

WESTERN SARDINIA CONTINENTAL  
PLATFORM: VECTOR ANALYSIS OF  
HEAVY MINERAL DATA.

by

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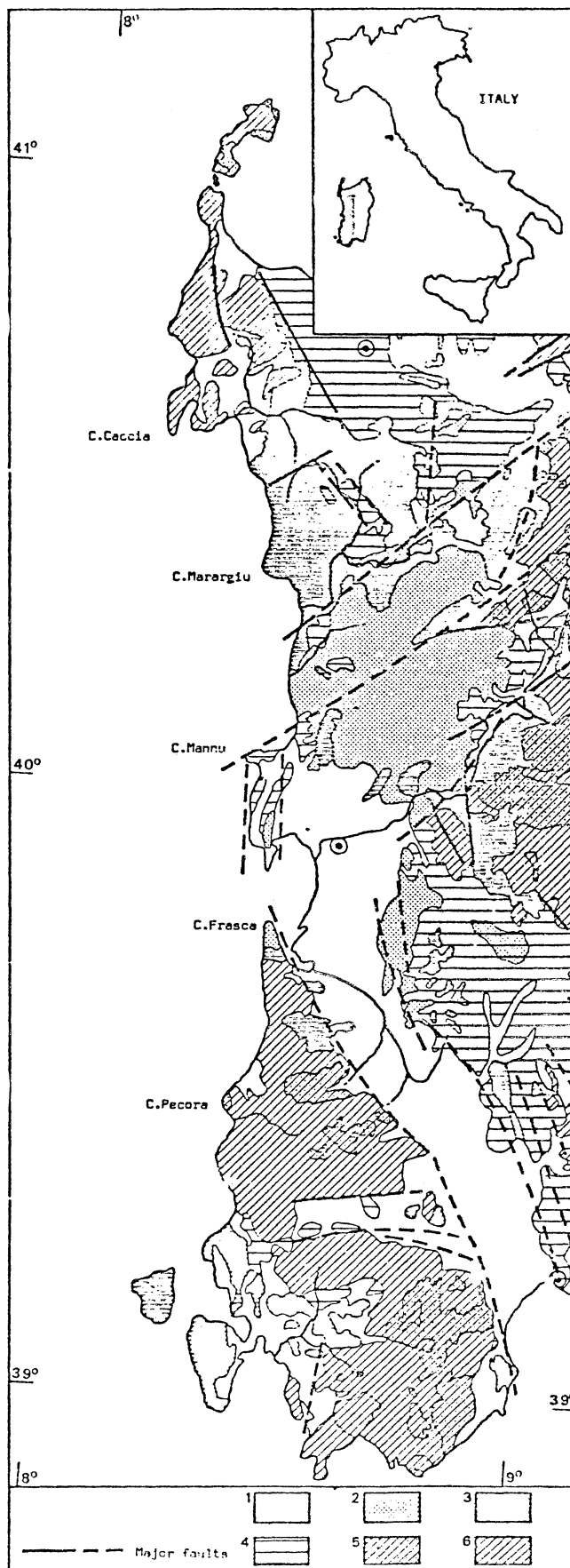
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Legend

1. Alluvium (Quaternary).
2. Extrusives -Basalts s.l.-  
(Plio-Quaternary).
3. Extrusives -Rhyolites and  
Andesites- (Oligo-Miocene).
4. Limestones, Mudstones, Sand-  
stones and Conglomerates  
(Miocene).
5. Intrusives -Granites s.l.-  
(Paleozoic).
6. Volcanic, Plutonic and Meta-  
morphic Rocks (Paleozoic).



## Summary

Heavy minerals were utilized to ascertain the major sources that contributed terrigenous material to the sea and the dominant direction of transport from late Pleistocene to the present.

Fifty-two bottom (grab) samples ranging in depth from 20 to 240 metres were collected to cover the Western Sardinia Continental Platform. The 250-62 microns sand fraction was separated and the  $d > 2.97$  portion obtained. Four hundred grains of the nonopaque non micaceous type were analyzed optically. The results of the counts were grouped into 19 mineralogical provenance - significant variables.

The dispersal pattern of the sediments results from applying the Q-mode Vector Analysis to the data (Imbrie 1963). Six factors account for 100% of the compositional variations. In the final step an oblique factor matrix is calculated in which each sample (vector) is resolved into the six compositional end members (reference vectors). By contouring the values obtained on the single end member six maps may be prepared. Each of them is accompanied by two mineralogical temps which represent the heavy mineral types subjected to a particularly significant variation.

Confining the considerations on the general compositional features of the area the six end members showed that:

- Each mineralogical unit can be easily linked to a well defined source area
- The areal distribution of the above units marks a constant trend normal to the coast, i.e., rather sharp compositional variations occur in the north-south direction
- Local sources play an important role, i.e., no long distance transport from a main source obscure (dilute) local supply
- In spite of this a weak transport, directed constantly southward is detectable
- With respect to the present in Late Pleistocene time the extent of the dispersal to the south was probably larger.