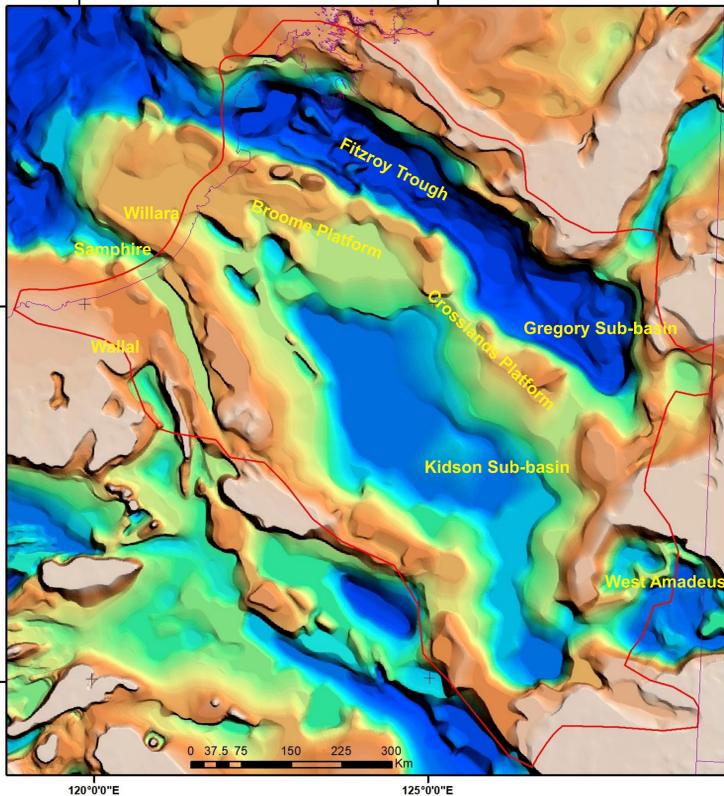
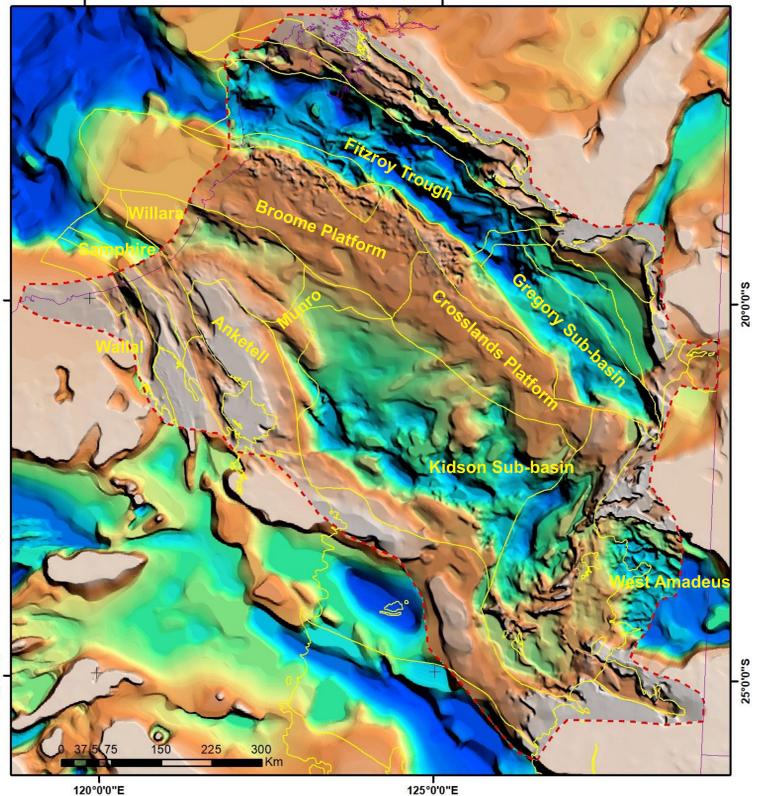


# SEEBASE PROJECT CANNING BASIN



Depth to basement of the Canning Basin from SEEBASE 2005



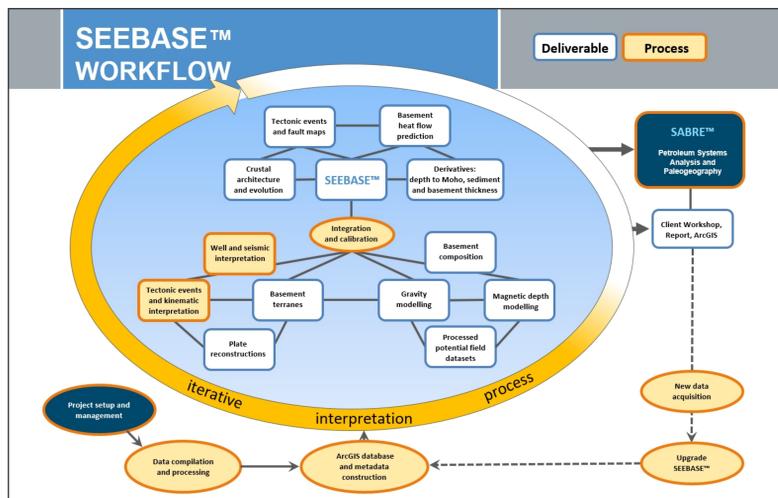
Preliminary results of the depth to basement Canning Basin SEEBASE 2017 project

In 2005, Frogtech Geoscience completed a Structurally Enhanced view of Economic BASEment (SEEBASE) project with a continental-scale depth-to-basement grid across Australia. This study of multi-discipline geoscientific data has become a signature project to show the distribution of sedimentary basins and the depth-to-basement structural model.

Following the acquisition of new potential field datasets and seismic profile in the Canning Basin, the Geological Survey of Western Australia (GSWA) contracted Frogtech to revise the SEEBASE model of the Canning Basin, with extension over the west Amadeus Basin.

This project aims to enhance the understanding of the basement topography by analysing the kinematics of key basin forming events and interpreting potential field data.

## Workflow



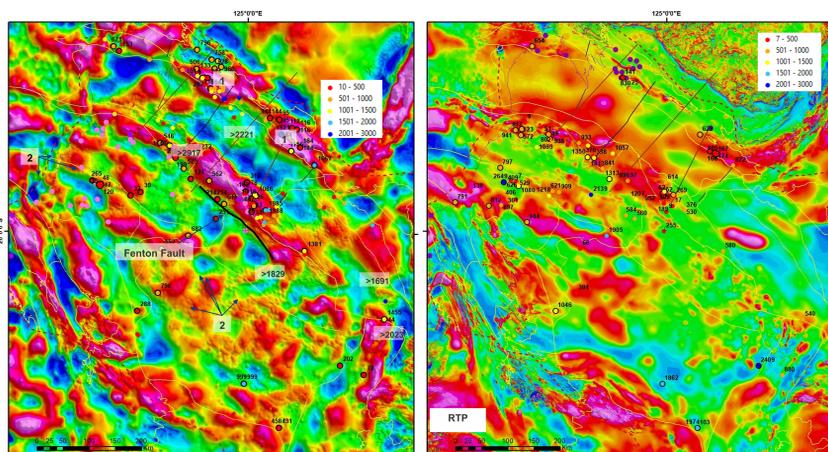
SEEBASE project workflow showing compilation, processing, integration and interpretation of geophysical and geological datasets to produce a hand-contoured, depth-to-basement grid and structural model.

## Geophysical processing and enhancements

In order to better interpret the potential field datasets, the project extract a number of enhancements customised to the datasets and the geology of the project area.

These enhancements include:

- Bouguer Gravity
- 1st vertical derivative of Bouguer Gravity
- Low pass filters (100 km, 200 km, 300 km)
- High pass filters (100 km, 200 km, 300 km)
- Isostatic regional and residual
- Frogtech proprietary filters
- Frogtech Ternary Images of Bouguer Gravity.
- Total magnetic intensity (TMI)
- Reduction to the Pole (RTP) of TMI
- High pass and Low pass filters as relevant for the data
- Frogtech Ternary Images of proprietary filters



Processed bouguer gravity, superimposed by thickness of Devonian at wells

Processed total magnetic intensity, superimposed by thickness of Ordovician at wells

## Data interpretation

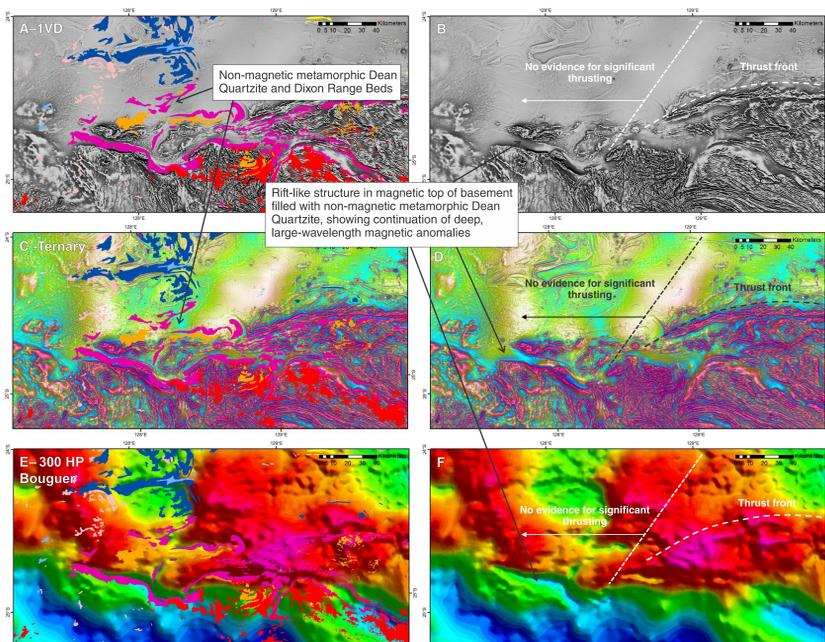
The structural interpretation of potential field data is constrained by well intersections, outcrop/surface geology and seismic cross-sections.

The basement interpretation include:

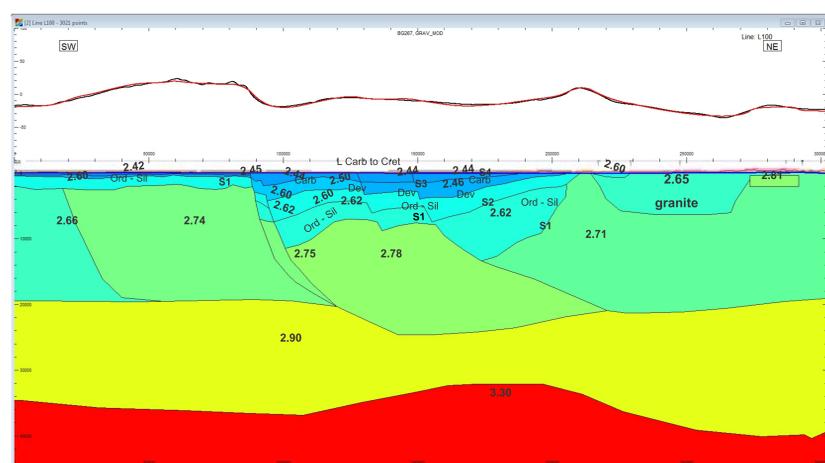
- undertaking magnetic depth modeling to constrain depth to basement
- interpreting the SEEBASE depth-to-basement model using the newly processed gravity and magnetics, and other relevant constraining datasets
- constructing two crustal-scale gravity models to test the SEEBASE and Moho models.

Derivative products from SEEBASE and Moho model include:

- total thickness of sedimentary package
- crustal thickness
- basement thickness
- $\beta$ -factor



Data interpretation in the west Amadeus Basin to the eastern margin of the Canning Basin



Gravity modelling across the Fitzroy Trough in the Canning Basin

## Deliverables

The final products include crustal-scale gravity models, magnetic depth models, SEEBASE grid/image for depth-to-basement at 1: 1 000 000 scale, and basement-derived heat flow map. The products will be publicly available for download via GSWA's eBookshop by the end of 2017.

For more details please contact Basin and Energy Geoscience group:

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