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An open-source web application displaying present-day subsurface thermal conditions of the NE Mediterranean region

Ayberk Uyanik
Turkish Petroleum Corporation, Exploration Department, Ankara, Turkey (ayberkuyanik1@gmail.com)

Conversion of dynamic bottom-hole temperatures (BHTs) into static ones and utilizing on the purpose of either calibration for basin modelling or drilling plan is a crucial step for hydrocarbon and geothermal exploration projects. However, records of temperature conversions might be ignored or might get lost from the archives due to various reasons, such as project team change, diversion of focus into other areas or simply deletion of data. Disappearance of previous studies does not only disrupt the geoscientific knowledge but also causes repetition for exploration geoscientists to start the time consuming BHT conversion process all over again.

NE Mediterranean Dashboard v1.0 provides a solution for the issue by benefiting from data science instruments of Python programming language. By implementing Plotly-Dash for the front-end, and PostgreSQL for the back end as the keeper of thermal records in datatables, this open-source project proposes a user-friendly web application displaying temperature, geothermal gradient and heat flow profiles in a dashboard style.

The application is consisted of three tabs. The *Overview* tab provides statistical information while *2D plots* section allows users to interact with cross-plots demonstrating thermal conditions for all wells or a particular well selected by the user. It also compares the results of three different BHT conversion methods known as; Horner-plot method, AAPG correction and Harrison et al. (1983). The last tab, *Map View*, illustrates the temperature, geothermal gradient, and heat flow maps for every 500 meters from surface to 4.5 km depth. The maps reveal the effects of the regional tectonics and how it controls the subsurface thermal behaviour along the Cilicia and Latakia Basins dominating the NE Mediterranean region.

All maps and cross-plots are interactive, and their styles can be changed according to the user's preferences. They can also be downloaded as images for possible use in scientific publishment and/or presentations. The same interface and visualisation style, accessed by username and password, can also provide consistency between all project workers.

The source code is available at Github repository with the link; https://github.com/Ayberk-Uyanik/NE-Mediterranean-Thermal-Conditions and can efficiently be implemented for exploration projects in other regions.