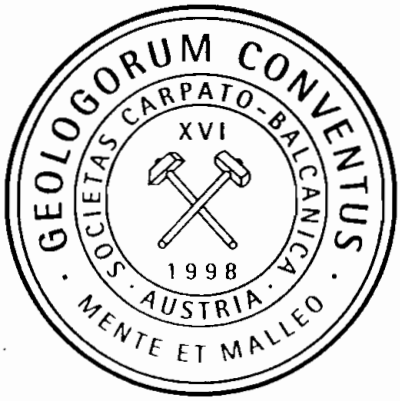
ΔΗΜΟΣΙΕΥΣΗ No 50

CARPATHIAN-BALKAN GEOLOGICAL ASSOCIATION
XVI CONGRESS

ABSTRACTS



AUGUST 30th to SEPTEMBER 2nd, 1998
Geocenter, University of Vienna,
Althanstraße 14,
1090 Vienna, AUSTRIA

Geological Survey of Austria
Austrian National Committee of Geology
Geological Society of Austria Austrian Academy of Sciences

MARIOLAKOS, I. & FOUNTOULIS, I., (1998). - Quaternary repeated activity f the Psatha fault (Gulf of Corinth, Greece). In abstracts of *XVI Congress of Carpathian-Balkan Association, Vienna*, 30/8 - 2/9/1998. Abstract, p. 366.

QUATERNARY REPEATED ACTIVITY OF THE PSATHA FAULT (GULF OF CORINTH, GREECE)

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The preliminary results of the study of the Psatha fault are presented. Psatha fault is located between the easternmost margin of the Gulf of Corinth (Greece) and the westernmost margin of Pateras Mt., consisting the southern boundary of the Psatha bay, which is a lower order neotectonic structure (graben). It trends NE-SW and cuts the southern marginal fault zone of the Pateras Mt. horst which strikes NW-SE, and forms the boundary between the Pateras Mt. Horst and Megara half graben. From the neotectonic point of view the study area is located in the transition zone between a horst (Pateras Mt.) that is constituted with neritic limestones of the Sub-Pelagonian alpine geotectonic unit and a graben (Gulf of Corinth) that has been filled with Plio-Quaternary deposits.

Psatha fault constitutes a very interesting case study, as many reactivation have been expressed upon it during Quaternary. It constitutes the tectonic boundary between the Pleistocene deposits and the neritic limestone. In the area of Psatha Bay, mainly debris cones and alluvial fans represent the Quaternary deposits. They consist of calcareous gravels arranged in layers, slightly consolidated in the upper part, whereas in the lower parts are more cohesive. Very often limestone blocks occur within these deposits. The thickness of the deposits is estimated to be more than 60 meters, while the age - after some authors - is most probably Wurmian. A recent removal of the Quaternary deposits (scree) at a part of the fault that hasn't been eroded yet gave us the opportunity to observe and to study successive reactivations of the fault.

More specifically, the **shape** of the fault surface is not planar but curved, i.e. convex and concave. The **tectonic breccias** observed on the fault could be distinguished at least in two different categories taking into account the lithology of the fragments they consist, the matrix and their relative age. The oldest tectonic breccia is compact and oligomictic and consists exclusively of very small angular particles of the neritic limestones. The thickness of this brecciated sheet of the fault surface exceeds some centimeters. This breccia can be observed all over the fault surface, either it is eroded or not. A thin calcitic film the thickness of which in some places is about 5mm but usually is thinner covers this tectonic breccia. The relative younger tectonic breccia is polymictic and consists of fragments of post alpine deposits of Plio- Quaternary age (sands, silts, etc.) as well as of neritic limestones, whereas in some places of the fault surface, fragments from the older tectonic breccias are present as well. The size of the angular coarse material varies from 1 to 5 cm, the origin of the cement is from the Plio- Quaternary deposits. The thickness of this breccia is more than 2 meters.

The structure indicating successive reactivation of the fault is the presence of plunging **slickensides**. They are distributed all over the non-eroded fault surface independently if the fault cuts limestones, older tectonic breccias, or the younger tectonic breccias. The older slickensides set seems to be that of first (I) set, plunging $62^0/294^0$. It occurs always on the older oligomictic breccias surface dipping $68^0/332^0$ with very high frequency. A second (II) set occurs on the same surface plunging $55^0/278^0$. The next slickenside generation – whose frequency is relative low – is that of the third (III) set, plunging $34^0/260^0$. They occur not only on the surface of the oligomictic breccias, but also on the surface of the polymictic breccias and especially on pebbles that come from the limestones. This surface dips $70^0/336^0$. The fourth (IV) generation of slickensides occurs on fault surfaces cutting the polymictic tectonic breccias, plunging $62^0/282^0$. The slickensides have been printed especially on pebbles and gravels of the polymictic breccias coming from the neritic limestones. This surface dips $78^0/346^0$. Taking all the above mentioned into account that is;

(i) The curved fault surface
(ii) The successive breccias
(iii) The oblique slickensides
(iv) The oblique-slip character of the reactivated faults during the seismic activity of 1981 (MARIOLAKOS et al., 1981)
(v) As well as studies on Morphotectonics that have been done after the earthquake activity of 1981

We believe that the deformation of both the narrow and the major area is **not** that of **pure extension** but it is more complicated namely of a **rotational couple** stress field.