Geophysical Research Abstracts
Vol. 21, EGU2019-3949, 2019
EGU General Assembly 2019

Lost Frontiers: Mapping the archaeological potential of submerged Holocene landscapes using multi-scale geophysical and borehole data

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The ERC-funded Lost Frontiers Project is a unique interdisciplinary archaeological project using legacy seismic data combined with newly acquired cm-scale resolution sub-bottom and vibrocore data to reveal Holocene submerged landscapes in unprecedented detail on a regional scale. The project focuses on the European submerged landscapes of the southern North Sea (Doggerland) and Irish Sea (Cardigan Bay). Seismic mapping along with ground truthing from core data allows the project to evaluate the potential for the recovery of environmental, SedaDNA and archaeological material. The project has focused on several key palaeovalleys with the study areas, which are revealing the story of inundation of these once inhabited lands due to early Holocene sea level rise. Cores within these areas show sequences of terrestrial deposits overlain by tidally-influenced laminated silts and muds to fully marine sediments. These sequences are tied to the seismic character and extrapolated away from the boreholes. This record of early Holocene inundation not only has implications for our knowledge of the Mesolithic landscape but is also revealing insights into the non-uniform inundation of landscapes, which are predicted to occur over the next century due to climate change.