

## EXHUMATION OF ALPINE HIGH PRESSURE ROCKS: INSIGHTS FROM PETROLOGY OF ECLOGITE CLASTS IN THE TERTIARY PIEDMONTESE BASIN (LIGURIAN ALPS, ITALY)

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### ABSTRACT

The study of late and post-orogenic sedimentary basins is a powerful tool to understand uplift, exhumation and erosion of an orogen. In the Ligurian Alps, high-pressure ophiolitic rocks are directly overlain by the sediments of the Tertiary Piedmontese Basin (TPB); the conglomerates at the bottom of the TPB succession contain clasts of metaophiolites and metasediments which display deformation structures acquired at peak metamorphic conditions ranging from eclogite- to blueschist- facies.

The deformation events prevalently recorded by the high-pressure rocks of the Ligurian Alps are either related to subduction and peak metamorphism, or to the late-stage greenschist collision. The main structures which accomplish the early exhumation of such high-pressure terrains are only locally recorded and poorly explored. Further information on these early tectonic events can be gathered through the study of the clasts in the conglomerates.

In this paper we present a textural and petrologic outline and some thermobarometric estimates of the main types of high-pressure clasts sampled and their comparison with the high pressure equivalents presently exposed in the Ligurian Alps. In particular, some clasts displaying a Na-amphibole + white mica + epidote + sphene blueschist foliation superimposed to an eclogitic garnet + Na-clinopyroxene + rutile tectonic assemblage have been studied in detail. These kind of rocks record a pressure-temperature path implying cooling during exhumation, whereas the high-pressure bedrocks are characterized by either isothermal decompression, or initial heating and subsequent cooling.

We conclude that the blueschist foliation of these clasts most likely developed along shear zones and/or contacts among different slices, formed during tectonic coupling of warm, uprising eclogite units, with cooler blueschist slices during the early stages of exhumation.

