**Oxygen isotopes and U-Th-Pb dating of zircons from post-Cougar Point Tuff lavas of the Bruneau-Jarbidge eruptive center of the Yellowstone hotspot**

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The Yellowstone hotspot is characterized by magmas with both normal and light $^{16}O/^{18}O$ ratios. The production of isotopically light magmas at the Heise volcanic center and on the Yellowstone volcanic plateau appears to be associated with cycles of multiple caldera-forming eruptions that lead to deep burial and remelting of hydrothermally altered rhyolites. In the central Snake River Plain, all of the eruptive products are isotopically light, and there is no evident cyclical behavior. Low $\delta^{18}O$ magmas have also been discovered at Kamchatka, Iceland, China, and the Karelian rift, suggesting that this is not a localized occurrence. Determining the cause of this occurrence is important, as it could reveal processes that ultimately lead to volcanic eruptions. We report here the results of oxygen isotopic analyses and U-Th-Pb dating on single crystals of zircon from 11-8 Ma lavas from the Bruneau-Jarbidge eruptive center (BJEC) that mostly post-date the large-volume ignimbrites of the Cougar Point Tuff (12.8-10.5 Ma). Zircons were separated from thirteen lavas to analyze for $\delta^{18}O$, ages, and Ti-in-zircon thermometry. 109 zircons were analyzed with the Cameca IMS-1280 ion microprobe at the University of Wisconsin to determine $\delta^{18}O$ of cores, rims, and interiors. U-Th-Pb ages for zircon spots previously analyzed for oxygen were determined on the Stanford SHRIMP together with trace element analyses including Ti. All $\delta^{18}O$ analyzes average 1.47 $^{o}/_{oo}$, with values ranging from -3.41 $^{o}/_{oo}$ up to 8.10 $^{o}/_{oo}$. Rims of zircons have a larger range in values (1.58 standard deviation) than cores (1.39 standard deviation), opposite from explosive members of the Cougar Point Tuff (CPT). The combination of data from the CPT and the younger lavas suggest that the $\delta^{18}O$ value of the magmatic system began with an average value just over 2 $^{o}/_{oo}$ with the first eruption of CPT III; the system then dropped to an average value closer to 0 $^{o}/_{oo}$ around 11 Ma, and later recovered to an average value around 2 $^{o}/_{oo}$ at the end stages of the BJEC. This indicates that from the beginning of the development of the CPT all the way through the eruption of the lavas, the BJEC continued to produce low $\delta^{18}O$ products. Ti-in-zircon temperatures average 930 °C, with values as low as 817 °C and as high as 996 °C. These values indicate the high sustained temperature of the magma system, even following the large-volume eruptions of the ten members of the CPT. There does not appear to be any systematic correlation between temperature and time through the eruption of the rhyolite units, except for the continuation of high temperatures. Findings from this study indicate that a continually $^{18}O$ depleted and hot eruptive center persisted in the central Snake River Plain from 12.8 to 8 Ma.