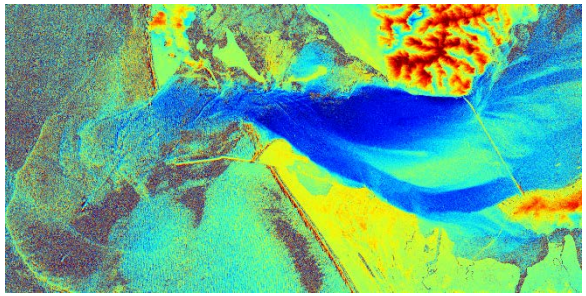
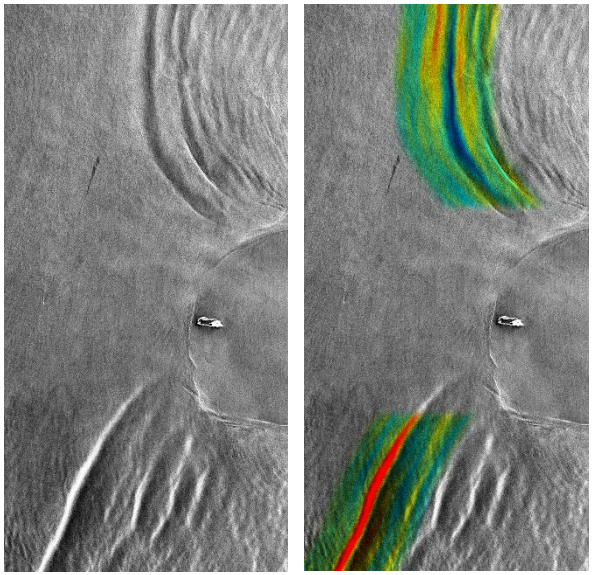
Machine Learning and Artificial Intelligence Applied to Ocean Features

This Office of Naval Research sponsored Project seeks to improve extraction and classification of ocean features from voluminous archives of satellite synthetic aperture radar (SAR) imagery such as the one hosted at CSTARS with ~10 million images. The student(s) will participate in developing appropriate machine learning (ML) algorithms and using artificial intelligence (AI) to identify, extract and classify ocean features such as internal waves, eddies, fronts, ice floes and bathymetry. The Project will also involve researching and developing better SAR processing algorithms.

Research will be carried out with the UM's Center for Southeastern Tropical Advanced Remote Sensing (CSTARS), a state-of-the-art satellite tracking and processing facility.



TanDEM-X InSAR phase image of the Columbia River mouth. Colors: blue to red correspond to horizontal line-of-sight velocities (from left to right) from –2.0 to +2.0 m/s over water.



TerraSAR-X image of shoaling internal waves. The image on the left is a conventional SAR intensity image, while the one on the right shows along-track InSAR-derived surface velocities. Colors: blue to red = ±0.5 m/s. (from Romeiser & Graber 2015).

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Since the Fall 2020 deadline has passed, contact the faculty members if you are interested for Fall '20 or Spring '21 admission.

UNIVERSITY OF MIAMI CSTARS