

## **Split sea and walls of water - Moses' phenomenon at the Izmit earthquake, Turkey**

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**Abstract:** A statement of split sea in the Izmit Gulf, where the North Anatolian Fault is extending, was obtained from a witness fisherman when we collected retrospective statements about unusual phenomena before the Izmit earthquake in 1999. The split sea and walls of seawater on both sides of his boat, which we name the Moses' phenomenon after the Exodus, were ascribed to larger outflow of seawater out of the fault zone before and at the time of faulting than the inflow from outside sea. The water removal by preseismic dilatancy at large areas and by fissures and breccia at the fault zone in addition to the horizontal outflow due to subsidence of the land and sea floors overwhelmed the horizontal inflow from both sides of the zone; the inflow would be blocked in a narrow and shallow channel at the Cape Golcuk. The split water has hydrodynamically been calculated assuming "an open channel hydraulic water flow" and reproduced experimentally in an aquarium model. The tidal withdrawal and appearance of the sea floor as reported for the great Kanto earthquake in 1923 may also be explained for a bay cut by a fault line and limited inflow of seawater blocked by submarine sand dunes.

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