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Dating the Barremian-Aptian shallow platform deposits at the eastern part of the Kopet Dagh sedimentary basin, NE Iran

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The Kopet Dagh sedimentary basin covers the northeastern part of Iran, most parts of Turkmenistan and north of Afghanistan which contains several giant gas fields. The extension of this basin in the Iranian part is around 55km^2(Afshar Harb, 1994). The Kopet Dagh basin is marked by having very thick sedimentary rocks and lack of volcanic activity.

During the Lower Cretaceous, the Tirgan Formation was deposited in a shallow platform setting and lithologically includes in thick-bedded orbitolinid limestones. This study focuses on the biostratigraphy and age determination of these shallow-water deposits using benthic foraminifera and calcareous green algae. In the studied outcrop, the Tirgan Formation has a thickness of 180 m and includes in limestone beds with some marly intervals. It is overlain by the Sarcheshmeh Formation and rests on the Shurijeh Formation. Both contacts are believed to be transitional and lack of discontinuity. A total of 56 thin-sections were used in this study.

This study led to determine 28 genera and 14 species of benthic foraminifera along with 13 genera and 5 species of calcareous green algae. Based on the obtained biostratigraphy data, a late Barremian-early Aptian age is suggested for these deposits. We also defined the precise boundary between the Barremian and Aptian which is reported for the first time from this area.

Keywords: Barremian-Aptian, Shallow platform, Kopet Dagh, Iran.

Reference:

Afshar Harb, A., 1994. Geology of Iran: Geology of the Kopet Dagh. Geological survey of Iran, Report No. 11, 275 pp.