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A subducted Neoproterozoic rift assemblage: The Egere Group (central Hoggar, Algeria)

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Abstract

The metasedimentary Egere Group (central Hoggar, Algeria) mainly comprises abundant marbles, metapelites, metaquartzites and mafic rocks, all affected by eclogitic metamorphism. Field relationships and pre-metamorphic features in the northern Egere region attest that most eclogites represent basaltic metatufs, metabasalts extruded during carbonate sedimentation and mafic sills. A slice of ultramafic rocks includes polymictic ultramafic sedimentary breccias containing blocks of marble, suggesting these represent a preserved piece of ocean-continent transition. Field observations, along with published metamorphic constraints and age determinations suggest that the Egere Group was deposited in a Neoproterozoic rift zone. Following peak eclogitic metamorphism ($T =$ from 700 to 770°C and P max. around 19 kbar after Doukkari et al., 2014), anatexis affected most rocks at decreasing pressure. Strong high-temperature ductile deformations, NW-verging folds and thrustings relate to exhumation of the lower crust assisted by viscous flow of anatectic domes. The location of the Egere eclogites and the similar age of pre-tectonic calc-alkaline plutons exposed west of the 4°50 fault in the Iskel terrane suggest that eclogitic metamorphism formed in a west-dipping subduction setting.

Keywords

Eclogitic metamorphism; Neoproterozoic rift assemblage; central Hoggar; Ultramafic breccias; Neoproterozoic subduction; Thrust and Exhumation tectonics

1. Introduction

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