

Identifying the sequence boundary in over- and under-supplied contexts: the case of the late Pleistocene Adriatic continental margin

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SEPM Gulf Coast Section Publications. Sequence Stratigraphy: The Future Defined

Abstract

Even in a system whose stratal record is well expressed, it can be challenging to confidently differentiate sequence boundaries from other erosional surfaces because of lateral changes in stratal patterns due to variations in accommodation and sediment-supply rates and routes. Identifying a sequence boundary, as originally defined by Mitchum et al. (1977), is based on objective geometric relations. The original and standard criteria for defining a sequence boundary include not only the recognition and interpretation of stratal terminations but also an assessment of the spatial distribution of such terminations. Key geometric relations, however, are not always apparent on every single seismic line and are commonly inferred solely from vertical sections from boreholes. Hence it is essential to correlate and map the three-dimensional distribution and character of potential sequence boundaries (and any other sequence-stratigraphic surfaces) for a more confident interpretation. Variations in observed geometric relations are a function of profile location and orientation with respect to sediment-entry points and shelf-edge, as well as to spatial changes in rates of change in accommodation relative to the rates of sediment supply (e.g., Madof et al., 2016).