



## **Ultra-High-Resolution Marine 2D/3D Seismic Investigation of the Limantepe/Carantina Island Archaeological Site (Urla/Turkey)**

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As part of the SEAMAP-3D project 2D and 3D high resolution seismic investigations of the Iskele (Limantepe and Necropolis) and Carantina Island shore areas were carried out in October 2006. Archaeological findings indicate that sea level change led to the submersion of a breakwater or fortification wall of the early Archaic city. Also underwater are a road connecting Carantina Island and the mainland (Alexander) as well as large villas of the Hellenistic and early Imperial times. The 2D reconnaissance survey was intended to evaluate seismic penetrability and to pinpoint locations for further 3D investigation. It covered parts of Limantepe and the modern harbor in Iskele, an inundated Necropolis and the western part of the Carantina Island shore. The survey predominantly disclosed marine sediment layers covering the local bedrock. It is characterized by scattering of seismic energy documenting its rocky nature. Two areas were selected for ultra high resolution 3D marine seismic investigation. The first covers a 350 m x 30 m area over the submerged breakwater wall structure west of Limantepe. The second spans a 120 m x 40 m area at the south eastern shore of the Carantina Island. The harbor survey clearly images the sea floor topography of the submerged breakwater wall. Below the sea floor a sediment formation is imaged, which again is based on the local bedrock, providing a foundation for the breakwater wall. In the lee shore south east of Carantina Island another area was chosen, where Roman villa foundation walls are still visible. The resulting 3D seismic data cube imaged the inundated shore line, the underlying sediment formation and local bedrock. The seismic survey also revealed a distinct linear feature below sea floor.