

# **Origin of the Late Jurassic-Early Cretaceous Erosional Surface of the Browse Basin (Northwest Australia)**

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A detailed cartography of the erosional surface located between the Jurassic and Cretaceous sequence of the Browse basin (NW Australia) shows the presence of a major paleorelief (500 to 800 m). Paleo-valleys and characteristic drainage patterns allow to demonstrate the continental origin of this relief. The valley infill is likely made of continental deposits passing to marine ones during the early Cretaceous flooding of the area. The erosional pattern is certainly controlled by Jurassic extensional tectonic related to the opening of the Argo abyssal plain ocean. The extension seems to predate the erosion, therefore the uplift of part of the margin is either due to rift shoulder thermal uplift or ridge-push effect during the early stage of spreading. Potential stratigraphic traps could be defined, depending on the type of valley infill and the type of seal that could be envisaged in that area at that time. The problem in defining the valley infill type comes from the absence of good well calibration, only one well (Londonderry) has penetrated the erosional surface in a low, on the other hand the presence of gas has already been demonstrated in the region.