

## ***Interactive comment on “Geodynamic and metabolic cycles in the Hadean” by M. J. Russell and N. T. Arndt***

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Bada (2004, EPSL215, 1-15) criticizes the hypothesis that life emerged in hydrothermal systems on the basis of the short duration of such systems. We list below recent estimates of the durations of the main types of submarine hydrothermal systems. For off-axis systems, the duration exceeds 10 000 years, quite long enough in our estimation for life to have emerged.

Duration of hydrothermal systems:

J de Fuca >1,000 yr Rainbow >1,000 yr Lost City >30,000 yr Eyjafjordur 11,000 yr

References: Elderfield, H., and Schultz, A.: Mid-ocean ridge hydrothermal fluxes and the chemical composition of the ocean, *Annual Review of Earth and Planetary Science*, 24, 191-224, 1996. Früh-Green, G. L., Kelley D. S., Bernasconi, S., et al.: 30,000 years of hydrothermal activity at the Lost City vent field, *Science*, 301, 495-498, 2003.

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