

AH2923 VT2023

Assignment 4

Computation of receiver position from code pseudoranges

Using the scripts and results from assignments 1, 2, and 3 you shall now implement the necessary code to compute a GPS position and the receiver clock error from code pseudoranges.

Follow steps 9-17 in Table 1 on page 6 in the document: "GPS single point positioning algorithm", which is available in Canvas.

Use the same time epoch you used in Assignment 2, and use the P1 pseudoranges from the RINEX observation file. Also use the satellite positions estimated with Assignment 2. For steps 9-10 use the estimated tropospheric and ionospheric error from Assignment 3. For steps 11-17 implement new code.

Verify your results by a comparison with the preliminary position provided in the header of the observation file (approx position xyz). It should be possible to obtain a position solution within a few meters from the given position.

Determine the PDOP for the position coordinates (X, Y, Z)

The report must contain:

The obtained receiver position and receiver clock error, and an evaluation of the result both with respect to the PDOP and with respect to the given coordinates in the RINEX file.

Matlab code must be submitted separately. Make sure to submit all files necessary for the teacher to run the scripts.