

An Assessment of RTK and PPK Solutions in a CORS Network

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Recently, Sri Lanka has developed a greater interest in surveying applications based on Continuously Operating Reference Station (CORS) technology. CORS Real Time Kinematic (RTK) can perform well through a good Global System for Mobile Communications (GSM) coverage area by receiving the corrections in real-time. It is very difficult when facing the GSM network coverage limitation issue in remote areas. As an alternative solution, Post Processing Kinematic (PPK) is a good solution to face this problem because it does not need a real-time data communication link for the correction signal when conducting the survey. This study aims to compare the RTK and PPK solutions in a CORS network in Sri Lanka. Seven known points were selected near the Belihuloya area. The CORS reference station was the SULECO SUSL station. Position solutions were compared for both PPK and RTK methods with several sets of observations. According to the results, the horizontal variation of the PPK was as accurate as the RTK solution, which was below the 1cm mean difference. However, the vertical accuracy was lower than the horizontal accuracy in the PPK technique. This was around 10 to 15cm variations in the study area. In conclusion, both PPK and RTK techniques gave similar results in terms of horizontal accuracy in a CORS network. Therefore, the issues of real-time corrections transfer in a CORS network can be overcome by adopting PPK mode for the boundary and detail survey without interrupting the progress.

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