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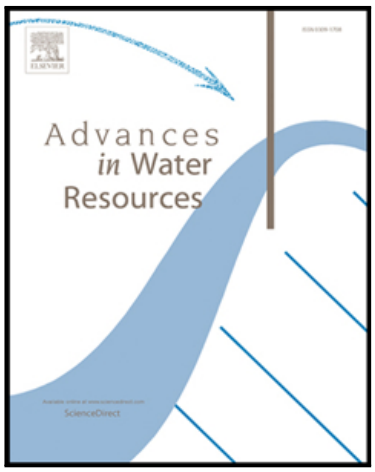

Improved Methods for Estimating Local Terrestrial Water Dynamics from GRACE in the Northern High Plains

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Highlights

- Terrestrial Water Storage (TWS) anomaly predicted from water cycle variables (e.g. soil moisture) using neural network
- GRACE downscaled to estimate TWS and groundwater storage anomaly for watershed size as small as 5000 km^2
- ANN downscaled TWSA matches closely with Noah-based TWSA compared to standard GRACE extracted TWSA at a local scale
- GRACE downscaled water storage product replicated the natural variability as a result of climatic and human impacts
- Implications for improving local and regional water resources management using GRACE is clear

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