



Stratigraphy and Sedimentology of the Late Neoproterozoic Bonney Sandstone, Northern Flinders Ranges, South Australia

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Abstract

The Adelaide Geosyncline is considered as a deformed sedimentary basin located between the Paleoproterozoic Gawler and Curnamona crystalline basement complexes. A suite of Late Neoproterozoic clastic sediments are widely deposited in the Flinders Ranges, South Australia. From the Proterozoic to the Cambrian, this area was a passive margin system. The outstanding exposures in this region allow detailed study of the sedimentary structures of analogous basins around the world, which often contain similar styles of source rocks and petroleum reservoirs. The Bonney Sandstone in the Northern Flinders Ranges is the lower part of the coarser, shallow-marine Pound Subgroup. This project provides an opportunity to examine relatively undescribed strata in this area. During the fieldtrip, my investigation consists of two detailed measured stratigraphic sections, which reveal a few well-preserved primary sedimentary structures. Many detailed sedimentological analysis were done during the study, including the measurement of strata and petrography. Several lithofacies were summarized and the associations of them were discovered. The characteristics of sedimentation are influenced by the paleocurrent, sediment supply and basin development. Both the modelling of this sedimentary process and the palaeogeography of the Neoproterozoic of South Australia are required to better understand the sedimentary character in the Northern Flinders Ranges.

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