Geophysical Research Abstracts, Vol. 8, 05477, 2006
SRef-ID: 1607-7962/gra/EGU06-A-05477

Micro-computer tomography investigation of a South Pacific manganese nodule: *Issurus* sp., (*Lamiidae*), shark tooth identified

T. Craciunescu (1), **O.G. Duliu** (2), I. Tiseanu (1), S.Szobotka (3)

(1) Institute for Lasers, Plasma and Radiation Physics (NILPRP), Mãgurele, P.O. Box MG-36, RO -077125, Bucharest, Romania (teddy@infim.ro) (2) University of Bucharest, Dia Research Center, Mãgurele,P.O. Box MG-11, RO-077125 Bucharest, Romania (duliu@pcnet.ro), (3) National Institute of Marine Geology and Geoecology, 23-25 Dimitrie Onciu Street, RO-024053, Bucharet, Romania (szobi@geoecomar.ro)

A South Pacific medium size manganese nodule (MN), (2.5 cm x 2.1 cm) with a hard and smooth surface, together more fossil shark teeth belonging to *Lamniide* family have been investigated by using a 160 kV microfocus X-ray computer tomograph (CT) with 10 μm spatial and a about 0.5 % linear attenuation coefficient (LAC) resolutions. Modified Feldkamp algorithm was used to obtain a 1024 x 1024 x 512 lines reconstructed volume of the investigated MN while the Mn to Fe^2 concentrations ratio, necessary to calculate the growth ratio was determined by means of a built-in XRF facility.

The reconstructed 3D linear LAC distribution within the entire investigated specimen have shown a multilayered structure consisting of a thin and dense envelope followed by two less dense layers and a fragment of a fossil tooth with a density close to the core one. That peculiarity made possible the reconstruction of the tooth fragment structure and compares it with similar images of *Lamiidae* fossils teeth collected from the Pacific Ocean sediments.

In this way we have been able to assign the tooth fragment to an *Issurus* sp. (*Lamiidae* family) shark whose age, estimated from the nodule growth ratio, determined from the $Mn/(Fe)^2$ concentrations ratio according to Lyle model (Lyle, M., Geochim. Cosmochim. Acta, 1982, 46, 2301–2306) of 6.3 Ma corresponds to Upper Pliocene.