Quasi-Steady-State Report

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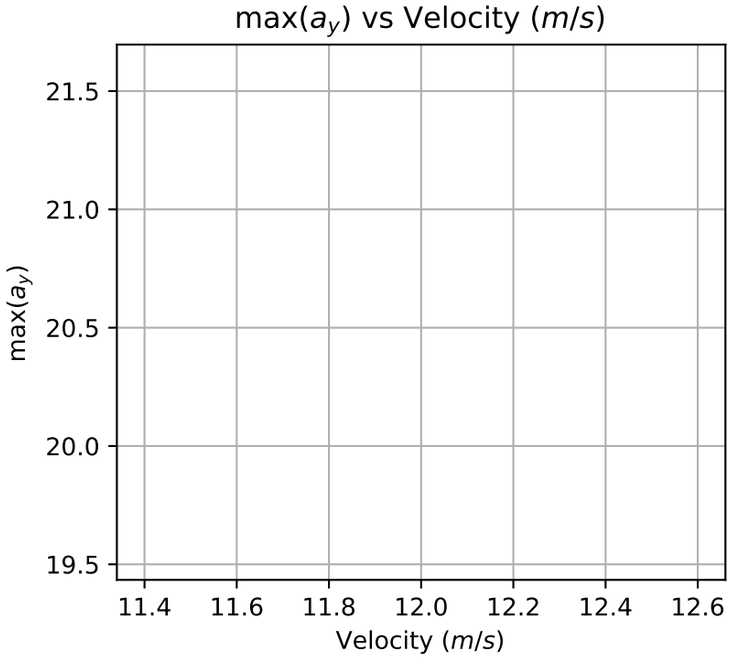
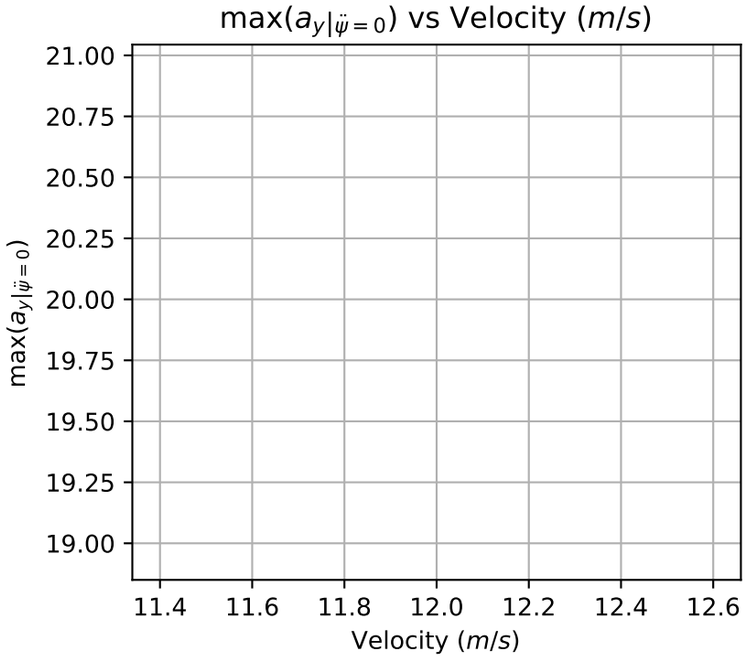
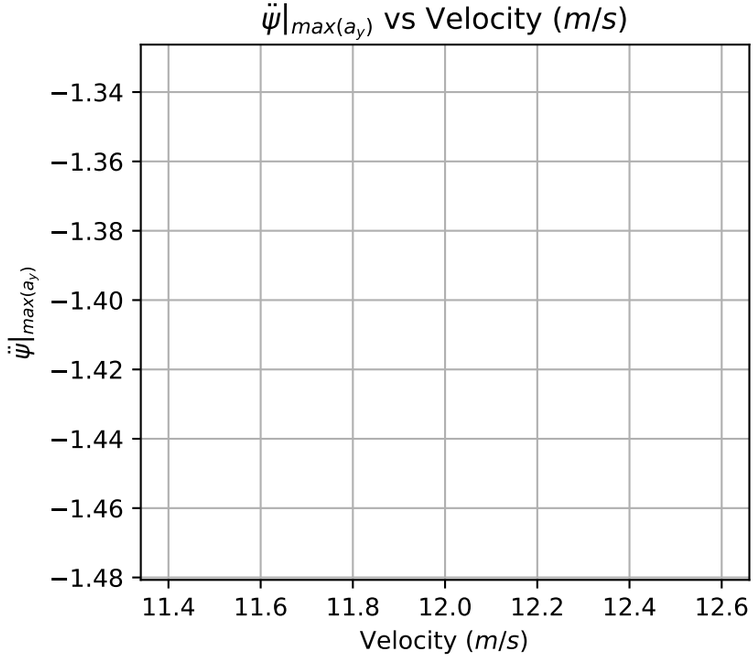
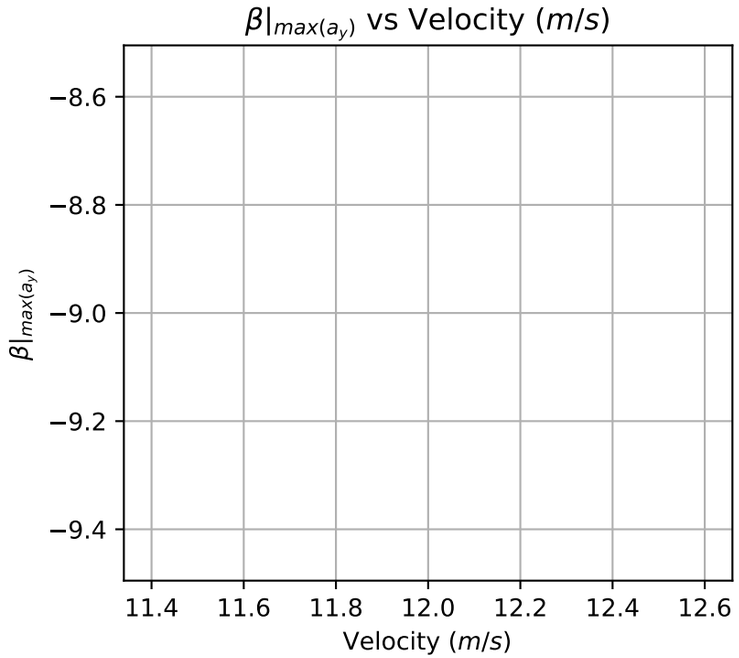
Note 1: The variable δ always refers to the average heading angle of the front tires

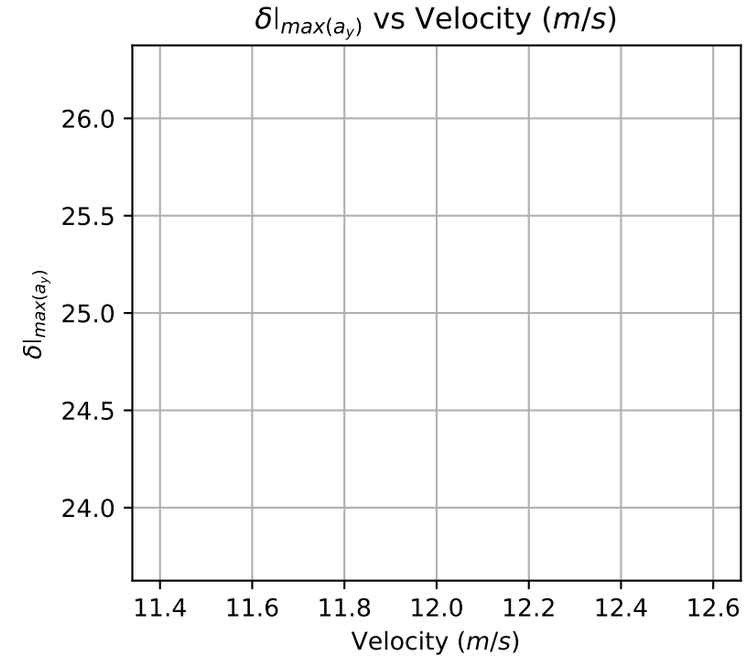
Appendix

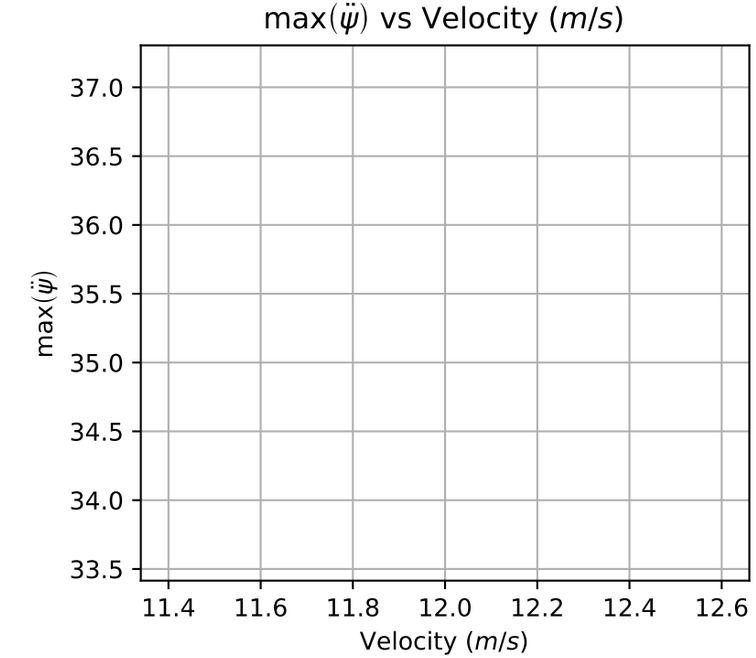

max(a_y) vs Velocity (m/s)
max(a_y)
21.5
21.0
20.5
20.0
19.5
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

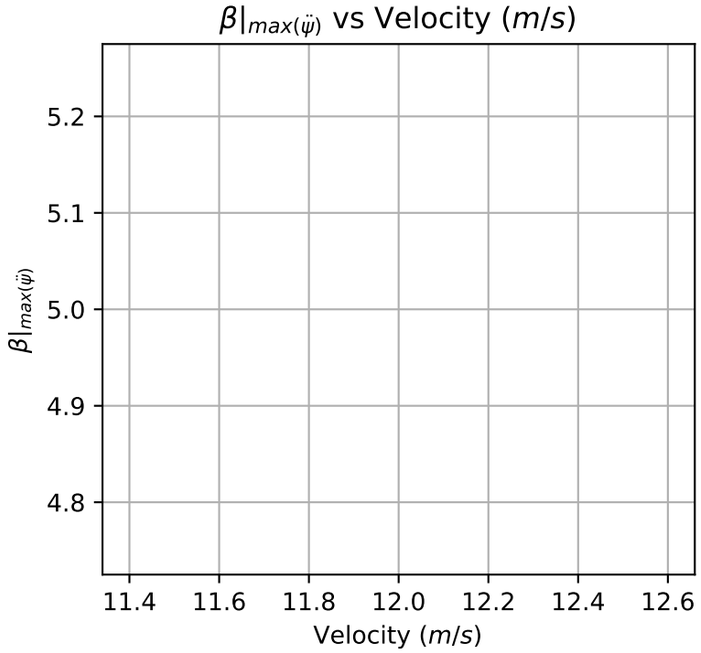

max($a_{y|\ddot{\psi}=0}$) vs Velocity (m/s)
max($a_{y|\ddot{\psi}=0}$)
21.00
20.75
20.50
20.25
20.00
19.75
19.50
19.25
19.00
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

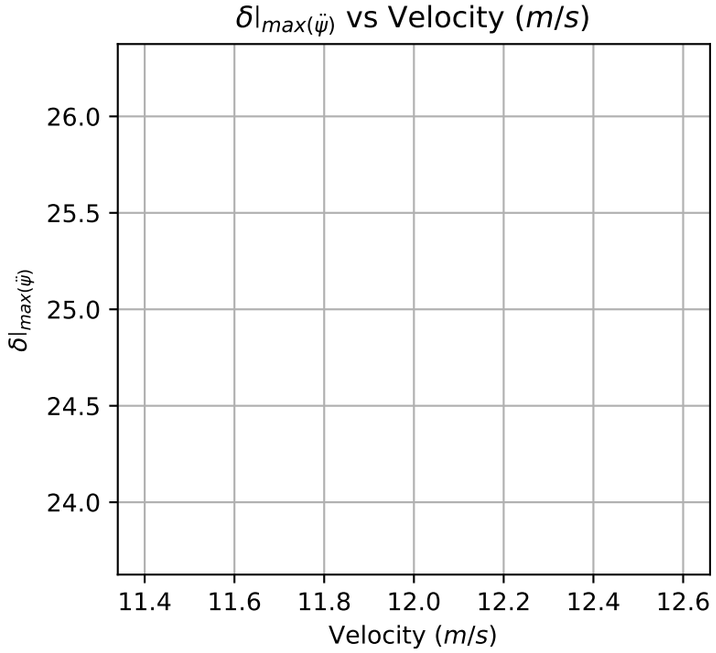

$\ddot{\psi}|_{max(a_y)}$ vs Velocity (m/s)
$\ddot{\psi}|_{max(a_y)}$
−1.34
−1.36
−1.38
−1.40
−1.42
−1.44
−1.46
−1.48
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

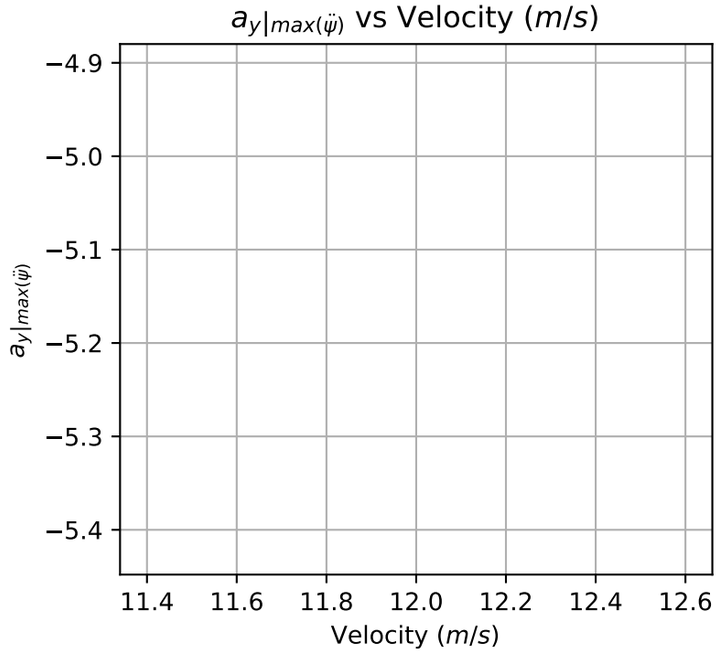

$\beta|_{max(a_y)}$ vs Velocity (m/s)
$\beta|_{max(a_y)}$
−8.6
−8.8
−9.0
−9.2
−9.4
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

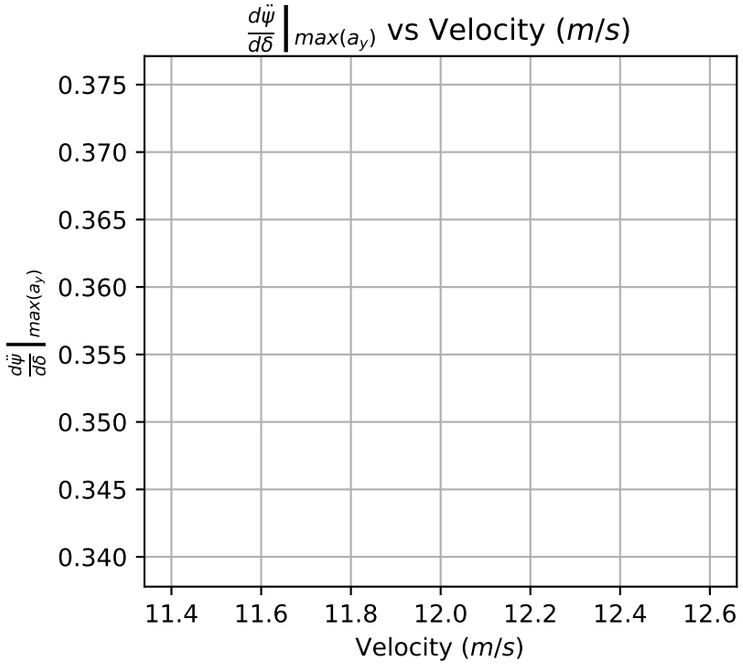

$\delta|_{max(a_y)}$ vs Velocity (m/s)
$\delta|_{max(a_y)}$
26.0
25.5
25.0
24.5
24.0
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

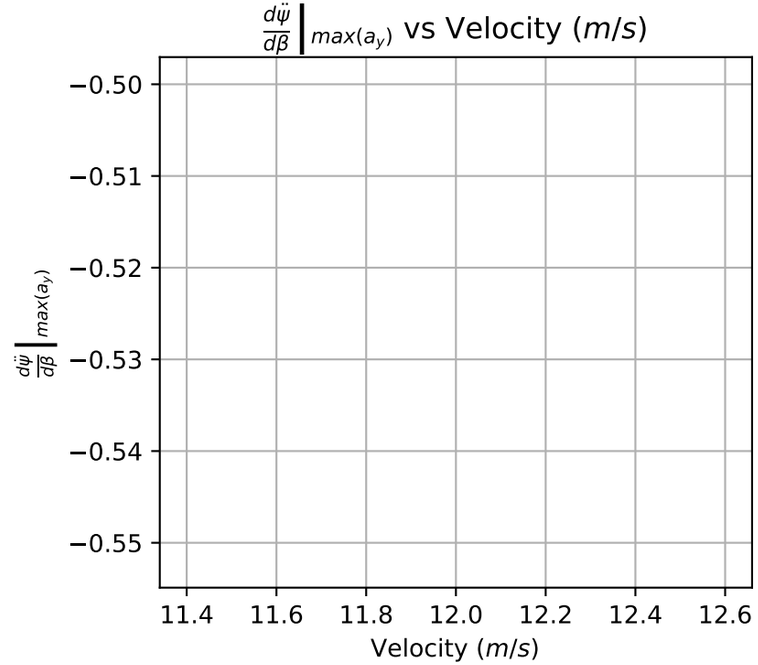

max($\ddot{\psi}$) vs Velocity (m/s)
max($\ddot{\psi}$)
37.0
36.5
36.0
35.5
35.0
34.5
34.0
33.5
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

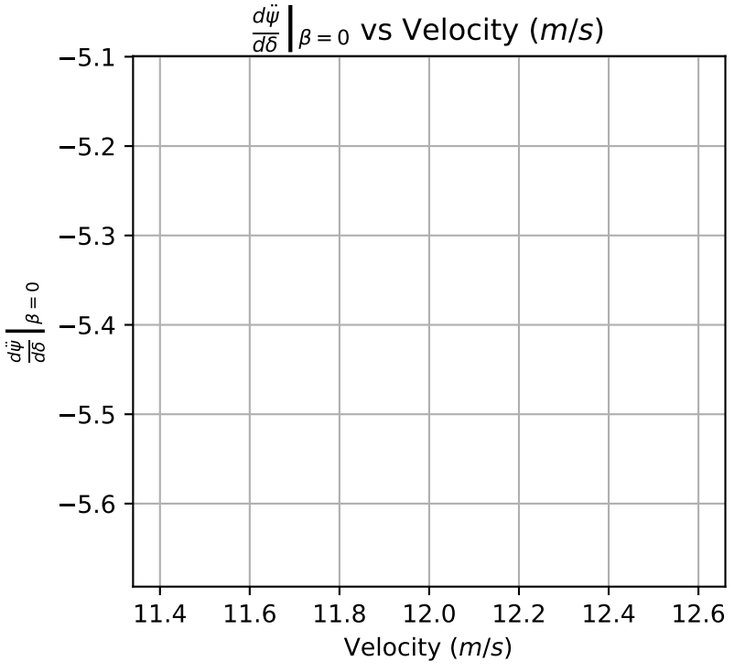

$\beta|_{max(\ddot{\psi})}$ vs Velocity (m/s)
$\beta|_{max(\ddot{\psi})}$
5.2
5.1
5.0
4.9
4.8
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

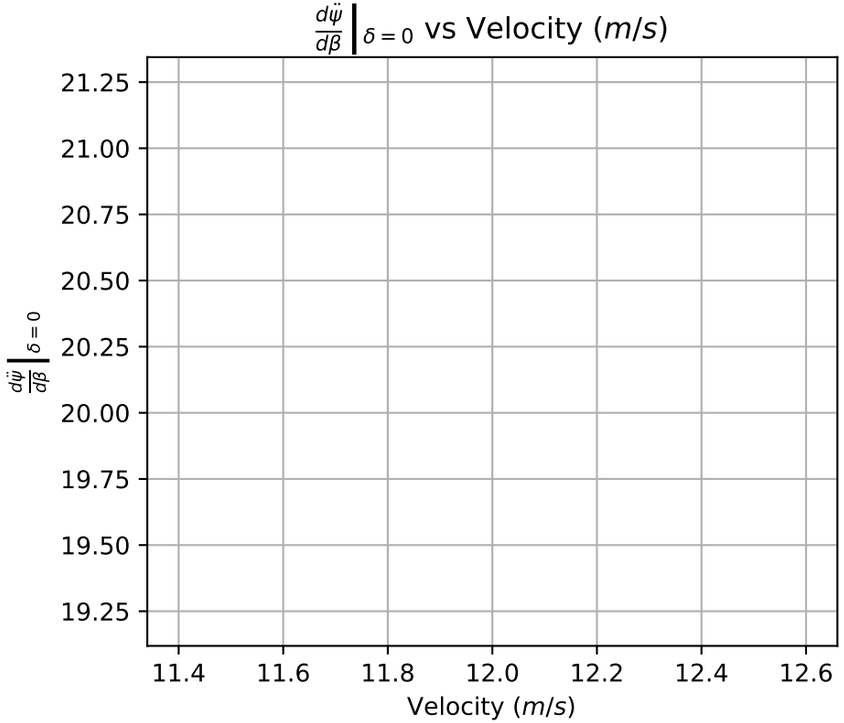

$\delta|_{max(\ddot{\psi})}$ vs Velocity (m/s)
$\delta|_{max(\ddot{\psi})}$
26.0
25.5
25.0
24.5
24.0
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

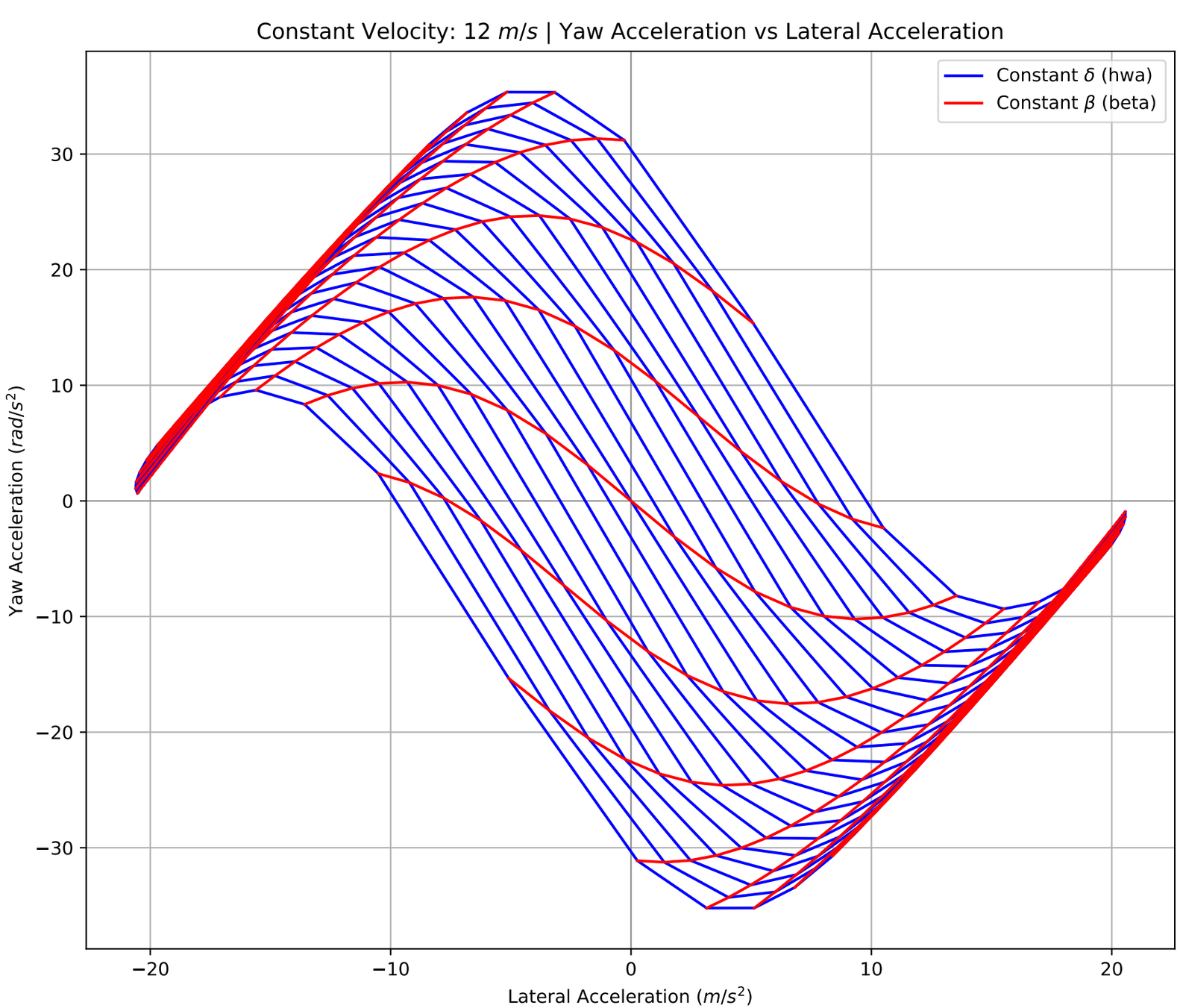

$a_y|_{max(\ddot{\psi})}$ vs Velocity (m/s)
$a_y|_{max(\ddot{\psi})}$
−4.9
−5.0
−5.1
−5.2
−5.3
−5.4
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)


$\frac{d\ddot{\psi}}{d\delta}\Big|_{max(a_y)}$ vs Velocity (m/s)
$\frac{d\ddot{\psi}}{d\delta}\Big|_{max(a_y)}$
0.375
0.370
0.365
0.360
0.355
0.350
0.345
0.340
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)

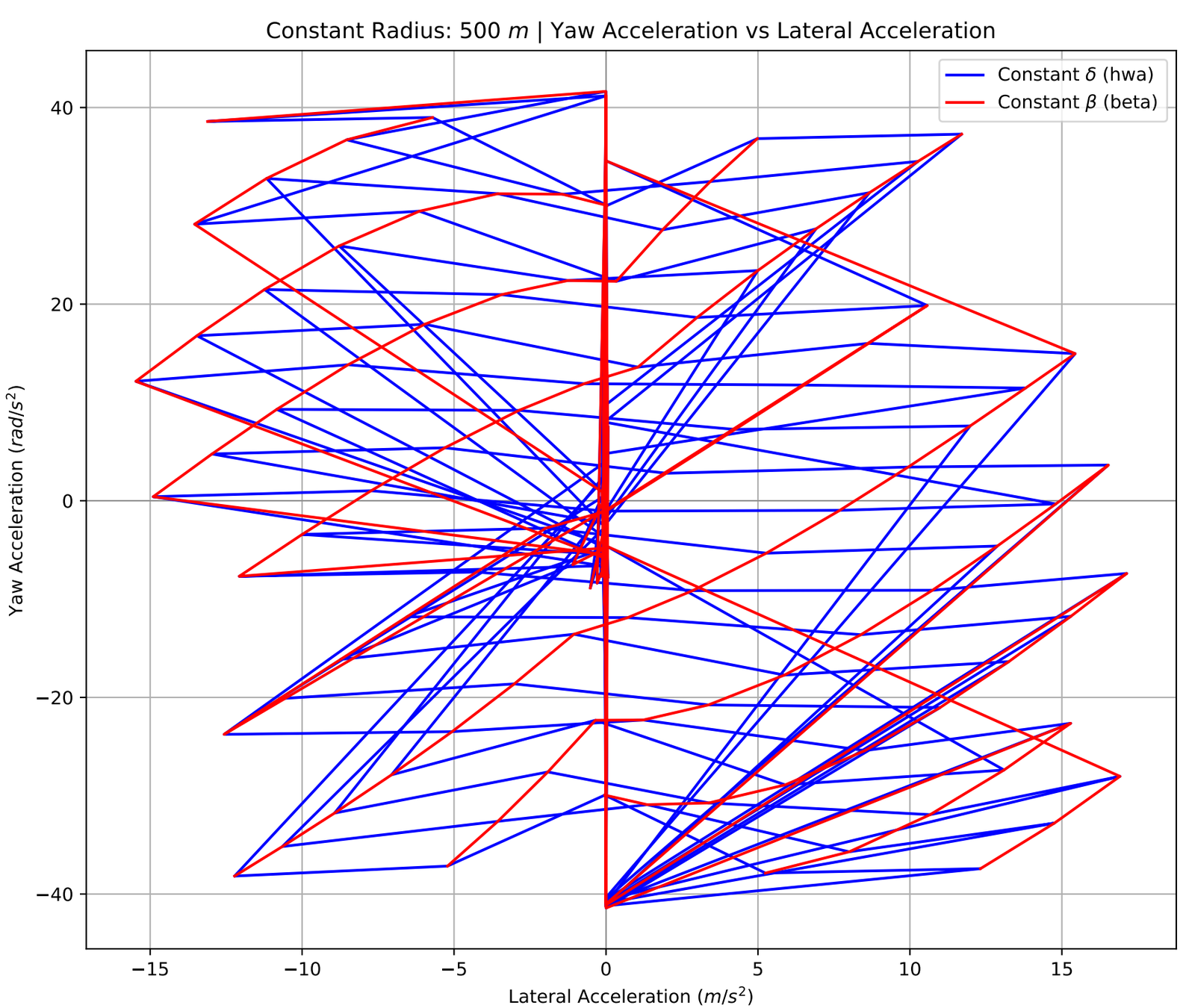

$\frac{d\ddot{\psi}}{d\beta}\Big|_{max(a_y)}$ vs Velocity (m/s)
$\frac{d\ddot{\psi}}{d\beta}\Big|_{max(a_y)}$
−0.50
−0.51
−0.52
−0.53
−0.54
−0.55
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)


$\frac{d\ddot{\psi}}{d\delta}\Big|_{\beta=0}$ vs Velocity (m/s)
$\frac{d\ddot{\psi}}{d\delta}\Big|_{\beta=0}$
−5.1
−5.2
−5.3
−5.4
−5.5
−5.6
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)


$\frac{d\ddot{\psi}}{d\beta}\Big|_{\delta=0}$ vs Velocity (m/s)
21.25
21.00
20.75
20.50
20.25
20.00
19.75
19.50
19.25
$\frac{d\ddot{\psi}}{d\beta}\Big|_{\delta=0}$
11.4
11.6
11.8
12.0
12.2
12.4
12.6
Velocity (m/s)



		Left Half	Right Half
$\max(a_y)$	(m/s^2)	-20.607	20.565
$\max(a_{y\|\ddot{\psi}=0})$	(m/s^2)	-20.092	19.947
$\ddot{\psi}\|_{max(a_y)}$	(rad/s^2)	1.070	-1.404
$\beta\|_{max(a_y)}$	(deg)	9.000	-9.000
$\delta\|_{max(a_y)}$	(deg)	-25.000	25.000
$\max(\ddot{\psi})$	(rad/s^2)	-35.218	35.360
$\beta\|_{max(\ddot{\psi})}$	(deg)	-4.000	5.000
$\delta\|_{max(\ddot{\psi})}$	(deg)	-25.000	25.000
$a_y\|_{max(\ddot{\psi})}$	(m/s^2)	3.145	-5.164
$\frac{d\ddot{\psi}}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{rad/s^2}{deg}\right)$	0.274	0.357
$\frac{d\ddot{\psi}}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{rad/s^2}{deg}\right)$	-0.484	-0.526
$\frac{d\ddot{\psi}}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{rad/s^2}{deg}\right)$		-5.396
$\frac{d\ddot{\psi}}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{rad/s^2}{deg}\right)$		20.232



		Left Half	Right Half
$\max(a_y)$	(m/s^2)	-15.471	17.135
$\max(a_{y\|\ddot{\psi}=0})$	(m/s^2)	-14.871	16.728
$\ddot{\psi}\|_{max(a_y)}$	(rad/s^2)	12.152	-7.391
$\beta\|_{max(a_y)}$	(deg)	3.000	-3.000
$\delta\|_{max(a_y)}$	(deg)	7.500	-5.000
$\max(\ddot{\psi})$	(rad/s^2)	-41.422	41.640
$\beta\|_{max(\ddot{\psi})}$	(deg)	-4.000	5.000
$\delta\|_{max(\ddot{\psi})}$	(deg)	-12.500	22.500
$a_y\|_{max(\ddot{\psi})}$	(m/s^2)	0.003	-0.005
$\frac{d\ddot{\psi}}{d\delta}\Big\|_{max(a_y)}$	$\left(\frac{rad/s^2}{deg}\right)$	25.831	-53.688
$\frac{d\ddot{\psi}}{d\beta}\Big\|_{max(a_y)}$	$\left(\frac{rad/s^2}{deg}\right)$	-11.930	30.361
$\frac{d\ddot{\psi}}{d\delta}\Big\|_{\beta=0}$	$\left(\frac{rad/s^2}{deg}\right)$		4.022
$\frac{d\ddot{\psi}}{d\beta}\Big\|_{\delta=0}$	$\left(\frac{rad/s^2}{deg}\right)$		0.877