

Test 3 – Range Analysis Results

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Test date: January 22, 2019

Report date: February 9, 2019

Notes

- each data set consists of 100 epochs over ~100 seconds
- there are some gaps in data due to missing observations
- no outliers have been removed
- RMSEs and mean errors are from surveyed coordinates

Numerical Results

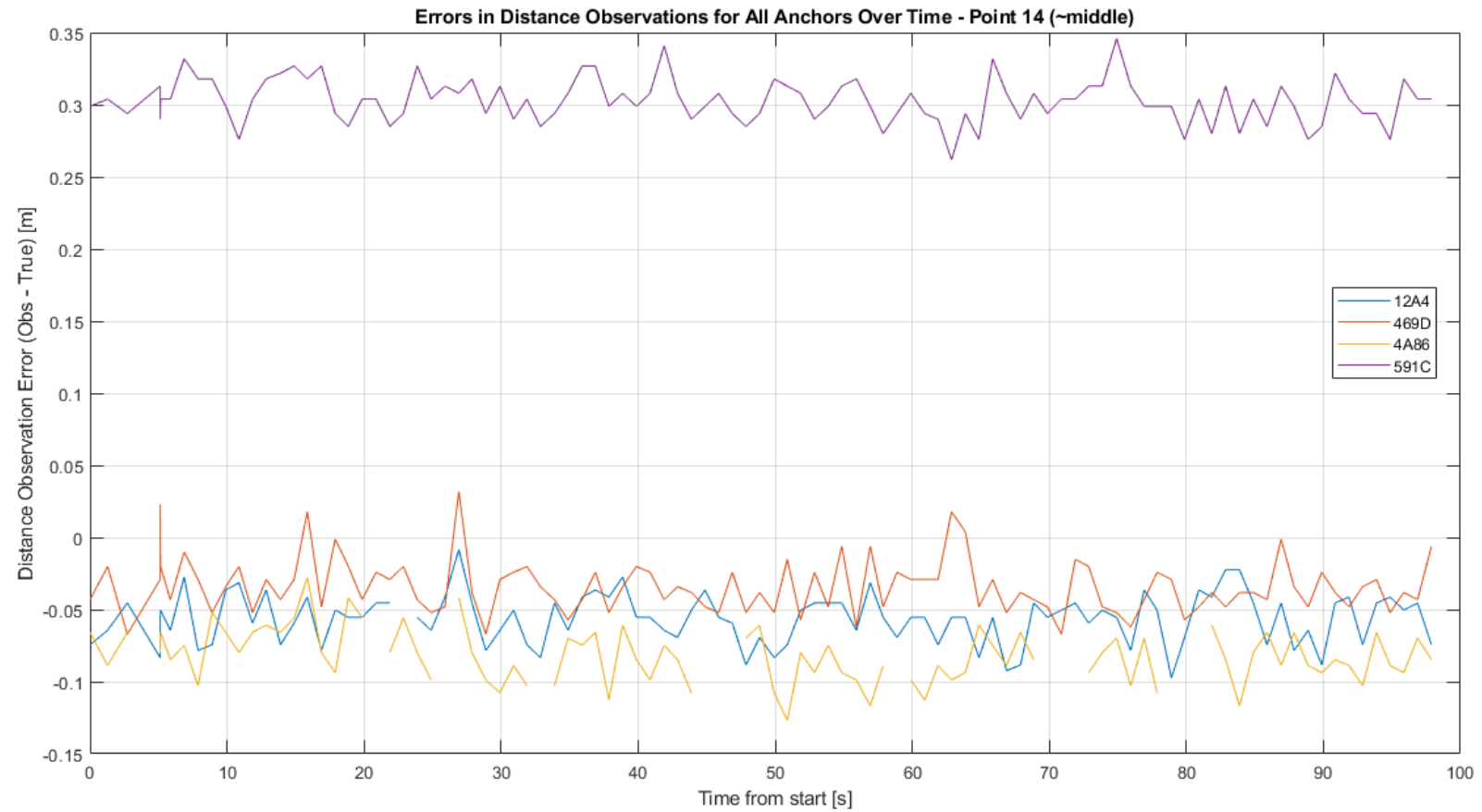
Table 1: RMSE values for distance observation for each anchor at each test location

Tag point # - closest anchor	Anchor RMSEs [m]			
	12A4	469D	4A86	591C
14 – middle	0.059	0.039	0.084	0.303
4 – 591C	0.055	0.063	0.036	0.210
17 – 12A4	0.038	0.043	0.047	0.188
29 – 4A86	0.154	0.024	0.060	0.180
26 – 469D	0.075	0.069	0.204	0.147

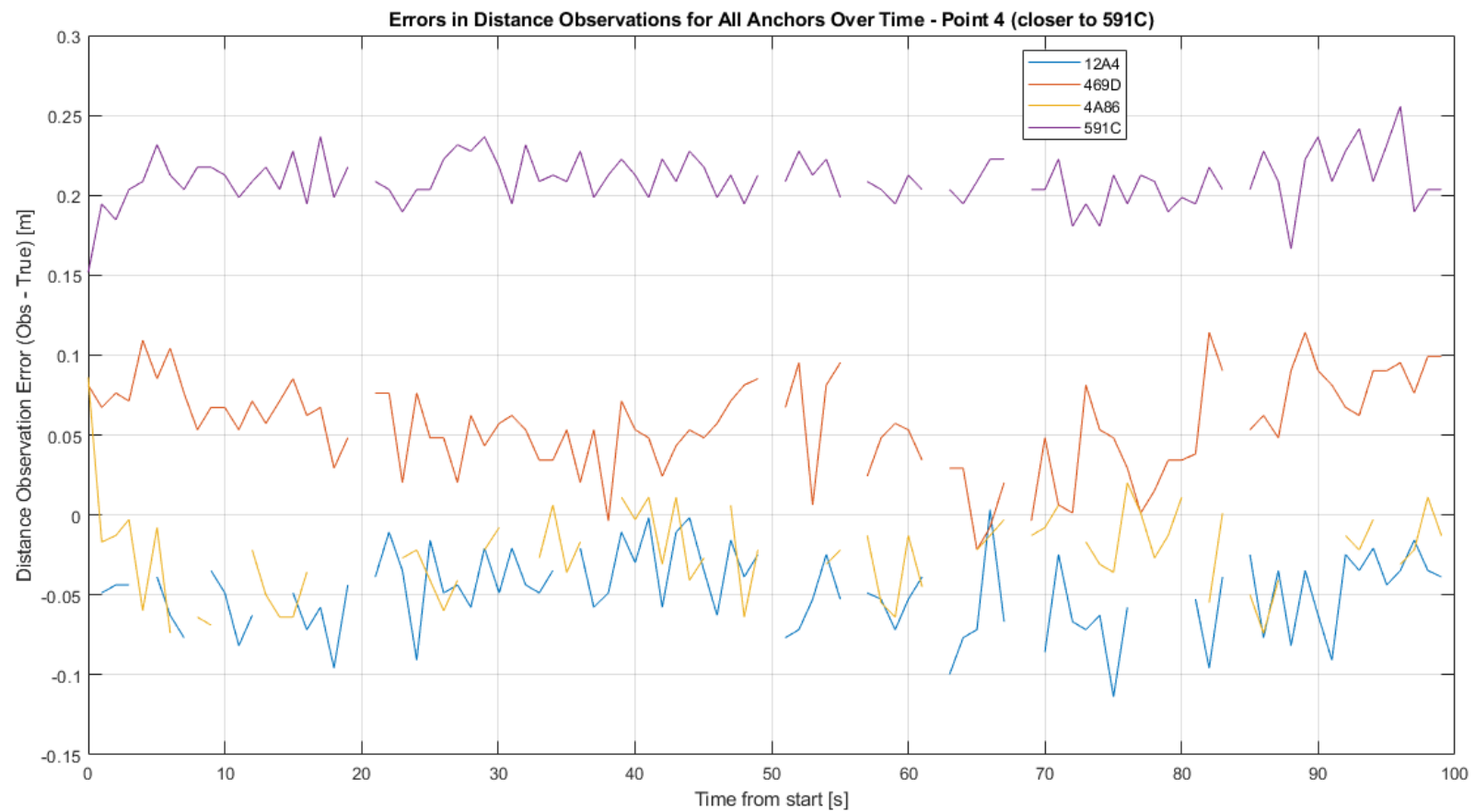
Table 2: Mean distance errors for distance observation for each anchor at each test location

Tag point # - closest anchor	Anchor Mean Errors [m]			
	12A4	469D	4A86	591C
14 – middle	-0.056	-0.034	-0.082	0.303
4 – 591C	-0.049	0.056	-0.025	0.210
17 – 12A4	-0.020	0.035	-0.043	0.187
29 – 4A86	0.153	0.008	0.055	0.179
26 – 469D	0.071	-0.064	0.203	0.146

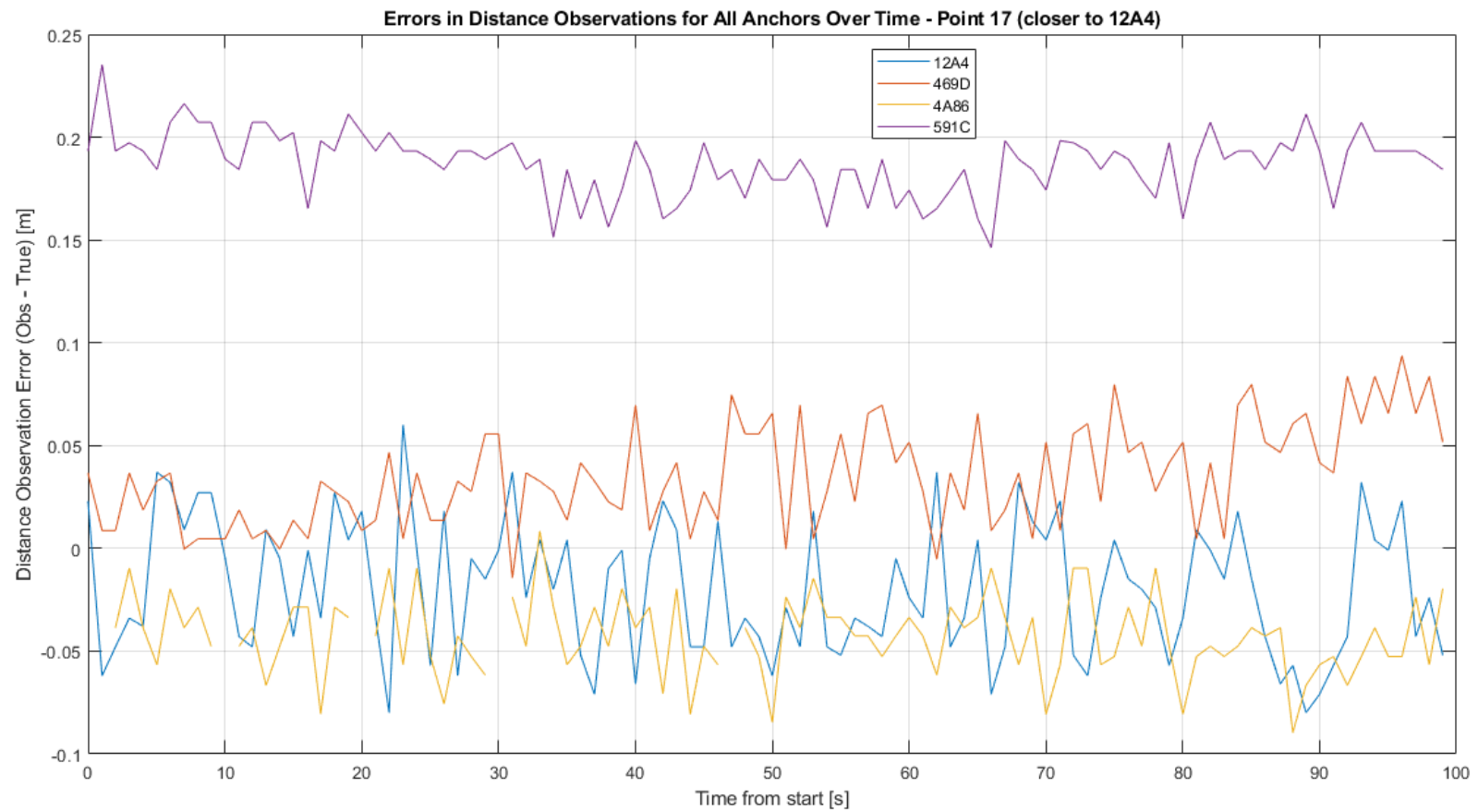
Graphical Results



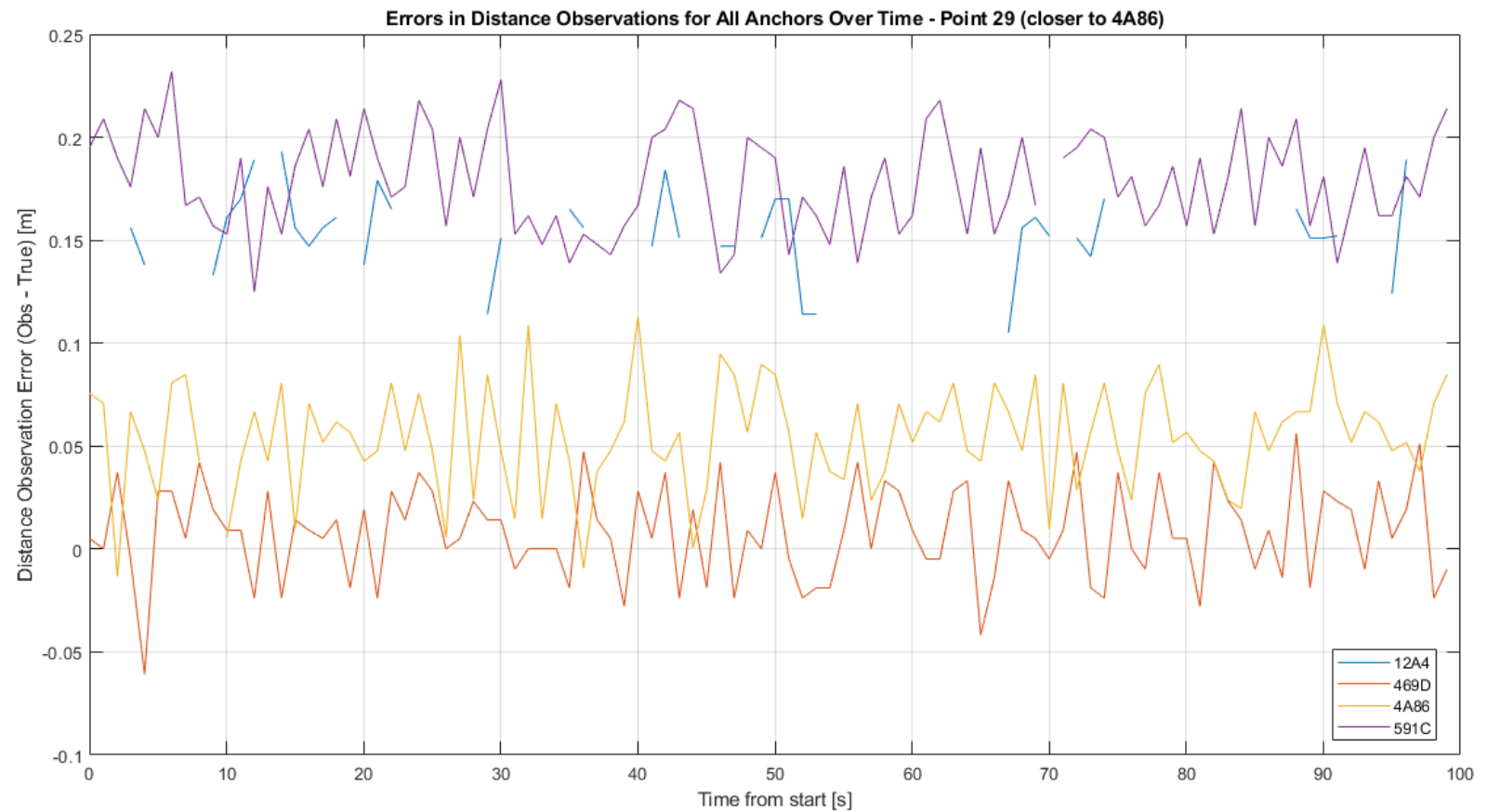
- in middle, 591C shows 30cm bias
- others are minimal



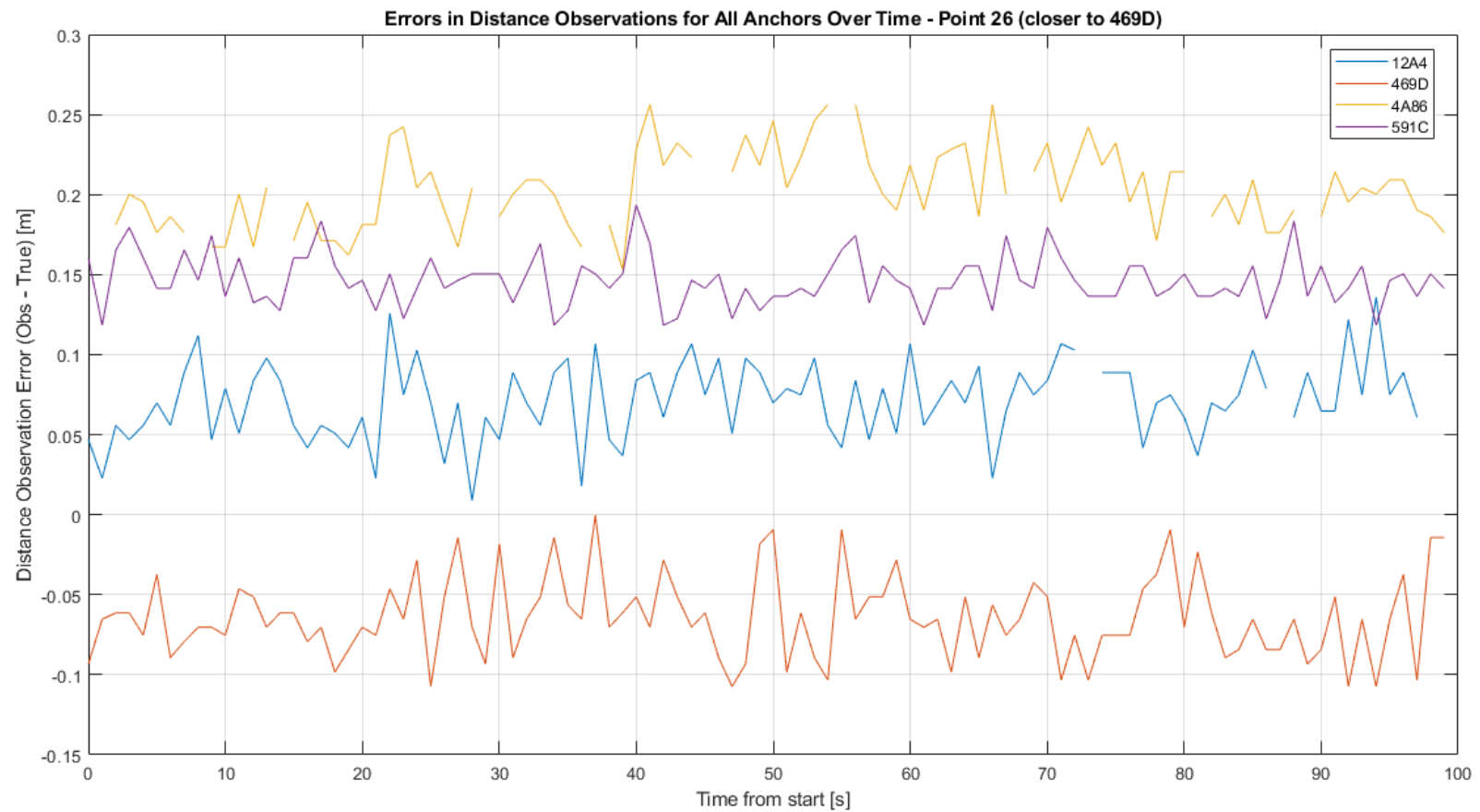
- moving closer to 591C appears to reduce bias to 20cm
- 469D switches from -5cm to plus 5-10cm
- loss of measurements in 124A and increased loss in 4A86 seen



- moved closer to 12A4
- 591C bias – no change
- 12A4 measurements back, appears to have increased noise
- 469D closer to zero
- 4A86 more consistent



- moved closer to 4A86
- begin to see loss of 591C measurements
- BIG loss of 12A4 measurements, added 15cm bias????? (potentially interference by cabinets)
- 4A86 measurements much better
- 469D appears centered around zero



- moved closer to 469D
- 469D moved 5cm short
- 12A4 back, no problem?
- 20cm bias added to 4A86, some losses
- 591C moved down to 15cm bias, low noise