

Abstract Submitted
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The Cosmogenic Origin of the 62 Myr Biodiversity Oscillation¹

MIKHAIL MEDVEDEV, ADRIAN MELOTT, University of Kansas — Temporal variation of the diversity of terrestrial organisms has recently been put on the firm statistical basis. Rohde and Muller (Nature, 434, 208, 2005) have shown, using the de-trended data from Sepkoskis compendium, that the number of marine genera varies periodically with time with approximately 62 ± 3 -million-year period. No satisfactory explanation has been put forward so far. For instance, “traditional” explanations of the cycle by the Solar system passing through the galactic spiral arms or the galactic plane do not reproduce the correct phase and/or period. Here we argue that the modulated cosmic ray flux can naturally explain the observed periodicity in the fossil record. We present a physical theory, which based on the cosmic ray propagation in the galactic interstellar medium magnetic turbulence and the Sun’s motion in the Milky Way.

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