



3D Thermal Stratification of Koycegiz Lake, Turkey.

Tugba Gurcan (1,2), Bedri Kurtulus (1), Ozgur Avsar (1), and Ulas Avsar (3)

(1) Mugla Sitki Kocman University, Department of Geological Engineering, Mugla, Turkey., (2) Poitiers University, Institute of Chemistry of Poitiers: Materials and Natural Resources, Poitiers, France, (3) Middle East Technical University, Department of Geological Engineering, Ankara, Turkey.

Water temperature in lakes, streams and coastal areas is an important indicator for several purposes (water quality, aquatic organism, land use, etc.). There are over a hundred lakes in Turkey. Most of them locates in the area known as the Lake District in southwestern Turkey. The Study area is located at the south and southwest part of Turkey in Muğla region. The present study focuses on determining possible thermocline changes in Lake Koyceğiz by in-situ measurements. The measurement were done by two snapshot campaign at July and August 2013. Using Mugla Sitki Kocman University geological engineering floating platform, temperature, specific conductance, salinity and depth values were measured with the YSI 6600 and Horiba U2 devices in surface and depth of Lake Koyceğiz at specific grid. When the depth of the water and the coordinates were measured by GPS. Scattered data interpolation is used to perform interpolation on a scattered dataset that resides in 3D space. The 3D temperature color mesh grid were generated by using Delaunay triangulation and Natural neighbor interpolation methodology. At the end of the study a 3D conceptual lake temperature dynamics model was reconstructed using MATLAB functions. The results show that Koycegiz Lake is a meromictic lake and has a significance decrease of Temperature at 7m of depth. In this regard, we would like also to thank TUBITAK project (112Y137), French Embassy in Turkey and Sitki Kocman Foundation for their financial support.