



## How far the postorogenic extensional tectonics in the Aegean domain is symmetric?

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Current models to explain the finite geometry of the Aegean domain and the exhumation of the eclogite-bearing HP rocks in the Aegean domain rely on the recognition of a synorogenic exhumation regime followed by a postorogenic back-arc extension. A first generation of low-angle normal faults (LANF) developed during the subduction and the formation of the Hellenic Eocene orogenic wedge contemporaneously with the overthrusting of the Cycladic Blueschists over basement units. Other LANF were formed subsequently and accompanied the development of Metamorphic Core Complexes (MCC) during the collapse of the internal zones in the back-arc domain. Most of the stretching during postorogenic extension was accommodated by N-dipping LANF with N- to NE-sense of shear pertaining to the North Cycladic Detachment System (NCDS). More recently, the description of the top-to-the-south West Cycladic Detachment System (WCDS) resulted in a more symmetrical character of the postorogenic extension. However, the transition in time and space between these major structures, particularly the NCDS and the WCDS, which is a key question to understand the dynamics of the back-arc extension, remains widely unclear.

The Folegandros-Sikinos area, whose tectonometamorphic evolution appears poorly constrained, is however quite exemplary of this discussion. Located to the south of the Cycladic Archipelago, at short distance from the WCDS last outcrop in Serifos Island, this area offers the opportunity to study both the synorogenic deformation preserved at the vicinity of the Cycladic basement and the structural transition between areas characterised by top-to-the-North and top-to-the-South kinematics during the postorogenic history. Based on an extensive field survey making the link between kinematics of the noncoaxial deformation and changing metamorphic conditions, we show that (1) a [U+F07E] E-W syn-blueschists facies deformation is preserved within the HP lenses; (2) a penetrative, post-blueschists facies top-to-the-North sense of shear is present throughout the study area and (3) deformation that concentrates in the vicinity of the contact with the Cycladic basement is only characterized by a top-to-the-North kinematics. These results imply (4) the activity of a major postorogenic LANF roofing the Cycladic Blueschists (5) and the complete overprint of initial top-to-the-South thrust kinematics by top-to-the-North ones over the contact with the Cycladic basement that are consistent with a strong asymmetry of the deformation. Only a late, localized ductile-brittle deformation is recognized and thus ascribed to the activity of the WCDS to the West of the study area. LANF dipping in opposite directions with opposite sense of shear are then restricted to the west of Sifnos Island and separated from the central Cyclades by a sharp transition, highlighting a highly non-cylindrical deformation. Asymmetry of the postorogenic extension could be correlated with the amount of stretching. Rather symmetric deformation seems to occur in marginal areas of the domain while asymmetric deformation is encountered within highly-extended areas where lower crustal material is exhumed within MCCs.