CRUSTAL MOTIONS IN THE EASTERN CARPATHIANS (VRANCEA) MEASURED BY GPS

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The Carpathian-Pannonian system has had a long geological history culminating in the past 16 Ma in the subduction of an ocean basin. The subduction process seems nearly completed. There is tomographic evidence, which delineates a localized slab (down to 350 km) below Vrancea. Below the remainder of the Carpathian arc no slab is found in the tomography. However, at large depth (> 500 km) a huge "pancake" of high seismic velocity material is detected which is interpreted as the remnant of detached slab [Wortel and Spakman, Science 2000]. One basic question regarding the Vrancea slab is whether it is still attached to surface lithosphere, or already detached, or in the process of being detached. To answer this question we have embarked on a project to measure the crustal motions in this region using both continuous and campaign style GPS observations. In 2001/2002 four permanent stations have been installed. In addition, a large GPS campaign was carried out in 2002, during which a network of 50 stations was observed including many points which were already occupied in previous campaigns, performed by the University of Karlsruhe, CERGOP and the University of Savoie. We present here the first results of the combination of the several campaign solutions, including the 2002 campaign.