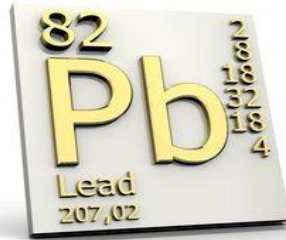


Tracing lead in the marine environment



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Lead sources and the environment



Lead paint and other sources



Household batteries

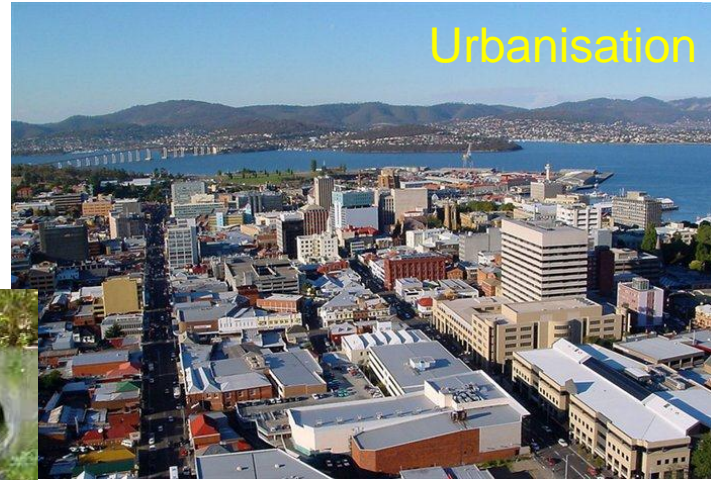


Vehicle batteries

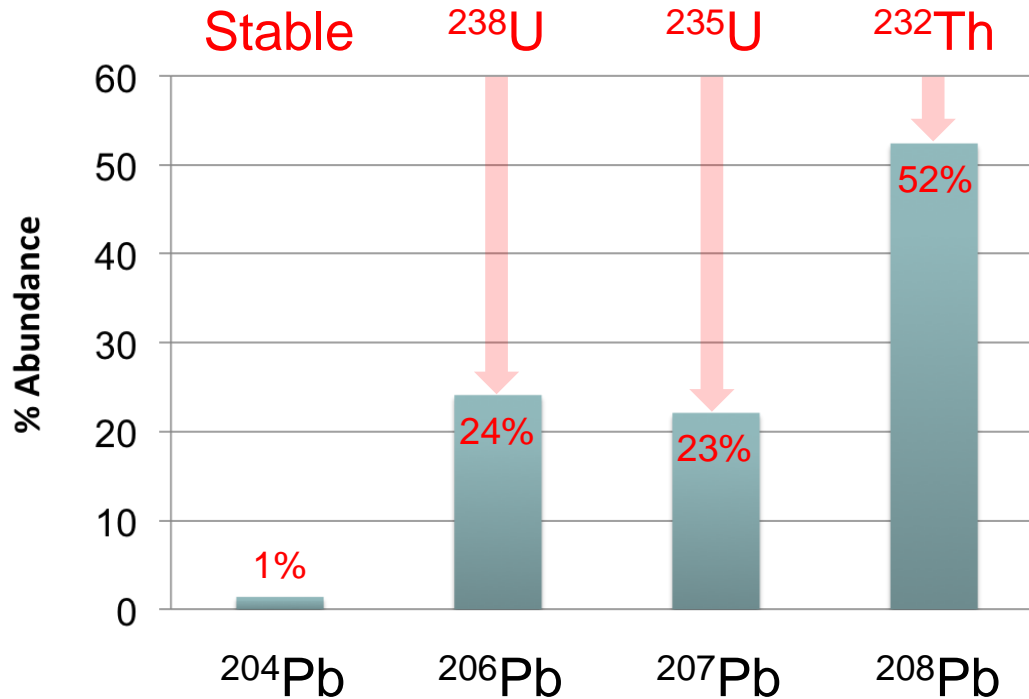


Vehicle emissions

Lead sources and the environment

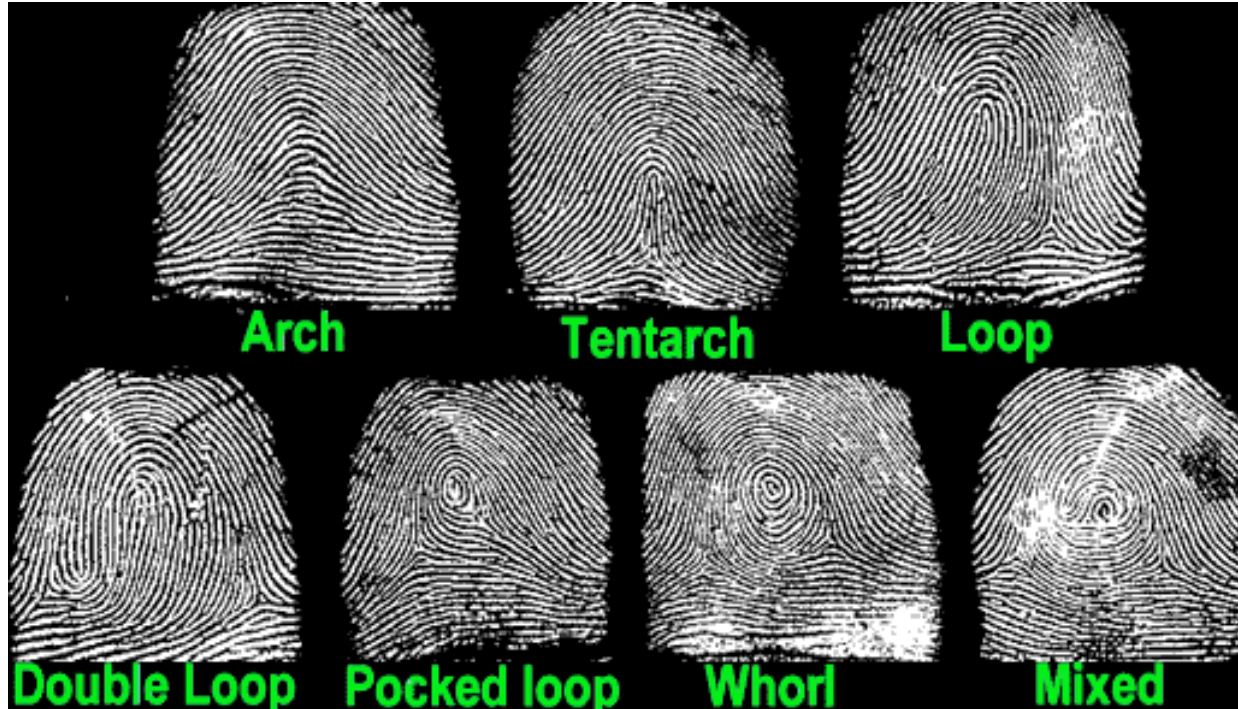


Tracing lead - unique lead fingerprints

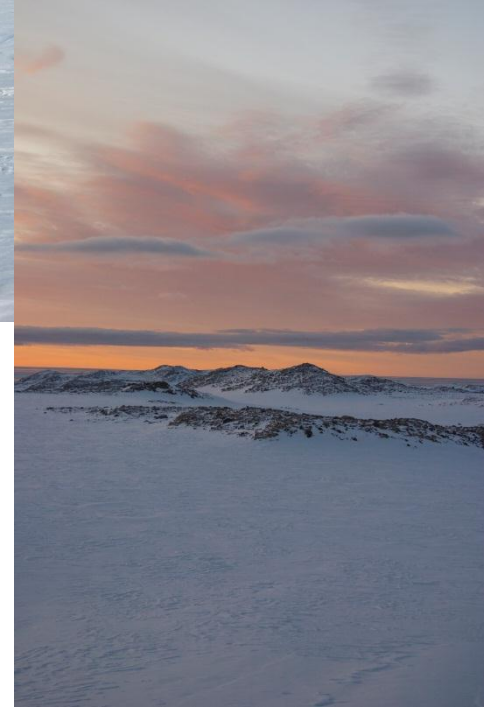


Lead isotope ratios i.e. $^{208}\text{Pb}/^{204}\text{Pb}$ or $^{206}\text{Pb}/^{207}\text{Pb}$

Tracing lead - unique lead fingerprints



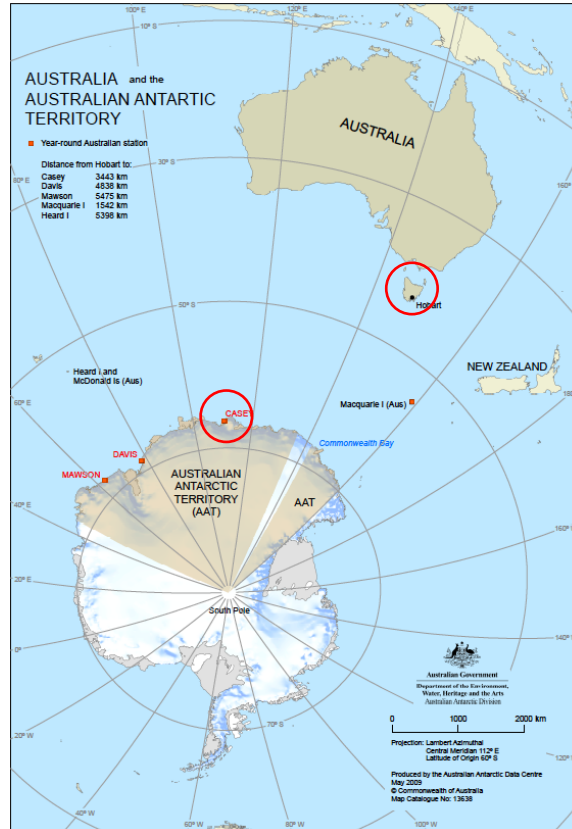
Antarctica....



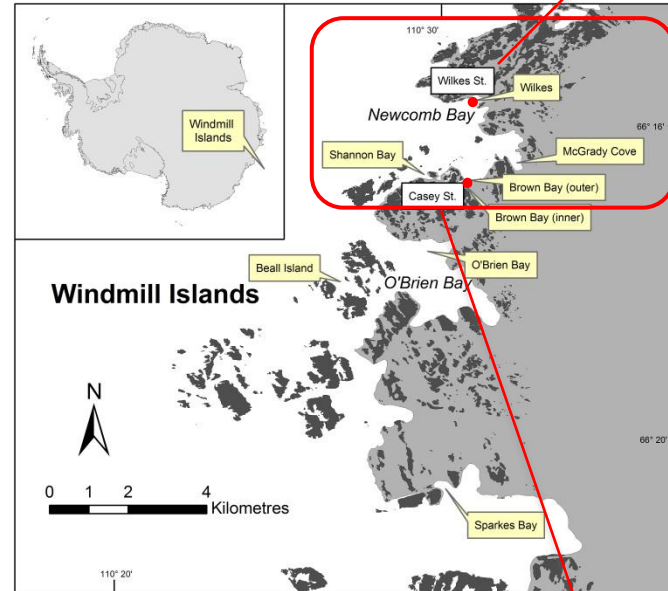
....pollution hotspots



Casey Station, East Antarctica



1957-58
(then Australia 1958-69)

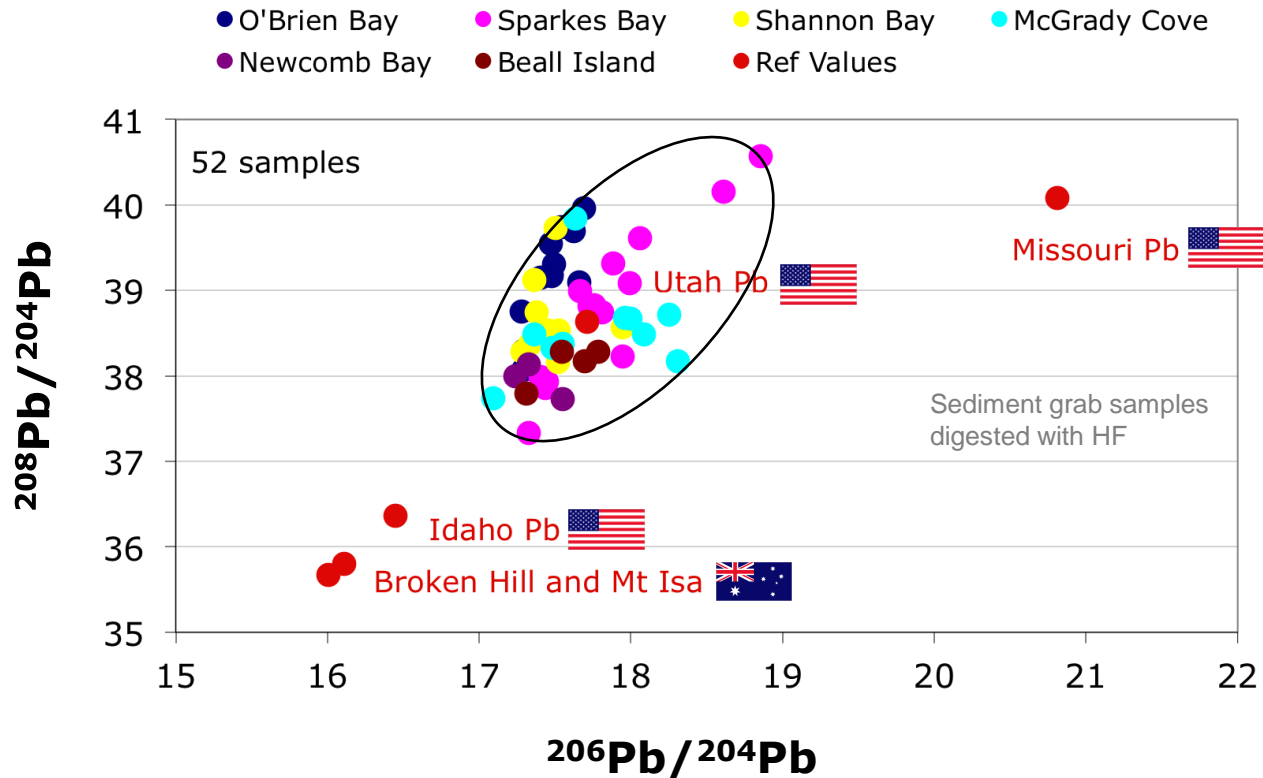


1969-

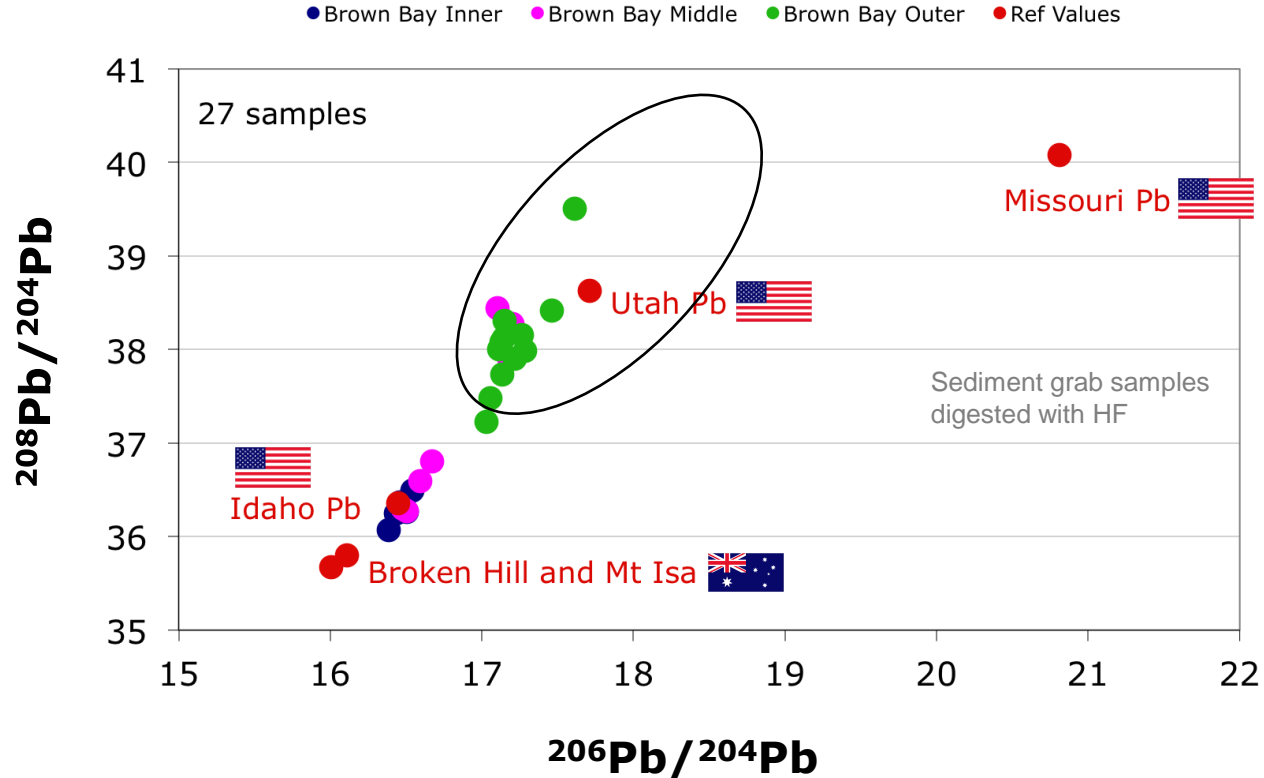


Australian Government
Department of the
Environment and Heritage
Australian Antarctic Division

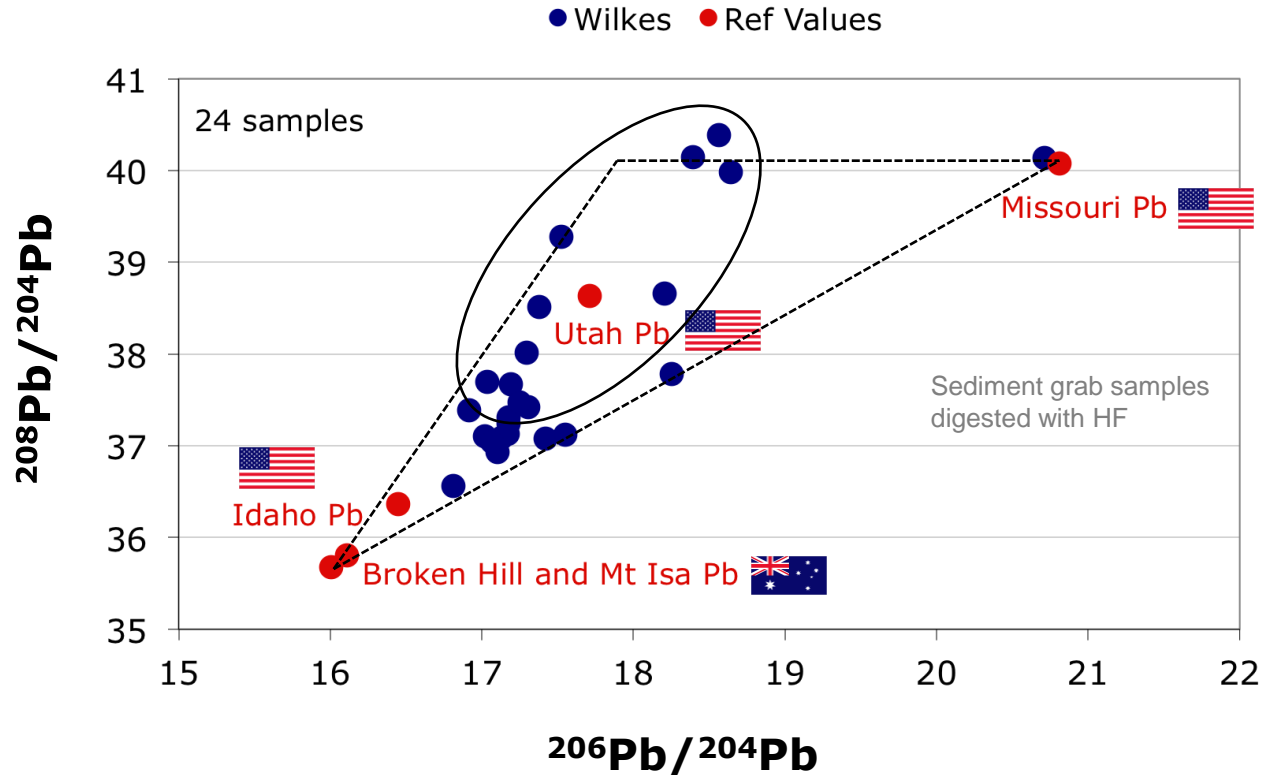
Nearby non-impacted sites - natural lead



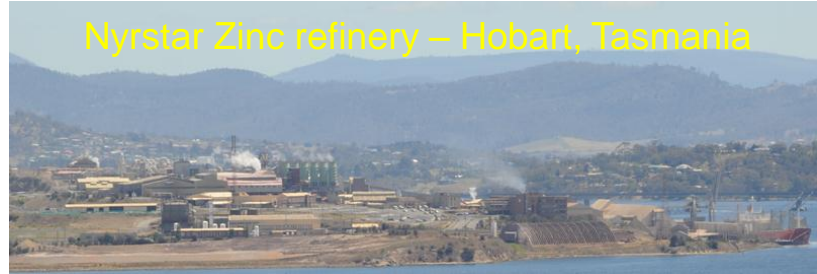
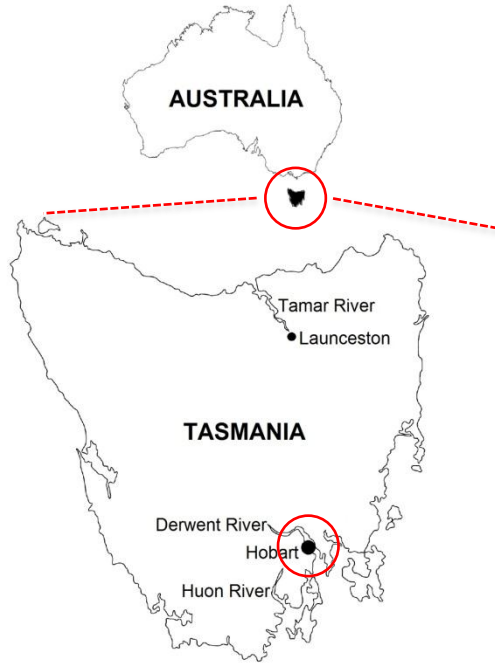
Sediments near Casey - Australian lead



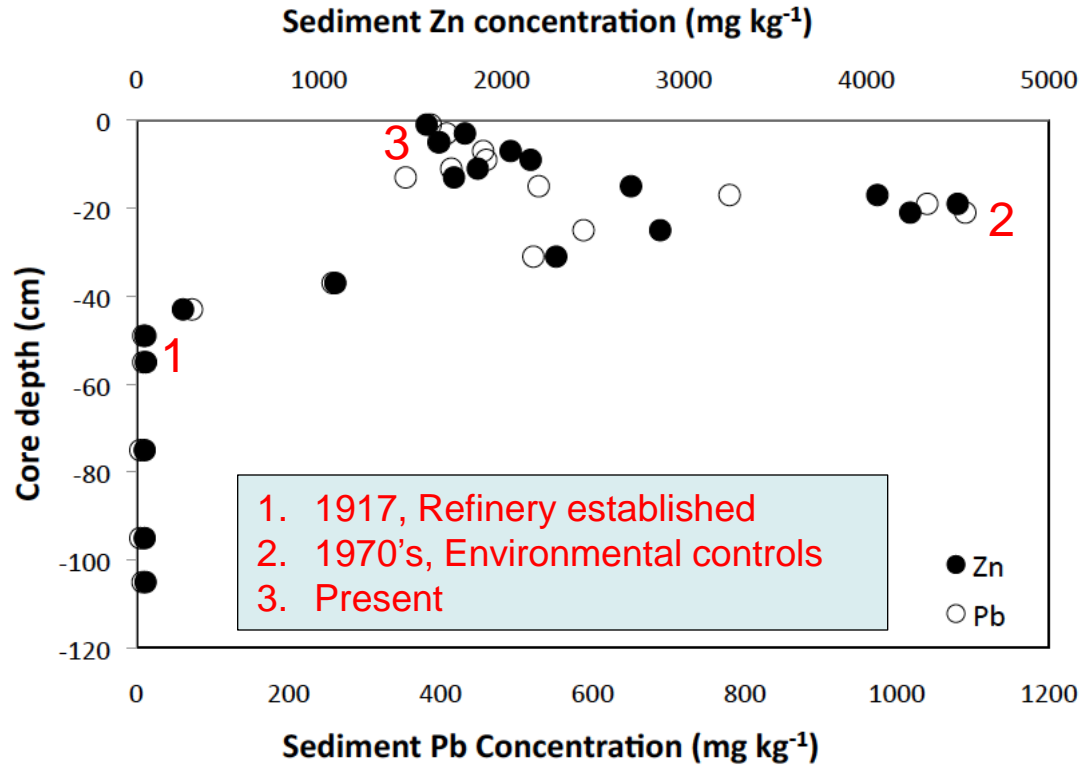
Sediments near Wilkes - US lead



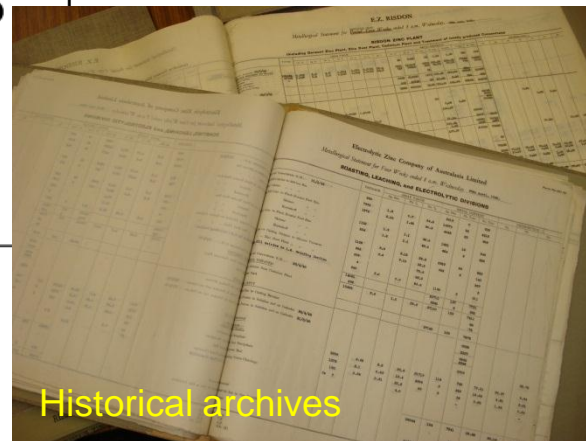
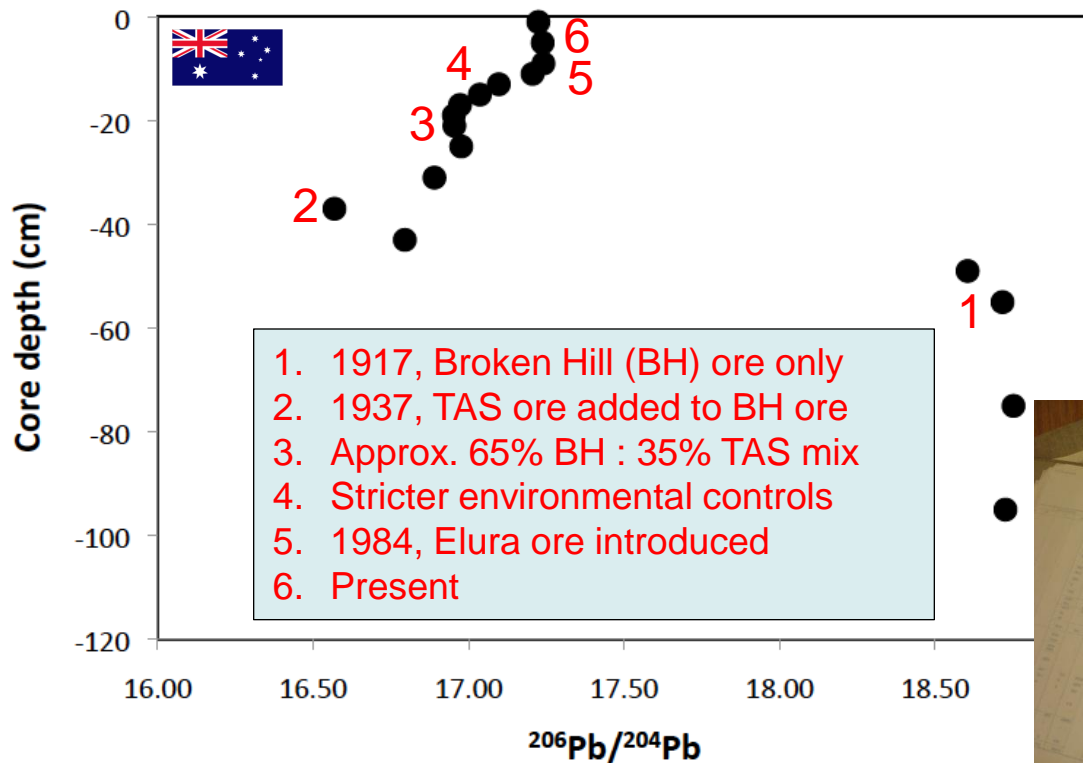
Lead isotopes as industrial source markers



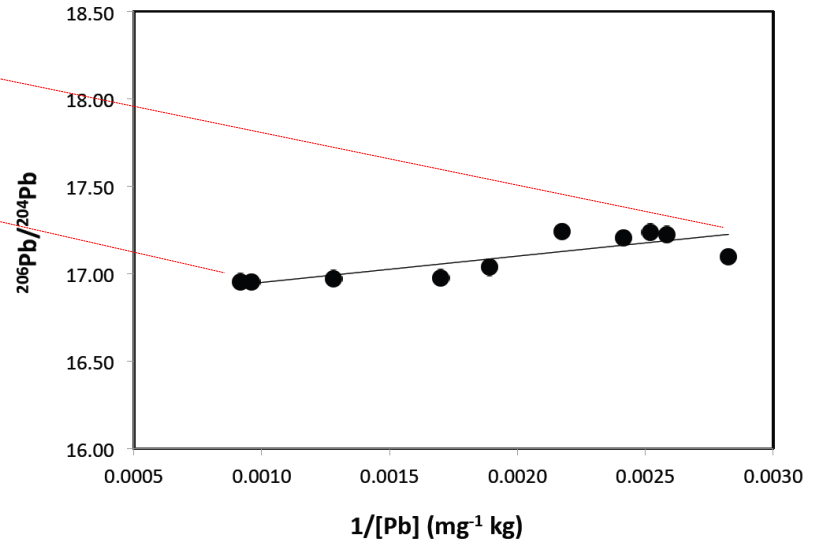
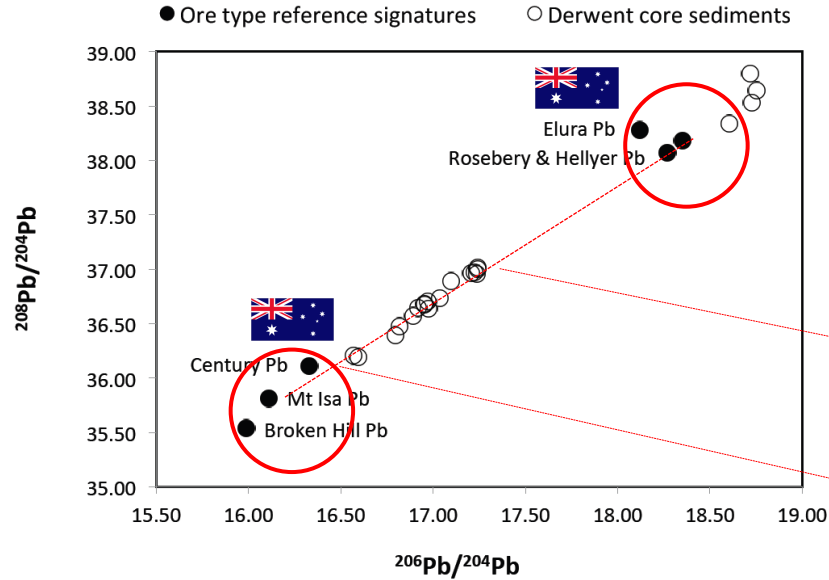
Sediment core profiles - concentrations



Sediment core profiles - Lead isotope ratios



Sediment core profiles - Lead isotope ratios





- Townsend and Snape, *J. Anal. Atomic Spectrometry*, 17 (2002) 922.
- Townsend and Snape, *Science Total Environment*, 389 (2008) 466.
- Townsend et al., *Science Total Environment*, 408 (2009) 382.
- Runcie, Townsend and Seen, *Marine Pollution Bulletin*, 58 (2009) 961.
- Townsend and Seen, *Science Total Environment*, 424 (2012) 153.