

ANALYSIS OF CARBON IN SEDIMENTS USING FNAA

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Introduction

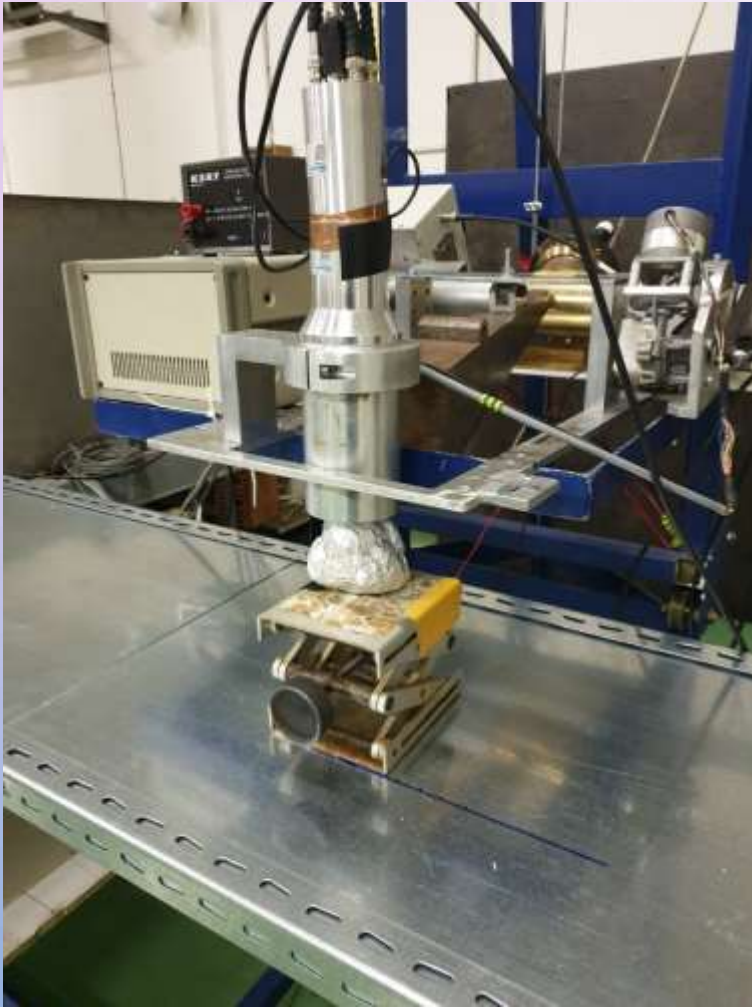


Fig 1. Experimental setup.

- In order to understand the cumulative effect of marine processes it is necessary to determine total (TC), organic (OC) and inorganic carbon (IC) in sediments.
- The main advantage of Fast Neutron Activation Analysis (FNAA) over other analytical methods for carbon determination is that it is nondestructive and rapid.

Methods



Fig 2. Sample prepared for the FNAA.

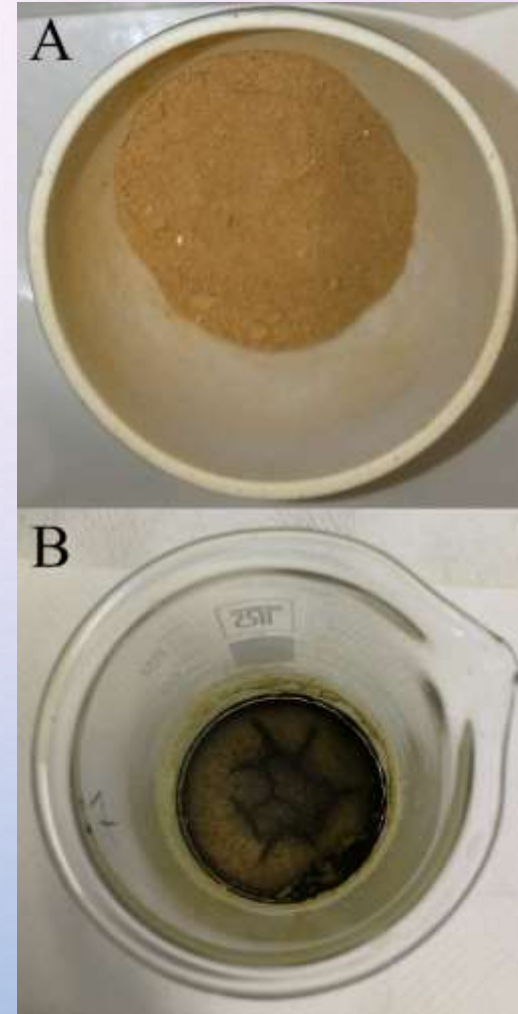


Fig 3. Five grams of sample after:
A) loss-on-ignition method,
B) Acid treatment.

Results

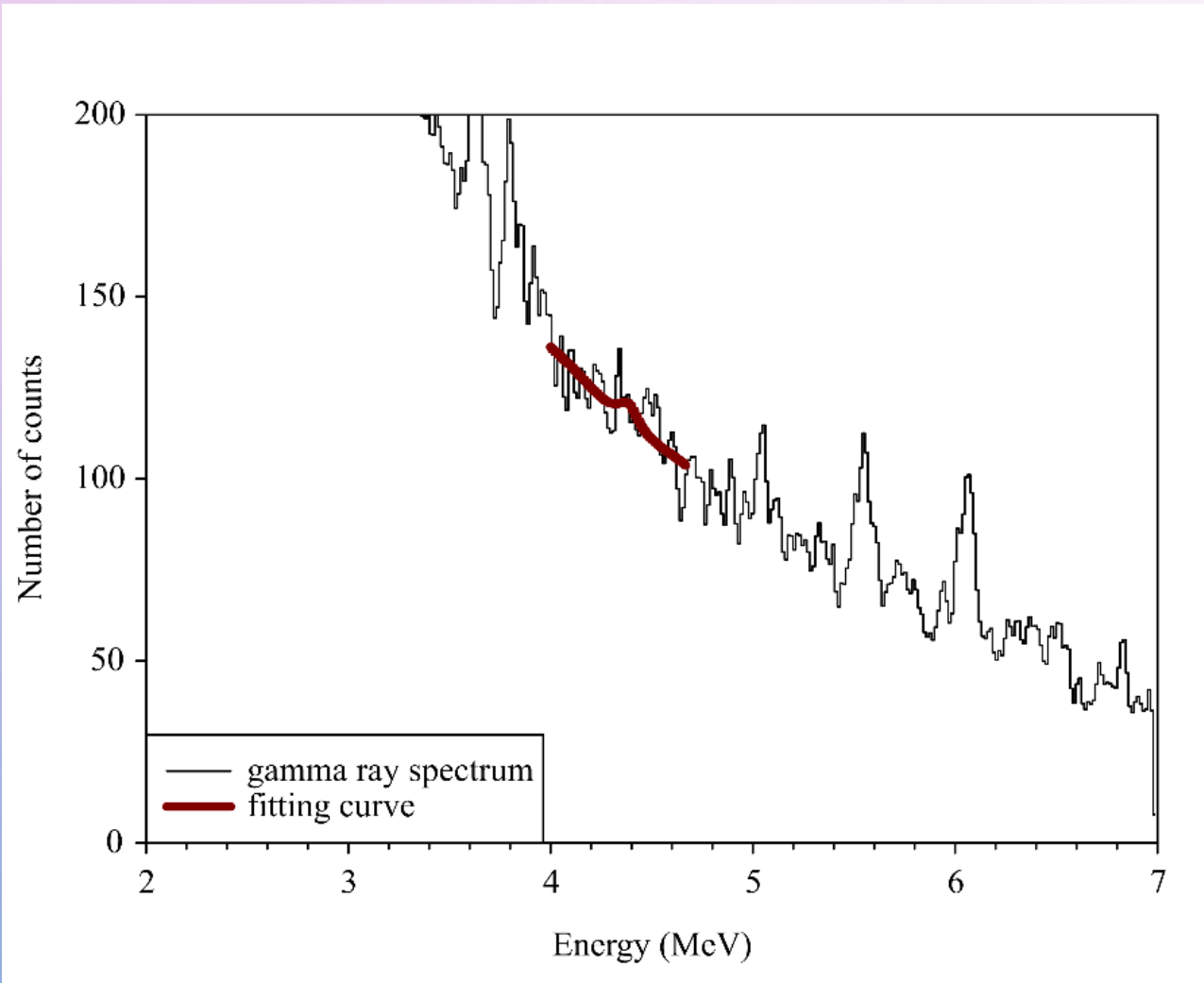


Fig 4. The gamma ray spectrum from the first sample after combustion.

Table 1. Total carbon measured by FNAA, loss of mass observed after LOI method, organic carbon (dividing LOI by factor of 3 (Leong & Tanner, 1999)) and inorganic carbon measured by FNAA after LOI.

Subsample	TC	LOI	OC	IC after LOI
0-1 cm		10.30 %	3.43 %	
1-2 cm	$4.5 \pm 1 \%$	10.61 %	3.54 %	<MDL
2-3 cm		8.69 %	2.90 %	
3-4 cm		9.31 %	3.10 %	
Average		$9.73 \pm 0.89 \%$	$3.24 \pm 0.30 \%$	

