

Geological Setting of the Troodos Ophiolite

The Troodos Mountains (Cyprus) are well-known for their geology, comprising the best preserved ophiolite complex worldwide, the **Troodos Ophiolite** (Fig. 1). It represents a section of the Earth's oceanic crust and upper mantle that has been uplifted and exposed above sea level, covering an area of about 3200 km². **Its stratigraphic completeness makes it unique.** It was placed in its present position through complicated tectonic processes related to the collision of the Eurasian plate to the north and the African plate to the south.

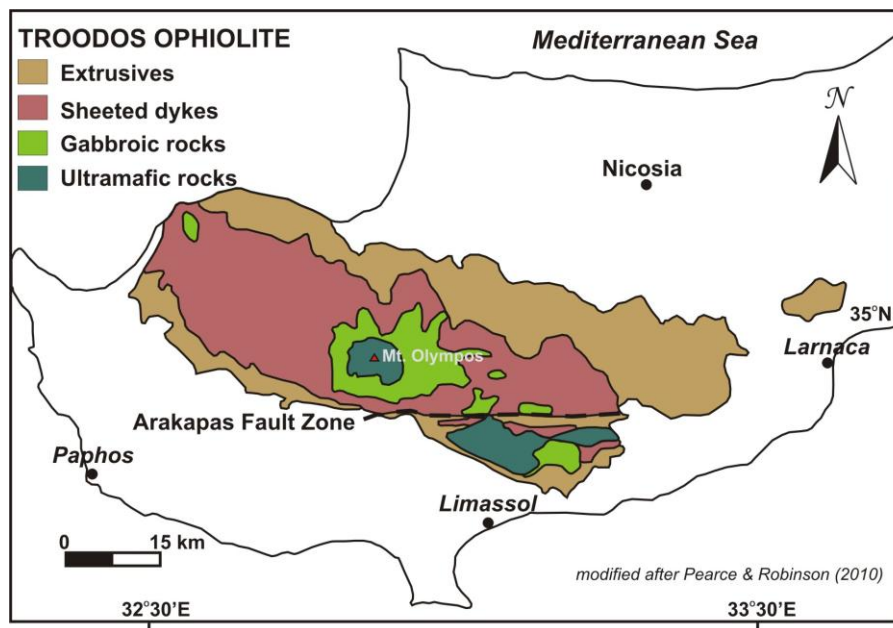


Fig. 1. Simplified geological map of the Troodos ophiolite.

The Troodos ophiolite was formed in a supra-subduction zone environment around 92-90 Ma ago (Cenomanian-Turonian), based on U-Pb isotopic dating of plagiogranites (Mukasa and Ludden, 1987). Its mantle section is divided into two units (Batanova and Sobolev, 2000). The eastern unit consists of spinel lherzolite with dunite bodies and zones of clinopyroxene-bearing harzburgite, while the western unit is principally composed of clinopyroxene-poor harzburgite and dunite. Above these mantle rocks, cumulate ultramafic and mafic lithotypes are found, which are cut by gabbroic intrusives; the upper massive gabbros locally include small plagiogranite bodies. Upwards, the sheeted dyke complex trends nearly N-S, covering about 1/3 of the total area of the Troodos ophiolite (Robertson, 2002). The overlying pillow lavas are traditionally divided into the “Lower” and “Upper” Pillow Lava units (LPL and UPL) (Gass and Smewing, 1973).

References

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