



Ammonite death and nautilus survival at the Chicxulub massacre: here's what we know so far

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The differing faith of ammonites and nautilus across the Cretaceous/Paleogene boundary has puzzled scientists for decades. In the past 20 years, our understanding of the death of the ammonites has largely moved forward, and we now have many more insights in the exact timing, rate and pattern of the ammonite extinction, and its most probably trigger.

In a nutshell, ammonites were still abundant, diverse and widespread at the moment of the Chicxulub impact, and disappeared abruptly from the fossil record within the following tens of thousands of years. Diversity changes prior to the impact were minor, and cannot be held accountable for their final extinction. As an example, generic diversity slowly declines throughout the Maastrichtian, but only accounts for a ten percent loss. And although Deccan warming may have initiated some migrations, it cannot (yet) be linked with (major) ecosystem failure.

At present, 33 sites are known to document 30 genera and at least 62 species alive within the ultimate 0.5 million year of the Cretaceous. Among them are representatives of all major evolutionary lineages and shell shapes. Interestingly, community structures and diversity patterns differ between different environments and paleogeographic realms.

Contrasting with the progress in the understanding of the ammonite death, the survival of the nautilus currently remains one of the last unexplored issues of the 5th mass-extinction. Ongoing research indicates that their survival is a complex story, which may be better characterized by a turnover, composed of a combination of extinctions, migrations and radiations.