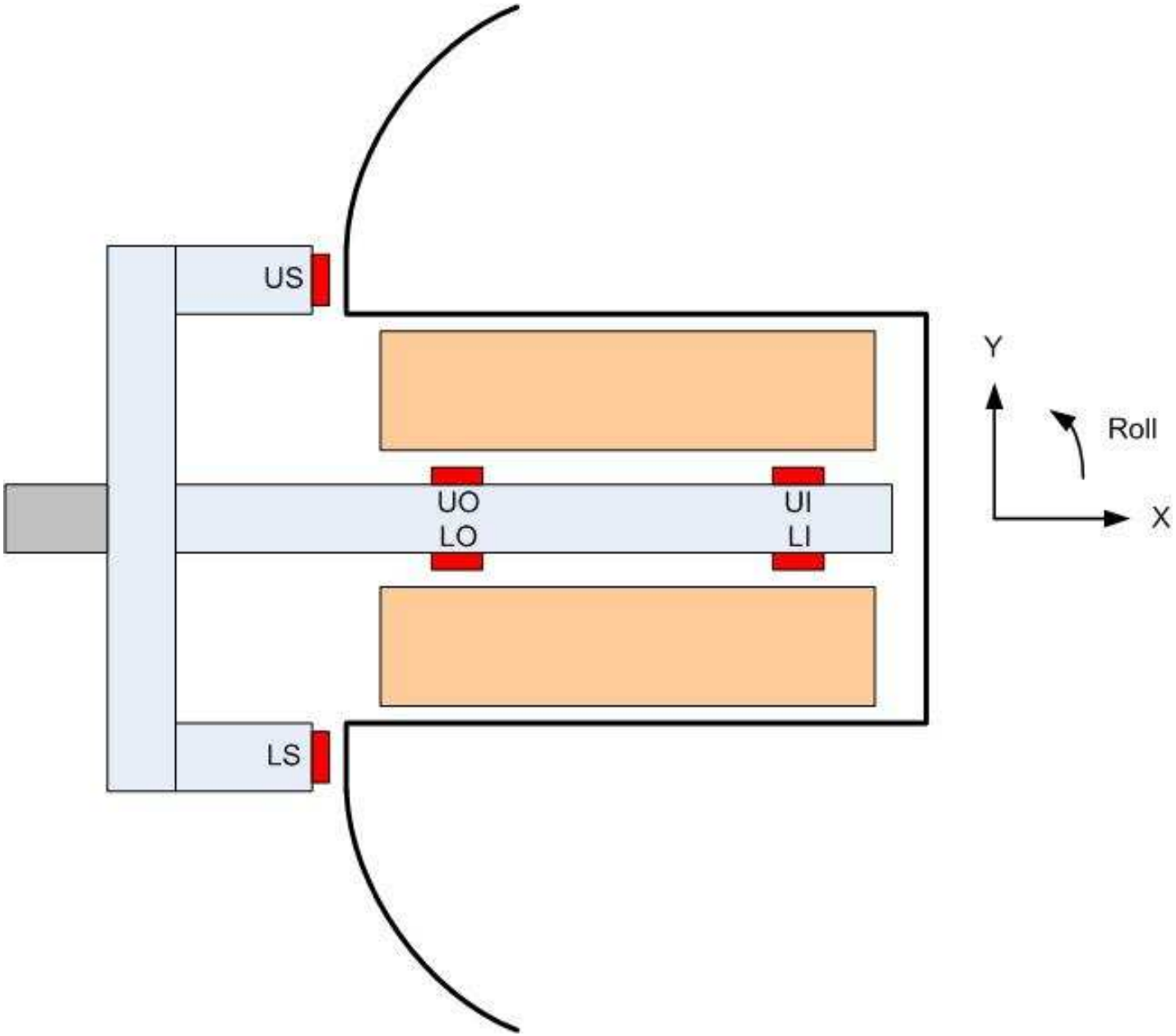
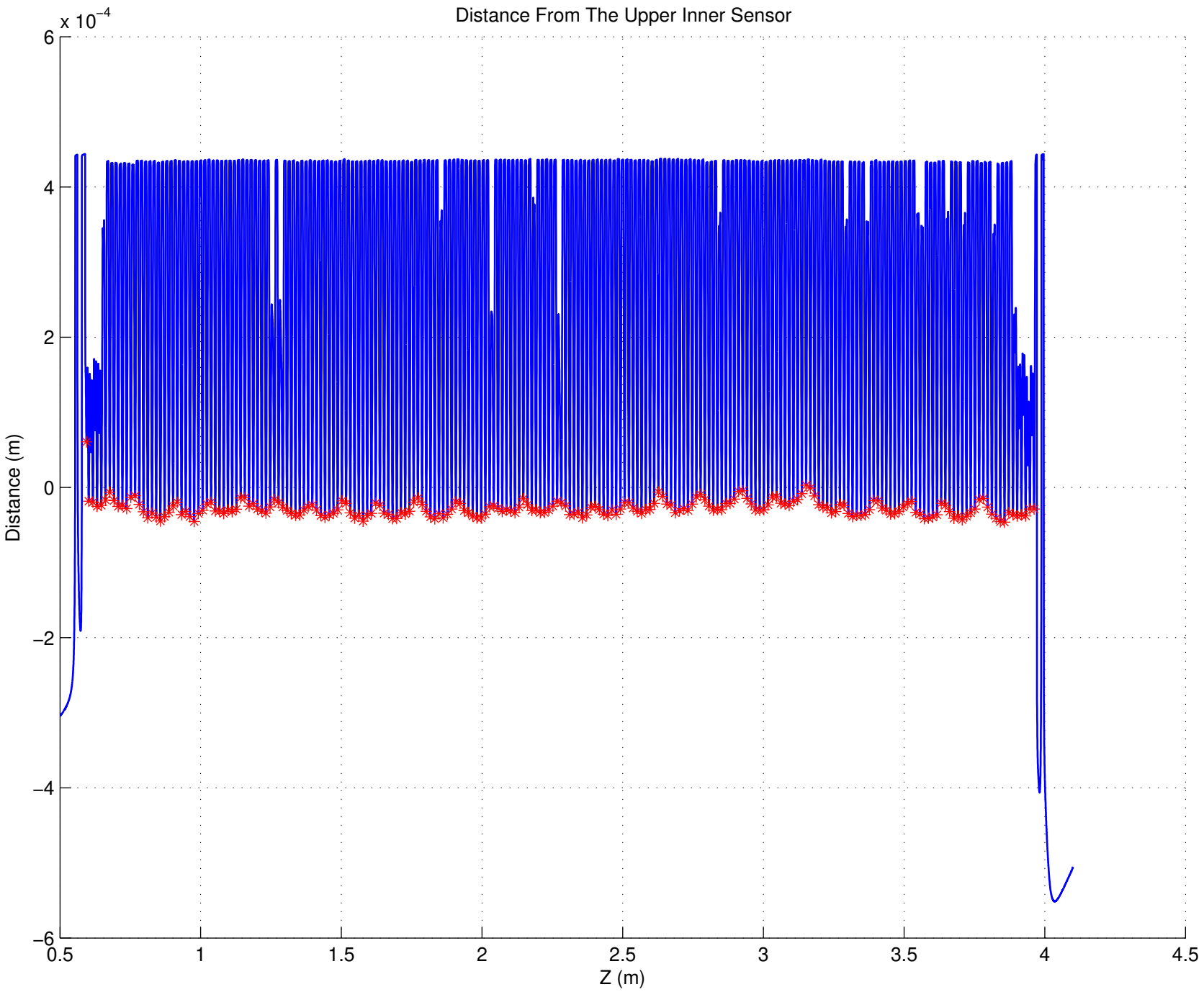
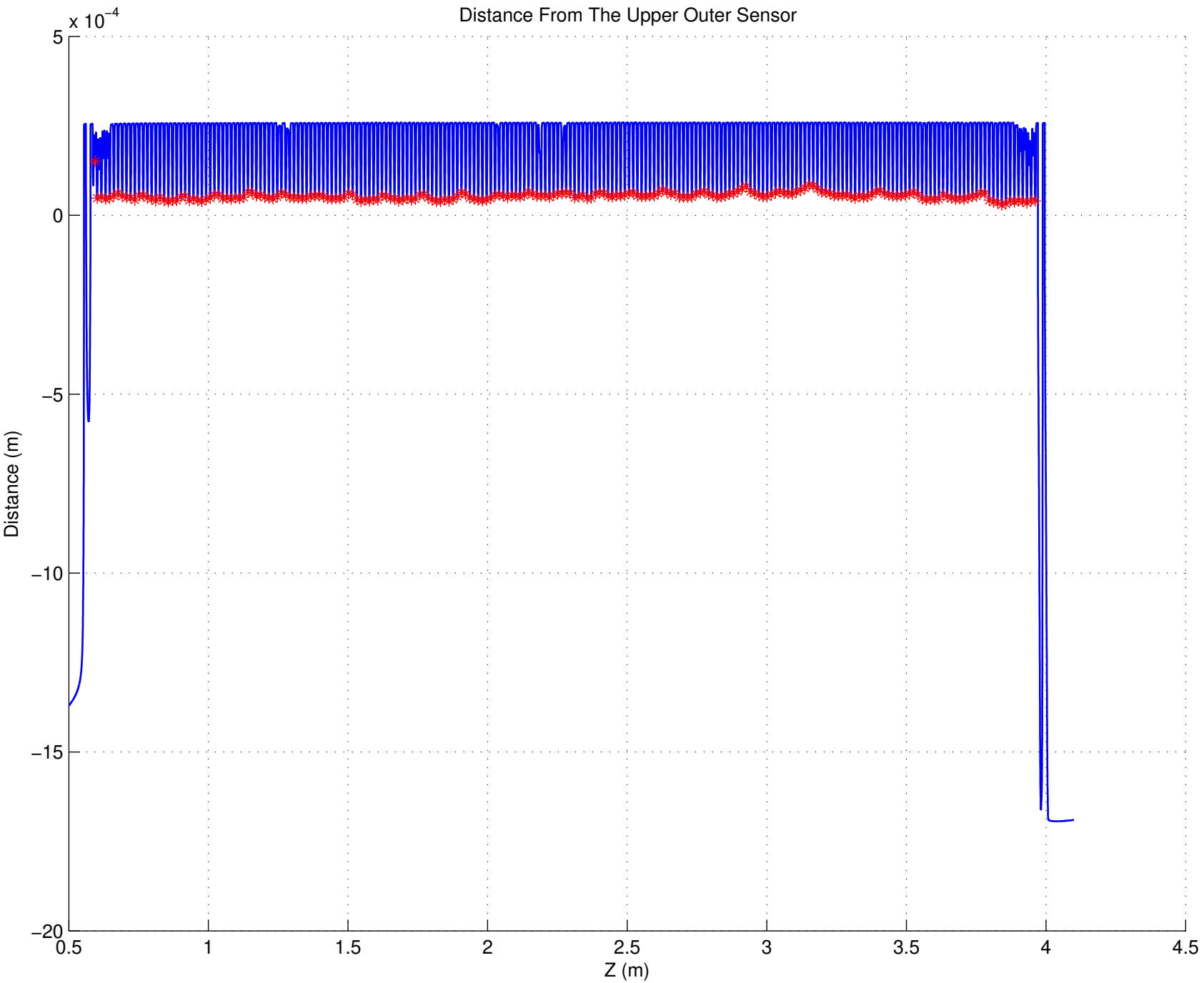
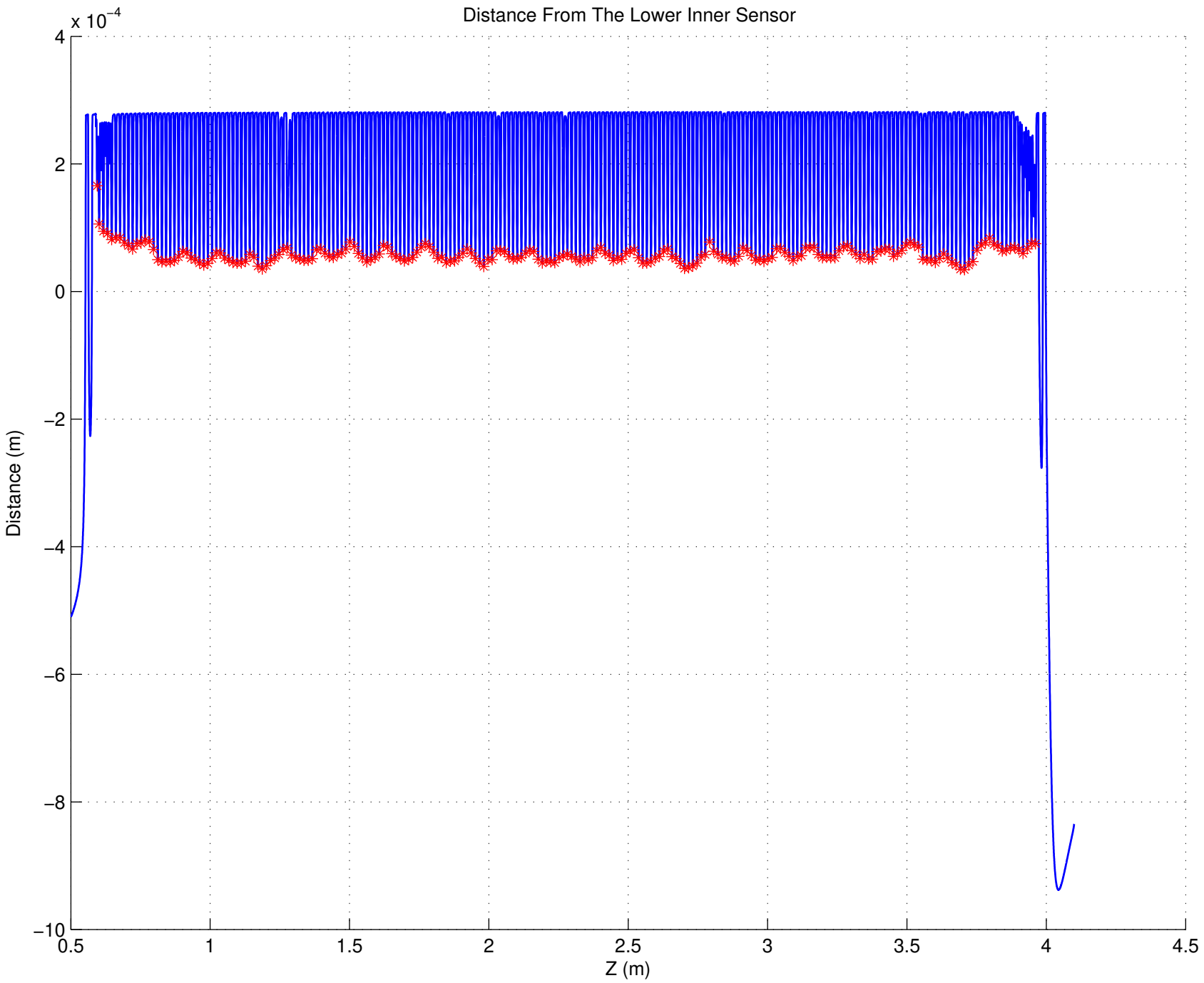
SLAC Magnetic Measurements
Mechanical Measurement Analysis

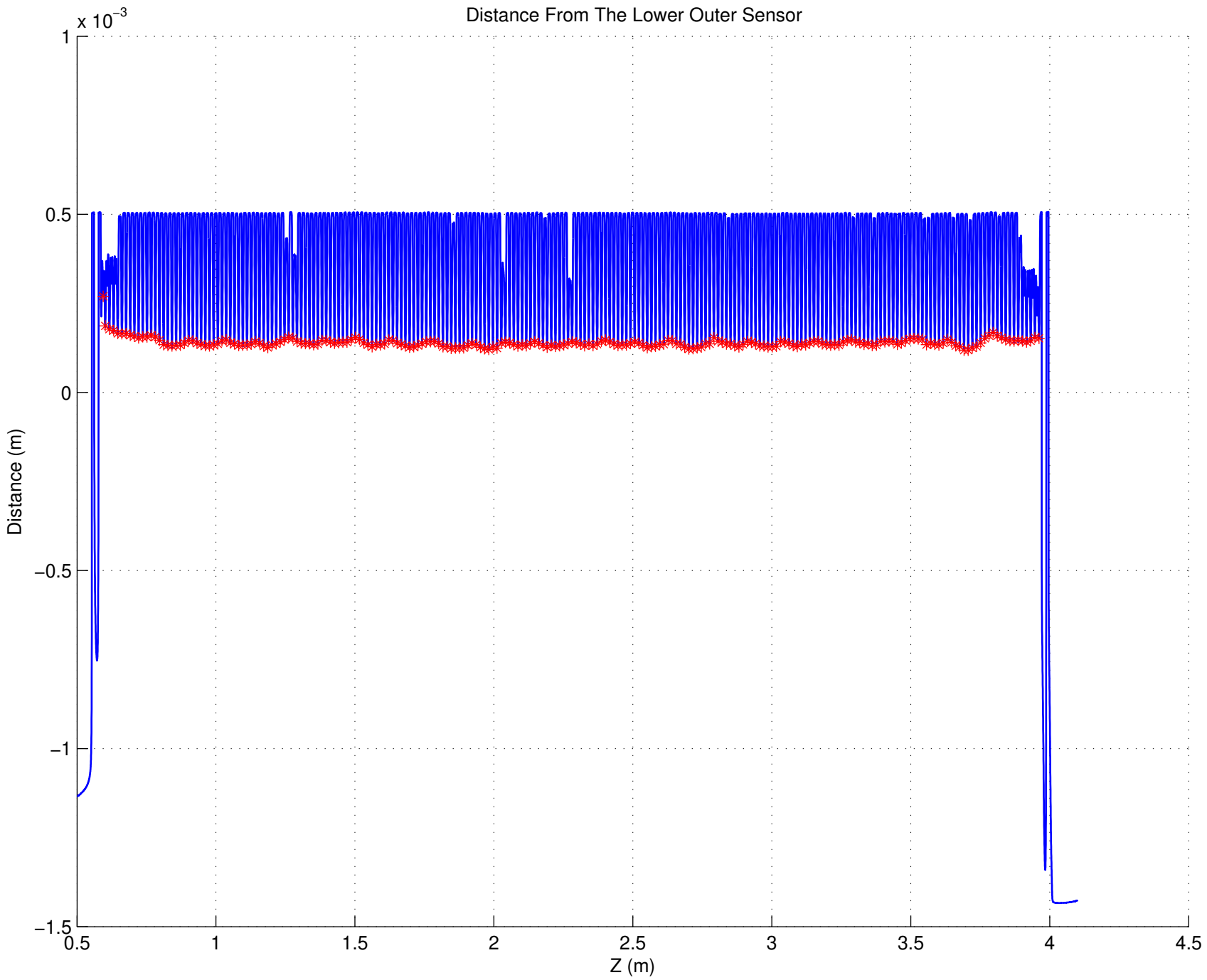
Parameters:
INPUT−FILE−DIR =V:\MET\MagServe\MagData\LCLS\Undulator\L143−112000−27\Temperature test\Align Cap Sensor\Run 004\
INPUT−FILE−NAME =mechp−dat.001

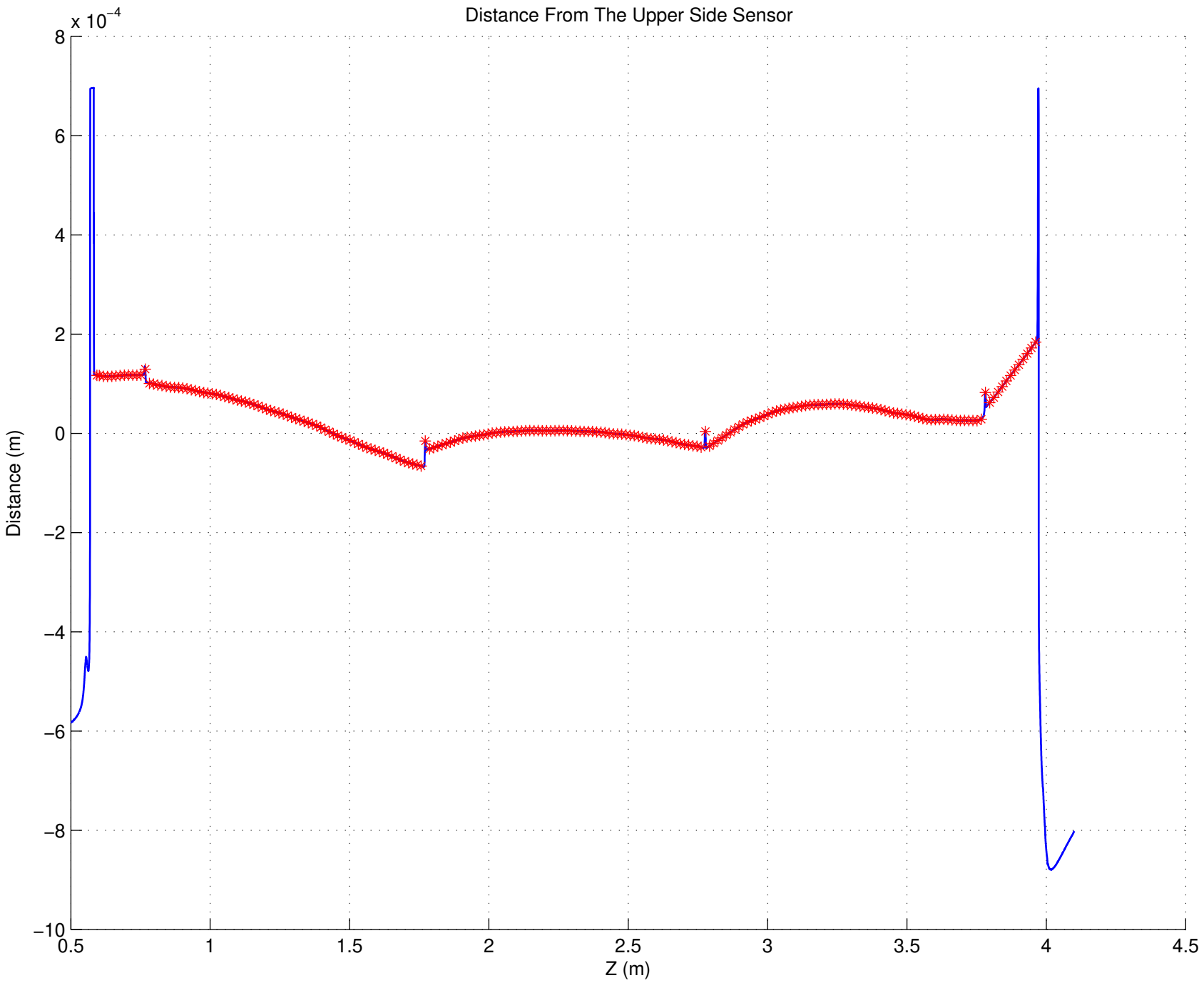

US
UO
LO
UI
LI
LS
Y
Roll
X

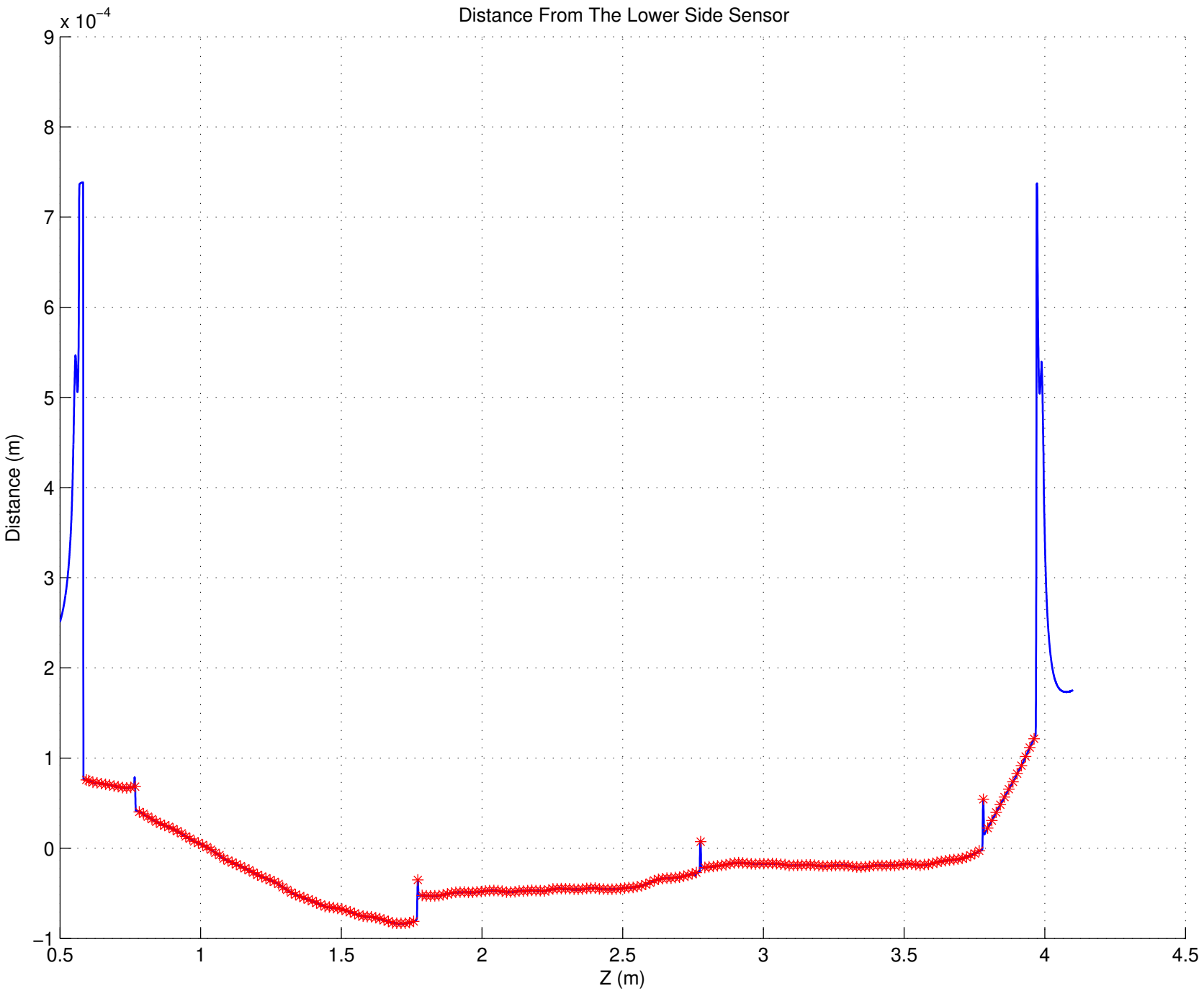

Distance From The Upper Inner Sensor
x 10^-4
6
4
2
0
−2
−4
−6
Distance (m)
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Z (m)

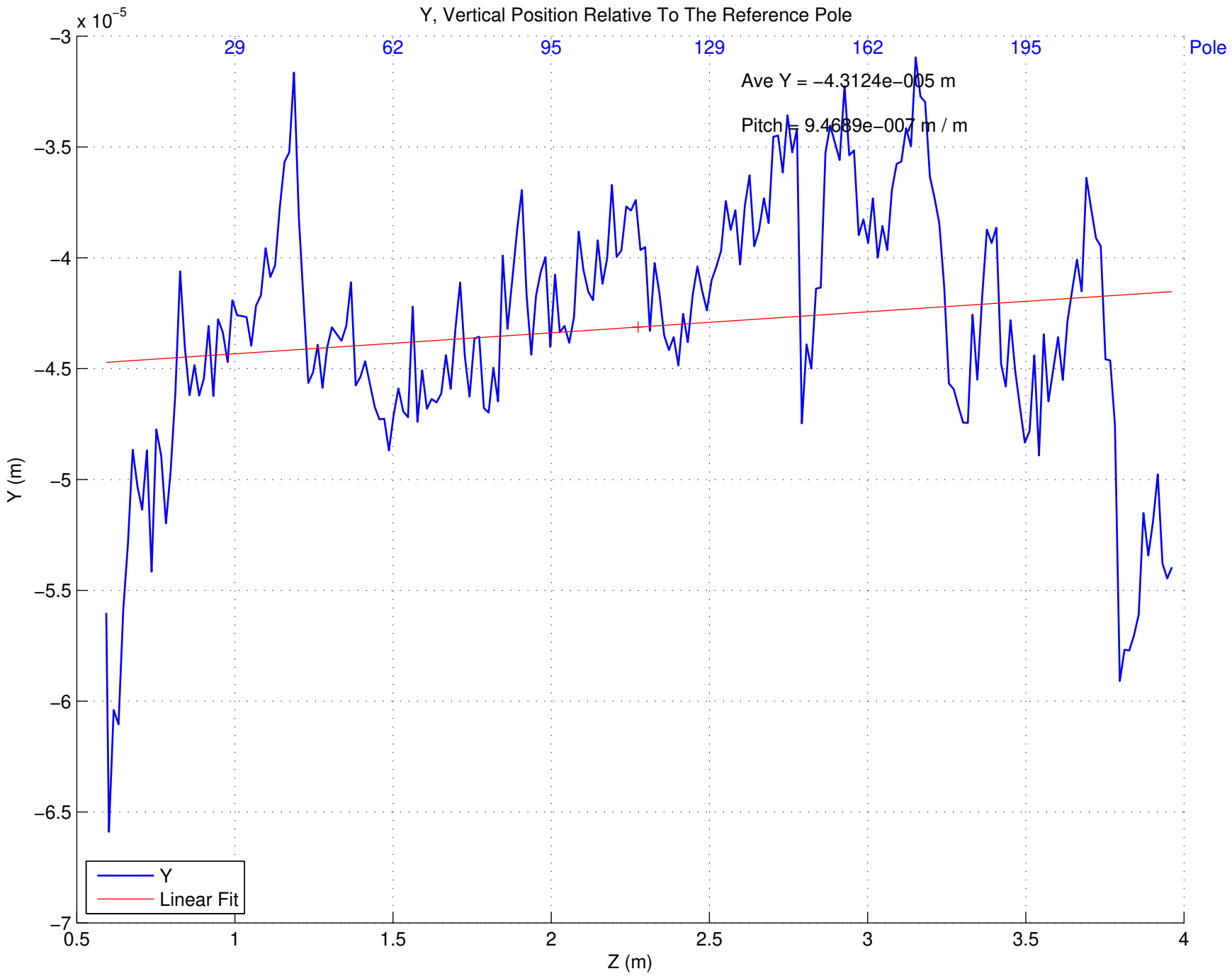

Distance From The Upper Outer Sensor
x 10^-4
5
0
−5
−10
−15
−20
Distance (m)
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Z (m)

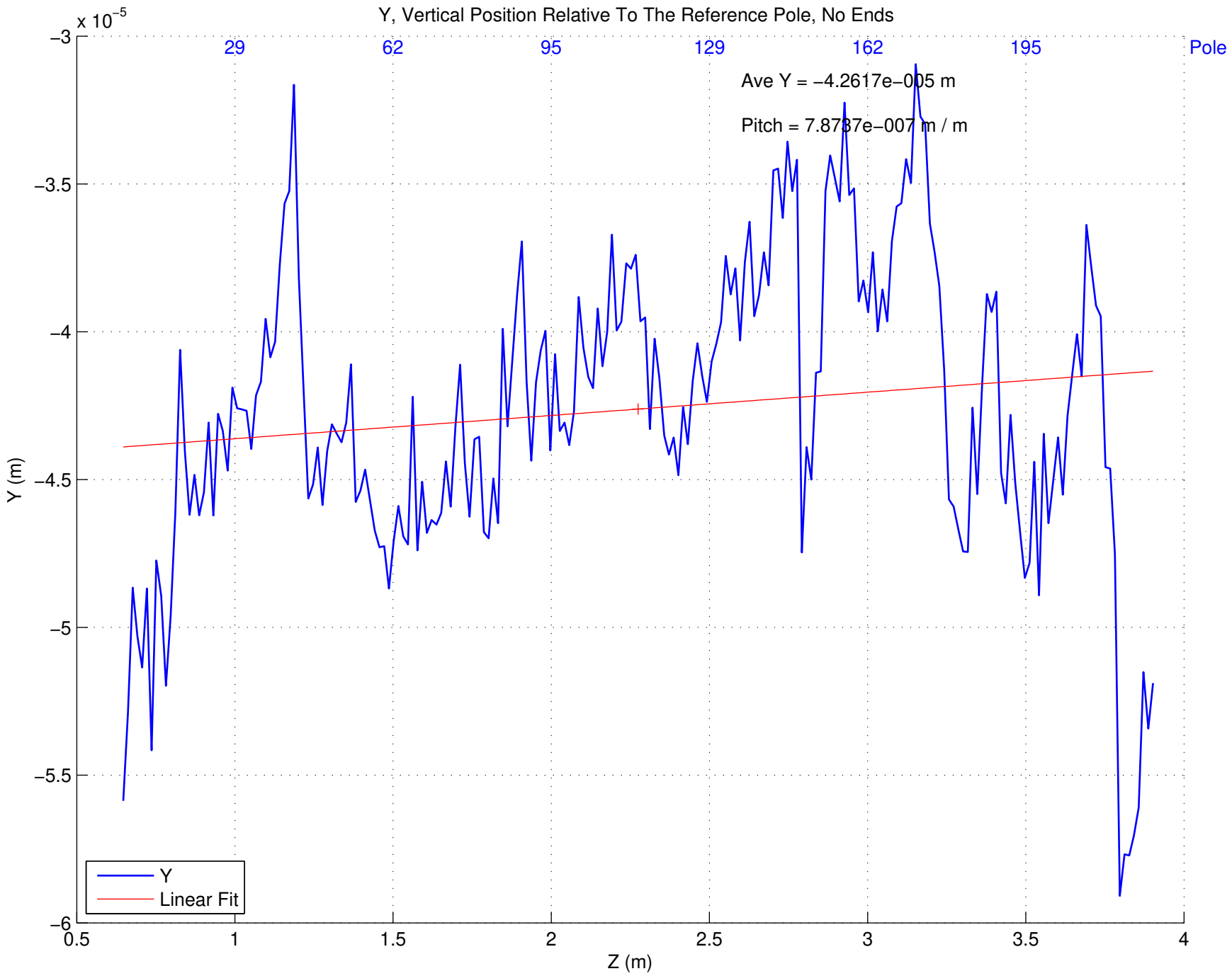

Distance From The Lower Inner Sensor
x 10^-4
4
2
0
−2
−4
−6
−8
−10
Distance (m)
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Z (m)

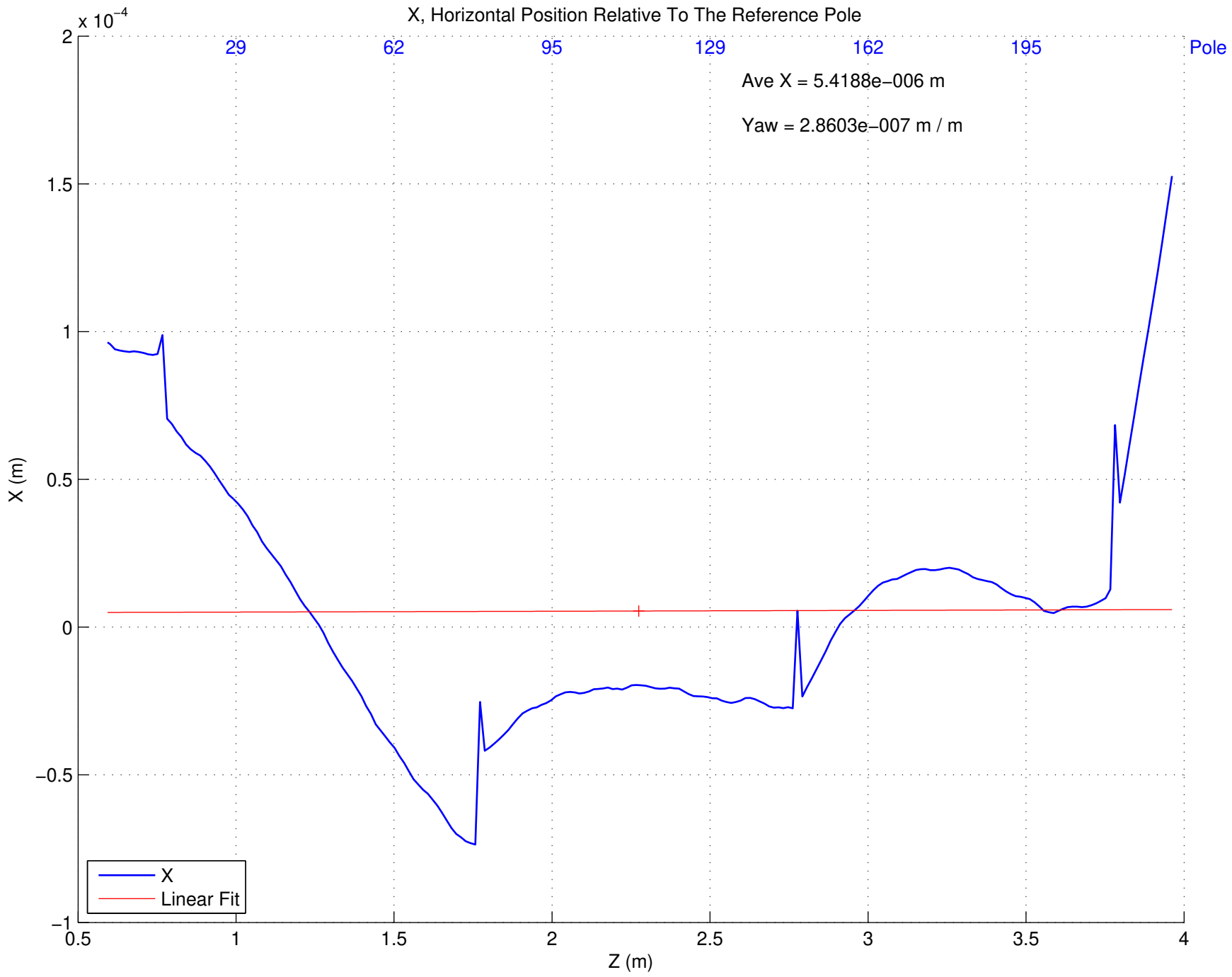

Distance From The Lower Outer Sensor
x 10^-3
1
0.5
0
−0.5
−1
−1.5
Distance (m)
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Z (m)

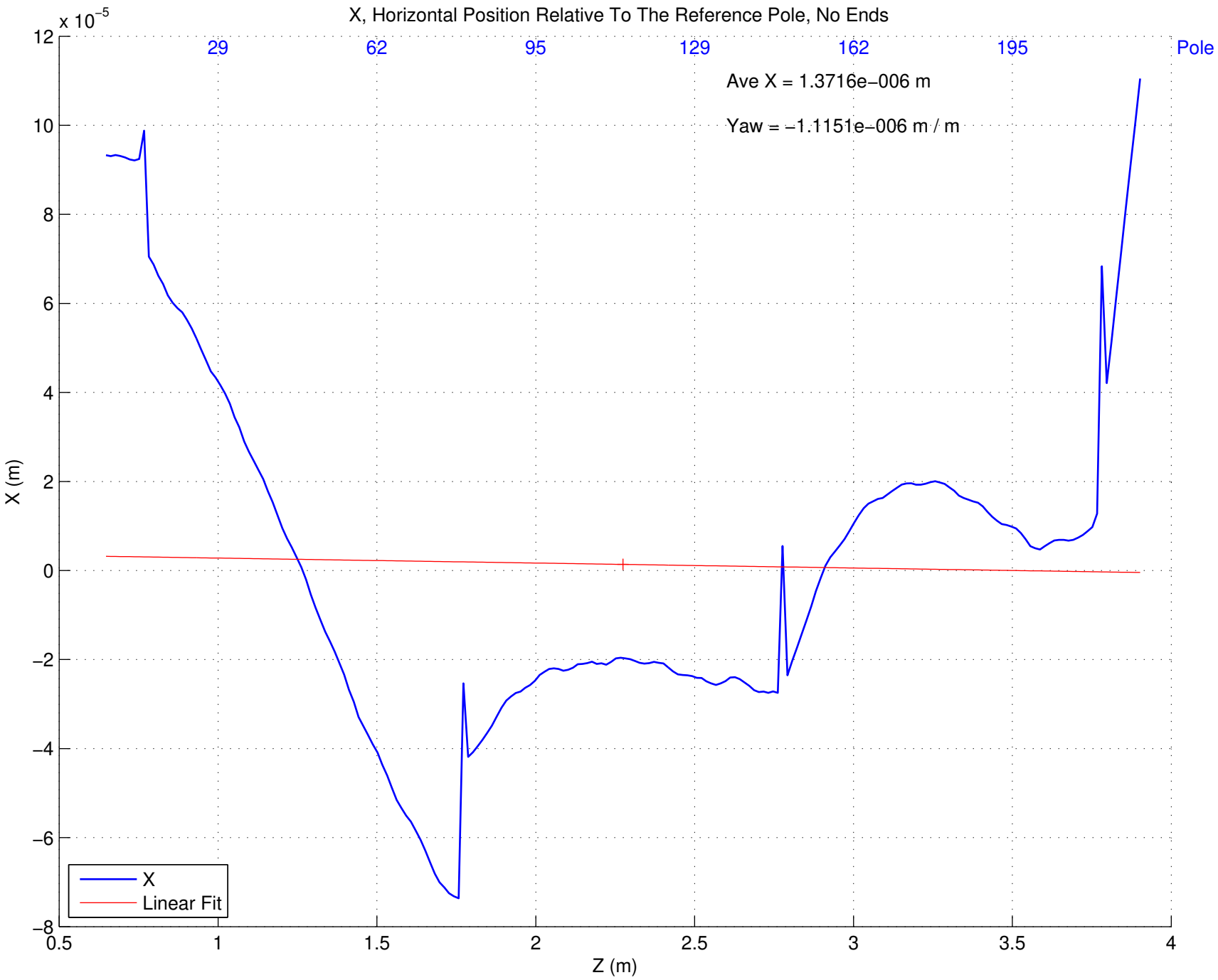

Distance From The Upper Side Sensor
x 10^-4
8
6
4
2
0
−2
−4
−6
−8
−10
Distance (m)
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Z (m)

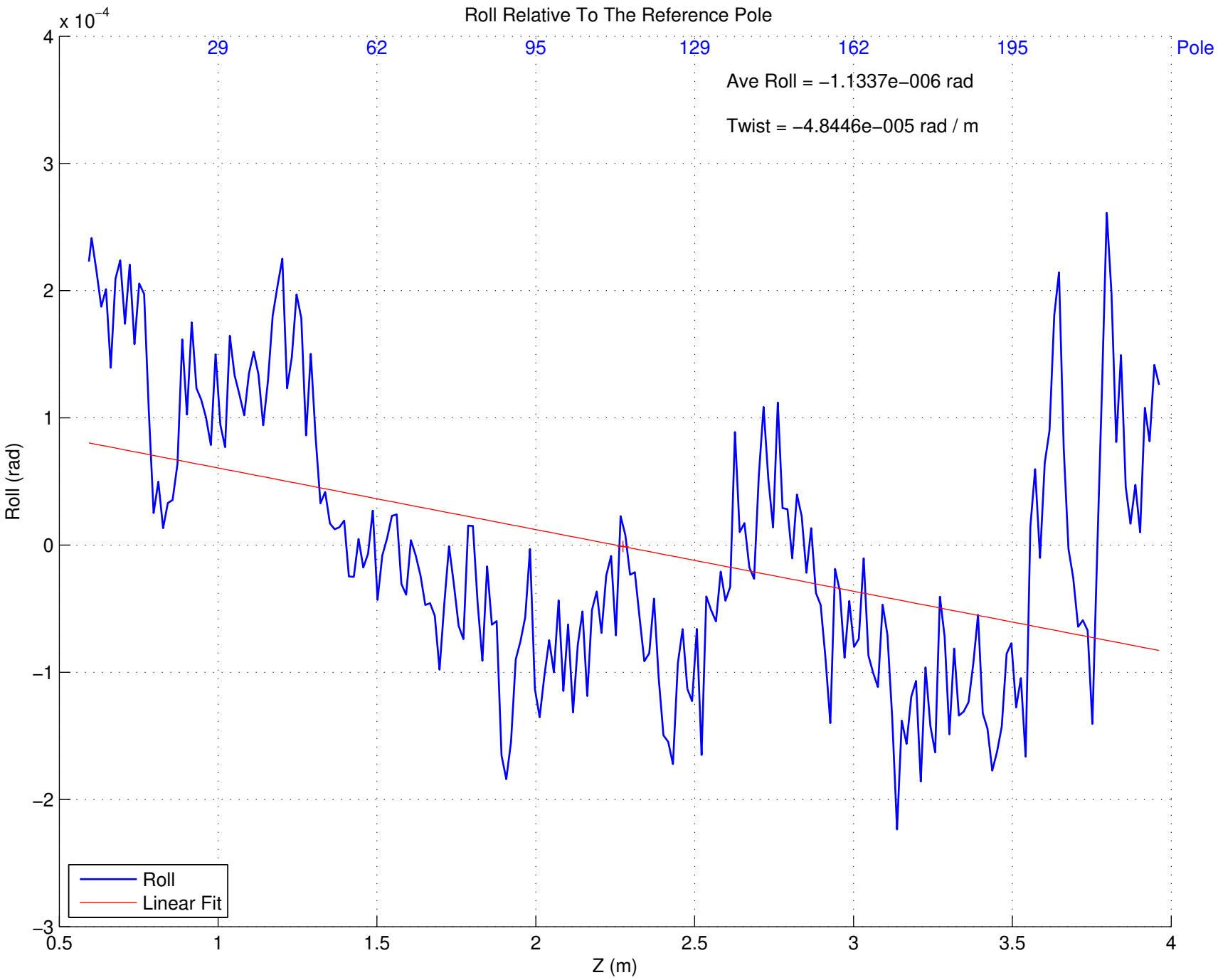

Distance From The Lower Side Sensor
x 10^-4
Distance (m)
Z (m)
9
8
7
6
5
4
3
2
1
0
−1
0.5
1
1.5
2
2.5
3
3.5
4
4.5

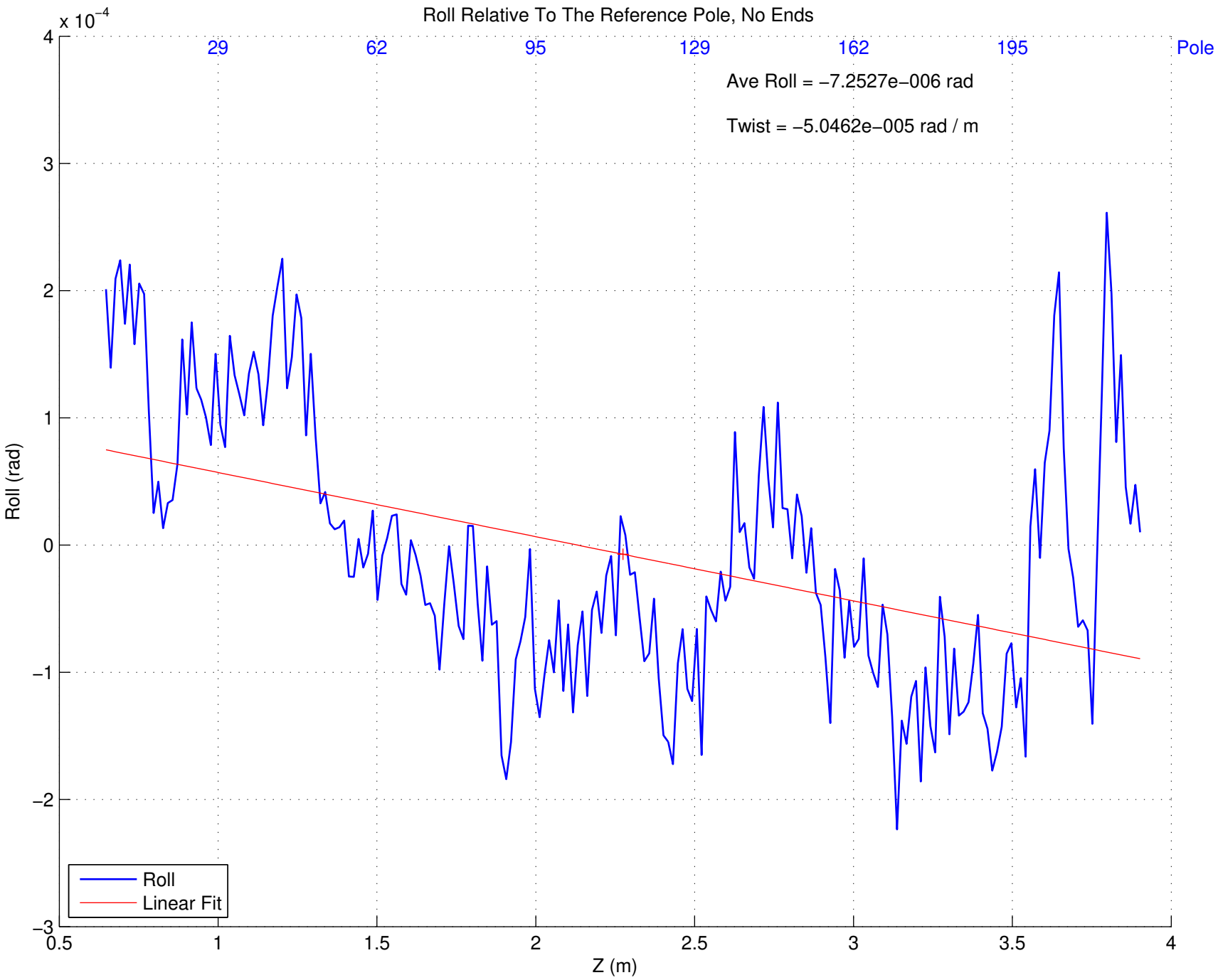

Y, Vertical Position Relative To The Reference Pole
x 10^-5
29
62
95
129
162
195
Pole
Ave Y = −4.3124e−005 m
Pitch = 9.4689e−007 m / m
−3
−3.5
−4
−4.5
−5
−5.5
−6
−6.5
−7
Y (m)
0.5
1
1.5
2
2.5
3
3.5
4
Z (m)
Y
Linear Fit

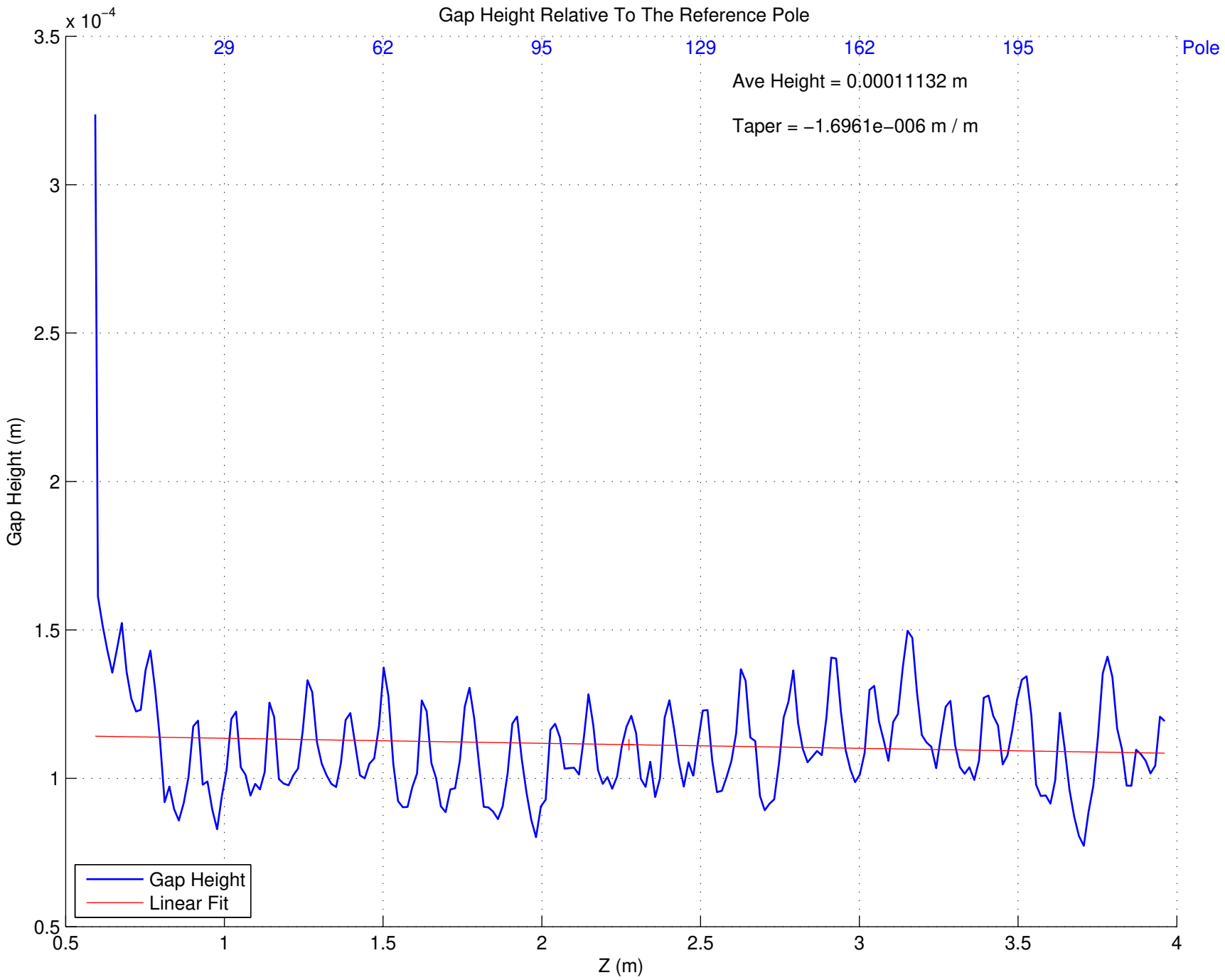

Y, Vertical Position Relative To The Reference Pole, No Ends
x 10^-5
29
62
95
129
162
195
Pole
Ave Y = −4.2617e−005 m
Pitch = 7.8737e−007 m / m
−3
−3.5
−4
−4.5
−5
−5.5
−6
Y (m)
0.5
1
1.5
2
2.5
3
3.5
4
Z (m)
Y
Linear Fit

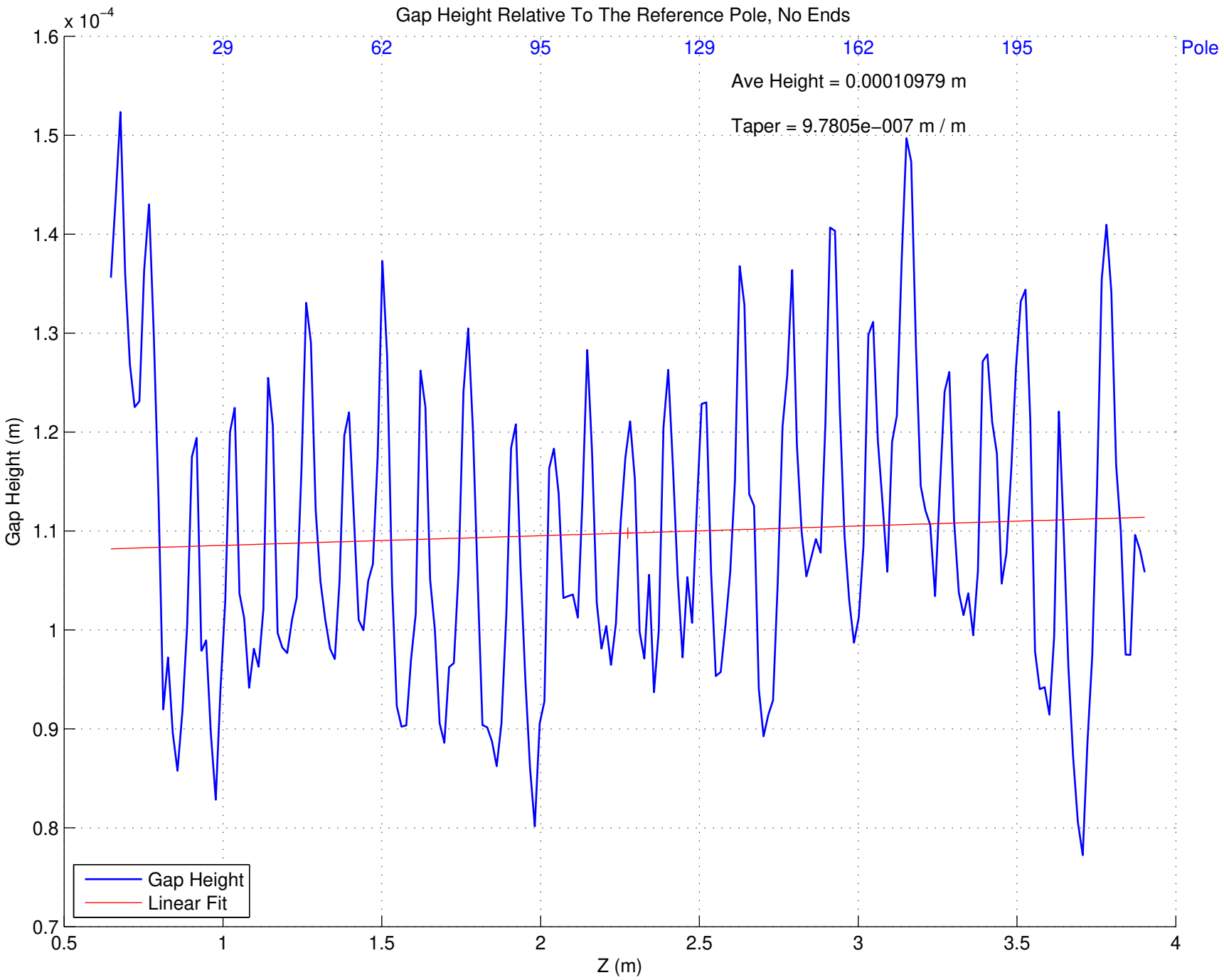

X, Horizontal Position Relative To The Reference Pole
x 10^-4
29
62
95
129
162
195
Pole
Ave X = 5.4188e−006 m
Yaw = 2.8603e−007 m / m
X (m)
Z (m)
X
Linear Fit

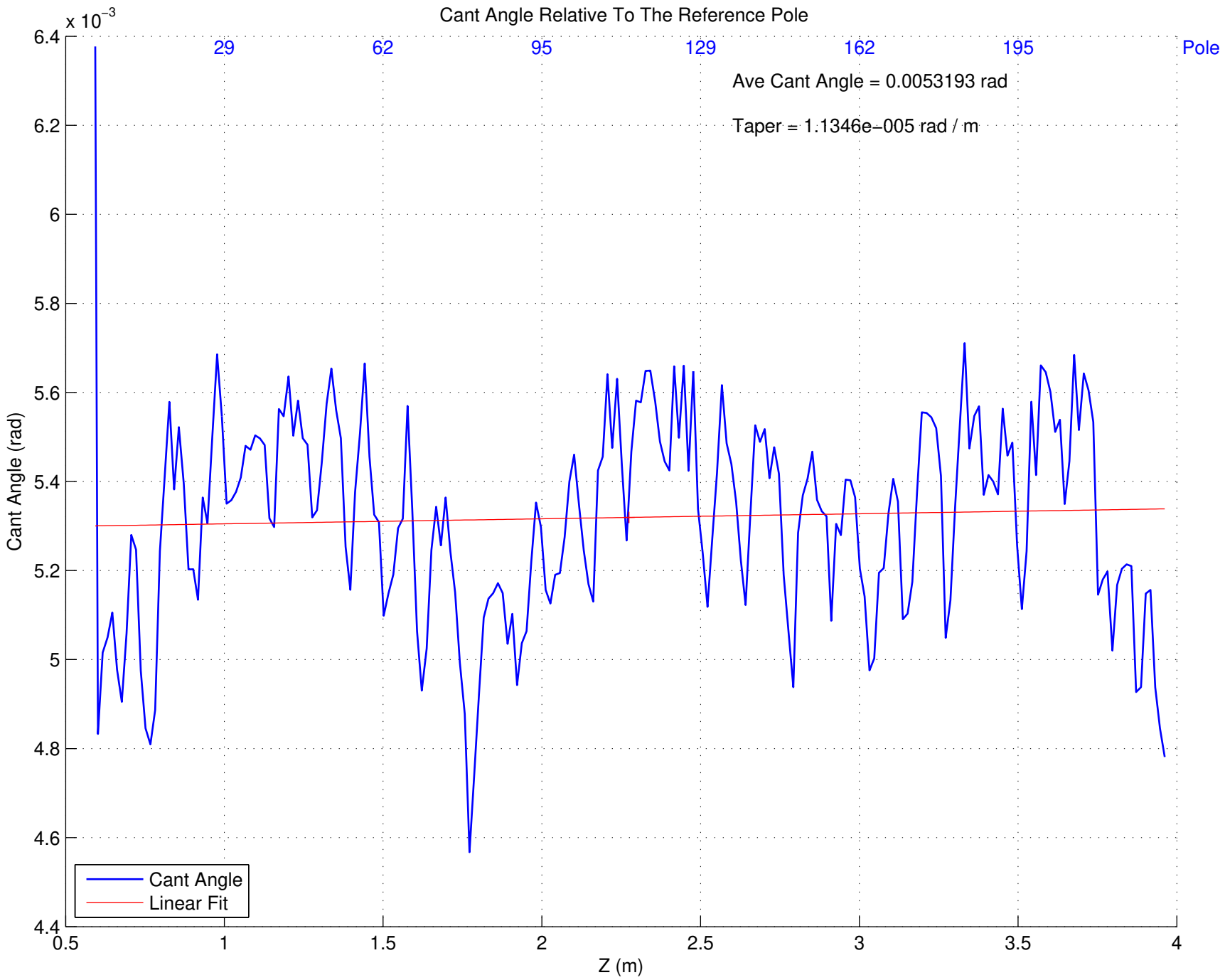

X, Horizontal Position Relative To The Reference Pole, No Ends
x 10^-5
29
62
95
129
162
195
Pole
Ave X = 1.3716e−006 m
Yaw = −1.1151e−006 m / m
X (m)
Z (m)
X
Linear Fit

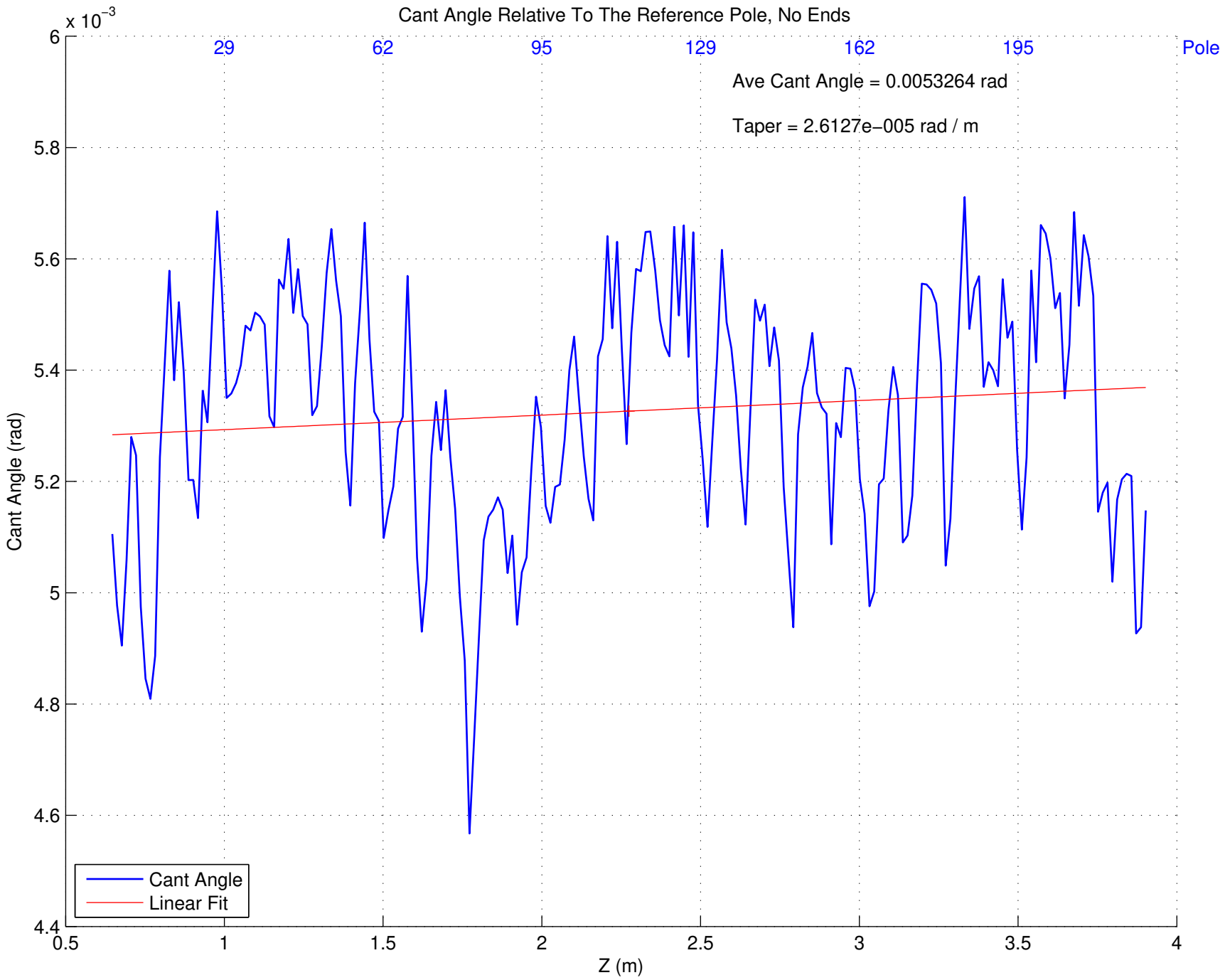

Roll Relative To The Reference Pole
x 10^-4
29
62
95
129
162
195
Pole
Ave Roll = −1.1337e−006 rad
Twist = −4.8446e−005 rad / m
Roll (rad)
Z (m)
Roll
Linear Fit


Roll Relative To The Reference Pole, No Ends
x 10^-4
29
62
95
129
162
195
Pole
Ave Roll = −7.2527e−006 rad
Twist = −5.0462e−005 rad / m
Roll (rad)
Z (m)
Roll
Linear Fit


Gap Height Relative To The Reference Pole
x 10^-4
29
62
95
129
162
195
Pole
Ave Height = 0.00011132 m
Taper = −1.6961e−006 m / m
Gap Height (m)
Z (m)
Gap Height
Linear Fit
3.5
3
2.5
2
1.5
1
0.5
0.5
1
1.5
2
2.5
3
3.5
4


Gap Height Relative To The Reference Pole, No Ends
x 10^-4
29
62
95
129
162
195
Pole
Ave Height = 0.00010979 m
Taper = 9.7805e−007 m / m
Gap Height (m)
Z (m)
Gap Height
Linear Fit
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.5
1
1.5
2
2.5
3
3.5
4


Cant Angle Relative To The Reference Pole
x 10^-3
29
62
95
129
162
195
Pole
Ave Cant Angle = 0.0053193 rad
Taper = 1.1346e−005 rad / m
Cant Angle (rad)
Z (m)
Cant Angle
Linear Fit
6.4
6.2
6
5.8
5.6
5.4
5.2
5
4.8
4.6
4.4
0.5
1
1.5
2
2.5
3
3.5
4


Cant Angle Relative To The Reference Pole, No Ends
x 10^-3
29
62
95
129
162
195
Pole
Ave Cant Angle = 0.0053264 rad
Taper = 2.6127e−005 rad / m
Cant Angle (rad)
Z (m)
Cant Angle
Linear Fit
6
5.8
5.6
5.4
5.2
5
4.8
4.6
4.4
0.5
1
1.5
2
2.5
3
3.5
4