



Determination of spatial distribution and hydrochemistry of subaqueous thermal springs in the lacustrine and nearshore environments in southwest Anatolia

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Although submarine and sublacustrine hydrothermal systems have not been studied as much as on-land geothermal resources, recent technological developments attract many researchers to undertake studies on subaqueous hydrothermal systems. Such studies are relatively common elsewhere in the world, yet the occurrences of subaqueous thermal springs have not been sufficiently investigated in Turkey. A project, that has recently received funding from The Scientific and Technological Research Council of Turkey (TUBITAK) aims to determine the spatial distribution and hydrogeochemical properties of the subaqueous thermal springs at the bottom of Fethiye-Göcek Bay, Köyceğiz, Alagöl, Sülüngür, Kocagöl lakes that are located in a geothermally active area, Muğla Province (SW Turkey). The expected outcomes of this study are the determination of (1) the exact locations of the subaqueous springs, (2) the hydrogeochemical and conceptual modeling of the study area through the geochemistry of the thermal fluids (3) the estimated reservoir temperatures of the hydrothermal systems, (4) the origin of the subaqueous thermal waters by means of their stable isotope composition and noble gas geochemistry (5) the contamination in the sea and lake waters, (6) effects of the subaqueous thermal springs on the mineralogy and geochemistry of the bottom sediments. The results, knowledge and experiences to be gained during this project are expected to considerably contribute to the existing on-land hydrogeochemical conceptual modeling studies by integrating the information obtained from subaqueous thermal springs. This will eventually lead to produce more precise models thereafter. In addition to its contribution to the geothermal exploration methods, this study will also provide valuable preliminary data to possible paleolimnological, paleoceanographical and paleoclimatic investigations in the near future.