



Experimental and Numerical Simulation of coupled tectonic and depositional processes in syn-rift and post-rift sedimentary basin

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The tectono-stratigraphic evolution of sedimentary basins on rifted continental margins is strongly controlled by the interaction of tectonic processes, gravity-driven deformation, and syn-kinematic sediment influx. One way to better understand how these processes influence stratal architectures and petroleum system evolution is to integrate numerical and analogue experimental techniques. Three-dimensional surface topography and timeseries strain data derived from the scaled experiments in combination with facies information from stratigraphic forward modelling has much potential to provide a quantitative understanding of the evolution of complex structural and stratal architectures and associated petroleum system elements in rift and post-rift sedimentary basins.

The proposed PhD project will combine structural and stratigraphic seismic analysis, scaled analogue deformation experiments and 3D numerical stratigraphic forward modeling, to conduct an integrated, quantitative analysis and dynamic simulation of coupled tectonic and depositional processes during continental rifting and passive margin evolution of selected segments of the Central and South-Atlantic conjugate margins. A major aim of the project will be to develop techniques and workflows to integrate computational stratigraphic forward modelling techniques with basin-scale analogue experiments for realistic simulation of depositional systems under variable conditions of changing accommodation and sediment supply during complex deformation.

The successful student will receive training in seismic interpretation, structural analysis, scaled analogue modelling and stratigraphic forward modelling. The project will be part of a larger research effort funded by the hydrocarbon exploration and production industry, so there will be extensive collaboration with other researchers at Royal Holloway, as well as collaboration with and presentation of results to industry geoscientists.

How to Apply:

Please use the **online application system**

(<http://www.rhul.ac.uk/studyhere/postgraduate/applying/home.aspx>) to submit an application for this project. Applications will require 2 letters of reference, plus a cover letter and CV- applicants are also requested to email a copy of their CV directly to the lead supervisor of this project (j.adam@es.rhul.ac.uk). **Please ensure you complete your application by mid-December. Suitable candidates will be invited for interviews, which will take place in February/March, and offers are made by the end of March.**

For any queries please contact the Postgraduate Programmes Co-ordinator (email: pgadmin@es.rhul.ac.uk or tel: 01784-443581) and further information can also be found on the Department's Website (<http://www.rhul.ac.uk/earthsciences/home.aspx>).