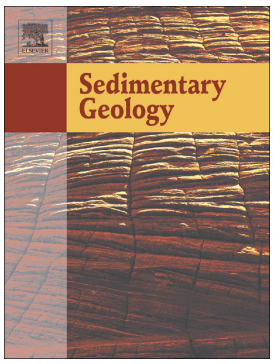

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THROMBOLITES, SPHERULITES AND FIBROUS CRUSTS (HOLKERIAN, PURBECKIAN, APTIAN): CONTEXT, FABRICS AND ORIGINS

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Abstract

Carbonates from the Holkerian (Lower Carboniferous) Concretionary Beds of the Bristol area, the Upper Jurassic-Lower Cretaceous Purbeck Limestone Group of southern England and the Aptian Pre-salt succession of the South Atlantic exhibit spherulites and a range of related crystal shrubs and fibrous crusts. Some of these fabrics are associated with framework microbialites, including thrombolites,that developed under varying degrees of non-marine influence. Brackish or fresh waters affected the Holkerian and Purbeckian microbialites, although the Holkerian also experienced marine conditions. The South Atlantic Pre-salt microbialites were deposited under saline lacustrine conditions. The fabrics are a topic of intense discussion and disagreement over the role (if any) of microbes in spherulite formation. Whilst the case for microbial influences on the Holkerian and Purbeckian spherulites is strong, the alternative influence of Mg-Si gel or Mg-clay (particularly stevensite) is appraised in detail for the Aptian spherulites, including reference to studies of modern microbial analogues. Results of published laboratory experiments concerning such gels and studies