

**STRATIGRAPHIC AND STRUCTURAL CHARACTERIZATION OF MEGAFLAPS FLANKING SALT DIAPIRS:
WITCHELINA DIAPIR, EASTERN WILLOURAN RANGES, SOUTH AUSTRALIA AND AULET DIAPIR, SOUTHERN
PYRENEES, SPAIN**

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Abstract

The comprehensive stratigraphic and structural characterization of megaflaps flanking the Witchelina (eastern Willouran Ranges, South Australia) and Aulet diapirs (southern Pyrenees, Spain) will be used to determine salt-flank trap potential, as well as test and refine existing models for megaflap development adjacent to steep-sided primary and secondary diapirs. By utilizing outcrop exposures from variable tectonic settings and geologic time intervals, strong comparisons can be made on proposed megaflap endmember types that form through contraction, drape folding, or a combination of these processes. Stratigraphic sections through the megaflap stratal panels will be measured at both Witchelina and Aulet diapirs, and field mapping of depositional facies transitions, stratal truncations, and small-scale deformation will be conducted with the benefit of high-quality satellite imagery. In combination with detailed petrographic analysis, this extensive field work will facilitate the construction of stratigraphic correlation diagrams and qualitative structural restorations for each outcrop example to interpret the intimately linked stratigraphic and structural evolution of megaflaps developed in shortened vs. non-shortened tectonic regimes. Better understanding of the depositional and structural mechanics of megaflap formation is crucial to the accurate pre-drill prediction of poorly imaged, near-vertical to overturned deep minibasin strata extending far up the flanks of salt diapirs. Rather than post-drill discovery of unexpectedly older and steeper diapir-flanking strata to the detriment of prospectivity, this work aims to characterize salt-flank trap potential and reduce megaflap-related surprises and risks during reservoir exploration.

AAPG Search and Discovery Article #90249 © 2016 AAPG Foundation 2015 Grants-in-Aid Projects