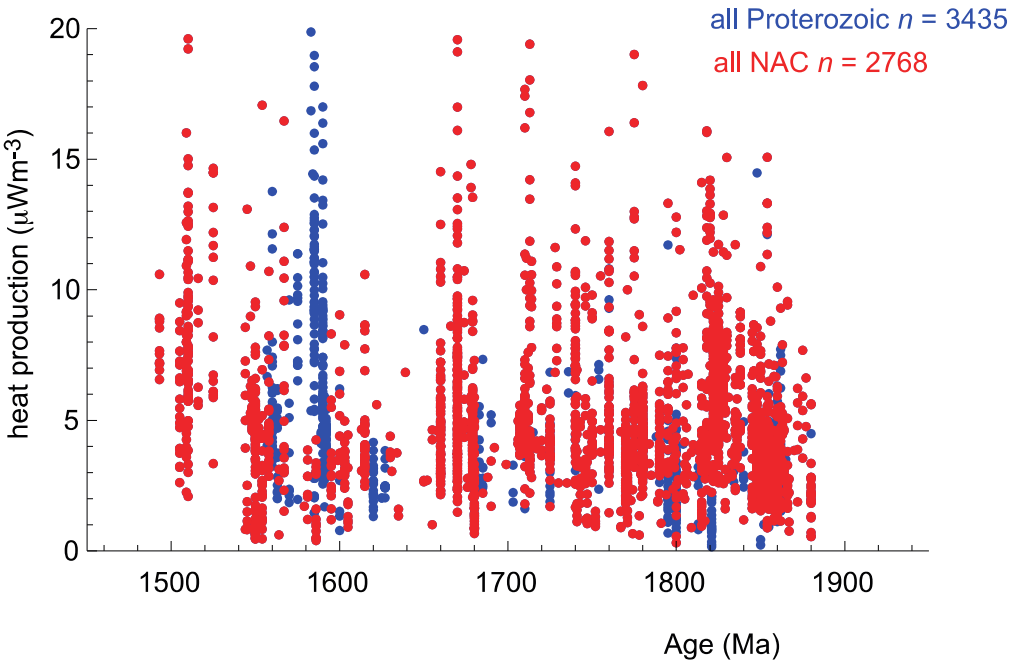
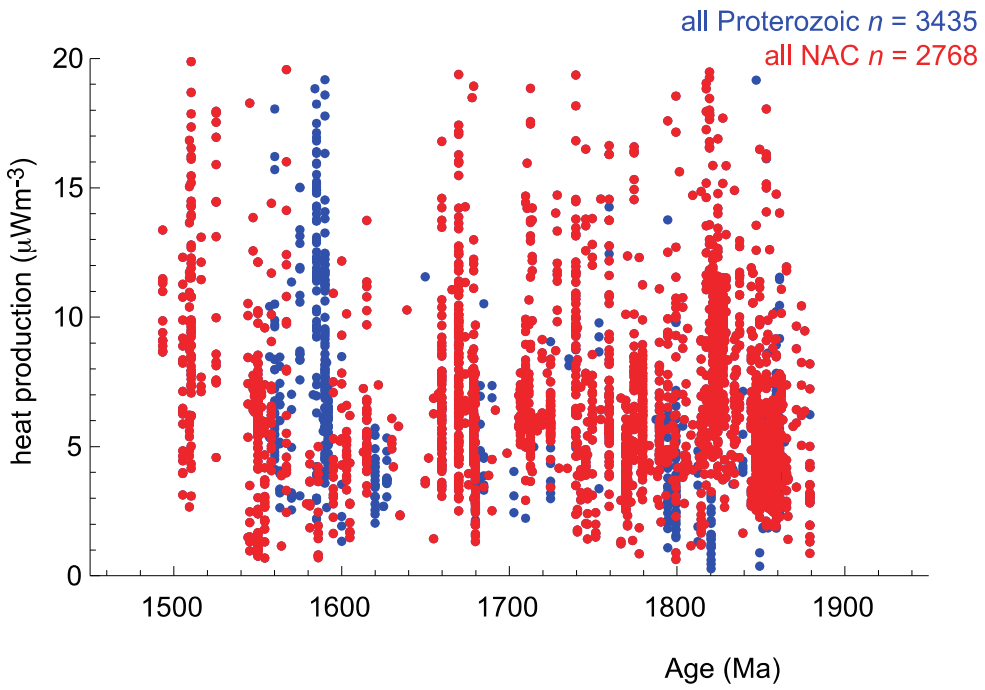
Magmatism, orogeny and the origin of high-heat-producing granites in Australian Proterozoic terranes

Sandra McLaren and Roger Powell

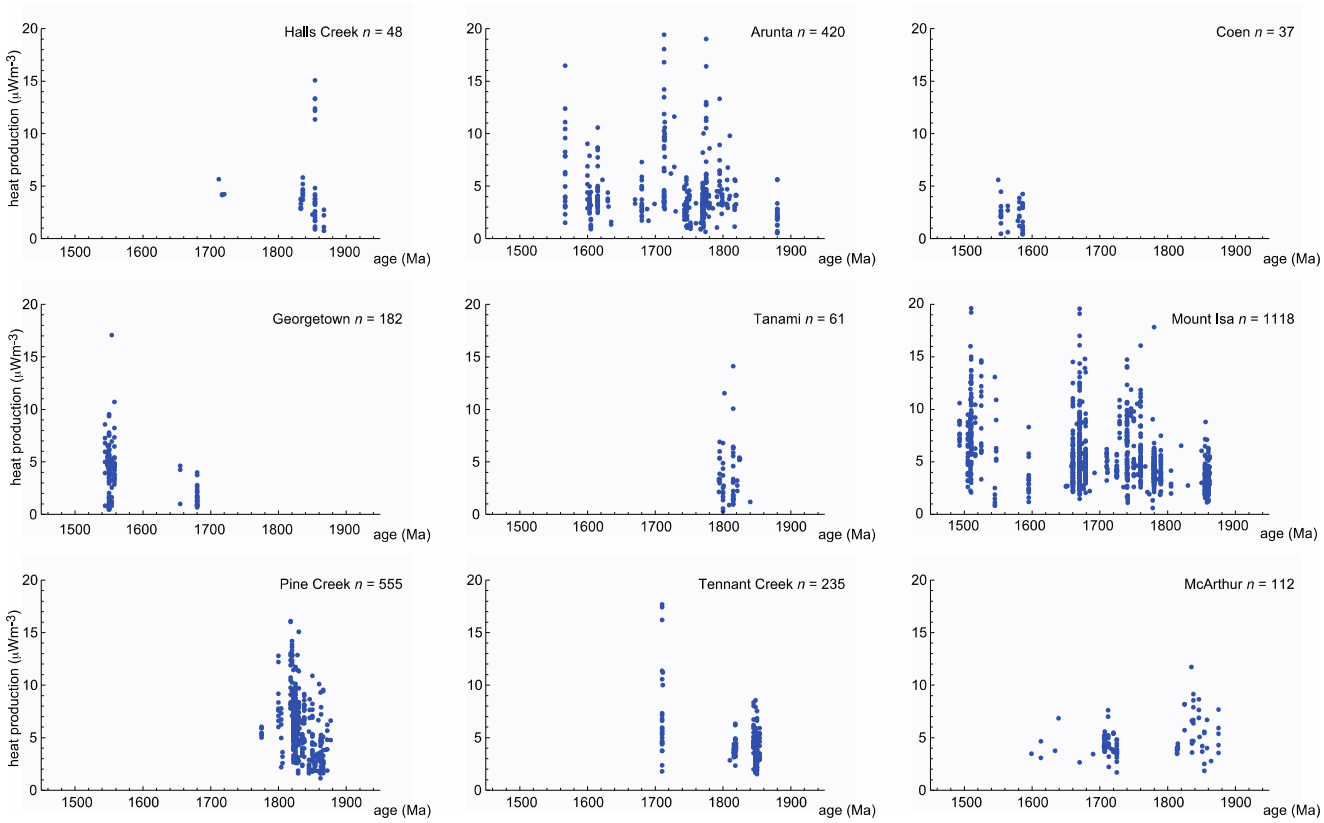
Supplementary Figures



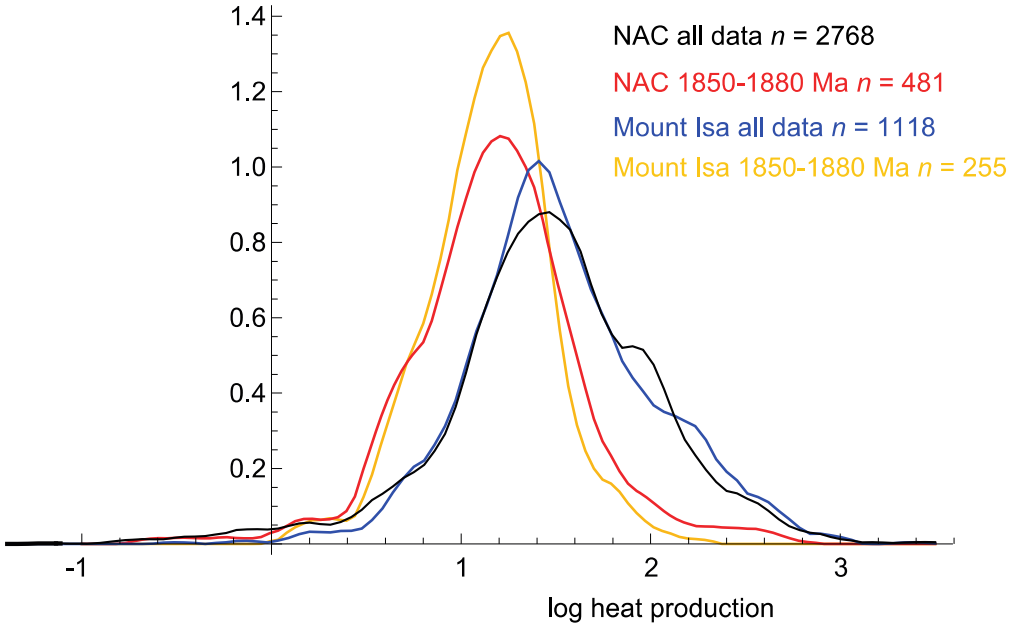
Supplementary Figure S1a – Age and calculated heat production (μWm^{-3}) data for all Australian Proterozoic granitic rocks; rocks from terranes of the North Australian Craton (NAC) are indicated in red; *n* = number of analyses. The only significant difference between the datasets is the absence of high-heat-producing rocks in the age range 1580-1600 Ma from the NAC dataset; these analyses are from the Gawler Craton, part of the South Australian Craton (SAC; Myers et al., 1996). All heat production values are calculated *for the present day*.



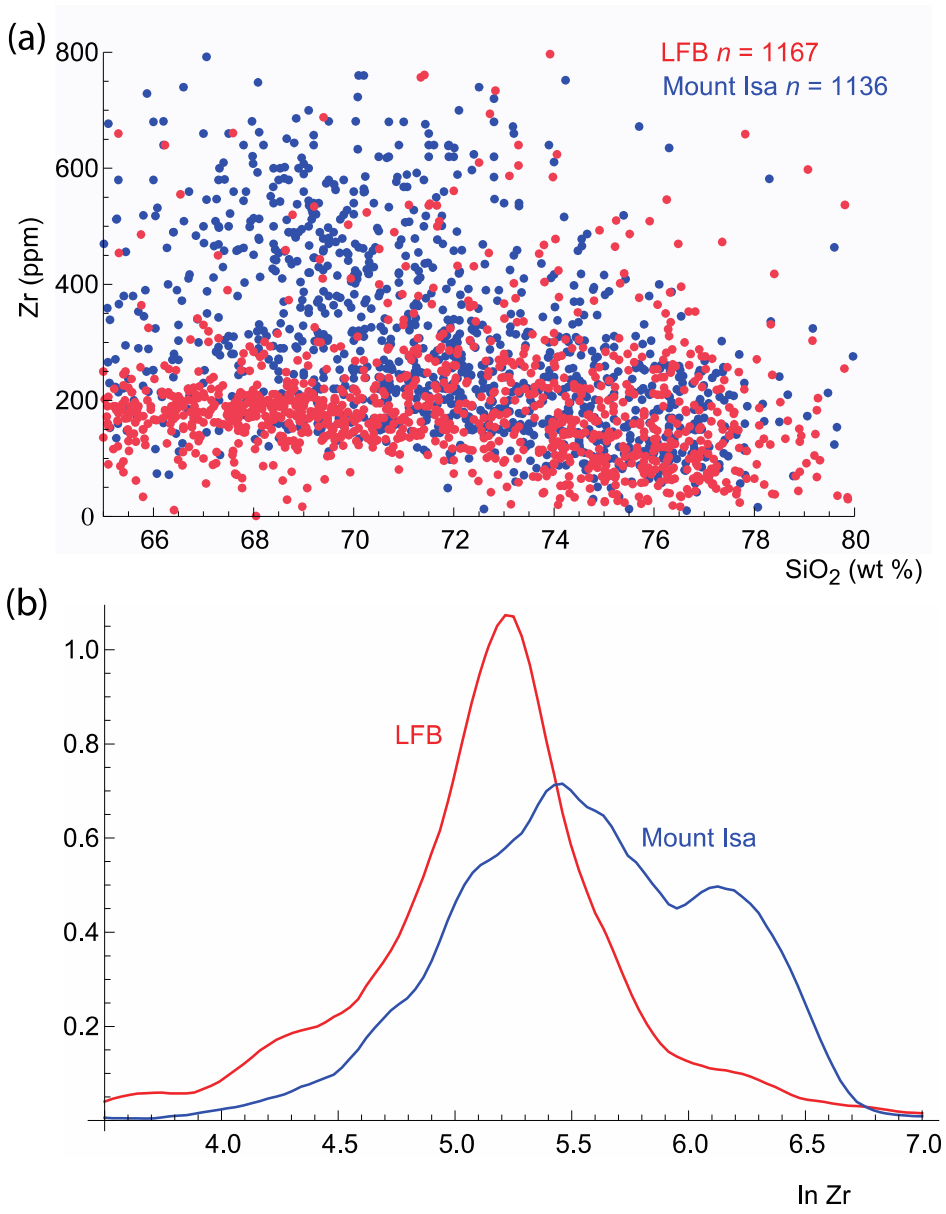
Supplementary Figure S1b – Age and calculated heat production (μWm^{-3}) data for all Australian Proterozoic granitic rocks. To illustrate the impact of radiogenic decay over time, here all heat production values are calculated *for the time of intrusion* of the granites.



Supplementary Figure S2 – Age and calculated heat production data (μWm^{-3}) for individual terranes of the NAC; *n* = number of analyses. Terrane locations shown in Figure 1 of main text. All heat production values are calculated for the present day.



Supplementary Figure S3 – Comparison of the range and distribution of calculated heat production of granitic rocks within the NAC and within the Mount Isa Inlier. Note that Kernel curves, rather than histograms, are preferred here. They were calculated using an Epanechnikov kernel and a smoothing parameter of 0.2 (Wand and Jones, 1995). All heat production values are calculated for the *present day*.



Supplementary Figure S4 – (a) Zr v. SiO_2 data for all granites of the Lachlan Fold Belt (LFB) and of the Mount Isa Inlier; (b) Kernel curves showing the range of Zr data for each dataset; kernel curves were calculated using an Epanechnikov kernel and a smoothing parameter of 0.2 (Wand and Jones, 1995). These data show that the lower range of zirconium concentrations in the Mount Isa Inlier dataset is similar to those of the LFB granites, but that – importantly – the range of the Mount Isa Inlier data extends to higher zirconium concentrations. In fact, this suggests that zircon plays a key role in processes leading to the observed heat-producing-element enrichment.