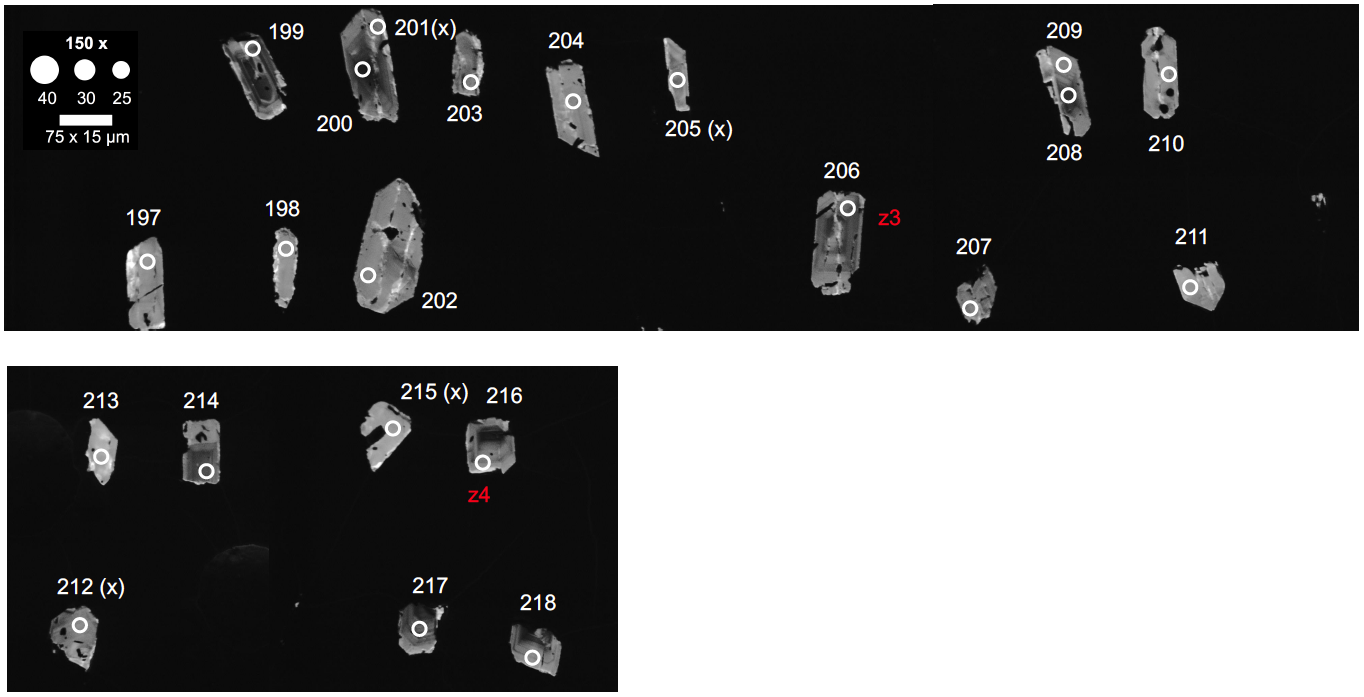
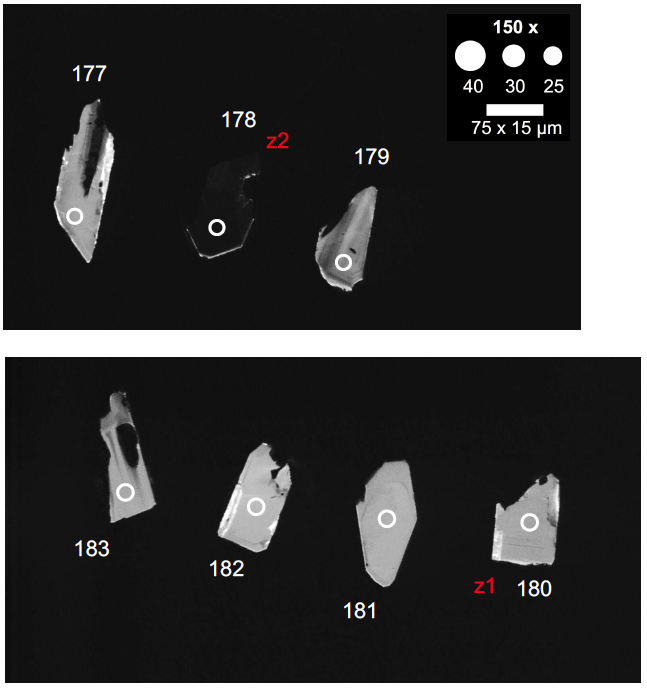
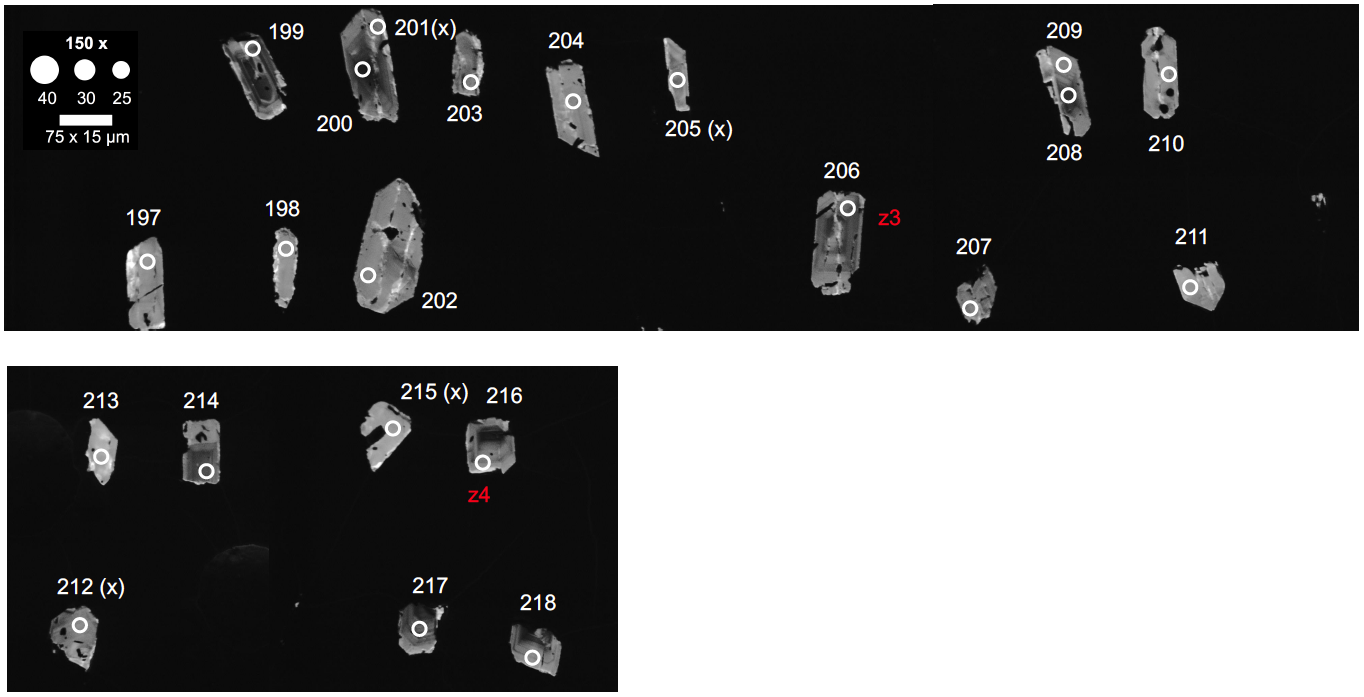
# Supplementary Data 1. Cathodolumiescence (CL) images of zircons

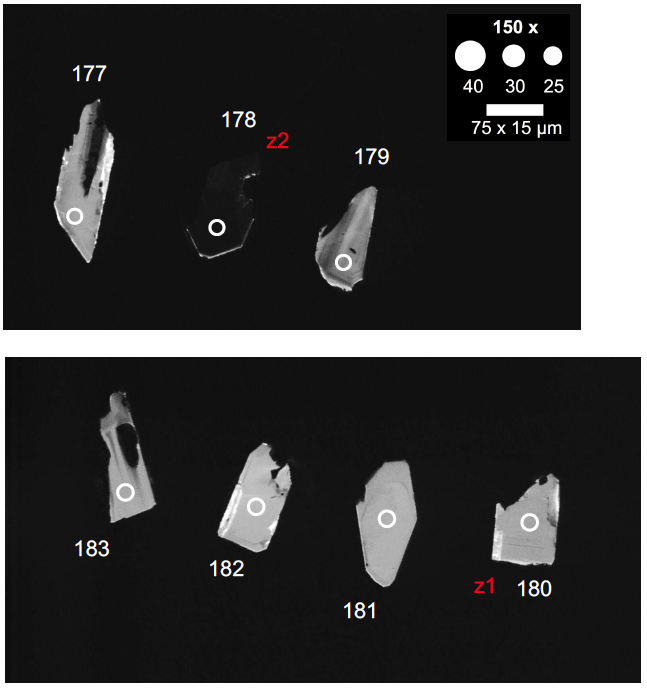
Circles are labelled according LA-ICP-MS spot (Supplementary Data 2). Zircon selected for ID-TIMS dating are denoted by ‘zX’ (Supplementary Data 2). LA spots that either burned through the crystal and into the epoxy during analysis or had a raw data spectrum that indicated inclusions were also analyzed are denoted by ‘(x)’. Data for those points are not included Supplementary Data 2.

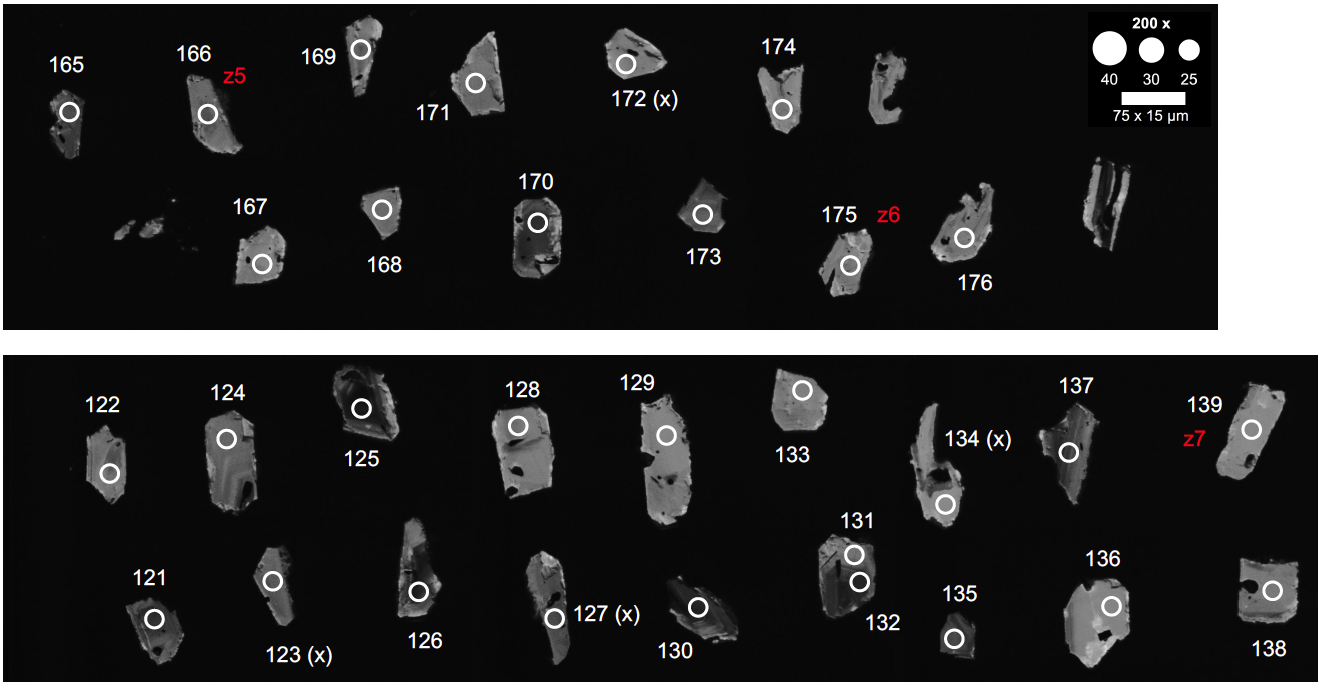
## A. Escarpment Ignimbrite (YIU99026)

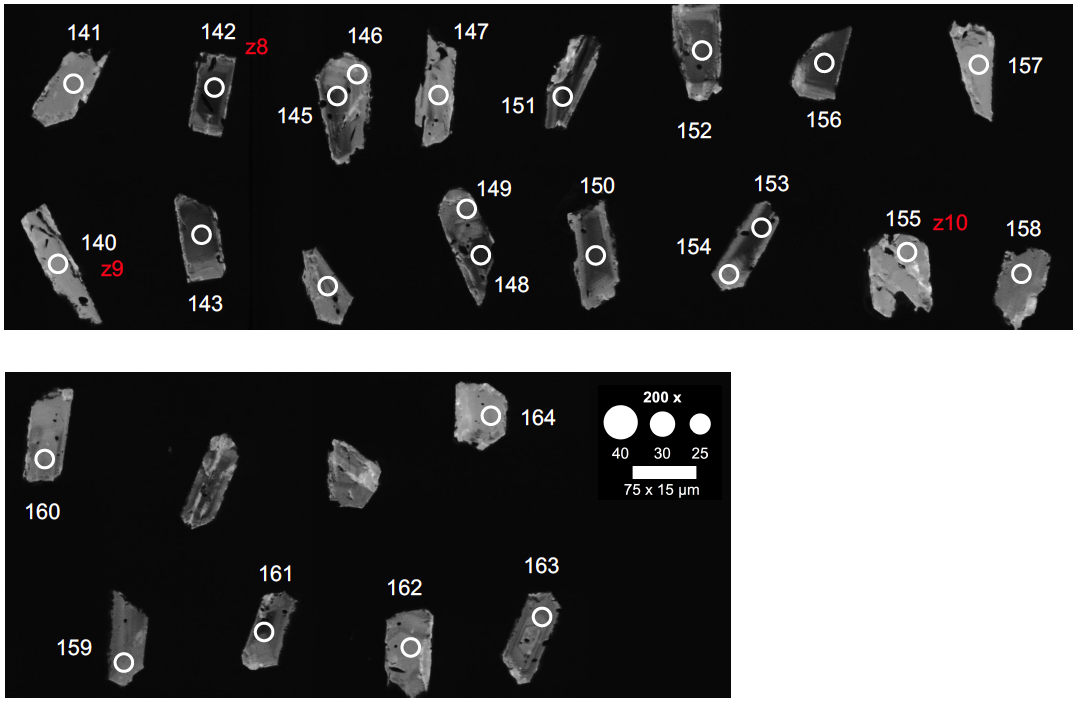




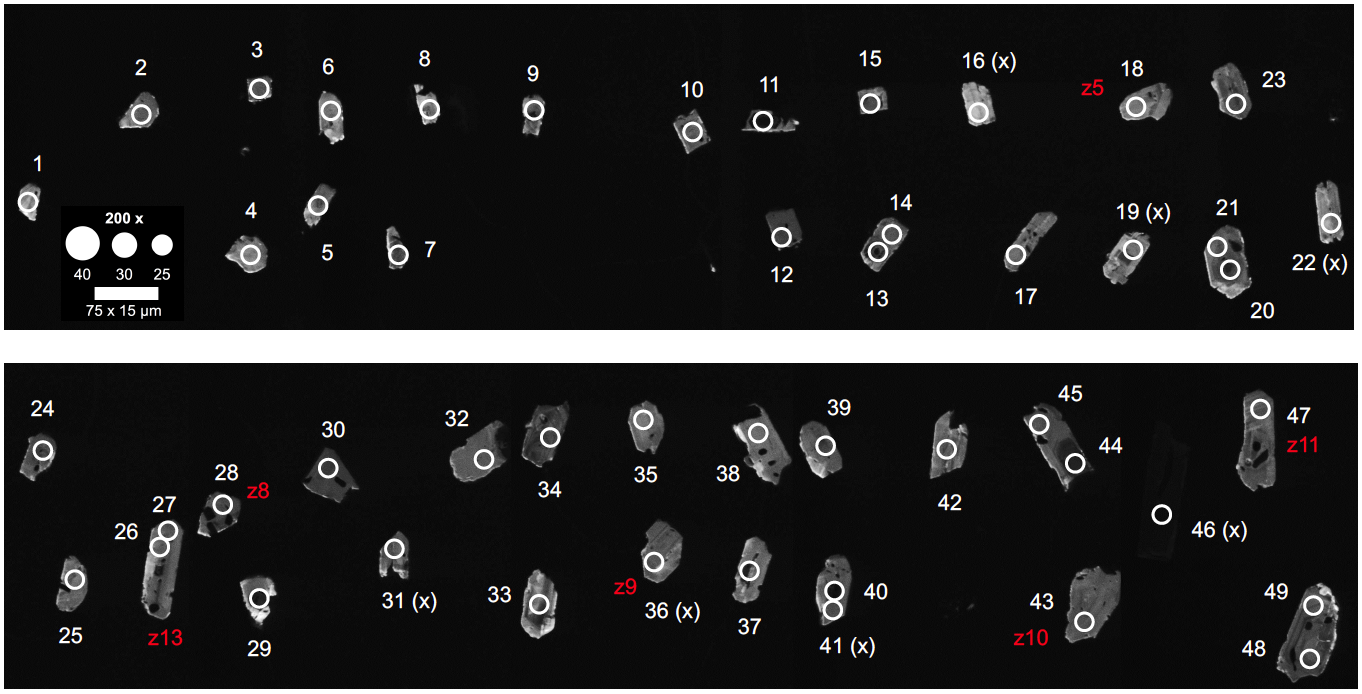


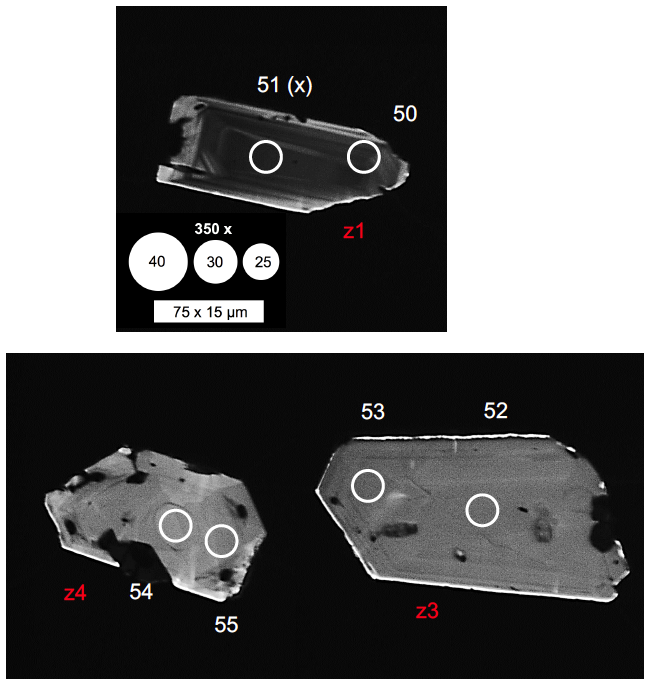




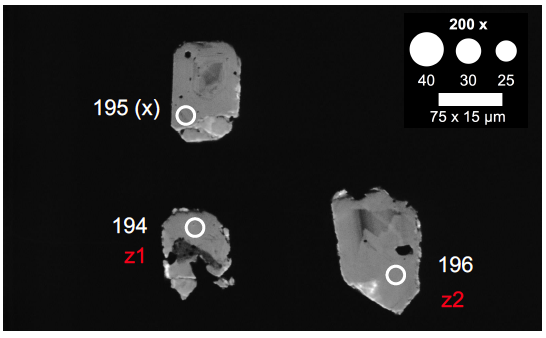


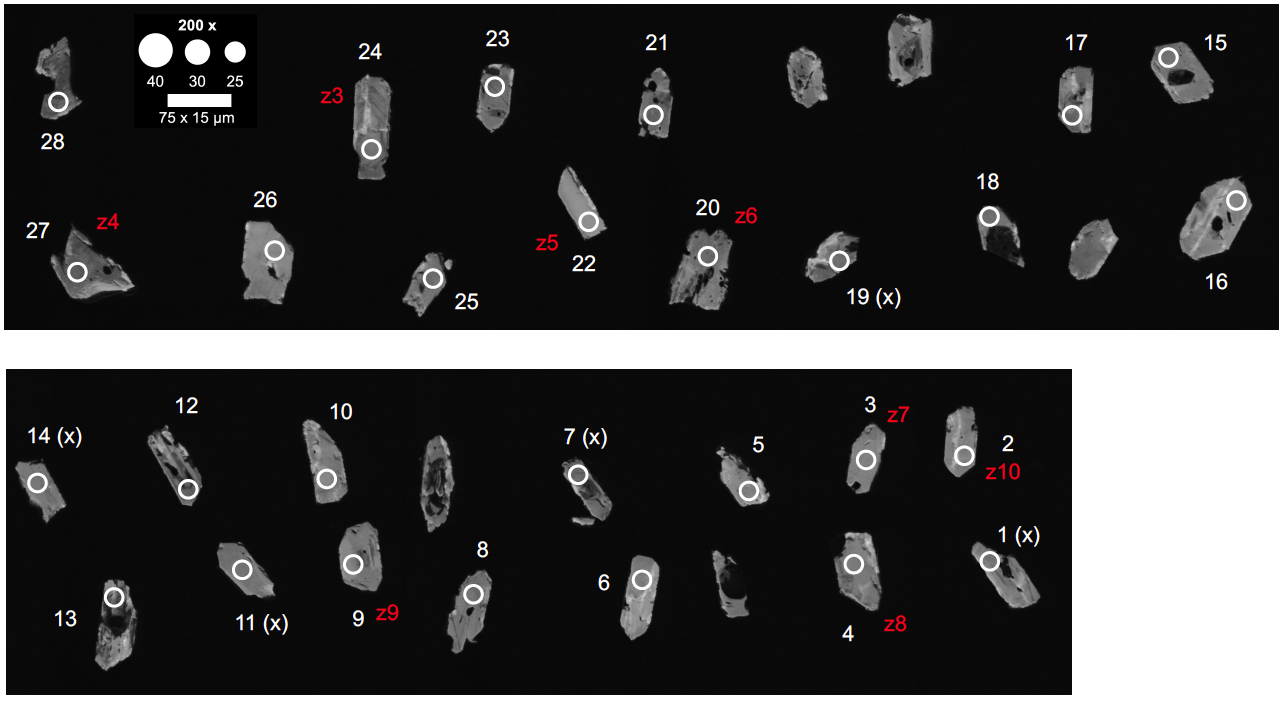
## B. Upper SAM Ignimbrite (YIU99210)





## C. Sana’a Ignimbrite (YIU99206)





## D. Iftar Alkalb (YIU99172)

