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# Tectonic evolution of the Northern Lebanon region with particular reference to the Lower Cretaceous Chouf Formation

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The study area of this work comprises the northern Mount Lebanon area, roughly between Beirut and Tripoli, where the field work was carried out and numerous samples have been taken.

The main focus of this work is the understanding of the tectonic context of the neritic sandstones of the Lower Cretaceous Chouf Formation. Due to the subtle thickness variations of this prominent clastic sequence within an overall carbonate-dominated succession, its syn-depositional tectonic character has been debated in the past.

Heavy mineral analysis has been carried out and the preservation of only the most resistant heavy minerals points to a pre-existing sandstone succession as the source and thus agrees with provenance hypotheses found in the literature. Using field and remote sensing data an isopach map has been constructed, which shows an overall NNE-SSW trend with smaller isopach anomalies suggesting the presence of individual sub-basins during the deposition of the Chouf Sandstone. The map-view character of these thickness variations (ranging between 0 and 700 m) is best interpreted in terms of several extensional grabens.

Therefore, the Chouf Formation, with its shallow-water sandstones, indeed appears to be a syn-rift unit, as proposed by some recently. We propose a model of a wide-rift style extensional episode for northern Lebanon during the Early Cretaceous which did not progress to the development of a narrow rift and subsequent continental break-up. The thick Upper Cretaceous carbonate sequence above the Chouf Sandstone is therefore interpreted as a post-rift succession in our study area.