Abstract:
The code ionospheric bias, also known as the Differential Code Bias (DCB), is an important correction term for single frequency receiver. This paper proposes a new method to estimate the biases as well as the vertical ionospheric delays using Kriging estimator with a network of receivers. Kriging estimates an unknown variable based on a set of known parameters and a variogram describing the spatial correlation. It is the best estimator in the sense of minimizing the estimation variance. A joint estimation of the vertical ionospheric delays and the biases results in a rank-deficiency that needs to be solved. Simulation results have shown cm-level accuracy on the ionospheric bias estimates. The algorithm has also been applied with real GPS data for multiple days, which showed high bias repeatability. The bias estimates have been verified by a comparison between the bias estimates and the published values.