

Lithogeochemical Characterization of Akköy and Edremit Geothermal Fields as Prospective CO₂ Storage Sites: A Preliminary Study

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Introduction

Analyses of the cutting samples of two geothermal fields from western Anatolia

- Akköy (Denizli)
- Edremit (Balıkesir)

with the purpose of establishing an input database for a prospective geochemical modelling.

Geochemical assessments in terms of

- Microscopic investigations
- XRF Analyses
- Raman Spectroscopy Analyses
- XRD Analyses

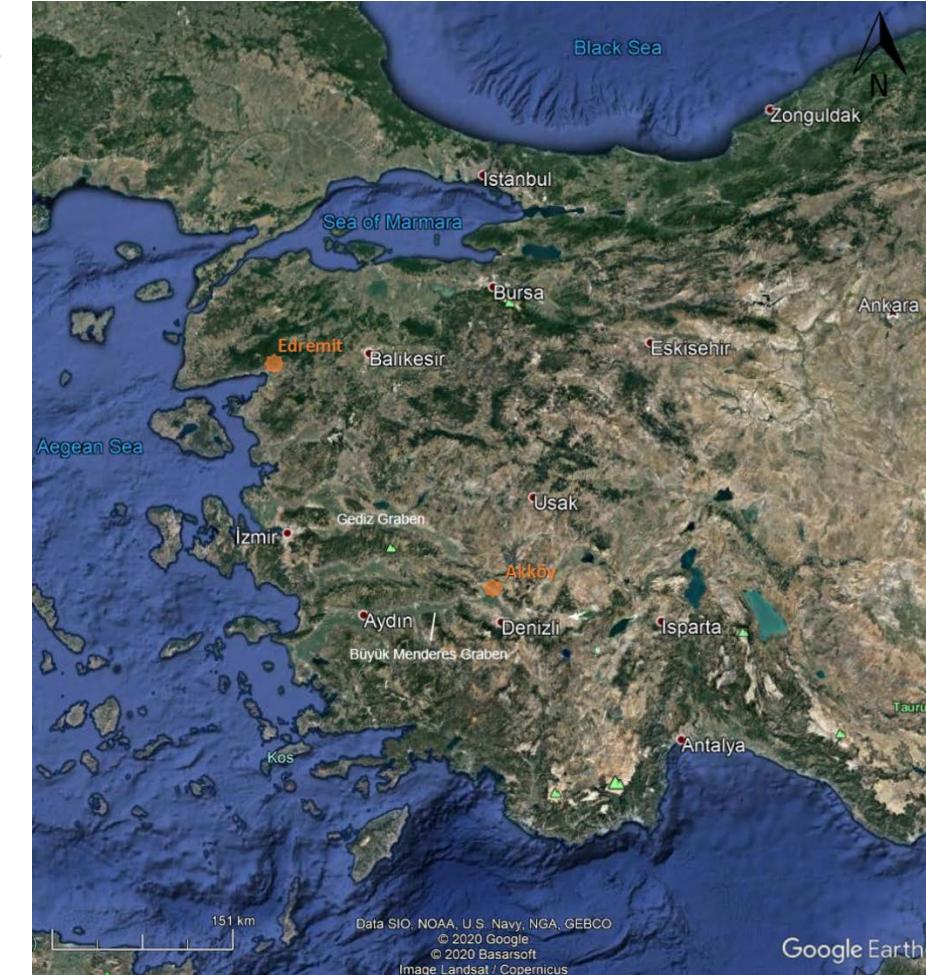


Fig. 1: Map showing the locations of the Akköy and Edremit geothermal fields in western Anatolia

Microscopic Analyses

In the samples of Akköy Field, the observed fragments are

- claystone
- sandstone
- quartzite
- chert
- marble/limestone
- schist
- serpentinite

Fig. 3: Thin section image of Edremit sample

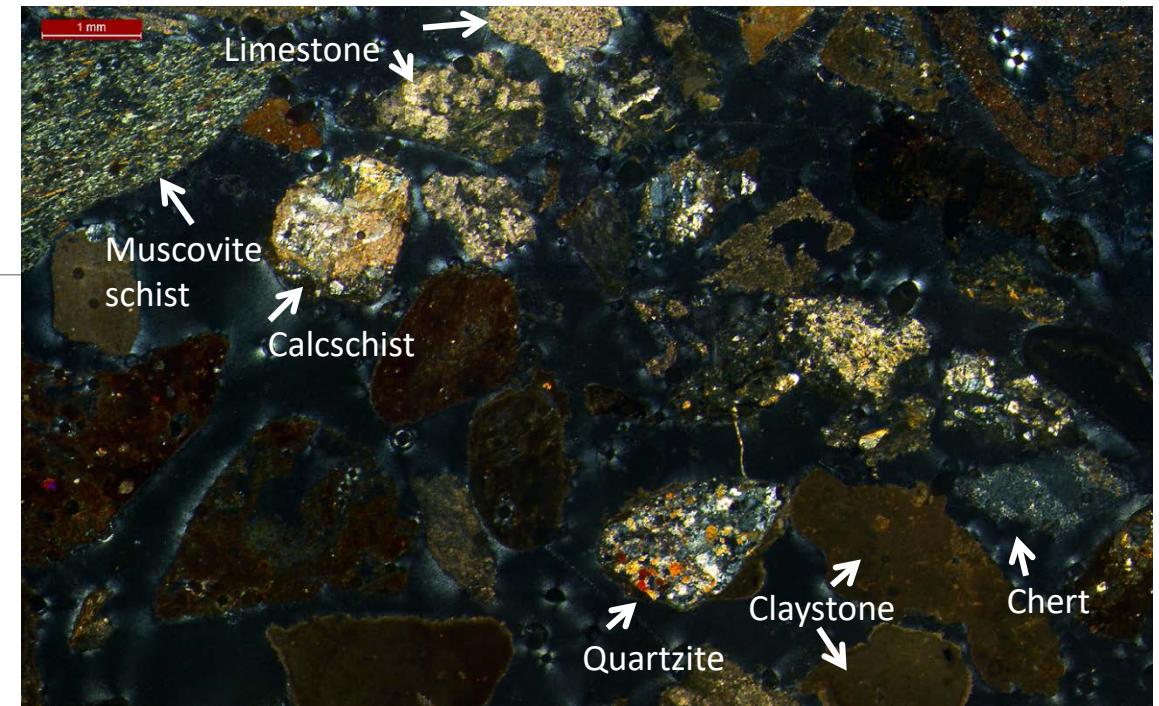
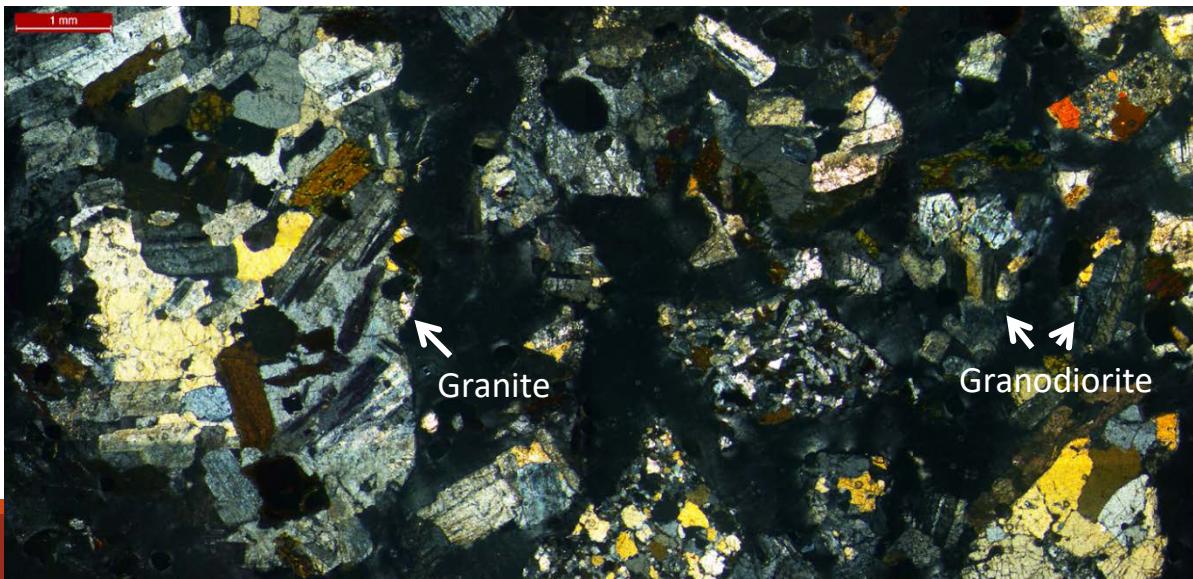
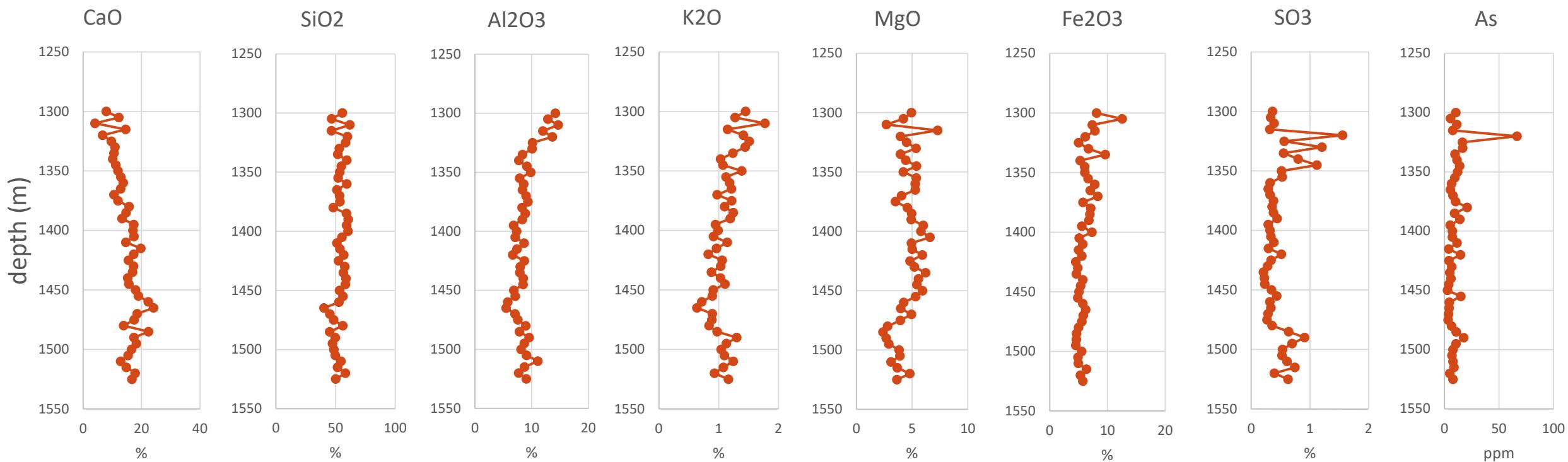


Fig. 2: Thin section image of Akköy sample

In the samples of Edremit Field, the observed fragments are

- granite
- granodiorite
- gabbro
- marble/limestone

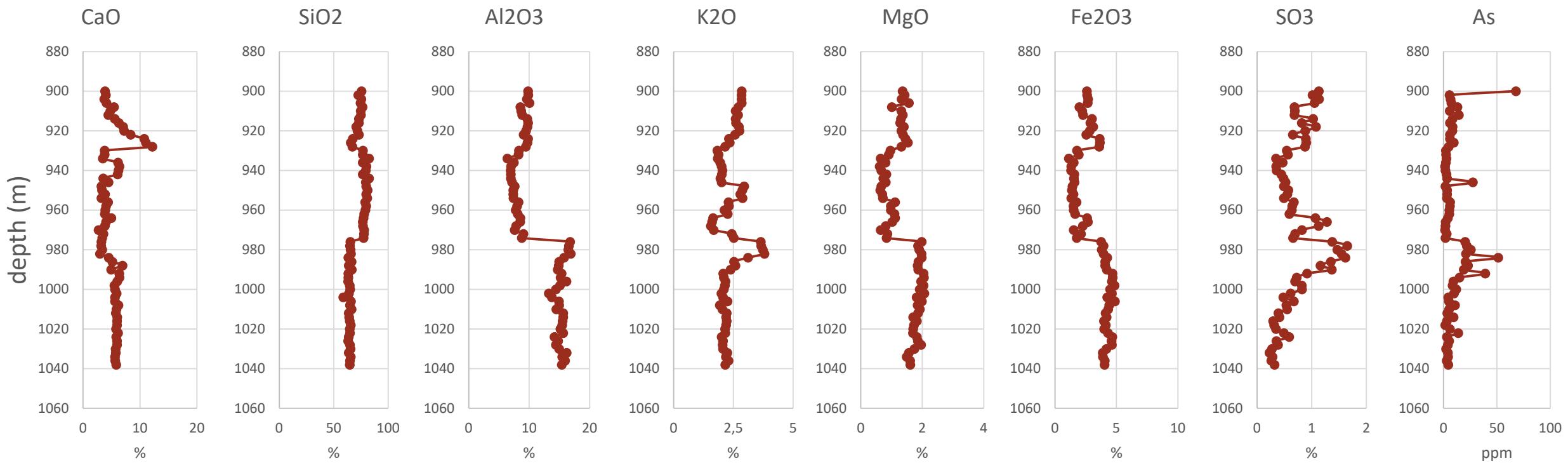
XRF Analyses Results



Some of the XRF analyses results from Akköy field.

The results are consistent with the microscopic observations of abundant clay and Ca-bearing minerals.

XRF Analyses Results

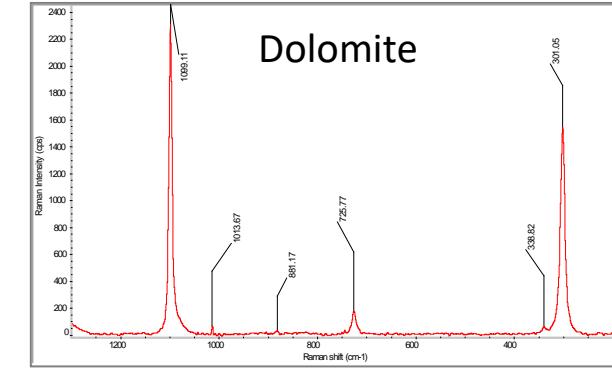
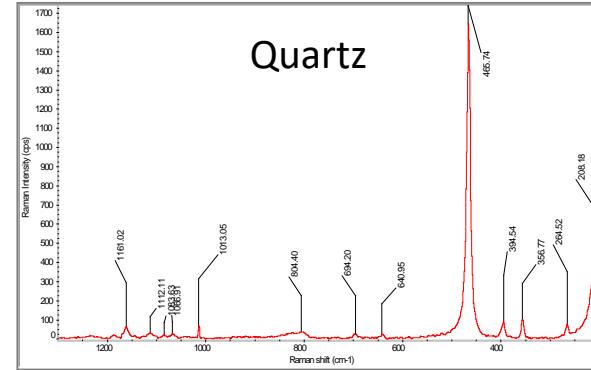
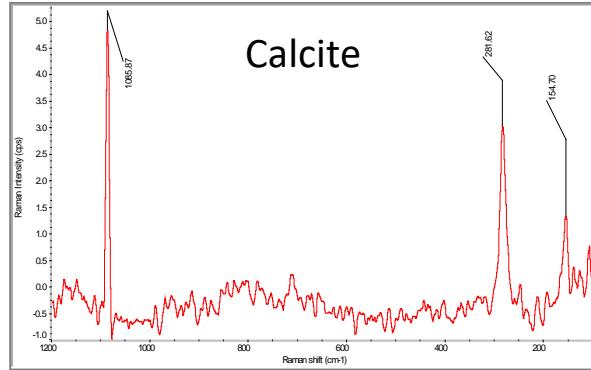


Some of the XRF analyses results from Edremit field.

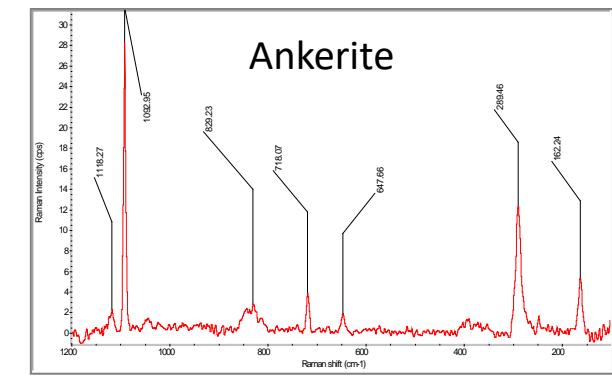
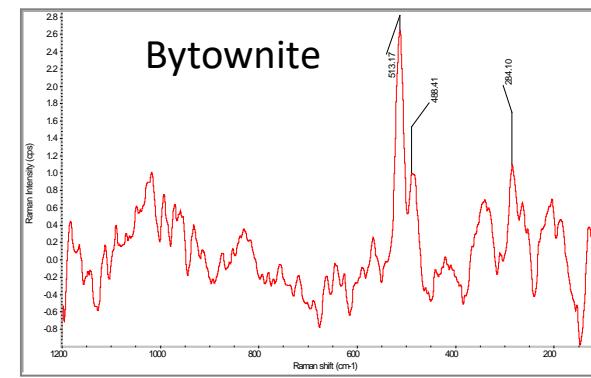
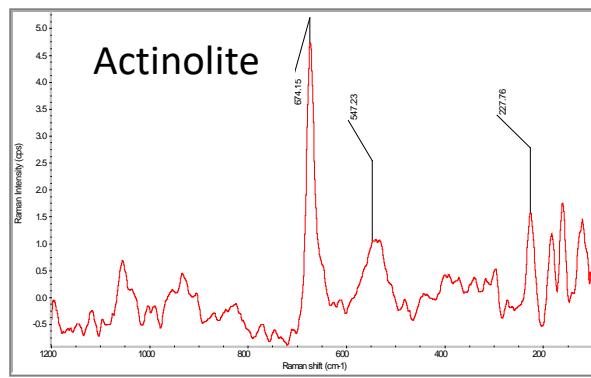
The results are in conformity with the observation of various silicate minerals under microscope.

RAMAN Spectroscopy Analyses Results

Akköy
Field



Edremit
Field



Concluding Remarks

To compare both fields: SiO_2 values are higher in Edremit samples while CaO content seems to be higher in Akköy samples. The difference in the lithology of the reservoir levels of these fields are well reflected by both microscopic observations and RAMAN Spectroscopy studies, which are further displayed in XRF results.