

Galileo Only Cadastral Survey

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SUMMARY

The European Global Navigation Satellite System (GNSS) Galileo has declared the initial services starting December 15th, 2016. The content of these initial services and the expected availability and accuracy are described in a service definition document. Anticipating on the Galileo open service, the Dutch Cadastre has upgraded its network of GNSS stations with hardware capable of tracking Galileo stations and equipped its surveyors with Galileo-ready hardware. Using the data from the upgraded network of Galileo enabled GNSS stations we explored the possibility of using Galileo as a stand-alone system, e.g. without the support of the other GNSS systems GPS, GLONASS and BeiDou, for Real-Time Kinematic (RTK) surveying. The duration of the test was from the declaration of initial services until July 31st 2019. The goal of this activity was to demonstrate the Galileo capability of the GNSS network and the GNSS user hardware.

In this contribution we will describe how the experiment of the Galileo only RTK was setup as post processing activity and how we used the results to plan and execute a Galileo only RTK survey at the site of the Galileo Reference Centre in October 2019. The results show how the availability of Galileo only RTK has improved over time mainly due to increased number of satellites, from a few moments per day with 11 available satellites in December 2016 to almost full availability with 22 operational satellites in July 2019. We also show the stability and repeatability of the availability of the RTK solution. Finally results of an actual survey, what we believe is the first stake out of a Cadastral boundary in October 2019 using Galileo only, are presented.