$$L := 950 \qquad A1 := 3192 \qquad \rho := 1.9905 \quad y := 0$$

$$L_2 := 1000 \qquad A2 := 6413 \qquad U := 11.8$$ **(feet/second)**

$$S_1(x1) := \left(1 - \frac{4 \cdot x1^2}{L^2}\right) \cdot A1 \qquad dS_1(x1) := \frac{d}{dx1} S_1(x1) \qquad S_2(x2$$

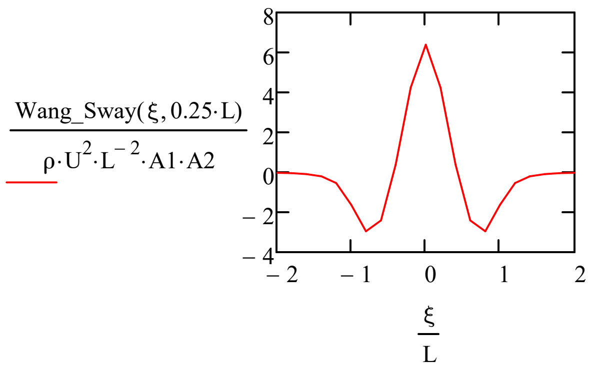
$$F(x1, \xi, \eta) := \int^{\frac{L_2}{2}} \frac{dS_2(x2) \cdot (x2 - x1 + \xi)}{\left[\quad\right]^{\frac{3}{2}}} \, dx2$$

$$G(x1, \xi, \eta) := \int_{-\frac{L_2}{2}}^{\frac{L_2}{2}} \frac{dS_2(x2)}{\left[(x2 - x1 + \xi)^2 + \eta^2\right]^{\frac{3}{2}}} \, dx2$$

$$\text{Wang\_Surge}(\xi, \eta) := \frac{\rho \cdot U^2}{2 \cdot \pi} \cdot \int_{-\frac{L}{2}}^{\frac{L}{2}} dS_1(x1) \cdot F(x1, \xi, \eta) \, dx1$$

$$\mathrm{Wang\_Sway}(\xi,\eta) := \frac{\rho\cdot U^2\cdot\eta}{\pi}\cdot\int_{-\frac{L}{2}}^{\frac{L}{2}} dS_1(x1)\cdot G(x1,\xi,\eta)\,dx1$$

$$\xi := -2\cdot L, -1.8\cdot L .. 2\cdot L$$



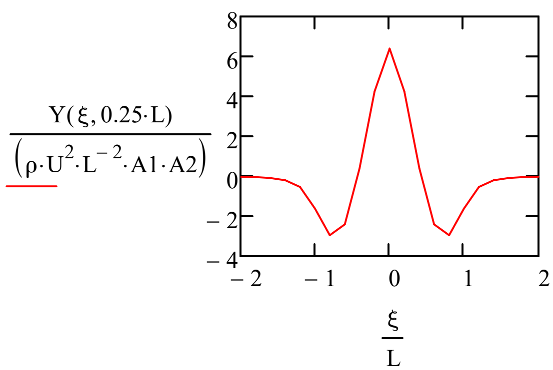
$$\mathrm{Yaw}(\xi,\eta) := \frac{\rho\cdot U^2\cdot\eta}{\pi}\cdot\int_{-\frac{L}{2}}^{\frac{L}{2}} \left[\left(dS_1(x1)\cdot x1 + S_1(x1)\right)\cdot G(x1,\xi,\eta\right.$$

$$\Phi_2(x1,y,z,\xi,\eta) := -\frac{U}{2\cdot\pi}\cdot\int_{-\frac{L_2}{2}}^{\frac{L_2}{2}} \frac{S_2(x2)\cdot(x1-x2-\xi)}{(x1-x2-\xi)^2+(y-\eta)^2+}$$

$$v(x1,\xi,\eta) := \frac{d}{dy}\Phi_2(x1,y,0,\xi,\eta) \qquad dv(x1,\xi,\eta) := \frac{d}{d\xi}v(x1$$

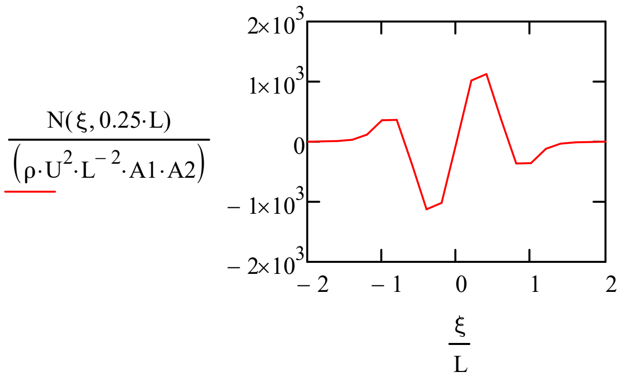
$$v(x1,\xi,\eta) := \frac{U\cdot\eta}{2\cdot\pi}\cdot\int_{-\frac{L_2}{2}}^{\frac{L_2}{2}} \frac{dS_2(x2)}{\left[(x2 - x1 + \xi)^2 + \eta^2\right]^{\frac{3}{2}}}\,dx2$$

$$Y(\xi,\eta) := 2\cdot\rho\cdot U\cdot\int_{-\frac{L}{2}}^{\frac{L}{2}} S_1(x1)\cdot dv(x1,\xi,\eta)\,dx1$$



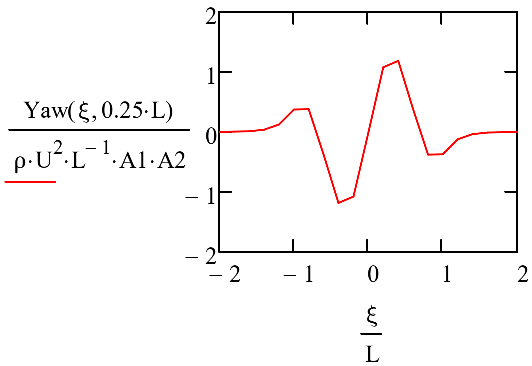
$$l(x1) := A1\cdot\left(1 - \frac{4\cdot x1^2}{L^2}\right) \qquad x1 := -\frac{L}{2}, -0.9\cdot\frac{L}{2} .. \frac{L}{2}$$

$$N(\xi,\eta) := 2\cdot\rho\cdot U\cdot\int_{-\frac{L}{2}}^{\frac{L}{2}} x1\cdot S_1(x1)\cdot dv(x1,\xi,\eta)\,dx1$$



$$Yaw(\xi,\eta) := \frac{\rho\cdot U^2\cdot\eta}{\pi}\cdot\int_{-\frac{L}{2}}^{\frac{L}{2}} \left[\left(dS_1(x1)\cdot x1 + S_1(x1)\right)\cdot G(x1\right.$$

$$Yaw2(\xi,\eta) := \frac{\rho\cdot U^2\cdot\eta}{\pi}\cdot\int_{-\frac{L}{2}}^{\frac{L}{2}} \left[-8\cdot\frac{x1}{L^2}\cdot A1\cdot x1 + \left(1 - 4\cdot\frac{x1^2}{L^2}\right)\cdot\right.$$



$$\left[-8\cdot\frac{x1}{L^2}\cdot A1\cdot x1 + \left(1 - 4\cdot\frac{x1^2}{L^2}\right)\cdot A1\right]\cdot\int_{-\frac{L_2}{2}}^{\frac{L_2}{2}} \frac{-8\cdot\frac{x2}{L_2{}^2}\cdot A}{\left[(x2 - x1 + \xi)^2\right.}$$

$$\left[-8\cdot\frac{x1^2}{L^2}\cdot A1 + \left(1 - 4\cdot\frac{x1^2}{L^2}\right)\cdot A1\right]\cdot\left[8\cdot\left(2\cdot\eta^2 - x1\cdot L_2 + 2\cdot x1^2\right.\right.$$

$$\mathrm{Yaw}(0, 0.25\cdot L) = 2.656\times 10^{-9}$$

$$\frac{-}{\left[(-475 - -4\right.}$$

$x2 := -475$

$-8\cdot$

$\left[(x2 - x1\right.$

$$h(x1, x2, \xi, \eta) := \frac{-8\cdot\frac{x2}{L_2^{\,2}}\cdot A2}{\left[(x2 - x1 + \xi)^2 + \eta^2\right]^{\frac{3}{2}}}$$

sum(x1) :=

$\mathrm{sum}(-475) = 1.793\times 10^{-6}$ $\mathrm{sum}(475) = -1.793\times 10^{-6}$

$\mathrm{sum}(-456) = 1.774\times 10^{-6}$ $\mathrm{sum}(0) = 0$

$\left[(-\right.$

$$) := \left(1 - \frac{4 \cdot x2^2}{L_2^2}\right) \cdot A2 \quad dS_2(x2) := \frac{d}{dx2} S_2(x2)$$

$$eta(\eta, h, n) := \sqrt{\eta^2 + 4 \cdot n^2 \cdot h^2} \qquad eta(237.5, 200, -19) = 7.604 \times$$

$$F(-475, 0, eta(0.25 \cdot L, 200, -20)) = -8.18 \times 10^{-6}$$

$$G(-475, 0, eta(0.25 \cdot L, 200, -20)) = 1.828 \times 10^{-10}$$

$$Wang\_Surge\_Depth(\xi, \eta, h) := \sum^{10} Wang\_Surge(\xi, et$$

$$Wang\_Surge\_Depth(20, 0.25 \cdot L, 200) = 1.929 \times 10^{3}$$

$dS_1(-475) = 13.44$

$Wang\_Sway(0, 0.25 \cdot L) = 4.019 \times 10^4$ Wang_Sw

$$Wang\_Sway\_Depth(\xi, \eta, h) := \eta \cdot \sum_{n=-10}^{10} \frac{Wang\_Sway(\xi,}{eta(\eta, h}$$

$Wang\_Sway\_Depth(20, 0.25 \cdot L, 200) = 5.255 \times 1($

$\frac{Wang\_Sway\_Depth(0.003 \cdot L, 200, 45)}{1000} = 242.272$

$eta(0.25 \cdot L, L, -0) = 237.5$

$.003 \cdot L = 2.85$ $\frac{.36 \cdot 10^5}{1000} = 36$

$.2 \cdot L = 190$

$)\Big]$ dx1 $Yaw\_Depth(\xi, \eta, h) := \eta \cdot \sum_{n=-10}^{10} \frac{Yaw(\xi, eta(}{eta(\eta, l}$

$\frac{Yaw\_Depth(0.315 \cdot L, 200, 45)}{1000} = 4.471 \times 10^4$

$\frac{}{z^2}$ dx2 $\frac{Wang\_Surge\_Depth(0.315 \cdot L, 200, 45)}{1000} = 9$

$, \xi, \eta)$

$$dv(x1, \xi, \eta) := \frac{d}{d\xi} v(x1, \xi, \eta)$$

$$.25 \cdot 950 = 237.5$$

$$S_1(0) \cdot dv(0, 0, 0.25 \cdot L) = 1.909$$

$, \xi, \eta)\Big] \, dx1$

$$\mathrm{A1}\Big] \cdot \int_{-\frac{L_2}{2}}^{\frac{L_2}{2}} \frac{-8 \cdot \frac{x2}{{L_2}^2} \cdot \mathrm{A2}}{\left[(x2 - x1 + \xi)^2 + \eta^2\right]^{\frac{3}{2}}} \, dx2 \, dx1$$

$$\frac{Yaw(.5\cdot L, 0.25\cdot L)}{N(0.5\cdot L, 0.25\cdot L)} = 1$$

$$\frac{Yaw(.5\cdot L, 0.25\cdot L)}{Yaw2(.5\cdot L, 0.25\cdot L)} = 1$$

$$\text{.2}$$

$$\text{———} \; dx2$$

$$+ \eta^2\Big]^{\frac{3}{2}}$$

$$\text{'} - 4\cdot x1\cdot \xi + \xi\cdot L_2 + 2\cdot \xi^2\Big)\cdot\frac{A2}{\Big[\eta^2\cdot\Big(\sqrt{-4\cdot x1\cdot L_2 + 4\cdot\eta^2 + L_2{}^2 - 8\cdot x1}}$$

$$\cdot 8\cdot\frac{-475}{L_2{}^2}\cdot A2$$

$$\text{———} = 1.819\times 10^{-6}$$

$$75 + 0)^2 + (0.25\cdot L)^2\Big]^{\frac{3}{2}}$$

$x1 := -475 \quad \xi := 0 \quad \eta := 0.25\cdot L$

$$\frac{\frac{x2}{L_2{}^2}\cdot A2}{\qquad\qquad\qquad\qquad\qquad\qquad\qquad^{\frac{3}{2}}} = 1.819\times 10^{-6}$$

$$+\ \xi)^2 + \eta^2\Big]^{\frac{3}{2}}$$

$$= h(x1, -475, 0, 0.25\cdot L) + h(x1, 475, 0, 0.25\cdot L)$$

$$h(-475, -475, 0, 0.25\cdot L) = 1.819\times 10^{-6}$$

$$\frac{-8\cdot\frac{-475}{950^2}\cdot 3150}{475 - -475 - 0)^2 + (0.25\cdot L)^2\Big]^{1.5}} = 9.9\times 10^{-7}$$

$\times 10^3$

$a(\eta, h, n))$

$ay(0, eta(0.25\cdot L, 200, 20)) = 0.551$

$\dfrac{eta(\eta, h, n))}{\iota, n)}$

$)^{4}$

$\dfrac{(\eta, h, n))}{\imath, n)}$

2.986

$$\overline{\overline{\cdots 1\cdot\xi + 4\cdot\xi^2 + 4\cdot\xi\cdot L_2 + 4\cdot\overline{x1^2}\cdot L_2^{\,2}\Big)\Big]}} - 8\cdot\Big(2\cdot\eta^2 + x1\cdot L_2 + 2\cdot x1^2\cdot$$

$$- 4\cdot x1\cdot \xi - \xi\cdot L_2 + 2\cdot \xi^2\Big)\cdot \frac{A2}{\Big[\eta^2\cdot\Big(\sqrt{4\cdot x1\cdot L_2 + 4\cdot \eta^2 + L_2^{\,2} - 8\cdot x1\cdot \xi}}$$

$$\overline{\overline{+\ 4\cdot\xi^2 - 4\cdot\xi\cdot L_2 + 4\cdot x1^2}\cdot L_2^{\,2}\Big)\Big]}\Bigg]$$