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# The Nain-Baft ophiolites: an evidence of back-arc basin spreading in the active margin of the Iranian continent

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The Nain-Baft ophiolitic belt (southern part of the Iranian continental block) has been described as a tectonic mélange composed of blocks of oceanic origin. These complexes are organized as a pile of slices, stacked during upper Cretaceous, cross-cut by strike-slip faults. These slices are composed of mantle peridotites (lherzolites, harzburgites and dunites), pegmatite gabbroic pockets, pillow lavas, amphibolites, diabases, gabbro-norites, andesites, dacites, plagiogranites and cherts associated with limestones. The pieces of oceanic crust are covered by both Senonian limestones and also younger transgressive detritic limy sediments. New geochemical data show clearly that mafic and more-evolved rocks in this belt have tendency to island arc tholeiites, mid-oceanic ridge tholeiites and even to Calc-alkaline series. Subduction components in all rock series of these complexes highlight the supra-subduction zone activity for the formation of those rocks. In addition to the presence of pelagic microfossils with upper Cretaceous age, K-Ar age determination on the amphibole-bearing gabbros reveals Turonian age (93 Ma) for the crystallization time of these rocks.

The position of this ophiolitic belt (north of the Mesozoic arc and the Cretaceous high pressure metamorphic rocks of the Esfandagheh region) lead us to interpret this belt as narrow transtensional back-arc basin along the large transcurrent faults, opened during the Cretaceous in the active margin of the Iranian continent (the Sanandaj-Sirjan zone). Large transcurrent movements are the results of the oblique subduction of the northern part of the Tethyan Ocean since the upper Jurassic time. The position of these Cretaceous back-arc basins to the north of the upper Triassic-Jurassic marginal basins

of the Esfandagheh region (Soghan, Sikhoran, Kahnuj complexes) indicates the alternances of extension followed by intensive erosion and compression of this active margin, reflecting strong changes during Mid-Cretaceous in the subduction regime. Using the isotopic dates and an evaluation of the original distances between the arcs and marginal basins from upper Triassic to Cretaceous, we estimate the global migration of the subduction to the north at a rate between 2 to 5 mm/year.