

EGU23-7675, updated on 12 Jun 2023

<https://doi.org/10.5194/egusphere-egu23-7675>

EGU General Assembly 2023

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Risk assessment of Marathon reservoir spillway based on water level

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The Marathon Dam is the oldest one in modern Greece located close to Athens and serving its water supply. Its reservoir has a capacity of 41 hm³. Several residential areas exist downstream of the dam, the nearest of which is just one kilometer away. Therefore, in the event of high reservoir spill (let alone dam failure), downstream local communities and properties are at considerable risk. In this work, we aim to assess the risk due to spill employing stochastic simulation of the reservoir water balance based on existing data. In addition, we attempt to derive operational rules to mitigate the risk of its downstream failures due to spill.