



Age-dependence of structure and properties of the continental lithosphere

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A global database on tectono-thermal ages of continental lithosphere combined with a global thermal model of the continental lithosphere TC1 (Artemieva, Tectonophysics, 2006), is used to analyse age-dependence of structure and properties of the continental lithosphere. In particular, the analysis includes global correlations between tectono-thermal ages and (a) surface heat flow, (b) crustal structure, (c) lithospheric thermal thickness, (d) seismic velocities in the upper mantle constrained by global tomography models, (e) depth profiles of electrical conductivity, (f) thickness of elastic lithosphere. It is demonstrated that most of the physical properties of the post-Archean continental lithosphere show a strong age-dependence, associated with a strong age-dependence of thermal structure of the continental lithosphere. However, for the Archean cratons the age-dependence of lithospheric structure is not prominent.