研究简报

基于双台链罗兰C导航仪的双曲线导航定位算法

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摘要
该文提出了一种直接解法与牛顿迭代计算相结合的方法来求解船位。首先用直接解法在球面上求得组合双曲线方程组的一个解, 当作船位的概位解, 然后应用牛顿迭代法, 求解$\triangle \varphi$, $\triangle \lambda$, 当此差值小于某个预先给定的收敛门限ε时, 则所求船位为真实解。一般只要迭代二、三次就可得到秒级精度的船位解。

关键词　双台链罗兰C　双曲线导航　牛顿迭代法

分类号　TN961

The calculation research of hyperbolic navigation position fixing based on double station chains loran c navigator

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Abstract

This paper presents a method which links direct solution and Newton iterative method to calculate ship s position. First, a result of the combination hyperbolic equations is got using the direct solution on the sphere and is taken as the ship s approximate position. Then, Newton iterative method is applied to caculate $\triangle \lambda$ and AA. When $\triangle \psi$ and $\triangle \lambda$ are less than ε which is given as a convergent standard beforehand, the ship s position calculated is the correct one. In general, only iterating two or three times, the calculating accuracy is about one second.

Key words　Double station chains LORAN C　Hyperbolic navigation　Newton iterative method

DOI :

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