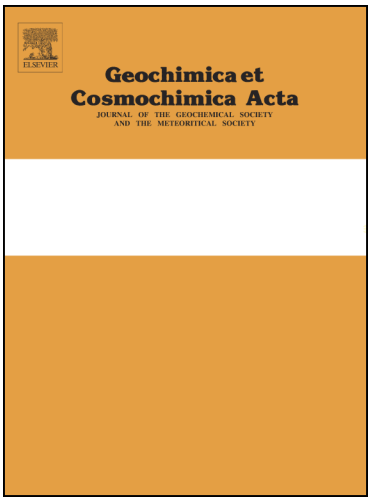

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A new type of highly-vaporized microtektite from the Transantarctic Mountains

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Abstract

We report on the discovery of microtektites (microscopic impact glass spherules) in a glacial moraine near Larkman Nunatak in the Transantarctic Mountains, Antarctica. The microtektites were identified based on their physical and chemical properties. Major and trace element compositions of the particles suggest that they may be related to the Australasian strewn field. This would further extend the current strewn field ~800 km southward. Depletion in volatiles and enrichment in refractory elements in Larkman Nunatak microtektites fit the volatilization trend defined by Australasian microtektites, suggesting that they may represent a new highly vapor fractionated end-member thereof. This observation is supported by their low vesicularity and absence of mineral inclusions. This discovery has significant implications for the formation of microtektites (i.e. their evolution with