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**STRATEGY FOR DETERMINATION OF PRECISE
COORDINATES AND VELOCITIES
OF PERMANENT GNSS STATIONS**

Tsocho Danchev, Marinely Dancheva (BG)

ABSTRACT

The aim of this report is to analyze the behavior of 30 permanent GNSS stations, representing one of the licensed infrastructure networks on the territory of Republic of Bulgaria. GNSS measurements with one-week duration of three campaigns were used (in April 2014, 2016 and 2018). Considering the long distance between the stations of the network, the determination of their coordinates and velocities is implemented using Bernese GNSS Software v5.2. A processing strategy is defined, based on the most contemporary concepts, proposed by the International GNSS Service – IGS. As a result, high precision coordinates and velocities of the points are obtained. The adjusted coordinates and velocities are transformed into European Terrestrial Coordinate System – ETRS89, whereat in addition to the obtained absolute velocities in ITRF2014 - relative velocities are derived. The estimated horizontal velocities of the stations have not only scientific, but also highly applicable significance in terms of determination of real station coordinate for the epoch of observation. A comparison between the results of the current analysis and existing geological data is made, as consistency between the is proved.

AUTHORS:

Tsocho Danchev

PhD student at Faculty of Geodesy,

University of architecture, civil engineering and geodesy, Sofia

e-mail: tsdanchev@gmail.com

Marinely Dancheva

e-mail: mpdancheva@gmail.com,