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BIOTIC RECOVERY FOLLOWING THE END-CRETACEOUS ASTEROID IMPACT RECORDED FROM GORGONILLA ISLAND, COLOMBIA

VAJDA, Vivi¹, BERMUDEZ, Hermann D.², OCAMPO, Adriana³, ARENILLAS, Ignacio⁴, ARZ, José Antonio⁴, GILABERT, Vicente⁴, CLAEYS, Philippe⁵, and RENNE, Paul R.⁶,

(¹)Swedish Museum of Natural History, Dept of Palaeobotany, Box 50001, Stockholm, S-104 05, Sweden,

(²)Grupo de Investigación Paleoexplorer, Calle 98 bis 71D-20, Bogota, 111111, Colombia; **Analytical, Environmental and Geo-Chemistry, Dept. of Chemistry, Vrije Universiteit Brussel**, AMGC-WE-VUB, Pleinlaan 2, Brussels, 1050, Belgium, (³)NASA, Washington DC, WA 20546 (⁴)Departamento de Ciencias de la Tierra, Instituto de Investigación en Ciencias Ambientales (IUCA), Universidad de Zaragoza, Pedro Cerbuna, 12, Zaragoza, E-50009, Spain, (⁴)Dept. of Geology, Vrije Universiteit Brussel, Pleinlaan 2, Brussels, BE-1050, Belgium, (⁵)Berkeley Geochronology Center, 2455 Ridge Rd., Berkeley, CA 94709.

A 2 cm thick spherule bed representing Chicxulub impact ejecta deposits and marking the Cretaceous/Paleogene (K/Pg) boundary was recently discovered on the Gorgonilla Island, Colombia. In this presentation we focus on the biotic signal, extinction and recovery successions in the sedimentary record spanning the spherule bed dated to 66.051 ±0.031 Ma.

Except for very scarce specimens in some levels, planktic foraminifers are absent within and below the spherule bed, suggesting that Maastrichtian successions were deposited below CCD. The absence also of terrestrially derived pollen and spores indicates off-shore conditions for the Maastrichtian. However, the post-impact deposit, occurring above the spherule layer at Gorgonilla, shows an interesting recovery succession representing both marine and terrestrial assemblages. Planktic foraminifers are also absent in the first 5 cm above the spherule bed, suggesting these sediments were still deposited below the CCD. However, in the following 110 cm planktic foraminifers belonging to the lowermost Danian Zone Pa are preserved, indicating a pronounced deepening of the local CCD.

The vegetation recovery is represented by fern spores, more specifically by ground fern taxa such as Gleicheniaceae and *Dictyophyllum*, together with abundant occurrence of the aquatic fern *Azolla*. These interestingly co-occur with fungal spores and hyphae. A so-called fern-spike has previously been described from New Zealand K/Pg boundary clay coincident with the iridi-um-enriched layer and interpreted as a response to short term darkness. The genus *Azolla* consistently characterizes warm-climate lacustrine environments and ranges of many *Azolla* species span the K/Pg boundary at other sites. The identification in Colombia of *Azolla* microspores and massulae directly above the K/Pg boundary at the Gorgonilla locality shows their potential to endure altered environmental conditions.



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