PRISM: 3D PRedictive Imaging of water Surface
for Munitions mobility and burial

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A shore-based multi-camera imaging system was used to remotely sense surf zone wave conditions in order to infer near-bed hydrodynamics and predict munition mobility and burial at Camp Pendleton, CA. Deployed on the bluff above White Beach training area, the system recorded 20-minute video bursts every half-hour of daylight from 4 synchronized cameras between January 13 to February 8, 2022. The system makes use of stereo vision principals to reconstruct a 3D dense point cloud of the water surface at each time frame (2 Hz), enabling estimates of wave height, frequency, and evolution throughout a 300 x 300 m nearshore study area.

The impact of environmental parameters to the relative ease of 3D reconstruction are considered. Further, remote estimates of wave characteristics are compared to direct observations from nearby in situ instruments.