

Volcanism and sedimentation in the Paleogene Alpine peripheral basins: how did Alps look like?

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All the Paleogene represents a key period in the growth of the Alpine belt and the development of surrounding sedimentary basins. Nevertheless, one of the most intriguing timelapse is represented by 10 Ma, between ca. 40 and ca. 30 Ma, when the growing belt hosted volcanic complexes that lead to the accumulation of volcanogenic sequences within the Northern Alpine and the Southern Alpine foreland basins. Such sequences present peculiar characteristics that varies depending on the period and depocenter where they were accumulated. In addition, they represent the fundamental clue to reconstruct how the volcanic arc developed, which kind of volcanic activity characterized it, where the volcanoes were located and to speculate about how magmatism was produced before coming to the surface. Volcanic sequences are, in fact, extremely rare and confined to the west of the chain, disarticulated from the source-to-sink systems that supplied detritus to the depocenters, together with dikes crosscutting the southern part of the

belt, so less is the geodynamic information gain from them. The present talk will review a decade of investigation carried out on stratigraphic, petrographic and geochemical data on the different volcanogenic sequences, trying to reconstruct the relationship between putative volcanic centers and the basins, as well as to understand the nature of the Paleocene volcanic arc/arcs. All the considered sequences are characterized by large amounts of volcanogenic detritus, and sometimes they rarely preserve pyroclastic deposits. Occasionally, such sequences are also mixed with non-volcanic detritus, a component useful in tracing provenance of sediments and giving clues about palaeoenvironments constituting the growing belt. Although beyond of being exhaustive, the present communication represents a first attempt in marking fundamental temporal and palaeogeographic steps in the evolution of a volcanic arc through several millions of years on one of the most fascinating orogenic belt.