



Beaches at North End of Death Valley. The beach ridges at the center of the photo face south (toward the upper left) into the now-vanished lake that occupied Death Valley, California, at the close of the last Ice Age. When these ridges were formed, the lake had a narrow uninterrupted fetch extending 80 km to the south, with water up to 130 m deep. The low hills in the photo extended southwestward as a peninsula into this lake. Loose sand and gravel covered the peninsula hill surfaces before the water rose. As lake level rose, occasional east-moving cyclones developed winds out of the south along the lake fetch. Waves generated by these winds caused longshore transport of the sand and gravel, moving it northward to form the beach ridges that remain. Exposed cross sections of these ridges exhibit the sedimentary features shown by gravel beach ridges along oceans and seas. The side of the peninsula hills facing the lake has been smoothed by the waves, and the opposite side is still jagged. When the lake was full, it had well over twice the volume of Lake Mead in only a 45-km stretch along the east edge of Death Valley (off to the left). The weight of this water resting on the hanging wall of the faults along that edge must have increased faulting and earthquakes during that time, as did the filling of Lake Mead behind Hoover Dam over the last sixty years. (Photo on 15 Dec 95. Work in collaboration with R. E. Klinger, Bureau of Reclamation.)