What On Earth Is This?

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The British Geological Survey at Keyworth, Nottingham, uses fully calibrated WD-XRF and ED(P)-XRF Spectrometers to determine the elemental composition of geological, environmental and related materials. Routine testing involves several stages of sample preparation prior to analysis as fused beads or pressed powder pellets with analysis times varying from a few minutes to over an hour per sample. The need for faster analysis times with minimal sample preparation became vital with introduction of XRF analysis in the field and with the completion of a new environmental monitoring facility (EMF) at the Keyworth site. Materials entering the EMF require rapid evaluation prior to routine sample preparation as they may prove to be a potential hazard to health.

For this purpose, energy dispersive XRF systems are the spectrometers of choice due to their rapid simultaneous acquisition of data. The advantage of polarised ED-XRF is in its Cartesian geometry and combinations of fluorescence and Barkla targets to optimise instrument performance. The PANalytical Epsilon5 ED(P)-XRF Spectrometer installed at BGS was supplied with '*Autoquantify*', a pre-calibrated 'turn-key' application covering a range of elements from Na to U with an analysis time of 10 -15 minutes.

To evaluate the performance of *Autoquantify*, the application was used to test over 200 reference materials, soil proficiency testing samples and in-house bulk materials presented either as pressed powder pellets or loose powders. This presentation summarises the findings of the investigation and reviews the suitability of *Autoquantify* as a tool for commissioned research.