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ANALES XXXIV

SUPERPRODUCTION EVIDENCE OF THE CONTINENTAL CRUST DURING PALEOPROTEROZOIC IN SOUTH AMERICAN PLATFORM

Kei Sato

Geociences Institute, University of Sao Paulo. São Paulo, Brazil. keisato@usp.br

Key words: Paleoproterozoic material accretion, South American Platform, Sm-Nd model age

Sm-Nd isotopic systematics indicate the age of continental crust, where model ages refers the time of crustal rock material has been differentiated by convecting from upper mantle. The uncertainties come from a lack of adequate informations on crustal processes and the variable composition and type of mantle source.

The results in this paper are based in the Sm-Nd data presented by Sato (1998) and applied for treating isotopic data on rock materials from South American Platform.

The figure 1 indicates small proportion of remaining continental crust previous to 3.3Ga, as it happens in any of the continental areas of the world. Possibly due to high temperature, an intense recycling of the continetal crust and the upper mantle, as fundamental characteristic of the permobile tectonic regime. The continental crust preserved during the archaean was about 35% of the current volume. Between the interval from 2.55 to 2.35Ga occurred a decrease of the continental crust. In this time interval the intense energy accumulated at higher rate and this hindered to dissipate through small silicatic crust that had consolidated previously. The rupture of this crust was occurred with intense energy dissipation and the material has been additioned from mantle for continental crust between 2.2 to 1.9Ga as about 35% of the present volume can be estimated in this small time interval . The total amount of juvenile material added during the whole Paleoproterozoic went about 54% and, therefore, higher than relative to Archaean. The production of heat decreasesed during Meso-Neoproterozoic but enough to move great units of plate tectonic metamorphozed and reworking crustal materials previously installed.

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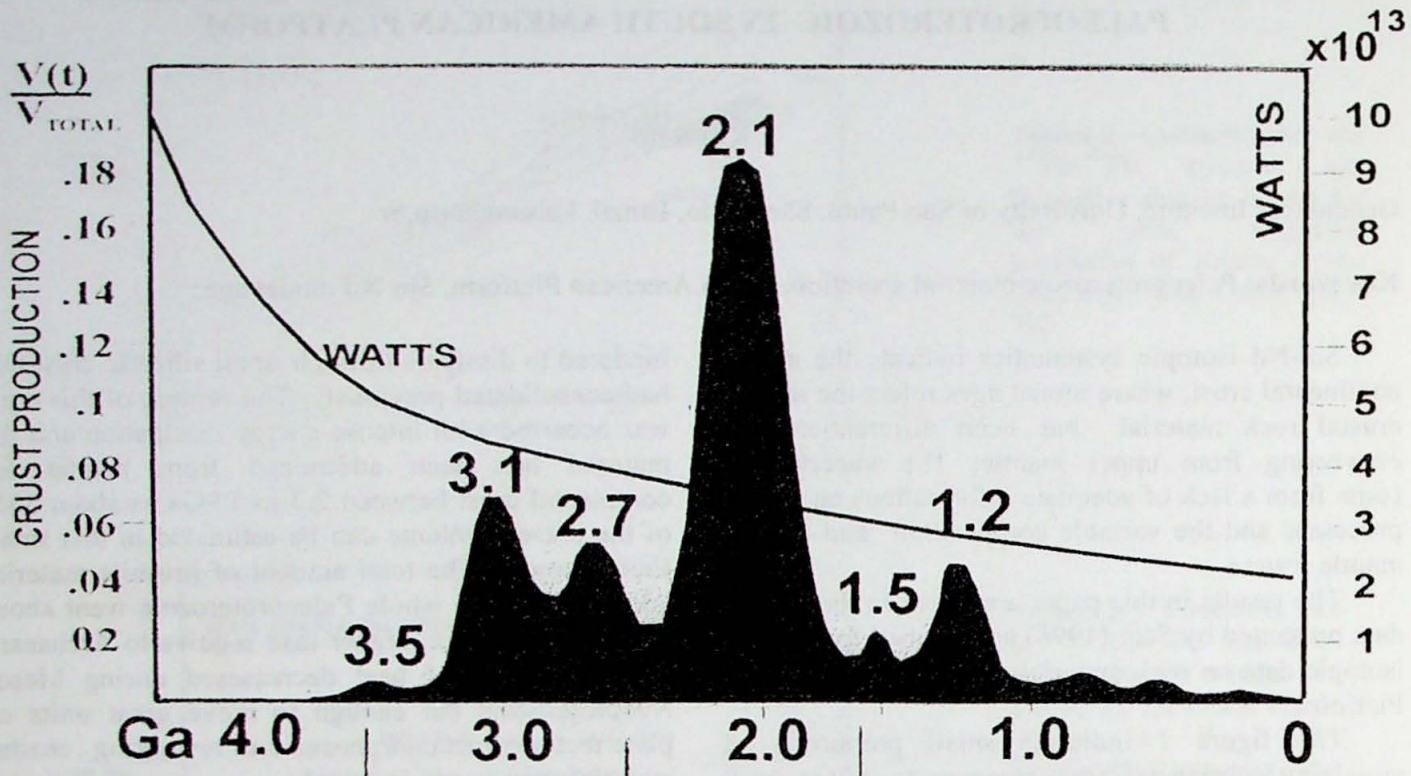

Small proportion of the continental crust. Intense recycling of the crust and the mantle, characteristic of the permobile tectonic regime.	34% of remaining crust.	Fast growth of the continental crust-about 54% in this interval.	Decrease continental crust growth. Intense crustal reworking.
Intense prodcution of heat about 3 or 4 times higher than present day.	High rate of accumulated ernergy; high rate of production of heat.	Intense liberation of accumalated energy;production of heat is 2 times higher than present day.	Drecrease production of heat.

watts curve: Patchett -1992