

Wide-angle seismic imaging of the Hatton Basin (North Atlantic)

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The HATton DEep Seismic (HADES) project was designed to investigate the crustal and sedimentary architecture of the Hatton Basin and Hatton Continental Margin in the North Atlantic, west of Ireland. Results from this wide-angle seismic experiment on the Hatton Basin are presented here. One hundred ocean bottom seismometers (OBS) were deployed along a 363 km profile oriented NW into the basin. Due to the very dense coverage of the data and the short spacing between each OBS (23km) we applied a two-step tomographic approach on these data. First, we used a 2-D first-arrival traveltimes inversion to define a velocity model using the refracted waves. This model was then used as an input model to define the Moho interface using pronounced PmP reflections. Our final model resolves considerable detail in the sedimentary and crustal layers that can be correlated with variations in the gravity and magnetic fields and provides a good image of the basalt features in the basin using data recorded at long offset. Recently acquired seismic reflection data on the Hatton Basin have been reprocessed and integrated with the result of the tomographic inversion in order to better understand the geology in the Hatton region. This project is funded by the Geological Survey of Ireland and the Irish Petroleum Infrastructure Programme.