**Supplementary Information**

FTIR, XRD, EDXRF, and SEM-EDS results presented below are of the sediment materials collected around of the fossil.



Sup. 1 a) Vibrational response and b) elemental composition of the sedimentary material Sed\_001 from sample FACEN-Pvert0002.

|  |  |  |
| --- | --- | --- |
|  | **FTIR response Sed\_001** |  |
| **Wavenumber (cm-1)** | **Assignation** | **References** |
| 464 | Si-O-Si asymmetrical bendingAllophane | (1,2) |
| 529 | Si-O-Al stretching | (3,4) |
| 674 | Si-O symmetrical bendingSi-O-Al stretching | (3,4) |
| 781 | Si-O symmetrical stretching | (2–4) |
| 798 | Si-O symmetrical stretching | (2–5) |
| 874 | CO3 | (6–8) |
| 908 | Al-(OH) | (4,9) |
| 1031 | Al(OH)3Si-O-Si | (2,10,11) |
| 1107 | Si–O–Si or CO3 | (2,3,5,7) |
| 3441 | -OH | (4,9,12,13) |
| 3627 | -OH | (4,9,12,13) |

Sup. 2: Table of vibrational responses of the sedimentary material Sed\_001 from sample FACEN-Pvert0002.



Sup. 3: X-ray diffraction pattern of sedimentary material Sed\_001 from sample FACEN-Pvert0002, indicating the identified crystalline phases.



Sup. 4 SEM- EDS image of Sed\_001

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