

IBA Methods to Characterise Soil from Open Cut Mining Operations

Key Question:

- Can the soil component, related to open cut mining, be quantitatively extracted from the total fine particle air pollution mass?



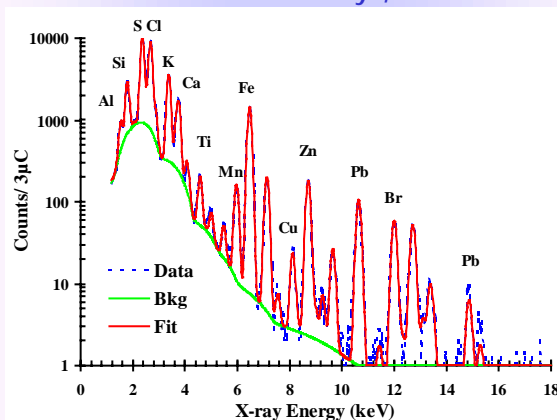
Open cut Bengalla Mine at Muswellbrook in the Hunter Valley, NSW.

Method:

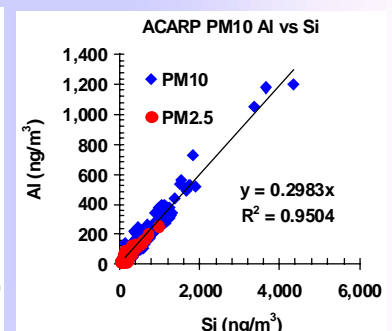
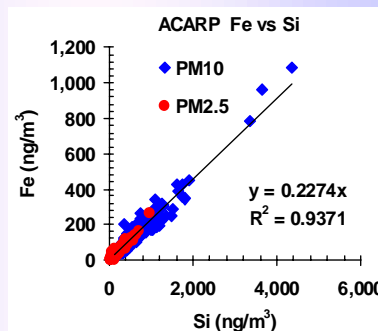
- IBA multi-elemental techniques are used to fingerprint soils emitted during blasting and mining and the source contributions to the total mass determined.



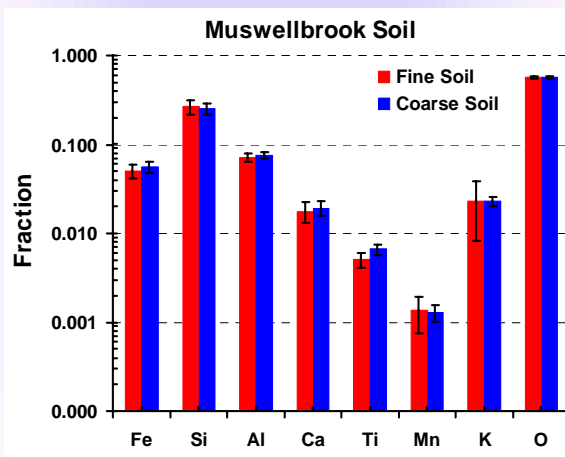
ANSTO fine particle sampler at Muswellbrook.



Typical PIXE spectrum of aerosol sample revealing soil and other trace elements present.

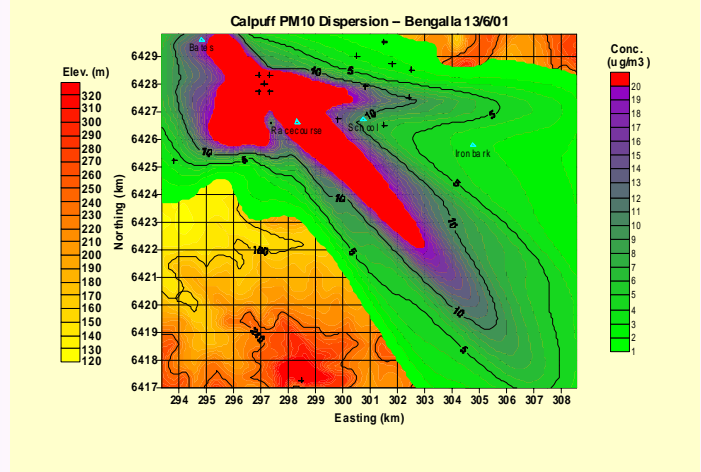


Soil elements correlate with silicon producing a unique soil fingerprint.



Average soil fingerprint for Open Cut mining in Muswellbrook.

Calpuff - 13/6/01



A model was produced that predicts the soil component and includes wind speed and direction.