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W Isotopic Compositions of Barberton and Pilbara Komatiites and Basalts

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Prior studies have reported small variations in $^{182}\text{W}/^{184}\text{W}$ ($t_{1/2}=8.9$ Myr) for >2.4 Ga mantle-derived rocks. The frequency of these variations, and the process(es) responsible for their generation are not well understood. We therefore investigated the $^{182}\text{W}/^{184}\text{W}$ of komatiites and basalts from the Weltevreden (3.3 Ga) and Komati (3.5 Ga) formations of the Barberton Greenstone belt, as well as the Ruth Well (3.3 Ga) and Warrawoona (3.4 Ga) formations of the Pilbara Craton.

Consistent with previously reported results, the $\mu^{182}\text{W}$ (part per million deviations of $^{182}\text{W}/^{184}\text{W}$ from terrestrial standards) of komatiites from the Komati and Weltevreden formations are not resolved from standards. By contrast, the $\mu^{182}\text{W}$ values of Pilbara mafic volcanics are *ca.* +15 for the Warrawoona and Ruth Well formations. The $\mu^{182}\text{W}$ provide additional evidence that some early formed mantle reservoirs were preserved for billions of years. Data for highly siderophile element abundances, as well as $^{142,143}\text{Nd}$ and $^{186,187}\text{Os}$ isotopic systematics will be obtained in the future to provide further constraints.

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