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GPS 定位解的可信度研究

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STUDY OF RELIABILITY DEGREE OF GPS POSITIONING SOLUTION

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摘要

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摘要

基于模糊数学理论的研究方法, 给出了GPS定位解的可信度的定义。然后给出了可信度的解析表达式, 并利用可信度的解析表达式对可信度的性质进行了研究。最后探讨了可信度可能的应用。

关键词: 全球定位系统 模糊数学 可信度

Abstract:

GPS positioning error is decided by 2 factors: PDOP and SNR 3 (the sum of signal to noise ratio of three baseframe satellites). To give the positioning solution a more reasonable assessment, it is necessary to consider these 2 factors simultaneously. This paper presents firstly the fuzzy membership function of PDOP and SNR 3, and then uses the fuzzy comprehensive judgement to generate the definition of reliability degree of GPS positioning solution. Based on the definition, an analytical expression of reliability degree of GPS positioning solution is obtained. By utilizing the analytical expression, the properties of reliability degree of GPS positioning solution are studied. The calculated results show that the reliability degree of GPS positioning solution can accurately reflect the actual situation of positioning solution. Finally, this paper also seeks to investigate the possible application of reliability degree of GPS positioning solution.

Keywords: GPS fuzzy mathematics reliability degree

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