

ANALYSIS OF DATA FROM THE REGINA KITG STATION LOCATED IN UZBEKISTAN

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The REGINA Project is a collaboration between CNES and IGN set up in 2012. The REGINA infrastructure is based on a global network of more than 30 GNSS stations (see [list of stations](#) in Fig.1), equipped with receivers capable of acquiring signals from current and future navigation systems (in particular GPS, GLONASS, GALILEO, BEIDOU and various SBAS) and provide real-time (RT) and non-real time (DT) data streams [1].

Network deployment is done in collaboration with many organizations with the purpose to have the best worldwide coverage. It also includes the upgrade of French GNSS partner stations operated by CNES and the integration of IGN stations. For site selection, it is sought to colocalize several spatial geodesy measurement techniques such as DORIS, in order to participate in international terrestrial reference system (ITRS). REGINA provide state-of-the-art navigation data to the scientific community with a very good availability. A modern mission center is operational since June 2016 and allows network monitoring, data processing and data dissemination to users [2]. In real time, about 30 stations of the network transmit data to the data analysis center in Toulouse (France). The stations are mainly combined with another French tracking satellite system DORIS. Since 2016, continuous observations have been carried out at the KIVC/DORIS and KITG/REGINA points in the city of Kitab in the Kashkadarya region of Uzbekistan (Fig. 2).

In this work, the measurements obtained from the REGINA network stations were processed to estimate the positions and velocities of the points. Data for the period from 2015 to 2020 were selected for analysis. The processing was carried out in the GAMIT/GLOBK software package of the Massachusetts Institute of Technology [3]. The package includes a set of programs for calculating daily positions of stations, estimating atmospheric delays, resolving phase ambiguities and orbital parameters. The stages of processing GPS measurements were described in detail in [4].



Figure 1. Network of Regina stations. **Green:** standard station, not E6 GALILEO compatible. **Blue:** newest generation station, E6 GALILEO compatible.



Figure 2. DORIS/IDS, GNSS/REGINA station in Kitab.

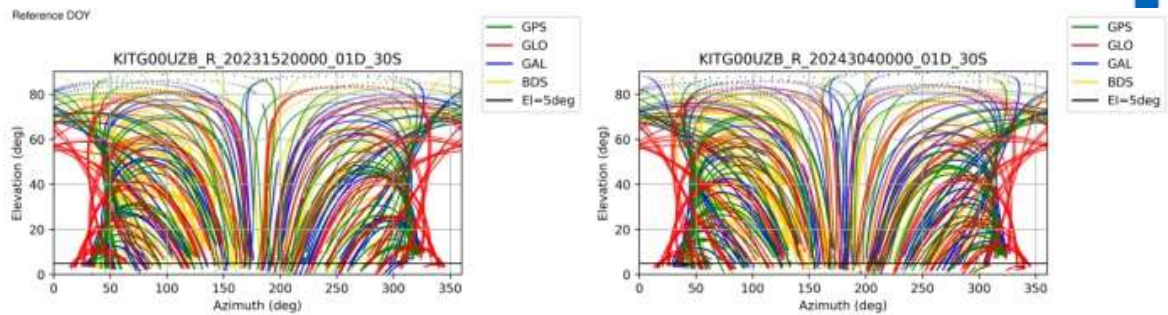


Figure 3. Observed number of observations for GNSS

This percentage corresponds to the ratio number of complete observations with respect to the number of predicted observations for a fixed elevation cut off angle of 5° . It is computed from Rinex3 Daily/30s Anubis quality files for GPS, GLO, GAL, BDS constellations since 2020-11-17, and from Rinex2 Daily/30s files for GPS, GLO, GAL, SBAS constellations before this date. The main criteria for assessing the accuracy of the obtained data are checking the inclusion of all measurements in the processing and the compliance of the models with the specified accuracy. The NRMS values for stabilization should be close to one in all three coordinate components, and the WRMS should have a value of 1-2 mm horizontally and 3-10 mm vertically [5,6].

REFERENCES:

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