

STA BARMOT - Frequency Domain Non-Linear Barge Motions

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This program calculates basic hydrostatics, natural periods and RAOs for a barge. The Roll RAO is Non-Linear with Wave Height

Full Load 1		<-- Condition	Barge w/known Gyradii			<-- Run Reference
64.0 lb/ft^3	Water mass density		160.0 ft	Vessel Length, L	2.46	L/B Ratio
26.03 ft	Roll Gyradius (if known)		65.0 ft	Vessel Beam, B	1.65	D/t Ratio
39.93 ft	Pitch Gyradius (if known)		9.00 ft	Vessel Depth, D		
45 deg	Wave attack angle - Effects graph below.		3636 kip	Total weight with topside and ballast	Set Headers for Printing	
2.00 ft	Wave height (ft) - Effects Roll RAO Amplitude.		11.14 ft	VCG (or KG)		
6.00 sec	Wave period		15%	damping factor for bilge keels & appendages		
2	Gyradius Switch, 1 = user input as above, 2 = program approximation as shown below					

Summary Results

18.94 ft	Roll Gyradius, program approximation	5.46 ft	Vessel Draft, t
46.26 ft	Pitch Gyradius, program approximation	6.64 ft	VCG OrcaFlex
0.61 m	wave height (m)	3.84 sec	natural heave period of barge
56.04 ft	GM transverse	4.51 sec	natural roll period of barge
382.07 ft	GM longitudinal	4.69 sec	natural pitch period of barge
19.21 deg	wave slope = H/2 (2pi/L) = Hpi/L (radians)	56.21 m	wave length = gT^2/2pi

