

Performance of Ionospheric Error Mitigation Techniques for Single-Frequency GNSS Positioning in the South East Asian Region

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SUMMARY

The ionosphere layer of the Earth contributes a significant amount of error in GNSS positioning. The severity of ionospheric effects depends on time and location of GNSS receivers. Generally, ionospheric error ranges from 5 m to 15 m during noon time under high solar activities, especially in equatorial region, e.g. South East Asia. Users with dual-frequency L1 and L2 GNSS receivers can take the advantage of measurements from both frequencies to remove the effect but single-frequency receivers have to apply an ionosphere model for error mitigation. In this study, the performance of single-frequency GNSS positioning (relative and precise point positioning) in terms of positioning accuracy during low and high solar activity periods in South East Asia, is investigated. The investigation is conducted by exploiting different strategies for ionospheric modelling in Leica Geo Office software.

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