Geo Scan: Multi-image techniques in Geological, Environmental and Archaeological Sciences

TIMOTHY D. MURPHY[1]

[1]MQGA, Earth and Planetary Sciences, Macquarie University, Sydney, NSW 2109 Australia: Timothy.d.murphy@mq.edu.au

A common challenge for the modern researcher or analyst is to reconcile their samples across different scales and matrices. The recent method development and laboratory investment into correlative analytical techniques at Macquarie University's Geoanalytical (MQGA) facility has lead to the project: *Geo Scan*. This project aims to promote the application of integrated, multiple *in situ* imaging techniques to provide in depth and comprehensive analysis of geological, environmental, and archaeological samples. Development of a variety of modular method/laboratory pathways has been employed, in a trial capacity at MQGA, which boasts a number of techniques to carry out combined in situ micro-analysis. This includes, but is not limited to, the combination of Optical Microscopy, micro X-ray Fluorescene (uXRF), Raman spectroscopy, Electron Probe Microanalysis (EPMA) Scanning Electron Microscopy (SEM) which includes Energy Dispersive Spectrsocopy (EDS), X-ray mapping (XRM), Particle Searching/General Search Routine (GSR), Electron Backsacattered Diffraction (EBSD) and Cathodoluminescence (CL) capabilities. Using a combination of some/all these techniques gives the user greater potential of better understanding the samples and their contexts especially with the implementation of correlative processes. This talk will focus on the current work carried out at MQGA and provide examples and work flow demonstrations of recent integrated studies conducted on Geological, Environmental and Archaeological science materials run through project *Geo Scan*.