THE NETWORK OF TRIGONOMETRIC POINTS OF FIRST ORDER OF JTSK AND ITS CONNECTION WITH THE IMPLEMENTATION OF THE ETRS89 SYSTEM IN THE CZECH REPUBLIC

Pavel Taraba*

Abstract

The JTSK First order trigonometric points (TP) network was being built on the Czechoslovakia territory between 1921 and 1953. Its initial implementation was completed in the spring of 1927 and included 268 trigonometric points, which thus form the basic framework of the Czechoslovak positional geodetic control. In the following years, the network was supplemented with additional points, especially in the territory of Bohemia and Sub Carpathian Russ, and connected with similar networks in the surrounding states. After its completion in 1953, it contained 388 trigonometric points.

After launch of GNSS technology, in 1991, 6 of its points (3 in the Czech Republic and 3 in Slovakia) were chosen for the measurement campaign EUREF-EAST-91 (EUREF-CS/H-91), which was part of building the European framework of the ETRS89 system.

In order to implement the ETRS89 system in former CSFR (Czech and Slovak Federal Republic) in more detail, the CS-NULRAD-92 campaign was carried out by the CSFR national geodetic service. This campaign was executed by the National Geodetic Service of the Czech Republic, which is responsible for the implementation of the ETRS89 system in the Czech Republic. The campaign was carried out in cooperation with the National Geodetic Service of Slovakia, which is responsible for the implementation of the ETRS89 system in Slovakia.

* pavel.taraba@cuzk.cz
included 18 TPs (10 on the territory of the Czech Republic and 8 on the territory of Slovakia) and 17 of them were TPs of the First order.

After division of Czechoslovakia into the Czech and Slovak Republics, a multi-stage CS-DOPNUL measuring campaign was carried out in the Czech Republic in the years 1993-1994, which included 176 points, 28 TP of which were of the First order.

In the next stages of densification TPs with coordinates and in ETRS89 on the territory of the Czech Republic, other TPs of the First order of the JTSK were only sporadically involved.

The First-order TB network is currently still part of the geodetic control, is still used for measuring purposes and is administered by the Land Surveying Office in the Czech Republic and by the Geodetic and Cartographic Office in Slovakia. Even though today its main parts are located on the territory of three sovereign states, namely the Czech Republic, Slovakia and Ukraine (Zakarpattia region), it can be stated that it has been preserved as a compact unit in almost its entirety, including connecting points on the border of Hungary and Austria. As part of the citizen's initiative, 367 out of 388 First Order TPs were visited during the years 2009-2021 and their status was documented. (Unfortunately, the completion of the initiative is impossible due to the martial law in Ukraine after its invasion by Russia.) Surface stabilization of points was not found in 26 cases (i.e. 7.1 %), with only 12 cases (i.e. 3.2 %) being assumed, that point was destroyed completely.

Klíčová slova

Trigonometric body, JTSK, geodetic základy

Keywords

Trigonometric points, JTSK, geodetic control