

Organic geochemistry of Triassic fine-grained sediments in the Sydney Basin

Prerequisites / Requirements:

GEOS710/920

Supervisors / Research Group / Project Partners:

Supervisor: Prof. Simon George Simon.George@mq.edu.au
 Co-Supervisor: A/Prof Jessica H. Whiteside J.Whiteside@soton.ac.uk
 Organic Geochemistry group; University of Southampton.

Project Description:

This project will be the first to assess the organic geochemistry of fine-grained Triassic sediments in the Sydney Basin. The most prominent outcrop lithologies are sandstones, which are not good targets for understanding the organic geochemistry. Mudstone units are recessive and weathered, but fresh material can be obtained from the NSW Resources and Energy at the core library at Londonderry. Additionally, ad-hoc Triassic samples have been obtained from road-tunnelling operations associated with WestConnex.

This project proposes to assess the organic geochemistry of fine grained units in the Triassic, including the younger Wianamatta Group, which includes the Bringelly and Ashfield shales, though to be deposited in deltaic or swampy alluvial plains, and the Narrabeen Group which overlies the Permian. The Hawkesbury Sandstone also contains some fine grained rock units, and these may hold the key to interpretation of whether this unit was deposited in a freshwater delta, or in a more marine-influenced estuarine facies.

This project fits in as part of a broader assessment of the Early Mesozoic for environmental, climatic, biotic, and solar system evolution by paring contemporaneous low latitude (<30°) with high latitude cores (>45°) in a low- to high-latitude Coring Transect, with complimentary geochronological properties and environmental proxy data, which is being led by Jessica Whiteside at the University of Southampton.

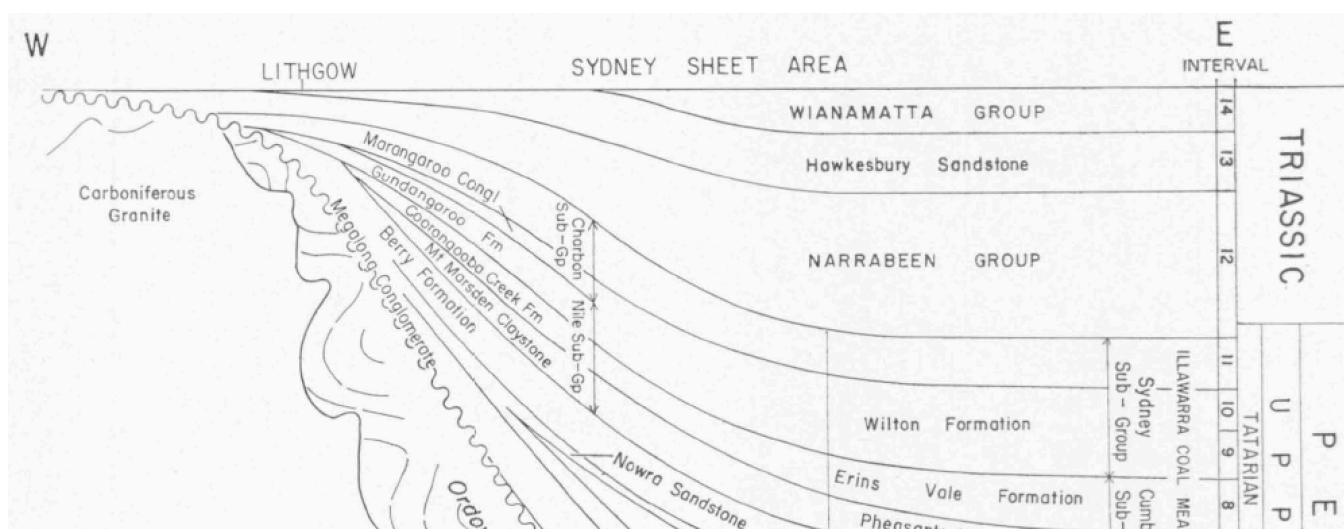


Figure: Triassic and late Permian stratigraphy of the Sydney Basin (from Mayne et al., 1974).