

# Calcareous nannofossils from the Manavgat Sub-basin, SW Turkey, reveal the age of lower Pleistocene paleotsunami deposits that overlie a late Pliocene erosional surface

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In the Manavgat Sub-basin (southwestern Turkey), which is part of the eastern Mediterranean marginal basin, this study discovered an erosional surface that formed during the late Pliocene regression. This hiatus is overlain by lower Pleistocene paleotsunami deposits that are probably the result of earthquakes below the Mediterranean that caused rapid and short-lived sea flooding of the coastal plain. Sedimentologic and biostratigraphic examination of rock samples from 13 locations provided evidence of this new regressive succession.

The lower Pleistocene paleotsunami zone, which is two to three meters thick, has bimodal-grained clastic sediments that are composed of a muddy matrix with grain components varying from sand to boulder in size. The muddy matrix contains both macrofossils and microfossils

reflective of various environmental, sedimentological, and stratigraphic conditions. The sand to boulder components consist of marl, sandstone, conglomerate, and limestone, which are reworked from extrabasin deposits and reef block or boulders that were removed from the intrabasin.

Examination of calcareous nannofossils revealed two distinct sedimentary sequences, one below and one above the paleotsunami deposits. The lower deposits were placed in calcareous nannofossil Zone NN15, and the upper deposit is within Zone NN19. The calcareous nannofossils suggest that the tsunami event/s occurred between 1.81Ma and 1.60Ma (Gelasian-Calabrian transition), which corresponds to the beginning of Zone NN19.

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