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New datings (by Nannofossils assemblages) and structural data from flysch formations of the Crimea Peninsula (Ukraine): consequence on the tectonic evolution of the Eastern Black Sea.

Yevgeniya SHEREMET-KORNIYENKO (1,2), Marc SOSSON (2), Oleg B. GINTOV (1), Carla MÜLLER (3), Yuri M. VOLFMAN (4), Tamara YEGOROVA (1), Anna MUROVSKAYA (1), and Yekaterina KOLESNIKOVA (4)

(1) Subbotin Institute of Geophysics of Academy of Sciences of Ukraine, Palladin, av 32., 03680 Kiev, Ukraine(korngane@gmail.com), (2) Université de Nice Sophia Antipolis, UMR Géoazur, CNRS, IRD, OCA, Valbonne, France, (3) Rueil Malmaison, France, (4) Subbotin Institute of Geophysics of Academy of Sciences of Ukraine, Gagrina Str., 20, 95026 Simferopol, Ukraine

The Crimea Mountains are the part of “alpine belt” and in general structural framework are located in its northern branch, appearing as an inverted part of the northwestern passive margin of the East Black Sea (Nikishin et al., 2001). In addition, it has the similarities with the Greater Caucasus and contains the indications of tectonic events related to the Greater Caucasus basin evolution as well as the deformations connected to the Cenozoic shortening of the East Black Sea and Greater Caucasus (Milanovsky, 1991; Ershov et al., 1999, 2003, Nikishin et al., 1998, 2003. Despite the fact that Crimea Peninsula is an object of studying for researches in the period of more than 100 years, there are unresolved key questions remain to the stratigraphy and to the tectonics as well. Consequently, the new models of the tectonic evolution of the Crimea are controlled by the uncertain stratigraphy columns, regarding its part that assumes to be the oldest in the Crimea.

Tavrik flysch (or Tauric) is a group, dated from Middle Triassic till Lower Jurassic is succession of thick dark colored shales, layers of sandstones, siltstones and argillites with locally siliciclastic rocks containing blocks of limestones (Muratov, 1960, Okay and Nikishin, 2012). The evidences of Triassic and Lower Jurassic age of the flysch unit have been found (Robinson and Kerusov, 1997) as well as the age of different blocks contained in it (Carboniferous, Lower Jurassic and even Cretaceous in the upper part of flysch which is presumed to be Triassic) (Degtyareva et al., 1978, Ippolitov. et. al., 2008). Popadyuk, (2011) extends the time interval for the flysch formations up to Lower Cretaceous (Aptian-Albian). Also, there is no consensus on the volcanism of the Crimea, the timing and phases of which vary from the Triassic to Lower Cretaceous.

All of the Tavrik flysch is strongly deformed by folding and faulting. In order to precise the age of these structures and to define the origin of flysch, the determination of the deposition age is the main goal for reconstruction the tectonic evolution of the Crimea Peninsula (is it related to a back-arc basin opening and then deformations occurred with the Cenozoic shortening or it is connected with an accretionary prism?).

Therefore and to clarify the stratigraphy as mentioned above the region of Eastern Crimea Mountain was sampled during 2012–2013 years (224 samples in flysch-type deposition of different age). These samples were analysed in order to detect nannofossils assemblages. Only 52 samples allow to determined ages by this method. Indeed in a lot of sample Nannofossils are probably dissolved, but in most case the environment was too bad for their development. There is a lot of volcanic ash partly altered to clay in most of the barren samples. Some samples also are characterized with occurrence of micas clasts, especially. Moreover, structural analysis has been carried out and observation of contact between the upper Jurassic limestones and flysch rocks were made. The first draft of the structural map has been made and several cross sections on the base of new dating and structural data will be presented.
These new results allow testing the various tectonic models regarding the Crimea peninsula and the northern margin of the Eastern Black Sea.