

The history of life changeable by asteroid impact site: low probability of appearance of humans

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An asteroid 9 km in diameter hit the hydrocarbon- and sulfur-rich sedimentary rocks in present-day Mexico 66 million years ago. Recent studies showed that the impact at Yucatan Peninsula burned hydrocarbon and sulfur in the target rocks forming stratospheric soot and sulfate aerosols, which caused extreme global cooling and draught, and in turn to a mass extinction including dinosaurs, leading to appearance of humans. The amount of hydrocarbon and sulfur in rocks varies widely depending on location, which suggests that cooling and extinction level was dependent on impact site. Here we show that probability of the significant global cooling, the mass extinction, and subsequent appearance of humans was 13% when the asteroid hit the Earth. This significant event could have occurred when the asteroid hit hydrocarbon-rich areas occupying 13% of the Earth surface. The history of life is changeable by asteroid impact sites.

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