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## Origin and Evolution of Silicified Rocks in the Etili - Çanakkale, Turkey

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There are many well-known geothermal systems linked to magmatic activity on Earth, many of which eventually express a surface manifestation of the below ground magmatism. The Oligo-Miocene was a period of very active magmatism that took place in Western Anatolia, where granitoidic plutons were emplaced within crust while calcalkaline to alkaline lavas and associated pyroclastics produced by volcanoes under the control of extensional tectonism. Progressive deformation of the crust due to the extension resulted since that time resulting in the development of a E/NE-W/SW trending fault system and of fracture zones that run perpendicular to main faults.

The mineralogical composition of the Hamamtepe and Muratdağı silica sinter deposits is comprised of kaolinite, alunite, and quartz. Microlithofacies of these deposits were defined as, i) massive, ii) laminated, iii) breccia, and iv) porous.  $\delta^{18}\text{O}$  stable isotope analysis on silicified rocks and  $\delta^{34}\text{S}$  with  $^{40}\text{Ar}/^{39}\text{Ar}$  radiometric age analysis on alunite minerals were performed with the aim of constraining the origin and timing of the silica deposits. We obtained results from  $\delta^{18}\text{O}$  ranging from 12.3 to 18.4 ‰,  $\delta^{34}\text{S}$  ranging from 9.2 and 16.6 ‰, and radiometric age analysis, which all suggest that the silica sinter deposits formed in a steam heated, low pH, oxidizing epithermal environments., coeval with prominent volcanic activity in the region.