



Seminar Presentation by:
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on

Friday, September 1, 2023

4:00 P.M.

Measuring Coastal Subsidence through Geodetic Observations

Biography

Dr. Makan Karegar is a geodesist by training. He completed his MSc in geodesy from Tehran in 2009 and obtained his PhD in geology from the University of South Florida in 2018.

Since 2018, he has been working as a research scientist at the Institute of Geodesy and Geoinformation, University of Bonn. Makan's research focuses on GNSS geodesy, Solid Earth deformation, and the regional sea-level rise.

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Abstract

The contribution of Vertical Land Motion (VLM) to local and regional relative sea-level changes and coastal flooding in Low Elevation Coastal Zones (LECZ) is often significant. Its magnitude can be equal to or exceed the present and projected global or regional sea-level changes. VLM in LECZ is a complex response to a broad array of processes occurring over a wide range of spatial and temporal scales. Natural processes that cause VLM include short-term and long-term tectonic events that drive deformation on broad scales, Glacial Isostatic Adjustment (GIA), present-day water and ice mass redistributions, Sediment Isostatic Loading (SIA), natural sediment compaction, and peat soil oxidation. Long-term VLM, such as interseismic slip, GIA, SIA, and natural sediment compaction is often linear on centennial time scales. These processes reveal the local and regional short-term, seasonal, and decadal VLM which are important for understanding the non-linearity of VLM and its role in uncertainty assessment of relative sea-level projections. In this talk, I will provide an overview of geodetic methods for measuring these processes.