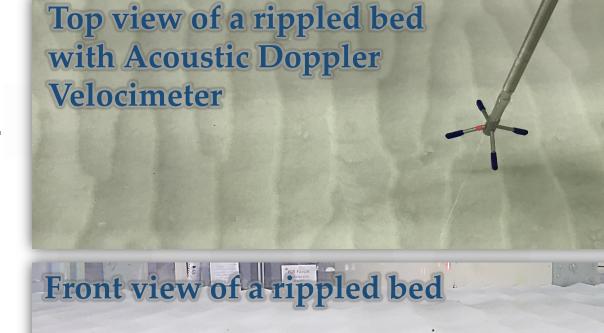


A FULL-SCALE PHYSICAL MODEL TO STUDY FLOW PHYSICS NEAR THE SEA BOTTOM

Juan Vargas-Martinez ¹, Sylvia Rodríguez-Abudo ², and Edwin Aponte ¹ ¹ Department of Mechanical Engineering, ² Department of Material Sciences and Engineering University of Puerto Rico – Mayagüez

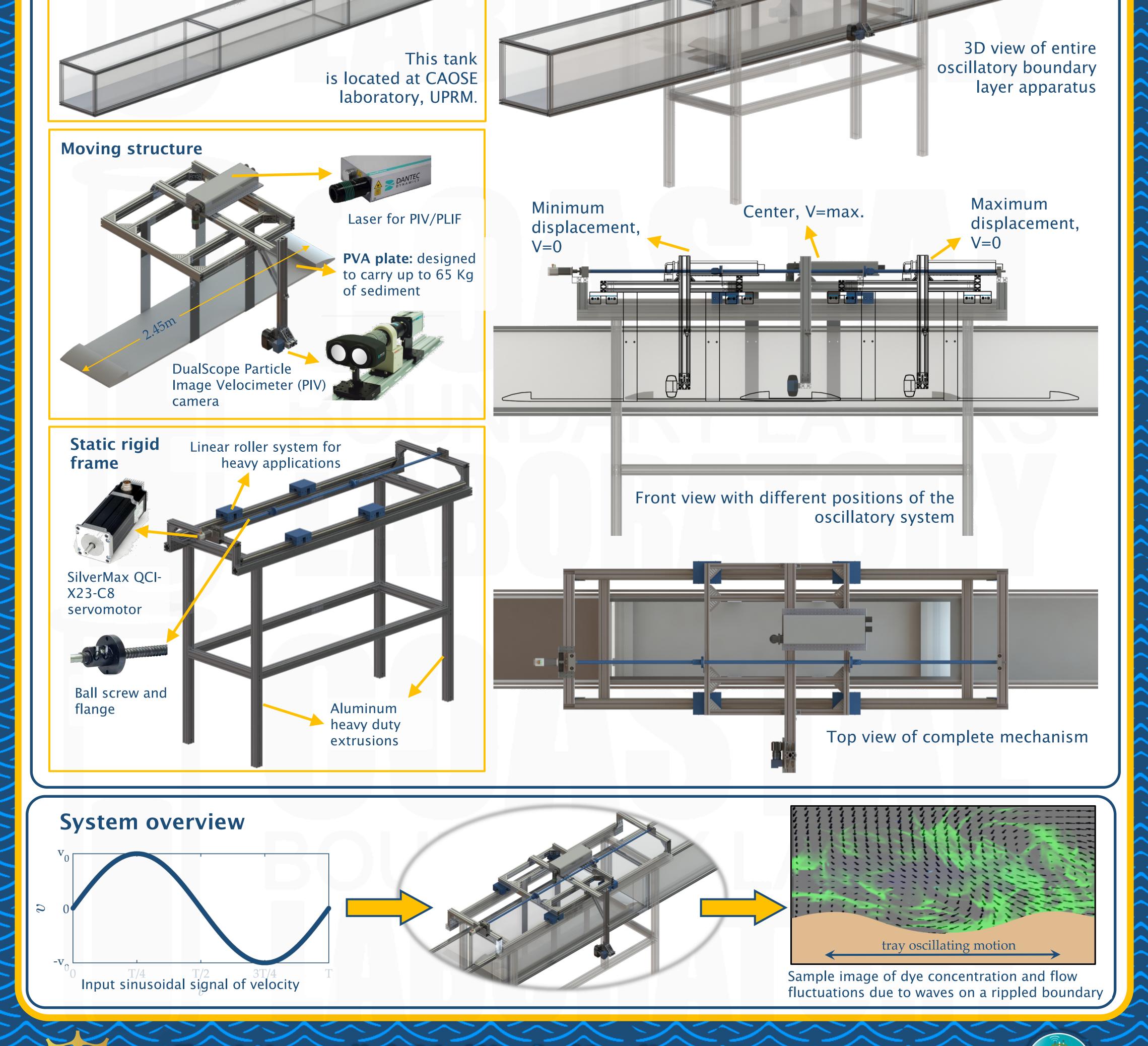


Sediment ripples are small undulated formations at the seabed formed by the constant oscillations of water waves, which induce suspension and movement of sediment particles. Flow physics in this environment are being studied by our group to better understand transport phenomena, including contaminants, nutrients, benthic ecosystems, among others. **Our objective** is to experimentally simulate these conditions in the wave flume located in facilities of CAOSE Laboratory at UPRM. The design of our **boundary layer apparatus** includes a rigid structural frame de-coupled from the wave flume, a sediment tray, Acoustic Velocimeters, cameras, lasers, linear rollers, a ball screw system with a servo motor, among others.



3D-CAD design

CAOSE wave flume: 7.5 m length, 0.7 m width, and 0.7 m height.





This project is supported by the National Science Foundation and it is a continuation of the project: "Recycled glass as beach nourishment material to mitigate Puerto Rico erosion problems" which was supported by the Puerto Rico Science, Technology & Research Trust.

Puerto Rico Science, Technology & Research Trust

CARICOOS General Assembly - 2019