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A NEW ORIENTATION METHOD BASED ON SINGLE SHORT BASELINE OF NAVIGATION SATELLITE SIGNAL

Abstract

In order to reduce the length of the measurement baseline between the navigation satellite signal receiving antennas installed on the target, so that the navigation signal of the navigation satellite can be directly used in the orientation of small targets, a new orientation method based on single short baseline of navigation satellite signal is proposed in this paper. Firstly, the direction vector estimation model of the single measurement short baseline in the geocentric coordinate system is established. Then the direction vector estimation of the single measurement short baseline in the geocentric coordinate system is calculated. Finally, the estimations of azimuth Angle and elevation Angle of the single measurement short baseline are calculated to complete the orientation of the baseline. In this method, a single measurement baseline composed of two navigation satellite signal receiving antennas on the target is used to complete the orientation of the measurement baseline, and the length of the measurement baseline is controlled within half a wavelength of the downlink carrier signal. The measurement baseline can be significantly shortened by this new method and can be installed on small or miniature targets.