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## Department of Atmospheric Sciences Seminar Announcement

Department of Atmospheric Sciences, S.O.E.S.T., University of Hawai'i at Mānoa  
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# Insights to marine atmospheric phenomena from synthetic aperture radars

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<b>Date:</b>	<b>Wednesday, March 4, 2020</b>
<b>Refreshments:</b>	<b>3:00pm at MSB courtyard Cookies, Coffee &amp; Tea Provided</b>
<b>Seminar Time:</b>	<b>3:30pm</b>
<b>Location:</b>	<b>Marine Sciences Building, MSB 100</b>

### Abstract:

Synthetic aperture radars (SAR) aboard space-borne satellites are the unique technology to measure sub-mesoscale oceanic and atmospheric phenomena at global scale. SAR measures sea surface roughness on the order of meters. With the launch of two SAR satellites within the Sentinel-1 mission by the European Space Agency, fine resolution sea surface roughness imagery is now routine regardless of cloud cover and during day and night opening new research opportunities. We observe a wide range of upper ocean and lower atmosphere phenomena within the Sentinel-1 imagery such as extreme sea states, ocean waves, sea ice, atmospheric boundary layer rolls, convection, rain cells, atmospheric fronts, and oceanic fronts. Due to the large amount of data (~600 Tb), we rely on machine learning techniques for automatic detection. This allows a global quantification of the various phenomena some of which are not well measured by other technologies. For example, mapping the surface wind speed perturbation produced by roll vortices is significant to both boundary layer science and physical oceanography.