



IAG Scientific Assembly 2025: Geodesy for a changing environment

Symposium H04: Highlight Session on Geodesy for Climate and Water

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Contributions are by invitation only!

Modern geodetic observing systems play a key role in observing, monitoring, and predicting changes in Earth's climate and water cycle. Observations span a range of Earth system processes including the terrestrial and atmospheric water cycle, ocean and atmosphere dynamics, sea level change, and ice mass balance. Their importance for climate and water research and applications is witnessed by their representation in the list of Essential Climate Variables (ECV - <https://gcos.wmo.int/en/essential-climate-variables>). ECV datasets provide the empirical evidence needed to understand and predict the evolution of climate, to guide mitigation and adaptation measures, to assess risks and enable attribution of climate events to underlying causes, and to underpin climate services. They are required to support the work of the UNFCCC and the IPCC. To guide and inform decisions, geodetic observations are highly relevant in climate and water monitoring such as the Copernicus Services spanning land, atmosphere, and oceans (<https://www.copernicus.eu/en/copernicus-services>) and examples like the US Drought Monitor (<https://droughtmonitor.unl.edu>).

This Highlight Session will feature contributions that discuss the use of geodetic observations for applications across climate and water.

Keywords:

ECV, Copernicus Services, applications, water, climate, geodetic measurements, satellite gravimetry, altimetry, GNSS, sea level, water cycle, ice mass balance, water vapor, climate model evaluation, earth orientation parameters, atmospheric angular momentum