

P - T PATH OF THE CRYSTALLINE BASEMENT ROCKS FROM THE CALABRIAN TYRRHENIAN COASTAL CHAIN, CALABRIAN - PELORITAN ARC, SOUTHERN ITALY.

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The crystalline basement rocks occupy the highest geometric position in the Alpine nappe edifice of the northern sector of the Calabrian Coastal Chain. They consist of Grt - Sil gneisses, Opx - Cpx granulites and migmatites that include small bodies of metagabbros and metaperidotites. The latter include transposed pyroxenitic dikes/veins. Textural, geochemical and thermobarometric data suggest the following magmatic/metamorphic history for the northern sector of the Calabrian Arc: i) a possible prograde event at the amphibolite - granulite facies transition (about 550°C, T and about 0.5 GPa, P) is in places characterised by early anatexis processes; ii) the metamorphic climax has been reached under granulite facies conditions at 800° - 850°C, T and 0.9 - 1.0 GPa, P; iii) the exhumation of the high-grade rocks from the near crust - mantle boundary towards shallower levels happened along HT shear zones following a nearly isothermal decompression path in the granulite facies conditions; iv) a general retrogression under amphibolite facies conditions (550° - 600°C, T and 0.4 - 0.5 GPa, P) affected the crystalline basement rocks. LT shear zones developed during this event with formation of S - C mylonites; v) the last metamorphic event happened under greenschists facies conditions (250° - 350°C, T and less than 0.3 GPa, P). The retrogression effects are widespread and pervasive, and, in places, they have almost fully obliterated the previous mineral associations. A later brittle deformation event produced pseudotachylytes and cataclasites mainly along normal faults.