

## DATA VISUALISATION & INTEGRATION: AN UNDERGRADUATE PERSPECTIVE ON THE FRANK ARNOTT AWARD

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Over the summer of 2016/17, a team of students from the University of Adelaide were brought together to develop a unique proposal for the Frank Arnett Geophysical Challenge (<http://www.frankarnottaward.com>), with a focus on data integration and visualisation.

Geoscientific data is critical to exploration success, yet as projects move deeper under cover it is more critical than ever to maximise the value of existing data. Our challenge was to develop a means of integrating and manipulating the data to provide a clearer picture to better tell the story of the geological structures of the Gawler Craton. For this we used Wavelet Transformations to alter 2D geophysical datasets into 3D datasets using the Poisson Wavelet and to work out the Fractal Dimensions. Subsequently we were tasked with developing an innovative method of visualising that data to give a unique experience and improve interaction and comprehension of the data. This was achieved by interactively projecting data onto a 3D surface to be able to locate areas of interest and see through the subsurface to better understand the geology.

Ultimately the aim of this project is to lend itself to the exploration industry and examine new ways to approach the challenges faced by geoscientists today and tomorrow. We developed a simple method of data integration and visualisation that uses all open source programs and accessible materials.