

On the failure mechanism of embankments in Mabi Town during the Heavy rain of July, 2018, Japan

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From late June to mid-July, 2018, successive heavy rainfall hit a wide area of southwestern Japan, resulting in widespread sediment-related disasters and devastating floods. Among these disasters, the flooding resulting from the failures of embankments along Oda River and some other tributary rivers in Mabi Town, Okayama Prefecture, was the deadliest. To understand the possible failure mechanisms of these embankment, field geotechnical investigation and geophysical surveys were conducted. Centrifuge tests were also performed to examine the instability processes of embankment with increase of water level on the river. The results indicate that the leakage in the embankments along the tributary rivers may have resulted in retrogressive failures on the embankments, while overtopping may have played a key role in the final rapid breaching of the embankment.

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