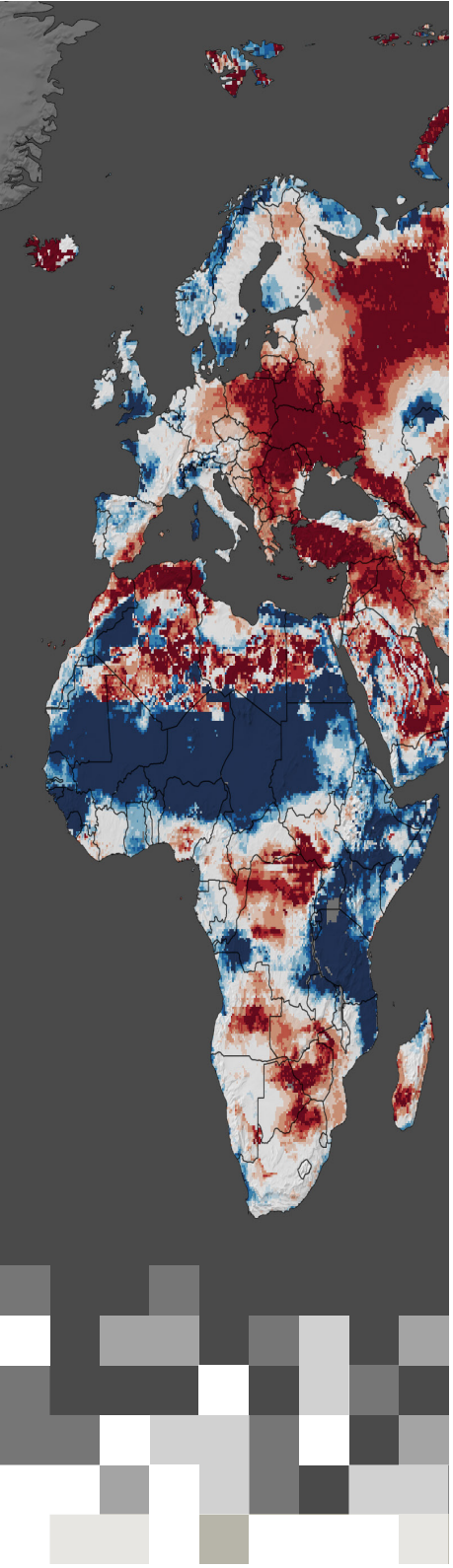

National Aeronautics and Space Administration

Monitoring Groundwater Changes for Water Resources Management

April 23, 28, & 30, 2026

11:00-13:00 or 14:00-16:00 EDT (UTC-4)

Groundwater is a vital resource, especially in arid regions where surface water is limited. This three-part training will focus on an overview of Gravity Recovery and Climate Experiment and Follow-on (GRACE and GRACE-FO), Observational Products for End-Users from Remote Sensing Analysis surface displacement products (OPERA-DISP), and Global Land Data Assimilation System (GLDAS) groundwater data for assessing seasonal to interannual groundwater changes at various spatial scales. The training will provide hands-on experience in accessing and analyzing these products for groundwater applications.

Part 1: Overview and Analysis of NASA Terrestrial Water Storage Data from GRACE/ GRACE-FO

Trainers: Amita Mehta and Matthew Rodell

- Overview of GRACE/GRACE-FO missions
- GRACE/FO data products
- Data applications, benefits, and limitations
- Select and visualize maps and time series of terrestrial water storage changes using GRACE/FO Interactive Browser
- Case study: GRACE data access, analysis, and visualization
- Summary

Part 2: Overview and Applications of GLDAS Groundwater Data Products at Regional Scale

Trainers: Amita Mehta and Matthew Rodell

- Background and description
- Motivation for GRACE data assimilation
- GLDAS groundwater data evaluation
- Examples of data applications, benefits, and limitations
- Giovanni/Earthdata search
- Exercise: GLDAS data analysis
- Summary

Part 3: Overview and Applications of OPERA-DISP to Monitor Groundwater Changes

Trainers: Amita Mehta and Eric Fielding

- Background of SAR data and OPERA
- Description and interpretation of DISP data for monitoring groundwater changes
- Data applications, benefits, and limitations
- OPERA Displacement Portal
- OPERA data analysis with Jupyter Notebook
- Case study: OPERA-DISP data access, visualization, and interpretation
- Summary

ARSET empowers the global community through remote sensing training.

earthdata.nasa.gov