

THE VARISCAN FRENCH MASSIF CENTRAL - A NEW ADDITION TO THE ULTRA-HIGH PRESSURE METAMORPHIC CLUB. EXHUMATION PROCESSES AND GEODYNAMIC CONSEQUENCES.

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The first documentation of coesite-bearing eclogites in the Eastern French Massif Central (Monts Du Lyonnais unit) is presented. Exhumation processes for these very high-pressure rocks are determined by combination of mineralogical and geochronological datasets. A depth-time path and related exhumation rates is quantified. High-pressure metamorphism is constrained to 400-420 Ma (minimum 28 kbar or ca. 90 km). By 360-380 Ma the rocks were exhumed to 30 km depth. These kinetic results conform to the geological constraints extracted from the tectonic and sedimentary record of the Eastern French Massif Central. These multidisciplinary approaches provide new information on Palaeozoic orogeny and allow us to discuss the relative roles of subduction and collision in exhumation of very high pressure rocks. We suggest that a significant amount of exhumation of these rocks occurred during subduction, prior to continental collision. Continental collision itself was responsible only for the final stages of exhumation under a transpressive regime.