

Uni project will change the way SA geology is viewed

Rewriting 2,500 million years of Eyre Peninsula history

Iron Road is collaborating on a research project that is changing views of Warramboo's geological history by opening a window on a time when the Eyre Peninsula and Antarctica were joined.

The collaboration began in 2012 as part of a University of Adelaide PhD project in partnership with the Geological Survey of South Australia, Department of State Development.

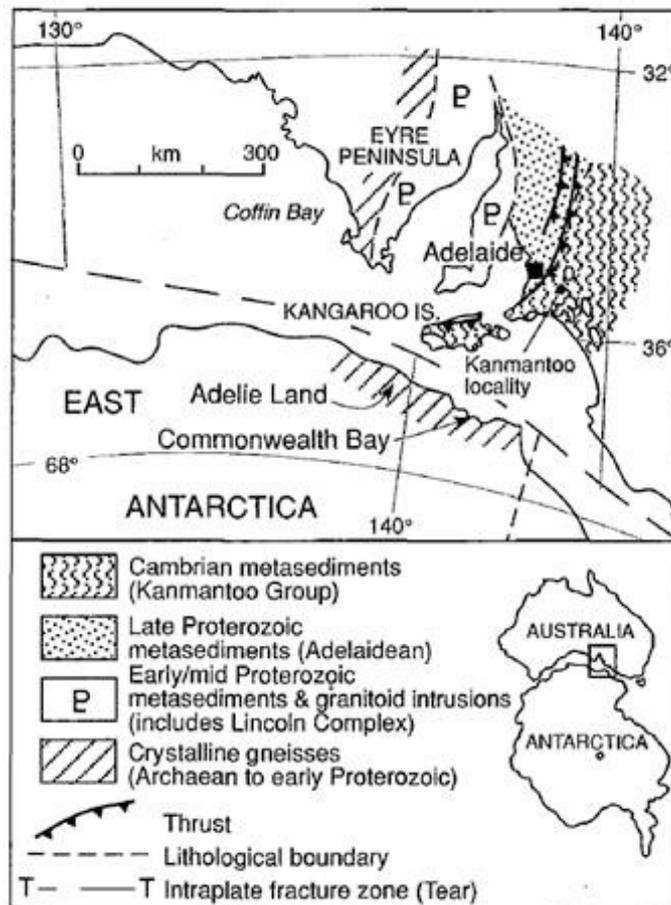
For the past 3 years, geoscientist Kathleen Lane has been working on a PhD applied research project entitled *Influence of Crustal Architecture and Tectonic Reworking on the Warramboo Magnetite Gneiss Iron Ore Deposit, Southern Gawler Craton*.

While the title is a mouthful, the findings to date provide a fascinating insight into the region's geological past and question some of the previous assumptions about the origins of local magnetite deposits.

It has been known for quite some time that the Warramboo area was prospective for iron.

However, the geological processes which formed the magnetite orebody that is now key in Iron Road's Central Eyre Iron Project (CEIP) have not been well understood.

In the absence of any data indicating otherwise, the magnetite deposit at Warramboo was



New data show the link between the Warramboo deposit and rocks in Antarctica

generally assumed to an iron-rich component of what is known as the Sleaford Complex, dating it at around 2,500 million years old.

Kathleen's study has found the age of the country rock - the rock that surrounds the magnetite orebody - is consistent with that of the Sleaford Complex as is typical of the Gawler Craton but the actual orebody is some 730 million years younger.

This age difference is significant in geological terms and would indicate that the "walls" of the orebody define a boundary within which a high temperature, high pressure process created an iron-rich formation.

Kathleen said: "The Warramboo magnetite deposit is a unique iron ore deposit that is older and very different to the more well-known uranium-iron-oxide-copper-gold

deposits found in the Gawler Craton at Olympic Dam and Prominent Hill.

“The orebody is part of a group of rocks that were previously unknown in this part of South Australia.

“It is a window into a time we know very little about.”

The study has shown that the magnetite orebody at Warramboe underwent a transformation process between 1,700 and 1,735 million years ago which link the formation with what is known as the Price Metasediments.

The Price Metasediments are iron-rich mudstones that are exposed along the western edge of lower Eyre Peninsula on Price Island near Coffin Bay.

Where the findings get really interesting is the possible link between Kathleen’s current PhD work and a study carried out by Oliver and Fanning in 1997.

Their work showed a correlation between samples taken at either side of the Southern Ocean, at Cape

Hunter on the coast of Antarctica and Price Island off South Australia. Oliver and Fanning believed the rocks at Cape Hunter were once connected to Price Island when the Australasian and Antarctic continents were joined.

Kathleen’s new data show that the Warramboe deposit, Price Metasediments and the rocks of Cape Hunter are all part of the same group of rocks, once covering a much larger area of Antarctica and the Eyre Peninsula, including Warramboe and possibly further.

Kathleen’s work is due to be completed in 2015, when she hopes to better understand and model the transformation conditions and formation process that created the orebody at Warramboe.

On a broader scale, it is expected that this project will raise the profile of South Australian geology generally and the unique, world-class magnetite resource at Warramboe. It is also likely to generate significant interest among scientists.



**University of
Adelaide PhD
student
Kathleen Lane**



Have a safe & happy Christmas

From all at Iron Road, we would like to wish everyone a very merry Christmas and all the best for 2015.

For those lucky enough to have time off, enjoy precious time with family and friends and please take extra care on the roads over the festive season.

We would like to thank everyone in the community for their ongoing contribution to the CEIP, especially those who have volunteered their time to get involved in the CCC and other community forums.

Everyone’s input and feedback throughout the year is very much appreciated and valued.

We look forward to continuing our work with the community next year.



Adelaide office is having a holiday too

Iron Road’s Adelaide office will be closed from close of business on Wednesday 24 December until Monday 5 January.

For urgent matters during this period, please call our 24-hour toll-free line on 1800 176 008.