

The Department of Civil and Environmental Engineering at the University of Houston presents...

CIVE 6111 Graduate Seminar

Emerging InSAR Applications for Observing the Dynamics of Earth Systems



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2:45pm-3:45pm

Zoom: <https://uh-edu-cougarnet.zoom.us/j/95702511696?pwd=VFlybkh4emhETHNITGV0dXRHS3pIZz09>

Abstract

Over the past 60 years, advances in satellite remote sensing techniques have made it possible to observe the Earth with finer resolution and broader coverage than could ever be achieved before. In particular, Earth-observing radar satellite missions have generated a large volume of Interferometric Synthetic Aperture Radar (InSAR) data since 1992 with 10s-100s of meters spatial resolution. Recently launched Sentinel-1 mission has provided global coverage and open data access on a 6-day repeat cycle (with a two-satellite constellation). The upcoming NASA-ISRO Synthetic Aperture Radar (NISAR) mission is scheduled to launch in 2023, which will continue to provide high-quality radar data free of charge for scientific uses in the coming decades. In this talk, we will discuss how to infer a broader range of properties of the earth's surface and subsurface using InSAR. In particular, we will focus on how to extract subtle deformation signals along the densely vegetated Gulf Coast from severely decorrelated InSAR measurements. Storm surge simulations suggest that subsidence-induced land loss may dramatically increase inundated area and maximum surge heights for storms similar to Hurricane Ike and Hurricane Katrina.

Bio

Ann Chen received a B.S. degree in geophysics from the University of Science and Technology of China in 2008; an M.S. degree in electrical engineering in 2012 and a Ph.D. degree in geophysics in 2014 from Stanford University, California. She has more than 10 years of experience in SAR/InSAR algorithm design for earth system science applications. In 2017, she joined the Department of Aerospace Engineering and Engineering Mechanics at The University of Texas at Austin as an assistant professor. Since 2018, she is also a faculty member (by courtesy) in the Department of Geological Sciences at UT Austin. She currently leads the Radar Interferometry Group housed in the UT Center for Space Research. Her group focuses on the development of new satellite, and especially interferometric Synthetic Aperture Radar (InSAR) techniques, for studying natural and induced seismicity, groundwater resources, natural disasters, and permafrost hydrology and carbon storage.