INTISARI

RT-PPP merupakan salah satu metode survei GNSS yang dikembangkan dari metode absolut. Metode RT-PPP menggunakan satu *receiver* GNSS yang mempunyai penangkap sinyal L-band. Adanya penangkap sinyal L-band memungkinkan *receiver* GNSS dapat menangkap koreksi dari satelit komunikasi yang telah menerima koreksi *broadcast ephemeris* dari satelit-satelit navigasi. Metode RT-PPP sangat mengandalkan koreksi dari satelit komunikasi tersebut untuk pengoreksian data sehingga kemungkinan pengaruh dari kondisi obstruksi sangat tinggi. Penelitian ini bertujuan untuk mengetahui ketelitian metode RT-PPP pada kondisi obstruksi rendah, sedang, dan tinggi terhadap titik yang diukur menggunakan metode RTK-NTRIP.

Akuisisi data dilakukan di Kawasan Alam Sutera, Kota Tangerang. Terdapat 18 titik pengamatan yaitu 10 titik pada kondisi obstruksi rendah, empat titik pada kondisi obstruksi sedang, dan empat titik pada kondisi obstruksi tinggi. Alat yang digunakan adalah *receiver* GNSS Navcom SF-3040. Pengukuran setiap titik dilakukan sebanyak 20 kali masing-masing menggunakan metode RT-PPP dan RTK-NTRIP. Pengukuran metode RTK-NTRIP dilakukan hingga mencapai solusi *fix*, sedangkan untuk pengukuran metode RT-PPP dilakukan hingga mencapai *fom (figure of merit)* minimal 9. Tingkat kepresisian titik-titik RT-PPP dianalisis berdasarkan sebaran ke 20 titik tersebut. Uji ketelitian hasil pengukuran dilakukan dengan membandingkan koordinat hasil pengukuran metode RT-PPP yang telah ditransformasi dengan hasil pengukuran metode RTK-NTRIP.

Penelitian ini menunjukkan bahwa nilai rerata perbedaan koordinat horizontal metode RT-PPP terhadap RTK-NTRIP sebesar 6,3 cm pada obstruksi rendah, 7,6 cm pada obstruksi sedang, dan 35,8 cm pada obstruksi tinggi. Nilai rerata perbedaan koordinat vertikal sebesar 0,019 m pada obstruksi rendah, 0,012 m pada obstruksi sedang, dan 0,256 m pada obstruksi tinggi. Kondisi obstruksi memberikan pengaruh yang signifikan pada ketelitian metode RT-PPP. Ketelitian metode RT-PPP pada kondisi obstruksi rendah dan sedang cukup konsisten, namun ketelitian metode RT-PPP pada kondisi obstruksi tinggi sangat bervariatif dan memiliki perbedaan yang mencapai nilai tertinggi 63,8 cm terhadap metode RTK-NTRIP.

Kata kunci: Ketelitian, L-band, Obstruksi, RT-PPP, RTK-NTRIP

ABSTRACT

RT-PPP is one of GNSS survey method which is developed from absolute method. The RT-PPP method uses a GNSS receiver that has an L-band signal catcher so that allowing the GNSS receiver to capture corrections from communication satellites that have received corrections from navigation satellites. The RT-PPP method relies heavily on the correction of the communication satellite to correct the data, so the possibility of the influence of the obstruction conditions is very high. The aim of this study was to investigate the accuracy of the RT-PPP method on low, medium, and high obstruction conditions at the point that measured using the RTK-NTRIP method.

Data acquisition were carried out in the Alam Sutera Area, Tangerang City. There were 18 observation points which are 10 points on low obstruction conditions, four points on medium obstruction conditions, and four points on high obstruction conditions. The tool is Navcom SF-3040 GNSS receiver. The measurements of each point were carried out 20 times using the RT-PPP and RTK NTRIP methods. The measurement of the RTK-NTRIP method was carried out until it reached asolution fix, while the RT-PPP method was measured to reach a figure (merit) of at least 9. The precision level of the RT-PPP points were analyzed based on the distribution to 20 points. The accuracy test of the measurement results is done by comparing the coordinates of the measurement results of the RT-PPP method that has been transformed with the measurement results of the RTK NTRIP method.

This study showed that the mean values of the horizontal coordinate difference in RT-PPP method against RTK-NTRIP was 6,3 cm on low obstruction, 7,6 cm on medium obstruction, and 35,8 cm on high obstruction. The mean values of the vertical coordinate difference is 0,019 m on low obstruction, 0,012 m on medium obstruction, and 0,256 m on high obstruction. These obstruction conditions had a significant effect on the accuracy of the RT-PPP method. The accuracy of the RT-PPP method on low and medium obstruction conditions are quite consistent, but the accuracy of the RT-PPP method on high obstruction conditions is very varied and has a highest difference score which is 63,8 cm against the RTK-NTRIP method.

Keywords: Accuracy, L-band, Obstruction, RT-PPP, RTK-NTRIP