

## Accepted Manuscript

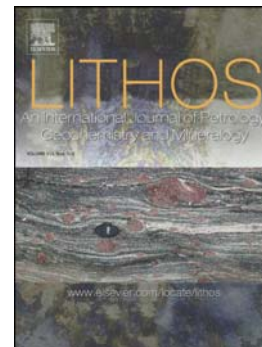
High-pressure subduction-related serpentinites and metarodingites from East Thessaly (Greece): Implications for their metamorphic, geochemical and geodynamic evolution in the Hellenic-Dinaric ophiolite context

Petros Koutsovitis

PII: S0024-4937(16)30394-2  
DOI: doi: [10.1016/j.lithos.2016.11.008](https://doi.org/10.1016/j.lithos.2016.11.008)  
Reference: LITHOS 4142

To appear in: *LITHOS*

Received date: 27 March 2016  
Revised date: 23 October 2016  
Accepted date: 3 November 2016



Please cite this article as: Koutsovitis, Petros, High-pressure subduction-related serpentinites and metarodingites from East Thessaly (Greece): Implications for their metamorphic, geochemical and geodynamic evolution in the Hellenic-Dinaric ophiolite context, *LITHOS* (2016), doi: [10.1016/j.lithos.2016.11.008](https://doi.org/10.1016/j.lithos.2016.11.008)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

1 **High-pressure subduction-related serpentinites and metarodingites**  
2 **from East Thessaly (Greece): Implications for their metamorphic,**  
3 **geochemical and geodynamic evolution in the Hellenic-Dinaric ophiolite**  
4 **context**

5 Petros Koutsovitis<sup>a,b\*</sup>

6 <sup>a</sup> Centre for Research and Technology, Hellas (CERTH), 52 Egialias St. 15125,  
7 Maroussi- Athens, Greece

8 <sup>b</sup> National and Kapodistrian University of Athens, Faculty of Geology and  
9 Geoenvironment, Department of Mineralogy and Petrology, Panepistimioupoli Zografou,  
10 15784, Athens, Greece

11 \* Corresponding author. Tel.: +30 211 1069536; fax: +30 211 1069501. *E-mail address:*  
12 *koutsovitis@certh.gr* (P. Koutsovitis)

13  
14 **Abstract**

15 Metaophiolites that consist mainly of serpentinites or metabasites outcrop in the East  
16 Thessaly region, Central Greece. These formations, along with some ophiolite outcrops,  
17 have been variably emplaced onto the Pelagonian tectonostratigraphic zone as dispersed  
18 and deformed thrust sheets. Based upon their estimated metamorphic degree,  
19 serpentinites from the metaophiolites and ophiolitic units of East Thessaly have been  
20 divided into three groups: Group-1 serpentinites include lizardite and antigorite in  
21 balanced amounts, defining low-temperature blueschist facies metamorphic conditions  
22 (~320-340 °C, P≈9-10 kbar). Group-2 serpentinites are marked by further prevalence of  
23 antigorite over lizardite, suggesting medium-temperature blueschist facies metamorphism  
24 (~340–370 °C, P≈10-11 kbar). Group-3 serpentinites are characterized by the  
25 predominance of antigorite corresponding to medium or high temperature blueschist  
26 facies metamorphism (~360–400 °C, P≈12 kbar). The chemical composition and mineral  
27 chemistry of the East Thessaly serpentinites suggest that their protoliths were highly  
28 depleted harzburgites. Group-1 serpentinites exhibit higher Mg/Si ratio values and LOI  
29 compared to serpentinite Groups -2 and -3, due to increasing metamorphic conditions of  
30 the latter groups. The prominent Cs, U, Pb, As and Sb enrichments point to subduction-  
31 related serpentinites that were subjected to fluid/rock interactions. The East Thessaly  
32 serpentinites also seem to have undergone deserpentinization retrograde metamorphism  
33 (estimated at P<8 kbar and T<350 °C). Retrograde metamorphism also had a significant  
34 impact on the rodingite intrusions hosted within the serpentinites, forming metarodingites  
35 through late-stage derodingitization processes.

36  
37 **Keywords:** Metaophiolites; Exhumation; Blueschist metamorphism; Retrograde  
38 metamorphism

Download English Version:

<https://daneshyari.com/en/article/5784112>

Download Persian Version:

<https://daneshyari.com/article/5784112>

[Daneshyari.com](https://daneshyari.com)