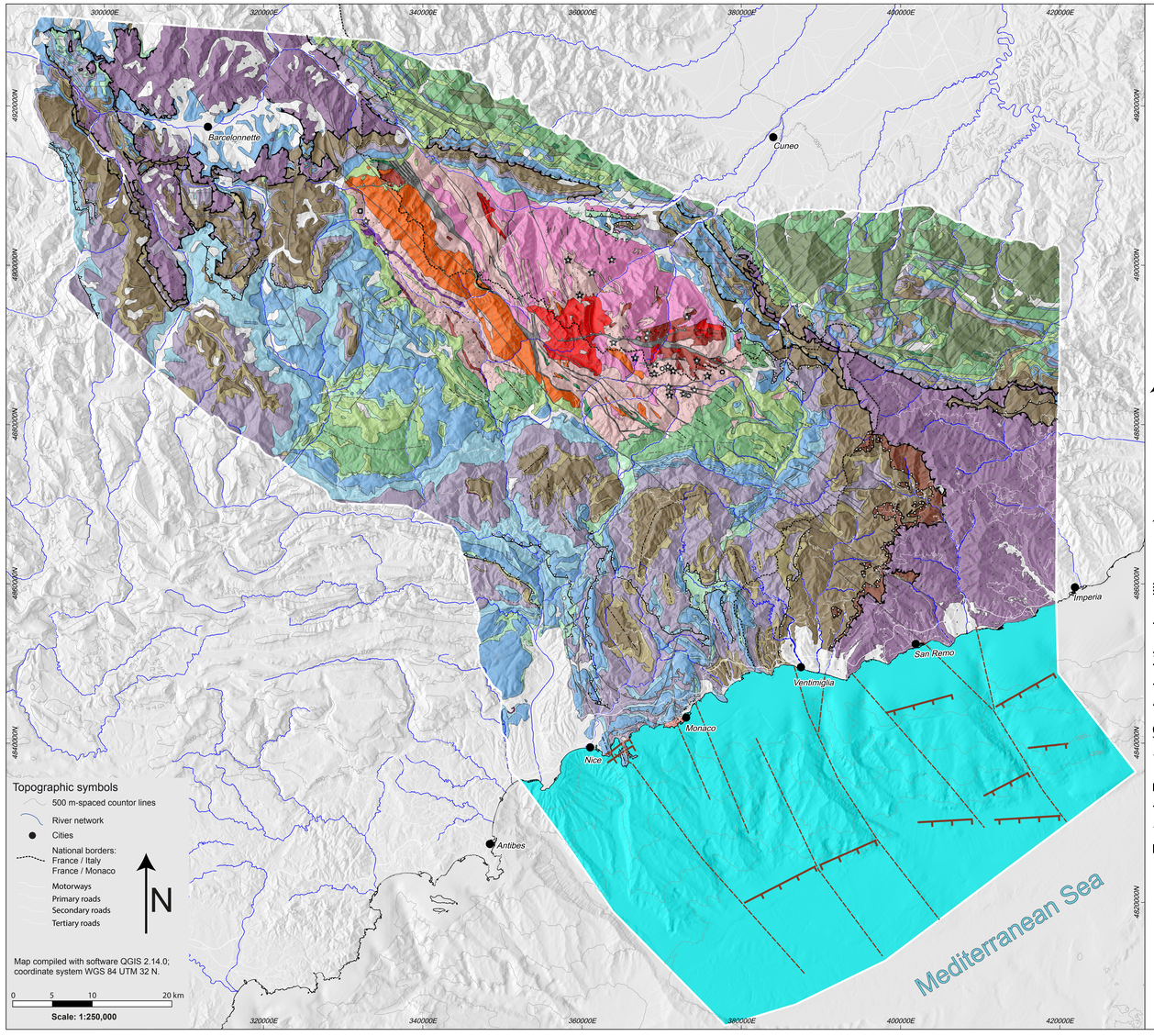
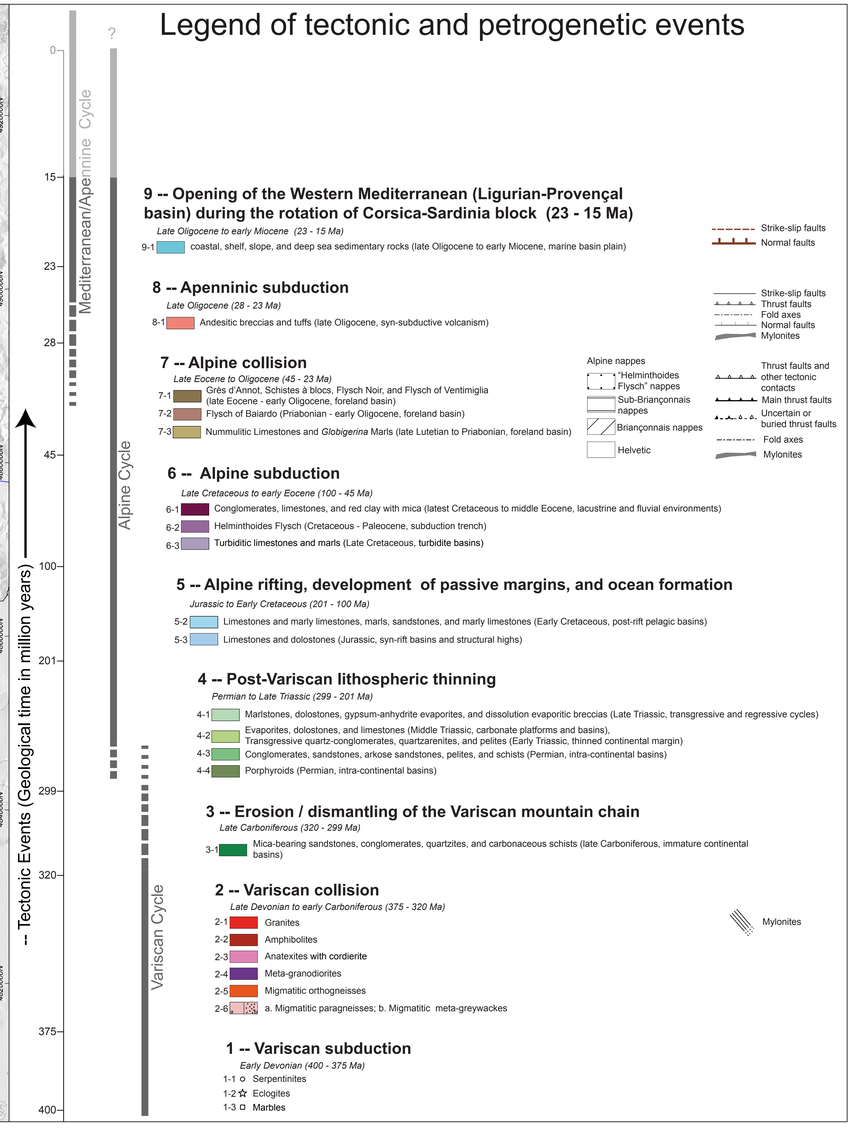
Event 9 -- Opening of the Western Mediterranean (Ligurian-Provençal basin) during the rotation of the Corsica-Sardinia block (23 - 15 Ma)





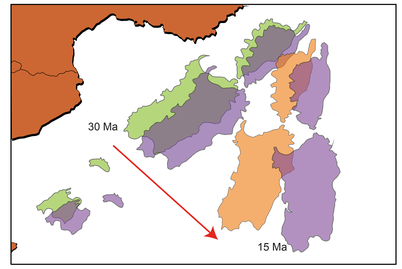


Fig. 5 - Geodynamic (and geographical) effect on the European continental lithosphere following the rotational detachment of the continental Corsica-Sardinia (C-S) block from the European orogenic margin. The repositioning of the two islands widened the ocean basin and determined the present day continental contours. The full counter clockwise rotation of the C-S block occurred between Oligocene and Miocene times (see time lapse in figure; modified after Gattacceca, 2001 and Guennoc et al., 2005). Event 9.

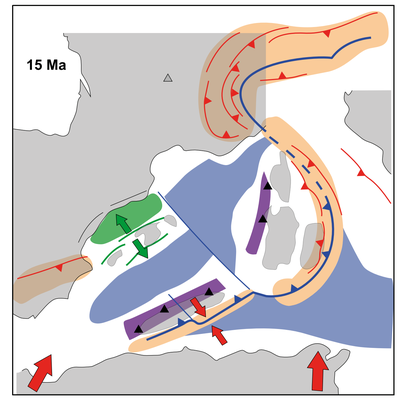


Fig. 4 - Plate dynamics of the Alps-Mediterranean system in the Middle Miocene (Langhian) showing the widening of the Ligurian-Provençal ocean basin. The colour coded marine basins vs. land setting is fixed at about 15 Ma, with shortening domains (pinkish), extensional domains (green), ocean domains (blue), and volcanic domains (violet). Modified after Séranne (1999). Event 9.

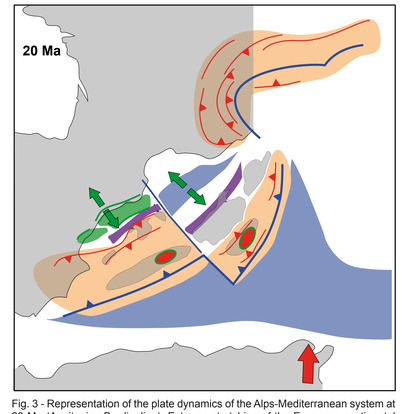
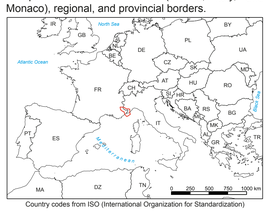
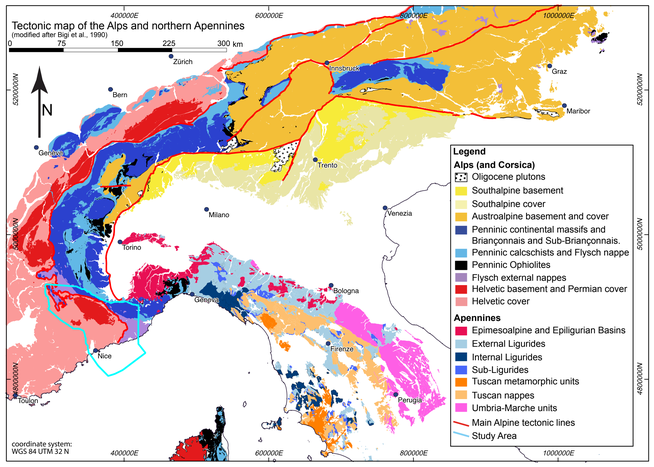


Fig. 3 - Representation of the plate dynamics of the Alps-Mediterranean system at 20 Ma (Aquitanian-Burdigalian). Extreme stretching of the European continental lithosphere initiated the formation of new oceanic lithosphere and a deep ocean basin now named as the Ligurian-Provençal basin. Depiction of the plate dynamics at about 20 Ma; colour legend: shortening domains (pinkish), extensional domains (green), ocean domains (blue), and volcanic domains (violet). Modified after Séranne (1999). Event 9.

Localisation of the area of interest (red polygon) within Europe and across national (France, Italy, and Monaco), regional, and provincial borders.



Country codes from ISO (International Organization for Standardization)



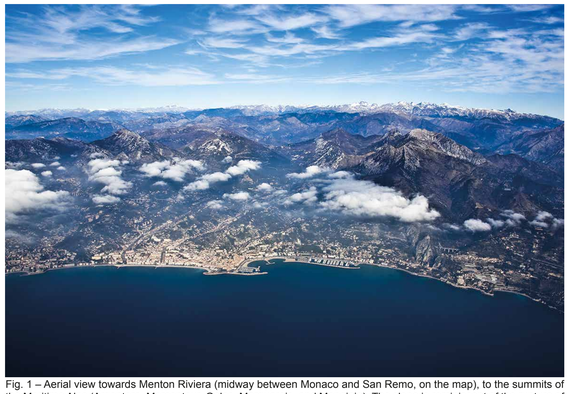


Fig. 1 – Aerial view towards Menton Riviera (midway between Monaco and San Remo, on the map), to the summits of the Maritime Alps (Argentera, Mercantour, Gelas, Marguareis, and Mongioie). The slope is reminiscent of the rupture of the Alpine belt that occurred from the late Oligocene to early Miocene. The slope is continuous from the 3000 m high summits, down to the abyssal plain, at depth of -2000 m, at the base of the continental escarpment. The abyssal sea floor descends gently from a depth of -2500 to -2800 m towards the island of Corsica. Steep submarine canyons serve as conduits between the continental margin and abyssal depths for detrital material derived from the erosion of the Alps. Event 9.

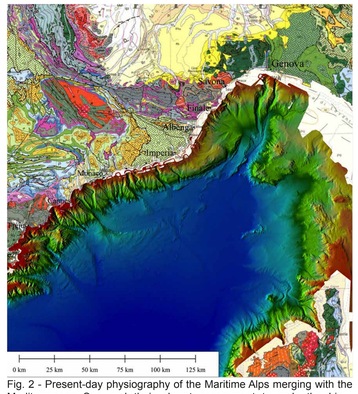


Fig. 2 - Present-day physiography of the Maritime Alps merging with the Mediterranean Sea and their abrupt escarpment towards the Ligurian-Provençal marine basin with no or minimal submarine continental shelf (zones with poor data highlighted in white). The continental geology is derived from the reviewed 1:1million scale map of France and Alpine areas, 6ème edition, Chantraine et al., 2003).