

Karem

Abdelmohsen

School of Sustainability, Arizona State University

James S. Famiglietti, School of Sustainability, Arizona State University

Oral

In the context of increasing water scarcity exacerbated by climate change, understanding groundwater variability in arid regions is crucial for sustainable resource management. This study investigates groundwater dynamics in key aquifer systems across the Middle East and North Africa (MENA). We apply an integrated approach using GRACE and GRACE Follow-On (GRACE-FO) satellite data, global land surface models, and in situ measurements to assess groundwater variability. Our analysis focuses on quantifying groundwater depletion and recharge, identifying both natural and anthropogenic factors contributing to water variability across these regions. This research underscores the need for region-specific groundwater management strategies that balance extraction with recharge potential, offering critical recommendations for long-term water security in one of the world's most water-stressed areas.

Meeting homepage

[GRACE-FO 2025 Science Team Meeting](#)

[Download to PDF](#)