

## Contribution of groundwater pumping to global sea level rise: regional pattern and temporal evolution

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This study examines the impacts of groundwater pumping on terrestrial and atmospheric water balances and quantify its contribution to global sea level rise (SLR) using a global climate modelling approach. This is a follow-up of the pioneering study by Wada et al. (2016). In contrast to Wada et al (2016) in which the analysis was limited to the global-integrated long-term averages, the present study extends to analyse spatial and temporal patterns in the water balance at global, continental and aquifer levels, and quantify the contributions from terrestrial water storage (TWS) changes and anthropogenic pumping to SLR on the continental and aquifer scales. This research is divided into: 1. Global analysis, 2. Continental (Africa, Asia, Europe, North America, Oceania, and South America) analysis, and 3. Aquifer-based analysis (contribution from TWS changes to SLR will be analysed based on 37 global major aquifers).

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