



Differential growth rate of the lithosphere in Precambrian: a comparative study of different cratons

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A global database on tectono-thermal ages of continental lithosphere combined with a global model of lithospheric thermal thickness for the continents, is used to (a) to evaluate the volume of the preserved continental lithosphere of different ages within individual cratons and (b) to calculate lithospheric growth for different continents over the past 3.6 Ga. The age of the crust is assumed to be representative of the age of the underlying subcrustal lithosphere; submerged areas with continental crust are excluded from the analysis. The results show a general agreement between the global cumulative growth rate of the continental lithosphere and juvenile crust. However significant differences in the rates of lithosphere growth are observed for the individual cratons. These data are compared with independent estimates of growth rate of juvenile crust on different continents as constrained by sedimentary record, geological and isotope data. I further discuss the implications of differential growth of cratonic lithosphere for large-scale tectonic evolution of Precambrian cratons.