Geophysical Research Abstracts, Vol. 7, 02915, 2005
SRef-ID: 1607-7962/gra/EGU05-A-02915

A new stage of geodynamic investigations of the Ukrainian Carpathians by GPS technologies

P. Chernyaha (1), O. Kucher (2), S. Savchuk (3), K. Tretyak (3) and **F. Zablotskyj** (3)

(1) National University of Water management and nature resources use (Rivne, Ukraine), (2) Research Institute of Geodesy and Geographic information systems (Kyiv, Ukraine), (3) National University "Lviv Polytechnic" (Lviv, Ukraine)

fzablots@polynet.lviv.ua / Fax: +38 0322 74 43 00

With the aim of further geodynamic investigations of the Carpathian region the project of carrying out of GPS measurements on the points of geodetic and geodynamic networks has been developed. The project was realized as a component of the state geodetic network of Ukraine by joint efforts of “Ukrgeodeskartographia” and University “Lviv Polytechnic” during the summer period 2004. The project network includes more than 40 points and covers evenly the territories of the Precarpathians, Carpathians and Transcarpathians. The mean distance between the points makes up about 50 km. The daily GPS measurements have been carried out on the network points by means of 17 dual-frequency GPS receivers Trimble and Leica.

The network includes three permanent GPS stations: UZHL (Ughorod), SULP (Lviv) and SHAZ (Shatsk) and is linked with the points of the Carpathian geodynamic test field and with the fundamental bench marks of the repeated leveling lines. In future the repeated GPS measurements will be adjusted to the measurement results of the repeated leveling. This allows us to make the maps of the recent gradients of the earth’s surface vertical movements more precise. The above mentioned network is connected with the geodynamic network of the Tereblya- Rikska hydroelectric power station as well as with the Pip-Ivan point where it is planned to make the restoration of the Ukrainian-Polish observatory. In August 2004 the GPS measurements were carried out also on the 8 points of the high-precise leveling network which encircles the Carpathian geodynamic test field. The repeated GPS measurements are being planned to be carried out in the nearest future with the aim of a more profound study of the

Carpathian region geodynamics. After the results of the repeated measurements, the deformation parameters of the earth's surface will be determined and their correlation dependences on the seismic activity will be fixed. This activity is being controlled by the network of seismic and geophysical stations located in the Carpathian region.

The foregoing geodetic and geodynamic networks will be used to control the man-caused and anomalous natural processes (floods, landslides, reservoirs sedimentation and others phenomena) which lived up lately.