



## PhD Project Proposal

# ***Integrated assessment of the hydrocarbon potential of fault-degradation complexes***

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### ***Rationale***

Degradation of footwall fault blocks is a ubiquitous trait of numerous rift basins worldwide e.g. North Sea Brae fields, Statfjord field, Gulf of Suez, Northern Red Sea, and in the East African rift systems. Past research has not fully provided an integrated analysis of these systems that would allow a complete assessment of their 3D geometries, evolution and impact on hydrocarbon reservoirs and trapping mechanisms.

### ***Objectives***

To understand basic geometries of fault degradation complexes using modern seismic data and interpretation workflow.

To validate proposed evolutionary patterns of fault development & degradation with analogue sandbox models of rift fault systems.

To 'ground truth' facies prediction and play concepts derived from seismic interpretation with field analogues (potential locations in Death Valley, Iceland, Gulf of Corinth, Carboniferous of Derbyshire).

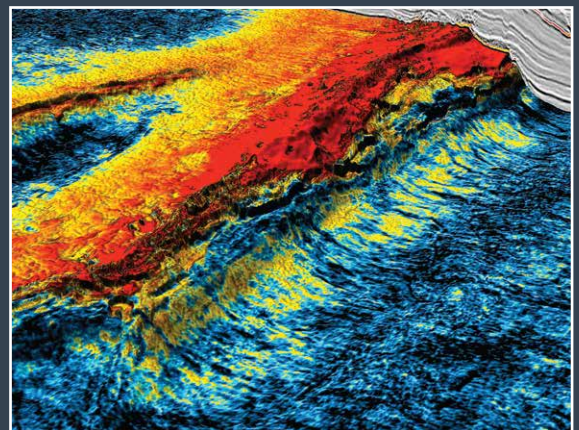
### ***Deliverable outcomes***

Set of seismic workflows aimed at the characterisation of fault degradation complexes.

Atlas of key examples of fault degradation complexes from seismic and fieldwork.

4D evolutionary models of fault degradation complexes and associated facies.

Set of play concepts in fault degradation complexes with recommendations on expected risks and uncertainties.



*3D seismic visualisation of fault-degradation complex, NW Shelf Australia*



*Steep talus cones along eroded fault scarps, Muddy Mountains, Nevada*



*Analogue model showing faulted hanging wall talus wedge*

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