

Accepted Manuscript

End-cretaceous cooling and mass extinction driven by a dark cloud encounter

Tokuhiro Nimura, Toshikazu Ebisuzaki, Shigenori Maruyama

PII: S1342-937X(16)00025-3
DOI: doi: [10.1016/j.gr.2015.12.004](https://doi.org/10.1016/j.gr.2015.12.004)
Reference: GR 1560

To appear in: *Gondwana Research*

Received date: 3 August 2015
Revised date: 1 December 2015
Accepted date: 9 December 2015



Please cite this article as: Nimura, Tokuhiro, Ebisuzaki, Toshikazu, Maruyama, Shigenori, End-cretaceous cooling and mass extinction driven by a dark cloud encounter, *Gondwana Research* (2016), doi: [10.1016/j.gr.2015.12.004](https://doi.org/10.1016/j.gr.2015.12.004)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

End-Cretaceous cooling and mass extinction driven by a dark cloud encounter***Tokuhiko Nimura⁽¹⁾, Toshikazu Ebisuzaki⁽²⁾, and Shigenori Maruyama⁽³⁾**

(1) Japan Spaceguard Association , 1716-3 Okura, Bisei, Ibara, Okayama 714-1411, JAPAN

(2) RIKEN, 2-1, Hirosawa, Wako, Saitama 351-0198, JAPAN

(3) Earth-Life Science Institute, Tokyo Institute of Technology, 2-12-1-IE-1, Ookayama, Meguro-ku,
Tokyo 152-8550, JAPAN

Abstract:

We have identified iridium in an ~5 m-thick section of pelagic sediment cored in the deep sea floor at Site 886C, in addition to a distinct spike in iridium at the K-Pg boundary related to the Chicxulub asteroid impact. We distinguish the contribution of the extraterrestrial matter in the sediments from those of the terrestrial matter through a Co-Ir diagram, calling it the “extraterrestrial index” f_{EX} . This new index reveals a broad iridium anomaly around the Chicxulub spike. Any mixtures of materials on the surface of the Earth cannot explain the broad iridium component. On the other hand, we find that an encounter of the solar system with a giant molecular cloud can aptly explain the component, especially if the molecular cloud has a size of ~100 pc and the central

Download English Version:

<https://daneshyari.com/en/article/6443228>

Download Persian Version:

<https://daneshyari.com/article/6443228>

[Daneshyari.com](https://daneshyari.com)