

# PLANNED STUDIES FOR THE INVESTIGATION OF GEOTHERMAL POTENTIAL IN THE SIGACIK GULF (SEFERIHISAR)

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## Abstract

The Sigacik Gulf is located in between Teke and Doganbey Bay in the south of Karaburun peninsula in the western Anatolia. This paper give to information about the preliminary results of the single channel seismic survey and consists of the planned studies for the investigation of geothermal potential in the Sigacik Gulf (West Anatolia) within the scope of a PhD Project.

*Keywords: Geophysics, Seismics, Aegean Sea, Hydrothermal vents*

## Introduction

The study area is located in the region between Doganbey and Teke Bay in the south of Izmir Gulf (Fig.1). Sigacik Gulf's surroundings are covered by Mio-Pliocene and younger units. Pre-Miocene basement consists of Silurian, Carboniferous, Triassic, and Cretaceous rocks, and its crops out along high elevated areas such as Karaburun, Seferihisar, and Kusadasi ridges [1]. The geological map of area's surroundings is again worked out using ArcGIS (GIS-based) software from 1/500.000 scale of the geological map of Izmir-Turkey.

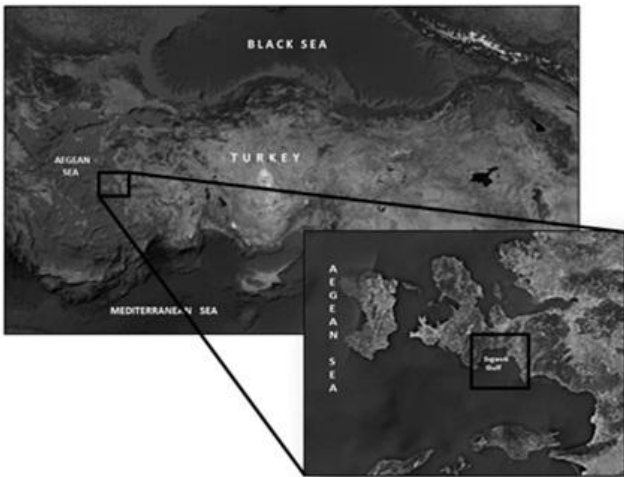


Fig. 1. The location of Sigacik Gulf

## Methods

The Single Channel Seismic, Magnetic, Heat Flow, CTD and using ROV for monitoring of seafloor have been planned to investigation of geothermal potential in Gulf of Sigacik. During the single channel survey used to sparker system, which have 1 channel and 12 hydrophone with 17 m long streamer, as a seismic source and seismic data acquisition were carried out on board Dokuz Eylul-1 which is research vessel Dokuz Eylul University (Izmir-Turkey) in 10-12 October 2012. Approximately 250km data were acquired along the total of 27 seismic lines which compose of the 14 DB direction and 13 KG direction seismic lines. The seismic data processing was made using Promax program in the Seismic Laboratory in the Institute of Marine Science and Technology. Some data processing steps were applied to seismic data such as, data load, geometric load, band pass filter, top mute, trace mixing, and time migration. However, the Sigacik Gulf's map of sea floor depth were obtained from a single channel seismic sections using the Kingdom Suite program (Fig.2).

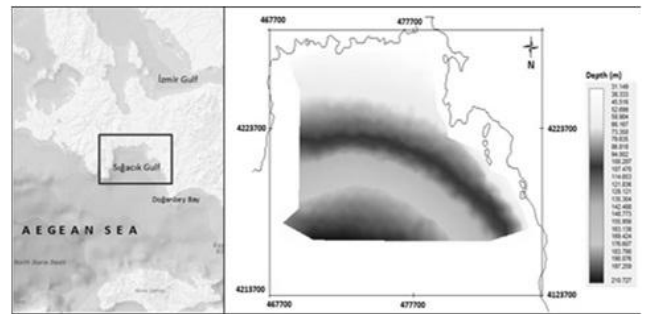


Fig. 2. The Sigacik Gulf's map of sea floor depth

## Conclusions

The shallow seismic studies (Sparker) have been applied in Sigacik Gulf in 10-12 October 2012, also Magnetic, Side Scan Sonar, Heat Flow, CTD (Conductivity, Temperature, Depth) and ROV (Remotely Operated Vehicle) have been planned in terms of giving more information about the geothermal potential, in the content of the PhD project.

## References

- 1 - Ocakoglu N. Demirbag E. Kuscu I. 2005. Neotectonic structures in Izmir Gulf and surrounding regions (Western Turkey): Evidences of strike-slip faulting with compression in the Aegean extensional regime. Marine Geology, 219, pp 155–171.