

The Application of Sequence Stratigraphy to the Sajau (Pliocene) Coal Distribution in Berau Basin, Northeast Kalimantan, Indonesia

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Abstract : The Sajau coal measures of Berau Basin, northeastern Kalimantan were deposited within a range of facies associations spanning a spectrum of settings from fluvial to marine. The transitional to terrestrial coal measures are dominated by siliciclastics, but they also contain three laterally extensive marine bands (mudstone). These bands act as marker horizons that enable correlation between fully marine and terrestrial facies. Examination of this range of facies and their sedimentology has enabled the development of a high-resolution sequence stratigraphic framework. Set against the established backdrop of third-order Sajau transgression, nine fourth-order sequences are recognized. Results show that, in the composite sequences, peat accumulation predominantly correlates in transitional areas with early transgressive sequence sets (TSS) and highstand sequence set (HSS), while in more landward areas it correlates with the middle TSS to late highstand sequence sets (HSS). Differences in peat accumulation regimes within the sequence stratigraphic framework are attributed to variations in subsidence and background siliciclastic input rates in different depositional settings, with these combining to produce differences in the rate of accommodation change. The preservation of coal resources in the middle to late HSS in this area was most likely related to the rise of the regional base level throughout the Sajau.

Keywords : sequence stratigraphy, coal, Pliocene, Berau basin

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