**PROJECTILE IDENTIFICATION IN AUSTRALASIAN MICROTEKTITES USING Cr, Co AND Ni RATIOS.**

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The nature of the projectile that generated the Australasian tektite/microtektite strewn field, i.e., the largest Cenozoic strewn field (~15% of the Earth's surface), the youngest (~0.78 Myr old) on Earth, and the only one without a known impact crater so far, is an outstanding issue in large-scale impact cratering study.

We identify a chondritic impactor signature, most likely of an LL chondrite, in Australasian microtektites based on Co/Ni vs Cr/Ni ratios in 77 Australasian microtektites from within 3000 km from the hypothetical impact location in Indochina (~17°N, 107°E) (Fig. 1). Together with previous evidence from the ~35 Myr old Popigai and Chesapeake Bay ejecta [9], our finding suggests that at least three of the five known Cenozoic distal impact ejecta layers were generated by the impacts of stony asteroids of chondritic composition, and most likely of ordinary chondritic composition. The impactor signature found in Australasian microtektites documents mixing of target and projectile melts upon impact cratering, lending support to the impact cratering rather than to the low-altitude airburst scenarios discussed in the literature as the process that formed the Australasian tektite/microtektites.

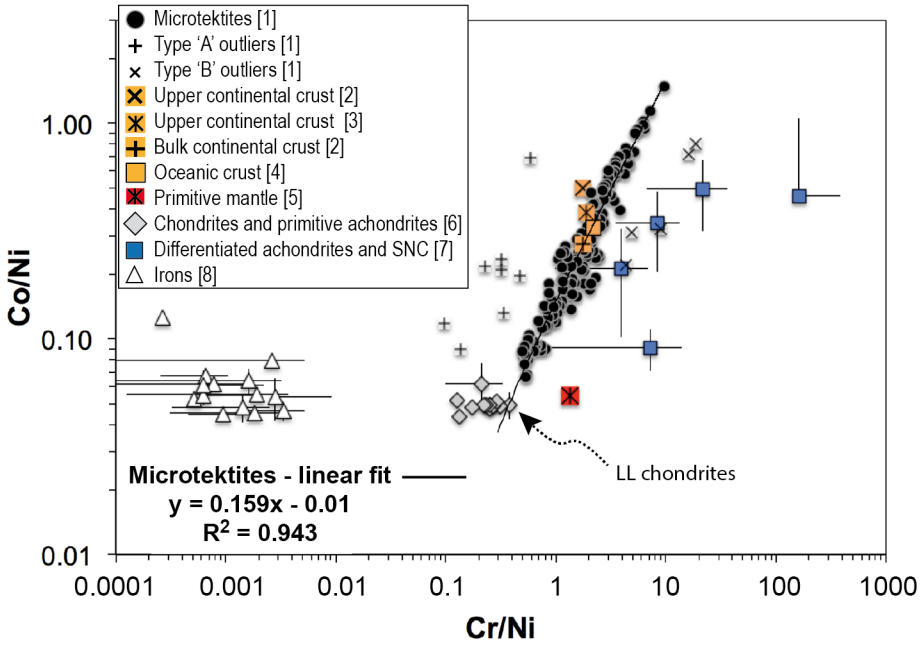


**Fig. 1.** Cobalt/Ni versus Cr/Ni plots for normal and high-Ni Australasian microtektites (139 LA-ICP MS spot analyses from 47 microtektites studied in this work and 33 INAA bulk compositions of microtektites from literature) and terrestrial geochemical reservoirs, chondrites, achondrites and iron meteorites. About 80% Australasian microtektites define a mixing line with primitive compositions (chondrites and primitive achondrites). Type A and B outliers (not discussed here) were not used to calculate the trend line (solid black line).

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**Acknowledgements:** MIUR - *Programma Nazionale delle Ricerche in Antartide* grant PNRA16_00029.