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Geophysical identification of a low-temperature hydrothermal system in Anzer glacial valley, İkizdere, Rize, Turkey

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Anzer glacier valley, located at the Eastern Black Sea region at an altitude above 2300 m in Turkey, exhibits some evidence for a low-temperature hydrothermal system. Low-temperature hydrothermal systems usually do not receive attention since they are not useful for energy production. However, in areas where natural beauty is prominent as in the Anzer valley, such resources can easily trigger investment for all-season resorts that significantly contributes to the local economy. With this study, we examine the hydrothermal field evidence in the Anzer valley, and utilize dc-electrical and self potential methods to characterize the crack systems acting as a warm water conduit. We also develop a conceptual hydrothermal circulation model that includes a crack system based on the field observations and geophysical measurements.