Ross Brodie

Grahame Sands Award

Perth September 2019

CITATION:

This award is based on an endowment made by members of the ASEG and the geoscience profession in memory of the late Grahame Sands, who was tragically killed at the prime of his life in an aircraft accident in 1986, whilst developing and testing new equipment for geophysical survey aircraft. Because of Grahame's abilities to turn scientific theory into innovative application, the award is made for innovation in applied geophysics through a significant practical development of benefit to Australian exploration geophysics in the field of instrumentation, data acquisition, interpretation or theory.

The Grahame Sands Award for 2019 has been awarded to Dr Ross Brodie, in recognition of his development and innovation in geophysical modelling algorithms to provide the Australian exploration industry and government agencies with efficient and practical means to invert and image airborne EM data.

Ross graduated from Queensland University in 1990 with a Bachelor of Applied Science (First Class Honours) in Geophysics. After a brief stint with Velseis processing seismic refraction data, he joined The Bureau of Mineral Resources (now Geoscience Australia) in 1991, and subsequently followed a distinguished career as an influential government scientist and academic in designing and promoting robust methodologies for processing and displaying airborne EM geophysical data.

Ross's development of mathematically rigorous airborne EM forward and inversion codes have been instrumental in the AEM community's path toward more quantitative and systematic modelling.

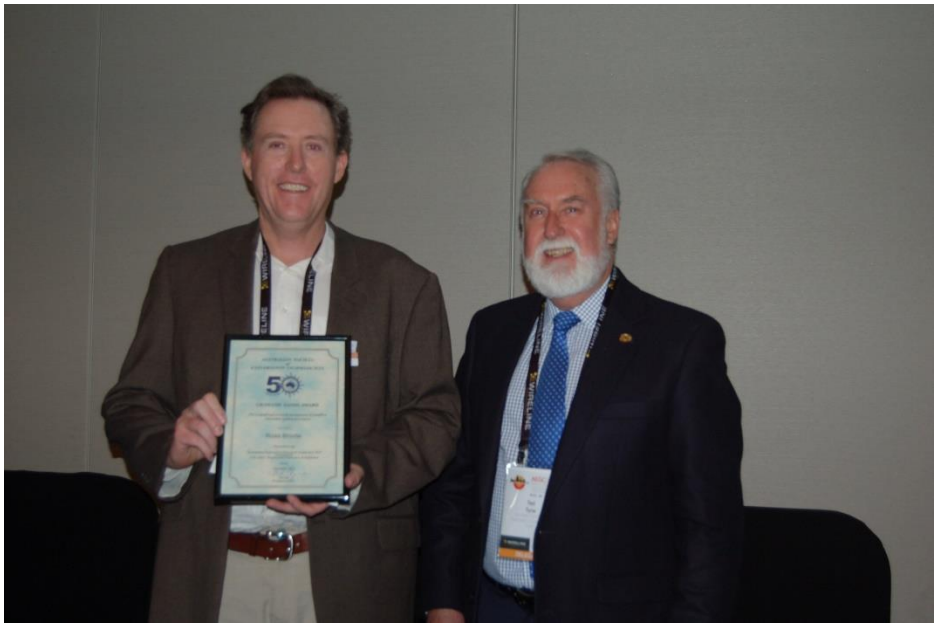
In collaboration with some of Australia's and the world's most recognised EM geophysicists, he has applied his in-depth knowledge of the technique to produce algorithms that take complex time-series number-sets to generate 'real-earth' equivalent sections. Not only adopted by industry and contractors, the methodology and process flows have been implemented in other areas, including MT and passive seismic processing.

Ross has over 46 research works and an extensive list of publications focussing on the field of Airborne EM, but also including collaborative works in regional airborne magnetics, radiometrics and other geophysical and data integration approaches. In 2010 he was awarded a PhD with a thesis entitled "Holistic inversion of Airborne Electromagnetic data" by the ANU at the Research School of Earth Sciences, under the supervision of Malcolm Sambridge.

Ross has played a leadership role in Geoscience Australia's pioneering use of Airborne EM as the next generation platform for regional resource and groundwater mapping. His knowledge and skills in the technique have set Australia up as one of the first

countries to map and model the earth's conductivity cross-section across entire geological provinces.

Ross' work has established a new standard for the geoscience community in terms of the benefits of open-source code sharing. While Airborne EM surveys grow in physical size and sampling rate, his codes remain robust and continue to take advantage of ever-increasing computer power. Ross's work has provided significant practical benefits to Australian exploration geophysics. For this contribution to the practical application of geophysical methodology in Australia, he is a worthy recipient of the ASEG Grahame Sands award.



Ross Brodie receiving the Grahame Sands award
from ASEG President Ted Tyne