

Calcareous nannoplankton biostratigraphy of the early–middle Eocene of the central Negev (Southern Israel)

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During the Eocene, most of the Negev experienced a primarily pelagic depositional environment. Extensive Eocene outcrops consist mainly of pelagic chalks with occasional cherts and limestones, which were deposited off-shelf in the southern Tethys. Lithologic, stratigraphic, and biostratigraphic studies have been undertaken in this region for over half a century (i.e., Benjamini, 1979; Weinbaum-Hefetz & Benjamini, 2011), but the Negev is the most stratigraphically complicated area in Israel, and existing geological maps are in dire need of updating.

Using the zonation of Martini (1971), a biostratigraphic analysis was conducted on lower–middle Eocene pelagic deposits that crop out in the synclinal Ein Zik (30.79°N, 34.85°E) and Hod Akev (30.83°N, 34.83°E) sections, which are located between the north Negev anticlines and the Ramon anticline.

Going upsection, the Takiye Formation (grey marls), the Mor Formation (chalky deposits with silica layers and chert nodules), and the Nizzana Formation (chalk and limestone intercalations) are exposed. The Hod Akev section is located near the syncline axis, and its thickness reaches 151m. The Ein Zik section is closer to the anticline, and the thickness of the deposits is reduced (95m).

In the Hod Akev section, the Takiye Formation and the lower part of the Mor Formation are in early Eocene Zone

NP11. The middle part of the Mor Formation is in early Eocene Zone NP12, and its upper part is in early Eocene Zone NP13. The uppermost part of the Mor Formation and the Nizzana Formation belong to middle Eocene Subzones NP14a and NP14b. In the Ein Zik section, the Takiye Formation and the lowest part of the Mor Formation are in Zone NP11. The lower part of the Mor Formation belongs to Zone NP12, and its upper part and the lower part of the Nizzana Formation to Zone NP13. The middle part of the Nizzana Formation belongs to Zone NP14a and its upper part to Zone NP14b.

References

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