

About the Ligurian-Piemontese Jurassic Ocean on the transect Corsica–Apenines

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Research related to detailed cartography of Corsica has just led to important results.

1. Age of the ophiolites

Zircons from mixed trondhjemitic and ferrogabbros situated under the Balagne basalts (N-MORB stage of initiating evolution close to a continent [2]) gave a U–Pb age of 169 ± 3 Ma (SHRIMP) [13] to be compared to the age of 161 ± 3 Ma measured (TIMS) on zircons from a similar material of Inzecca [7], whose N-MORB however testifies to the removing of continent. If a slow opening (2 cm yr^{-1}) is considered, the minimal distance between these two areas seems to be greater than 150 km; this estimation is obviously to be increased due to the unknown distance of the feeding ridge and the probable rate of spreading.

The upper part of pillow lavas from the Balagne Nappe is also dated by Radiolaria associations observed in the first siliceous sediments overlying the latter. Being recalibrated [1], these associations seem to evidence [11] that between the distal (northwestern) and central (southeastern) parts of the unit, the base of the radiolarites is comprised between 168.5–166.5 Ma (Bathonian) and 162.7–160.7 Ma (Middle–Upper Callovian).

And this suggests an accretion axis to the east. The comparison of all these data shows that ophiolites develop on this place in less than 10 Ma.

2. Geochemistry

The N-MORB-type ophiolites of the non-metamorphic units of Rio Magno [8] and Pineto [14], if they differ from the E-MORB units, similarly non-metamorphic, of the Balagne by their geochemi-

cal characteristics, are on the contrary similar to those of the Apennines. A flyschoid cover dated up to Cenomanian [8], which overlies radiolarites and Calpionellids-bearing Berriasian ‘Palombini’ is also associated, as in the latter.

3. Western margin of the Ligurian Basin

The occurrence of Archean relictual zircons in the trondhjemitic of the Balagne [13] testifies to the presence of a thinned continental crust below the Balano-Ligurian oceanic crust. The reconstruction of the margin [10] is facilitated by key beds including *Praekurnubia crusei* (Upper Bathonian–Callovian). This foraminifer was also found in some lenses of micro-breccias inside the radiolarites of Balagne [11], whose datation is effectively the same.

4. Intensity and age of the metamorphic climax

Eclogitic formations are located inside a north–south unit of the ‘Schistes lustrés’. Eclogitic mineral associations attest that the conditions of HP–BT metamorphism in oceanic crust [3] have reached [4] 1.3 GPa, 455 ± 35 °C, which corresponds to an Upper Cretaceous event (datation of 84 ± 5 Ma by Nd–Sm isochrone on minerals).

5. Subduction model

Recalling to the hypothesis [9, 12] of a unique tectonic accretion prism, the collection of the preceding observations leads [5, 6, 8] to assume that the subduction surface that resulted in the resorption of Lig-

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urian Ocean was plunging westward under the European Continental Margin. A part of the ophiolitic material should have been very deeply drawn ('Schistes lustrés', subsequently exhumed). Another part whose seating is found in Corsica should have escaped metamorphism due to its situation in 'trapped crust' (Fig. 6 in [8]) and have surficially moved either toward the west (Balagne, Pineto), or toward the east (Ligurian Apennines and probably Rio Magno).

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This proposition is against the 'classical model', accepted in the Alps, according to which subduction surface would plunge to the east, under the Adria continental plate. If these two systems are considered, one should assume that a fundamental transforming fault (presently SW–NE) should have separated Italian Maritime Alps from the Corsica–Apennines domain.

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