

# Comment

## Impacts, mega-tsunami, and other extraordinary claims

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Pinter and Ishman (2008) claim that 14 markers reported by Firestone et al. (2007) in the Younger Dryas impact layer (YDB) are from the “constant noncatastrophic rain of micro-meteorites” (p. 37). That hypothesis is unsupported.

1. Karner et al. (2003) reported accretion of extraterrestrial material equaling  $2.5 \times 10^9$  g yr<sup>-1</sup>, across 67 m.y.; YDB material, averaging  $14.13 \times 10^{13}$  g yr<sup>-1</sup>, equals **56,500 yr** of accumulation.<sup>1</sup>
2. Rudnick and Gao (2003) measured global iridium concentrations of 0.022 ng g<sup>-1</sup>. YDB iridium averaged 1.94 ng g<sup>-1</sup>, or **88 times** higher and undetectable outside that layer.<sup>1</sup>
3. At Blackwater Draw, New Mexico, Haynes et al. (1999) concluded that any break in YDB sedimentation lasted “no more than a decade” (p. 468), insufficient for micro-meteorites to yield the concentration noted above.<sup>1</sup>
4. The authors claim that the 14 YDB markers require an impossible “Frankenstein” impactor (p. 37), yet overlook the K-T impact, where nine of 14 markers form significant peaks and five others are consistent with intense wildfires.<sup>1</sup> Nanodiamonds, especially, are well-accepted as impact markers.

In Earth’s entire geological record, *all* other known strata that contain synchronous peaks in microspherules, iridium, nanodiamonds, and the other markers are widely considered to result from an extraterrestrial impact. We reject the authors’ conjectures and stand by our data.

<sup>1</sup>Calculations at <http://ie.lbl.gov/mammoth/GSAToday.html>.

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**There’s more online!** Additional comments on the January *GSA Today* Groundwork article (v. 18, no. 1, p. 37–38) are online, along with Pinter and Ishman’s Reply. Go to [www.geosociety.org/pubs/](http://www.geosociety.org/pubs/), click on “Comments & Replies” in the *GSA Today* column, and follow the links for Abbott et al. and Firestone and West.

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