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MULTI-GNSS: POTENTIALS, RISKS AND BENEFITS

Abstract

Within this decade, there is the high probability for the full operation of four different Global Navigation Satellite Systems: GPS, GLONASS, Galileo and Beidou. While GPS and GLONASS are already in full operation and undergoing modernisation, efforts are on to get Galileo and Beidou to run fully by 2020. There are also a couple of regional and augmentation systems. Having several systems ought to be well received, but can this be said of the Global Navigation Satellite Systems (GNSS)?

Noting the importance of GNSS, the United Nations Office for Outer Space Affairs (UNOOSA) formed the International Committee on GNSS (ICG) as a platform for providers and users, to promote access to and utilisation of GNSS infrastructure. The role of Working Group A of ICG is to ensure the interoperability and compatibility of the different systems. Applying Carson's Best Worst Analysis, this paper seeks to highlight the potentials, risks and benefits of the different systems working together. This method of risk analysis encompasses both quantitative and qualitative analysis. It will answer questions such as: what are the benefits of the systems working as one? What challenges will this pose? Are there other ways of utilising multi-GNSS? Answers to these questions and related issues, will not only benefit GNSS providers; it will also benefit commercial solution/application providers, policy/decision makers and users.