

## **Relating Reactivation and Inversion on the Northwest Australian Shelf to Stress Regimes through Time**

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Data compiled as part of the World Stress Map project (Reinecker et al., 2005) provide important constraints on present orientation and magnitude of the maximum horizontal compressive stress regimes of continents. Understanding of palaeo-stress regimes is less well developed, however, since stress data can be sparse over large areas of continents and specifically over geologic time. Knowledge of palaeo-stress regimes is particularly relevant to the field of hydrocarbon exploration, since such knowledge allows for the creation of predictive frameworks for fault reactivation as well as for larger, basin scale inversions.

Extension on the North West Shelf margin has been influenced by pre-existing structure and continental lineaments (Elliot, 1994) with the prevailing fault strike on the North West Shelf being NE-SW. Many authors have highlighted the importance of light, oblique reactivation to the economic importance of petroleum traps on the North West Shelf. Using methods developed for modelling the stress regimes of continents and plates for the present day and through geologic time (Dyksterhuis et al., 2005), we have examined various tectonic reactivation and inversion events over the Australian North West shelf with respect to modelled palaeo-stress regimes since the early Cretaceous.