**Climate Change, Natural Resources, and MIM: Perspectives from the macro-, to micro-scale.**

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Looking back at the Anthropocene we may well find a climate change signal recorded in the trace element and isotopic makeup of present day minerals. What would we be looking for? How did we measure it? How do we distinguish it from climatic changes that have been occurring throughout time, and maybe more to the point, what did we do about it? This actually underpins part of the stratigraphic debate surrounding the use of the term Anthropocene that is going on right now. Instrumental analysis has a huge role to play in understanding the physical and chemical behaviour of natural as well as synthetic materials, and as such we see a wide spectrum of machinery on campus applied to materials analysis.

It is worthwhile reviewing some of the drivers as well as convergence around the history and development of instrumentation (e.g. PIXE, ICP-MS, SEM, SIMS) connected with Earth materials as a number of the questions raised transcend our disciplines. Many outstanding questions and issues remain connected with, for example, element mobility, geofluids, energy production, and biominerals. These will continue to need multidisciplinary approaches at the interface of several disciplines to find working answers and solutions.