# André Pacheco, PhD Physical Oceanography

André Pacheco is a coastal oceanographer researcher. His domains of specialisation are coastal processes and the collection of field data (topography, bathymetric, currents and wave data), focusing on nearshore hydrodynamics, sediment transport, and bathymetric change on time scales of hours to years. He worked on several projects related with coastal dynamics, both with National and European institutions, where was responsible on organizing and undergo high-frequency field surveys for the measurement of the current-wave interaction with the bed, i.e., sediment transport. His PhD thesis was focused on measuring hydrodynamics and sediment transport at tidal inlets, jointly supervised by University of Algarve (PT) and Plymouth (UK). Today, his present post doctoral studies are related with assessing the tidal power energy potential on confined channels and impact evaluation from exploration. Since the start of his postdoctoral programme he has been using both analytical methods and Delft3D Flow model to evaluate the tidal energy resource at a confined channel and individualise the best locations to place TEC devices. Next step of his research is to implement and calibrate the model by including the TEC properties on the numerical model mesh using a momentum source approach; and perform model simulations using different hydrodynamic settings in order to evaluate the impacts that energy extraction will have on the temporal and spatial changes of the flow (i.e. profile and tidal asymmetry) and sediment transport patterns (i.e. suspended and bedload transport). These simulations tests will produce valuable information for improvement of prototype design and mooring structure, enabling to optimise array schemes in order to both minimise environmental impacts from operation and maximise energy extraction.