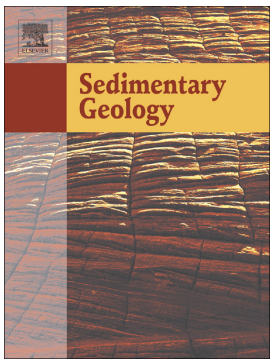

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Freshwater carbonates within a Late Triassic siliciclastic fluvial system in a Gondwana rift basin: The Maleri Formation, India

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ABSTRACT

Spring-related carbonates are valuable repositories for information on physical and biotic environments of the past. However, for Mesozoic and earlier records, their use is limited due to their low preservation potential and difficulties in accurate identification of the carbonate type. This study aims to characterise the source of carbonate clasts preserved as thin beds of cross-bedded grainstones in Late Triassic, siliciclastic fluvial deposits, the Maleri Formation, Pranhita-Godavari rift basin, India. The microfabric and stable isotopic compositions of the grainstones and thin and discontinuous beds of impure limestones of this formation are presented here. These features help in identifying the freshwater carbonate-precipitating environments that existed in an ancient continental rift basin, though such deposits are not primarily preserved in this case.

The microfabric of the carbonate grains provides evidence for carbonate precipitation in aquatic environment related to karstic springs. Taking together the microfabric, stable isotopic compositions, as well as the associated geological and palaeontological information, it could be shown that the calcium carbonate precipitation took place in palustrine pools related to tufa-like spring systems and in alluvial swamps under a pluvial climatic setting.