

Carbonate sedimentology and diagenesis of the Neoproterozoic Bambui Group in the Januária-Itacarambi region, Minas Gerais State, Brazil

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Two main shallowing upward sedimentary cycles separated by a surface of subaerial exposure comprise the carbonates of Bambui Group in the area. The basal succession is a wave and storm dominated carbonate ramp. Deeper ramp facies include dolomudstones (planar bedding), intrapelmicrite packstones (HCS/SCS), flat-pebble breccias, wave rippled cross-bedded dolomitic oolite-packstone and microbial layers. Shoal facies are dolostones, most of them originally ooid dolarenites (wave ripple cross-bedding/HCS/SCS). Lagoonal facies encompass stromatolitic bioherms, ooidal dolarenites (wave ripple and trough cross-bedding/HCS) and muddy sediment. The unconformity lies upon lagoonal facies and separates the two main sedimentary cycles. The upper succession consists of small-scale, shallowing upward cycles of muddy tidal flats. Dololutes, intrapeloidal/ooidal dolarenites, stromatolitic biostromes and microbial layers dominate (plane-parallel and lenticular bedding, low angle cross lamination and tepees). Main diagenetic features: (i) early - ghosts of isopachous rim cements (deeper ramp/lagoonal facies), dissolution, non-fabric selective and mimic dolomitization (tidal flats); (ii) burial - dissolution seams/stylolites, replacement dolomite, dolomite cement lining pores, wispy dolomite in cavities, bitumen in vugs; recurrent are dissolution, calcite cement and fracturing events; silicification is subordinate. Later uneven dolomitization affects the upper facies of the first cycle and associated solution-collapse breccias. Widespread calcite cement is the latest diagenetic event. Lead-zinc (silver) and fluorite mineral deposits occur mostly below the unconformity.