Central and Eastern Alps is characterized by strain partitioning into vertical thickening, orogen-parallel extension and lateral escape. The amount of "lateral extrusion", held responsible for the formation of the Carpathian arc by many workers, has been overestimated in our view.

The Alps-Dinarides superposition in NE Italy - observations and models from two interfering foldbelts

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The eastern Southern Alps are a complex, arcuate fold-and-thrust belt that developed at the north-eastern edge of the Adriatic (or Apulian) microplate. The present day, intricate architecture of this belt is the combined result of (1) Mesozoic rifting, basin and carbonate platform formation, (2) Cretaceous to ongoing plate convergence between Apulia and Europe with major changes in convergenc direction in the course of time, (3) the shape of the indenting Apulian microplate.

Rifting lead to swells with intermediate basins during early Liassic. Various high zones drowned during late Liassic, but the Friuli carbonate platform comprising the southernmost hills of Cadore and Carnia, and large parts of the Venetien plain remained high as long as to the Paleocene.

Flysch sequences date the Dinaric deformation as mainly late Paleocene to early Eocene. One of the peculiarities of the NW part of the Dinarides is the absence of metamorphism although some 250km of exposures exist across strike. This calls for a very low taper and long detachments along efficient decollement horizons. W to WSW-vergent Dinaric ramp-folds and ramp-flat thrust systems are well documented in the eastern and central Dolomites. In the Carnian Alps adjoining to the east they are less obvious, possibly due to the mentioned decollements. In the Mesozoic basinal sequences (N) the front of Dinaric thrusting advanced more to the west than in the Friuli platform (S), creating sinistral transverse zones following approximately the ancient paleogeography.

Alpine deformation began during late Miocene, extensive seismicity and folded Quaternary deposits indicate ongoing activity. The eastern South Alpine belt is located at the northern edge of the actual Adriatic microplate. It is a classical brittle fold-and-thrust belt with ramp-flat thrust trajectories and ramp-folds, three major thrust sheets with basement envolvement, and increasingly older sequences exposed towards the internal parts (N). Complex transverse patterns resulted from interferences with Paleogene (Dinaric) and Mesozoic structures. To the W, the belt ends at the Schio-Vicenza line (some 50km west of Venice) where the shortening is transferred southwards across the Po plain to the Apennines. To the E, the belt looses shortening (from some 55km in the eastern Dolomites to some 30km in western Slovenia) and gets gradually replaced by SE trending dextral strike-slip faults, that follow the NE Border of the Adriatic plate across Croatia and Bosnia towards Albania.

Miocene and Plio-Pleistocene volcanism of the Styrian and Klagenfurt Basins (Eastern Alps, Austria): geochemistry and geodynamic implications

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In the Neogene Styrian and Klagenfurt Basins, Alpine post-collisionextensional volcanic activity took place in Karpatian-early Badenian (K/Ar-ages: 16.8-14.9 Ma) and in late Pliocene-early Pleistocene (K/Ar ages: 3.8-1.7 Ma). The petrogenetic affinity changed from orogenic-type in the Miocene to anorogenic-type in the Plio-Pleistocene. Petrography, major (XRF) and trace (XRF, INAA) elements have been carried out on volcanics from numerous Miocene (outcrops and boreholes) and Plio-Pleistocene centres.

The Miocene lavas have a variable serial affinity, ranging from calkalkaline/high-K calk-alkaline (Kollnitz) to high-K calk-alkaline (Weitendorf, Mitterlabill) up to shoshonitic (Gleichenberg, Walkersdorf, Paldau). In the most voluminous Miocene volcano (Gleichenberg, 16.3-15.5 Ma) latites are the dominant lithotype; here trachytic and rhyolitic lavas locally occur. To the west, outcropping products are represented by relatively primitive (Mg# 66-70) basaltic andesites/high-K andesites (Kollnitz, 14.9 Ma) and high-K basaltic andesites (Weitendorf, 16.8-16.0 Ma). Boreholes samples are latites (Paldau and Walkersdorf) and high-K dacites (Mitterlabill). Incompatible trace element patterns of all the Miocene lavas, normalized to primitive mantle (Sun and McDonough, 1989), show a moderate negative Nb-, Ta- and Ti-anomaly and high LILE/HFSE ratios, typical of "subduction-related" magmas. On geochemical basis, three groups of rocks can been distinguished: the first, Gleichenberg latites-