

## 强电离层影响下GPS精密单点定位的周跳实时探测与修复

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## A Real-time Algorithm for Cycle Slips Detection and Correction of Precise Point Positioning in Strong Ionospheric Influence

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摘要

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**摘要** 该文提出了一种应用于GPS精密单点定位的周跳实时探测与修复的方法。该方法基于双频P码,可在受到强电离层影响的情况下应用于静态定位与动态导航。为了保证周跳探测与修复的实时性与准确性,采用信号处理与数据处理相结合的方式并通过合理性检验降低误判概率。通过实际数据的处理验证了该方法在强电离层影响情况下的有效性。

**关键词:** 全球定位导航系统 精密单点定位 载波相位 周跳

**Abstract:** An algorithm of real-time detecting and correcting cycle slips for Precise Point Positioning (PPP) is presented. Based on dual-frequency pseudorange and carrier-phase observations, the algorithm can be used for static positioning and dynamic navigation under vigorous ionosphere activity. In order to ensure real-time capability and veracity, data processing and signal processing are combined and a method of reasonableness verification is presented to lower the probability of misjudge. A practical application is also presented to prove the applicability of the algorithm in strong ionospheric influence.

**Keywords:** Global Positioning System (GPS) Precise Point Positioning (PPP) Carrier phase Cycle slip

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