing wells named Uchinuki.

Keywords: flowing wells, CSA-MT method, groundwater flow, underground structure



(Fig.1). two dimensional resistivity distribution of Bline