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ABSTRACTS

Improving GNSS Position accuracy in urban areas by using multi-GNSS technology

Andreea Mihailescu, Johan Neuner(Romania)

Keywords: Multi-GNSS, Galileo, BeiDou, PPP, SNR, DOP, Multipath

Abstract

The different global systems have been designed to be compatible. According to the definition of the US space-based position, navigation, and time policy, compatibility refers to the ability of two services to be used separately or together without interfering with each individual service or signal. With advent of new global systems in full operational capability (Glonass, Galileo, BeiDou) offers the ability to improve positioning accuracy by using a combined positioning method. The aim of the paper is to present the manner in which data from several satellite systems can be used concurrently and to emphasize the necessity of adopting a combined GNSS-based solution in difficult environments where the multipath phenomenon is present. The precision obtained using Static Precise Point Positioning (static - PPP) was analyzed. With an increasing number of satellites the DOP (Dilution of Precision) values decrease, and, consequently, the position accuracy increases. It is analysed SNR (Signal-to-noise ratio) in order to quantify the signal power of the received signal. Carrier-to-noise ratio below 34 dBHz characterize weak signal.