

## **Assessment of NeQuick Ionospheric Model for Galileo Single-Frequency Users**

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### **A b s t r a c t**

The ionosphere is the main error source in GNSS measurements and in extreme cases can degrade the positioning significantly, with errors exceeding 100 m; therefore, modelling and predicting of this type of error is crucial and critical. The ionospheric effect can be reduced using different techniques, such as dual-frequency receiver or suitable augmentation system (DGPS, SBAS); the aforesaid approaches involve the use of expensive devices and/or complex architectures. Single frequency stand-alone receivers are the cheapest and most widespread GNSS devices; they can estimate and partially correct the error due to the ionosphere, through adequate algorithms, which use parameters broadcasted by the navigation message. The aim of this paper is performance assessment of the ionospheric model NeQuick, adopted by the European GNSS Galileo for single frequency receivers. The analysis is performed in measurements domain and the data are collected in different geographical locations and in various geomagnetic conditions.

**Key words:** GNSS, Galileo, ionospheric models, NeQuick, Klobuchar.