Determination of Optimal Site Location for Continuously Operated Reference Station (CORS) and it's validation with CORS Station Quality Index (CSQI)

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Key words: Digital cadastre; e-Governance; Engineering survey; GNSS/GPS; Land management; Low cost technology; Mine surveying; Positioning; Property taxes; Reference frames; Reference systems; Spatial planning; Young surveyor; Keyword 1; Keyword 2; Keyword 3

SUMMARY

NRTK GPS positioning uses raw measurements gathered from a network of Continuously Operating Reference Stations (CORS) in order to generate more reliable error models that can mitigate the distance dependent errors within the area covered by the CORS. The positioning of permanent GNSS station in a CORS network is highly restrained. Selection of optimal location on ground is crucial for network quality and further dissemination of optimal correction to rover in field. A CORS Station Quality Index (CSQI) is proposed as an explicit indicator of the quality of location for CORS on ground. By incorporating the proposed approach, and quality of location for a CORS base station can be judged and relative weightage to each CORS station could be assigned for network solution. The results suggest that a set of data quality parameters when used in combination can effectively select stations with high-quality GNSS data with more weightage and improve the performance of Network Real Time Kinematics (NRTK). The number of geodetic applications utilize the GNSS relative positioning capabilities offered by the CORS network (Snay & Soler, 2008).