UNIVERSITI TEKNOLOGI MARA

ACCURACY DETERMINATION FOR ATLAS-L BAND RT-PPP WITH VARIOUS SATELLITES POSITIONAL DATASETS

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Real-Time Precise Point Positioning, known as RT-PPP, has been widely used within the Global Navigation Satellite System (GNSS) community for some reasons, such as being very economical and easy to perform from anywhere. The position can be obtained in real-time using real-time GPS-accurate products provided by various international geodetic organisations. Depending on the Dilution of Precision (DOP) and prevailing atmospheric conditions, the drawback of RT-PPP techniques is the comparatively slow convergence time needed to obtain location accuracies of 10 cm or better. Nonetheless, if there is a signal outage in achieving these corrections, the reliability of RT-PPP will suffer a major decrease. This study aimed to evaluate positioning utilising Real-Time Precise Point Positioning (RT-PPP) would impact the accuracy of positioning system based on IHO standard with various combinations of satellites such as GPS, GLONASS, and BeiDou . The objectives were to assess the accuracy and identify the variable parameters that influence location accuracy while utilising Atlas with various satellite. To achieve the goal, a data-collecting observation is conducted out on the rooftop of Block A, UiTM Perlis, using a Hemisphere antenna and receiver. The data will then be evaluated and analysed to ascertain the extent to which Atlas acquired data using various satellite combinations such as GPS, GLONASS, and BeiDou. GPS was more accurate than others considering its lower standard deviation based on observation time by analysing the observed data. The number of satellites, HDOP, Northing, and Easting, were all checked for precision consistency during the observation period. The processed data will be assessed to verify if it complies with IHO standards.

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