

Diagenetic evolution of Late Aalenian-Bajocian platform carbonates flanking the northeastern closure of the Tazoult salt wall (High Atlas, Morocco)

Álvaro Chaves

Supervised by: Anna Travé Herrero, Juan Diego Martín-Martín, and Gabriel Cofrade Rivas

Abstract

The Central High Atlas of Morocco is a double verging major diapiric province encompassing SW-NE trending salt-related ridges and Lower to Middle Jurassic sediments over wide synclines (minibasins) in between them. Typically, the Pliensbachian and Bajocian platform carbonates flanking diapirs exhibit partial dolomitization next to the diapir wall. The interpretation of the diagenetic products and diagenetic evolution of these dolomitized carbonates may be complex due to different fracturing patterns, fluid pathways, heterogeneities, localised uplift associated with salt tectonics, among others. The present work focuses on the dolomitization affecting Late Aalenian-Bajocian platform carbonates (Bin el Ouidane 1 Fm) flanking the Tazoult salt wall, localized in the centre of the Central High Atlas. Specifically, the objectives are: (i) to estimate the distribution and extension of the dolomitization; (ii) to ascertain the diagenetic source, type and pathway of the fluids that induced the diagenetic alterations; and (iii) to assess the role of the salt diapir on fluid circulation. Analytical work includes standard microscopy, cathodoluminescence and $\delta^{13}\text{C}$ - $\delta^{18}\text{O}$ isotopic analyses. A paragenetic sequence is discussed in order to reconstruct the diagenetic evolution of the flanking platform carbonates. The results highlight the major influence of diapirism and igneous intrusions on fluid circulation.

Keywords: dolomitization, diagenesis, platform carbonates, Central High Atlas