



Stromatolite reefs on Lake Lisan terraces, Eastern Dead Sea, Jordan.

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Lake Lisan is the Last Glacial predecessor of the modern Dead Sea. It filled the Dead-Sea/Jordan pull-apart basin to a much higher elevation than its modern counterpart and left prominent terraces. We surveyed their elevation on the Jordanian side of the basin by differential GPS in order to reconstruct lake level history and correlate it with paleoclimatic and paleoenvironmental conditions. Terraces are best preserved between Wadi Numeira and Wadi Assal. There we discovered massive, finely laminated, in situ preserved, calcareous stromatolites that must have been deposited in the shallow waters of the receding lake during the Late Pleistocene. Forms include massive, rounded heads, some of them over 1 m in size and dense, dm-thick crusts around blocks and stones. These crusts cemented in part beach gravel and stabilized piles of rocks that may have formed small islands and composite reefs structures. Also beach rock terraces were cemented, therefore aiding in their resistance to erosion. Rain has already partly dissolved the stromatolitic limestone, so that loose blocks and stones can be found on the terrace surfaces. Stromatolites occur clearly on terraces between at least -370 to -138 m (relative to mean sea level). However few individual pieces mostly of stromatolite crust were noted even as high as -117 m. These occurrences, together with erosional features such as abraded hill tops, possible wave deposited block walls and deposits of fine-grained sediments in settings reminding of lagoons could indicate a much higher stand of Lake Lisan at about -117 m than the previously accepted high stand at -150 m by Bowmann and Gross, (1992). Dating of the stromatolites has been attempted by the U/Th method but has failed so far to yield interpretable results, possibly by open system condition caused by the redissolution of the stromatolitic

limestone.