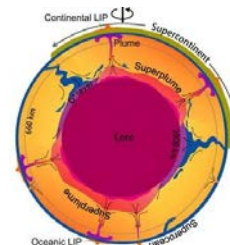




# Rodinia 2017: Supercontinent Cycles and Global Geodynamics



## ***FIRST CIRCULAR***

***Date and Location:*** Townsville, Queensland, Australia, June 11<sup>th</sup>-14<sup>th</sup> 2017  
***Post Conference Field trip:*** Mount Isa Terrane Transect, June 16<sup>th</sup>-21<sup>st</sup> 2017



## **PREAMBLE**

Earth's geological evolution records cycles of supercontinent assembly and breakup. Research on supercontinent history has now matured to a point where it provides context for ever diversifying research on the processes related to supercontinent assembly and dispersal including the development of geodynamic modelling, imaging and analysing large-scale geophysical data, global synthesis using large geological, palaeomagnetic, geochronological and geochemical datasets, palaeoclimatic modelling, and linking major mineralisation events to supercontinent cycles.

Rodinia 2017 is part of IGCP Project “Supercontinent Cycles and Global Geodynamics” and builds on previous “Rodinia” meetings, which are held every 4–5 years to bring together global experts from a broad range of geological disciplines to study supercontinent paleogeography and related geodynamic processes. Past meetings include; Rodinia 2005 in Fremantle, Rodinia 2009 (Geological Society of London Fermor Meeting): Supercontinents, Super plumes & Scotland, held at Edinburgh, Scotland and Rodinia 2013: Supercontinental Cycles and Geodynamics Symposium held at Moscow State University.

Rodinia 2017 will bring together a diverse range of geoscience expertise to present and discuss the latest progress in the occurrence and evolution history of supercontinents through geological time, to highlight the latest developments in the geodynamics of supercontinents, and developments in the relationships between supercontinents and other geological phenomena including updates in the global databases of geotectonics, palaeomagnetism, mineral deposits, and the occurrences of past mantle plume events. Finally, we will examine the link between supercontinent cycles and the deep mantle.

Rodinia 2017 welcomes contributions from all geoscientific fields related to supercontinents from all geological eras. The meeting will be hosted in Townsville, Queensland, Australia and will be followed by a post-conference field trip across the Mount Isa terrane, which is one of the most spectacularly preserved Paleoproterozoic terranes on Earth that holds clues about the configuration and evolution of supercontinents Nuna (Columbia) and Rodinia.

## **THE VENUE**

Rodinia 2017 will be held at “**Seagulls**” **Conference Resort** at Rowes Bay, along the foreshore of Townsville City in Northern Queensland.

Accommodation is also available at Seagulls Conference Resort.

A price list will follow shortly.

## **CONFERENCE THEMES**

There are seven conference themes to cover a range of disciplines related to supercontinent cyclicality and tectonic and geodynamic processes related to supercontinent assembly and dispersal.

**THEME 1. Assembly of Australia in supercontinent cycles.** *Coordinators: Dr Jacqui Halpin (University of Tasmania), Dr Robin Armit (Monash University), and Prof. Peter Betts (Monash University)*

**THEME 2. New Progress and constraints on Supercontinent reconstructions.** *Coordinators: Prof. David Evans (Yale University), Dr Johanna Salminen (University of Helsinki)*

**THEME 3. How supercontinents assemble.** *Coordinators: Prof. Brendon Murphy (St. Francis Xavier University), Prof. Ricardo Trindade (Universidade de São Paulo).*

**THEME 4. New developments in Paleogeographic reconstructions: Reconstruction software; data mining; and database development.** *Coordinators: Prof. Bruce Eglington (University of Saskatchewan).*

**THEME 5. Supercontinent cycles and Geodynamics.** *Coordinators: Prof. Zheng Xiang Li (Curtin University), Prof. Louis Moresi (University of Melbourne), Prof. Shije Zhong (University of Colorado).*

**THEME 6. Supercontinent cycles and mineral systems.** *Coordinators: Dr David Huston (Geosciences Australia), Dr Sally Pehrsson (Natural Resources Canada).*

**THEME 7. LIPS, Plumes, and supercontinents.** *Coordinators: Prof. Richard Ernst (Carleton University), Dr Simon Jowitt (University of Nevada)*

## Post Conference Field trip

### Mount Isa Inlier

The Mount Isa Inlier is located in far northwestern Queensland and preserves Paleo- to Mesoproterozoic rocks at different crustal levels. The inlier records more than 400 million years of Proterozoic tectonic evolution including intracontinental basin development, plutonism, low-pressure metamorphism, orogenesis at different crustal levels, crustal-scale metasomatism and a variety of ore deposits, including sediment-hosted Pb-Zn-Ag and Cu deposits in the western parts of the inlier, and iron oxide Cu-Au deposits of the eastern parts of the inlier. This period overlaps with the amalgamation of Nuna and therefore the inlier provides an opportunity to resolve and test many aspects of the Nuna Supercontinent assembly and dispersal.

The basement rocks were deformed and metamorphosed during the ca 1900-1870 Ma Barramundi Orogeny and intruded by the granitic rocks of the ca 1850 Ma Kalkadoon and Ewen Batholiths and coeval volcanic rocks. These rocks are likely to have evolved at the eastern edge of the North Australian Craton during Nuna accretion in the overriding plate of a westward dipping subduction zone, identified from deep seismic transect, and preserved as the Gidyea Suture Zone along the eastern edge of the inlier. Three stacked and superimposed superbasins formed between ca 1800 and ca 1595 Ma. These basins preserved evidence for elevated heat flow and transient magmatism and marked changes in the regional extensional setting, and several disrupting basin inversion events in a continental setting. These basins are likely to record the distal effects of plate margin processes along the southern and eastern margin of Australia during or immediately after the amalgamation of Nuna. The basin evolution was terminated by the 1600-1500 Ma Isan Orogeny, which involved an early episode of north-south to northwest-southeast shortening characterised by thin-skinned tectonics in the east and localised basin inversion structures in the west. Subsequent deformation, between ca 1550-1500 Ma, was thick-skinned and is characterised by upright folding, reverse faulting, and late strike-slip faulting. Voluminous granites were emplaced throughout the Eastern Fold Belt between ca 1550 and 1500 Ma, which may record a segment of a hotspot trail.

**Excursion Leaders:** **Dr George Gibson**, Australian National University (regional geology and day to day logistics); **Ian Withnall**, Geological Survey of Queensland (eastern succession); and industry experts

**Venue:** Mount Gordon (Gunpowder) mine and environs, Mount Isa, and Cloncurry

**Dates:** Friday June 16 – Wednesday June 21, 2017

A significant portion of the excursion deals with the examination and interpretation of outcrop geology and measured sections at various sites across the Mount Isa Inlier. Both sedimentary and magmatic rocks will be investigated during the excursion, along with a number of localities where basin architecture and fault geometries can be determined. Many of the localities and rock units to be visited have been sampled for geochronology and consequently have good age constraints and therefore better context.

The excursion will start in the western parts of the inlier, where there are excellent exposures of Paleoproterozoic basinal successions and transect to the east, visiting the mid-crustal extensional domain of the Wonga Belt and then the highly deformed rocks of the eastern parts of the inlier.

*If you have any questions please contact Peter Betts (Monash University) – Peter.Betts@monash.edu*



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