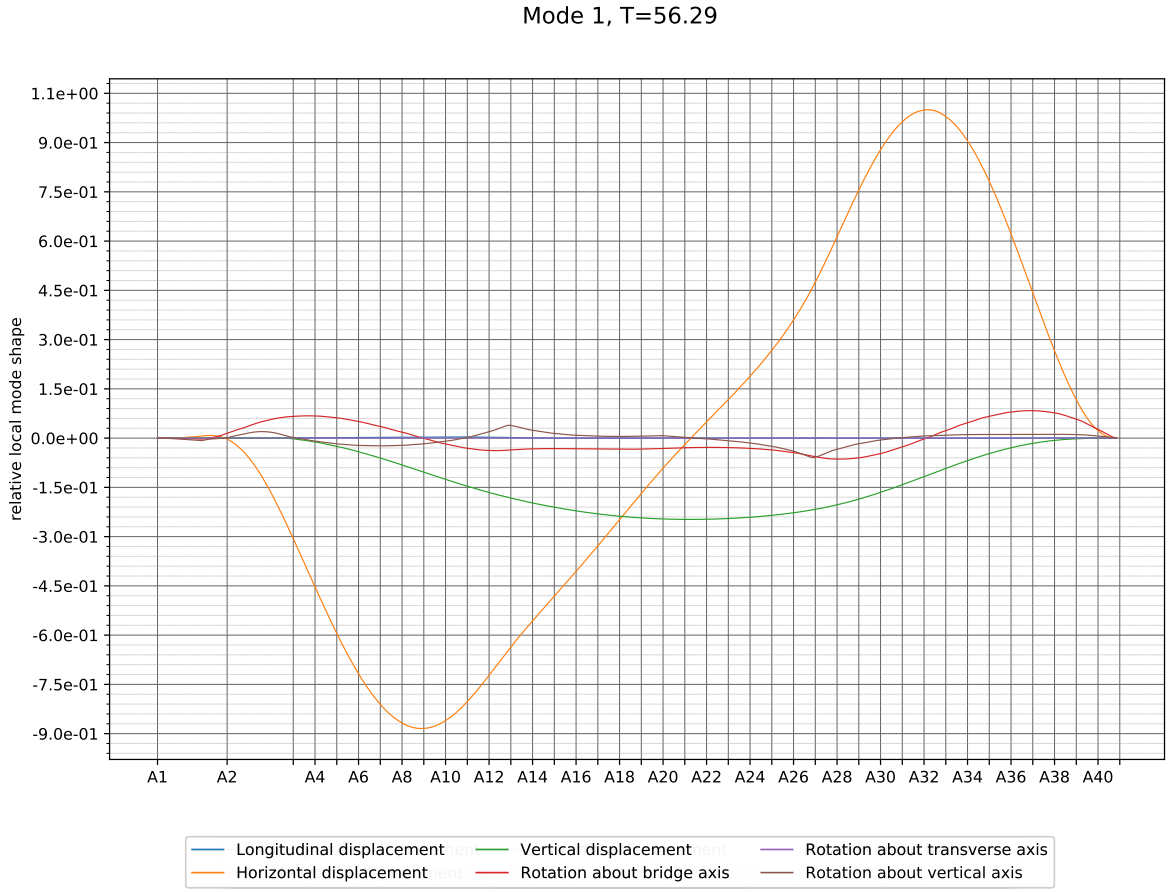
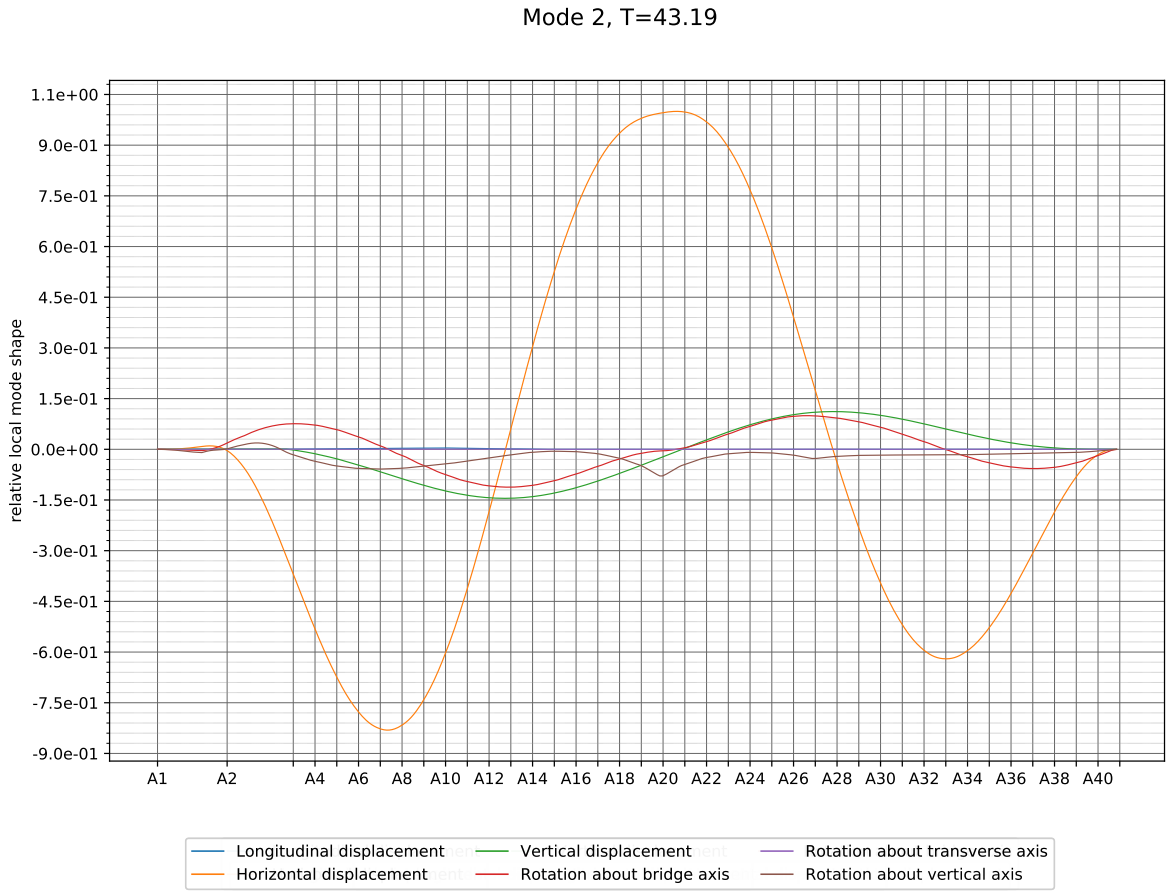
2 Single modes

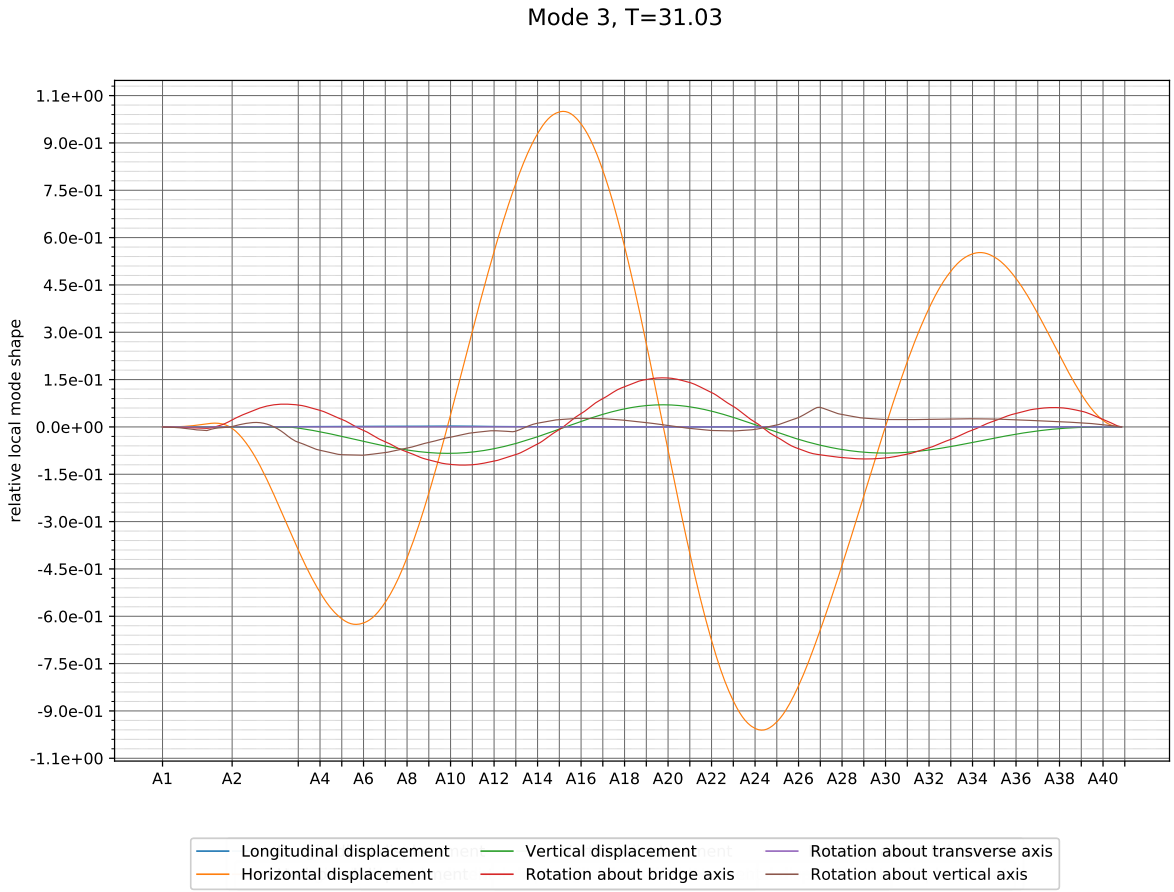
2.1 Mode 1, T=56.29



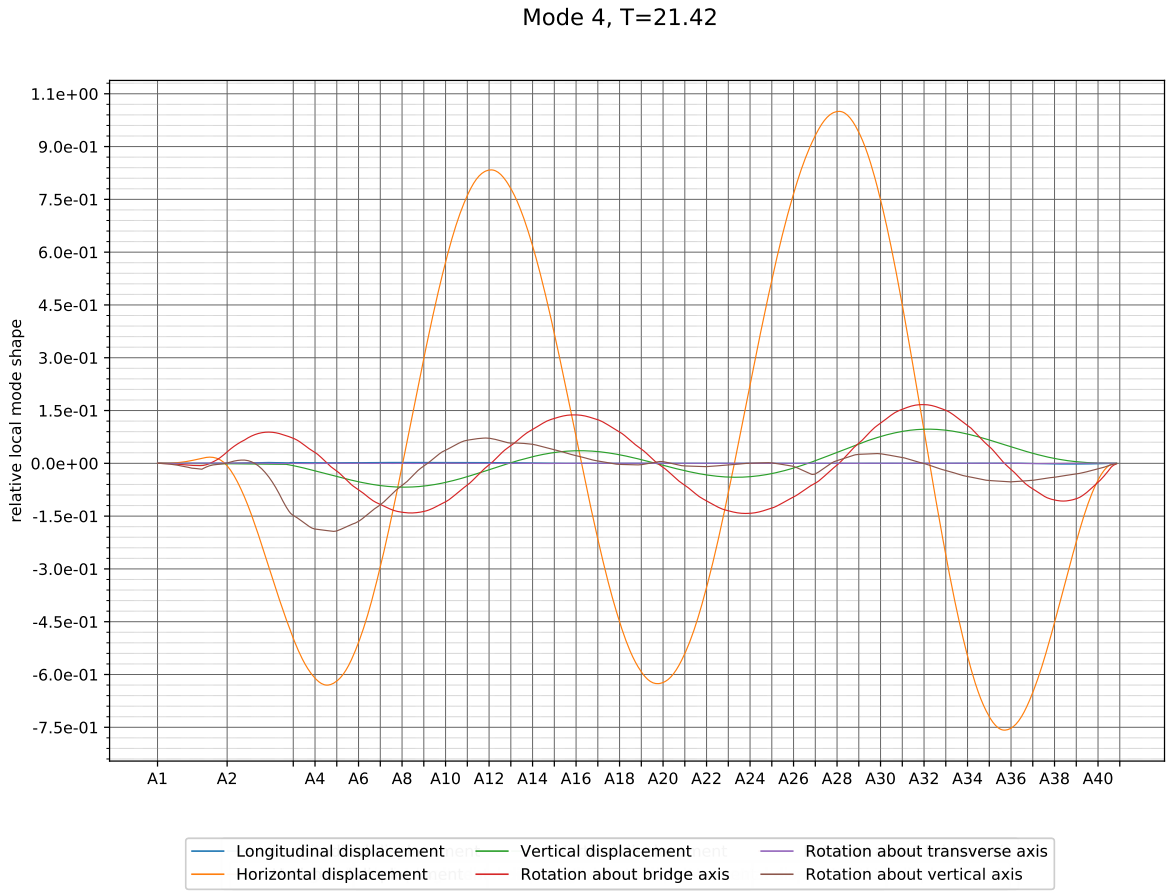
2.2 Mode 2, T=43.19



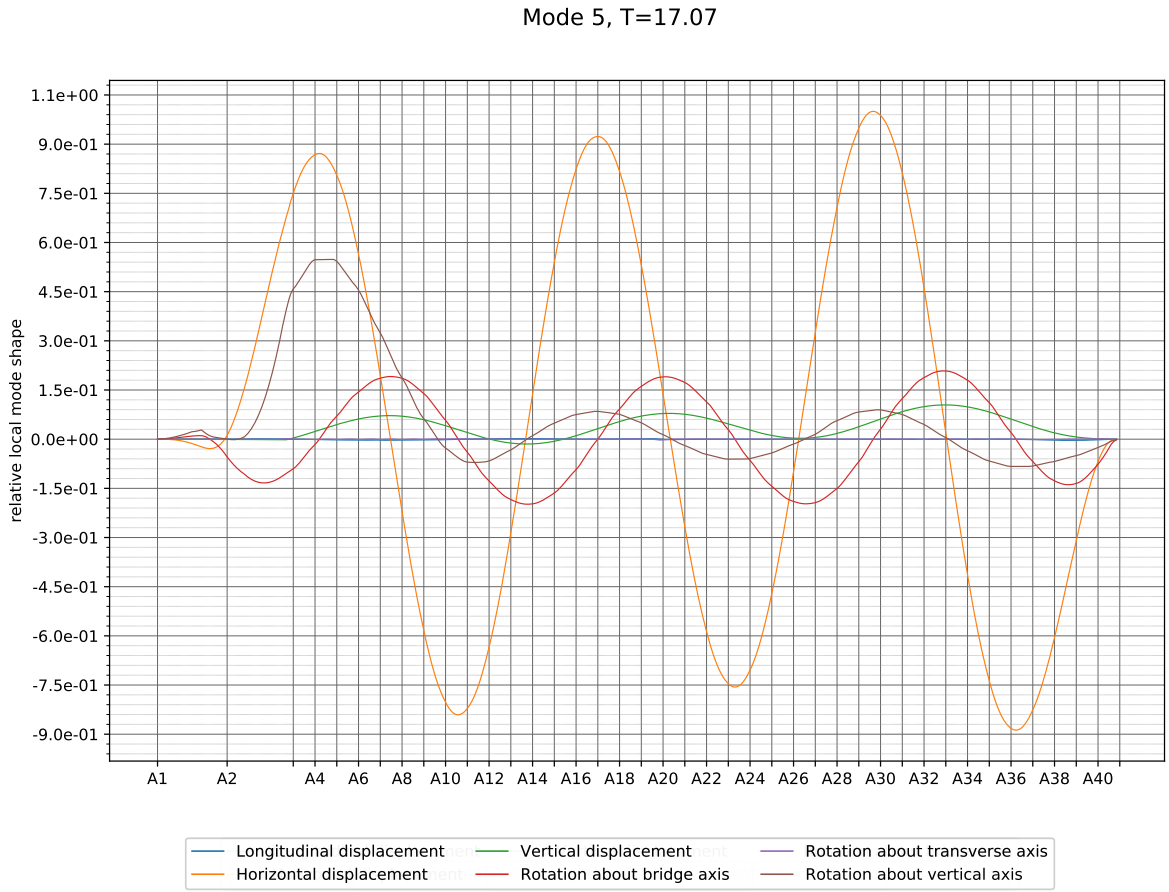
2.3 Mode 3, T=31.03



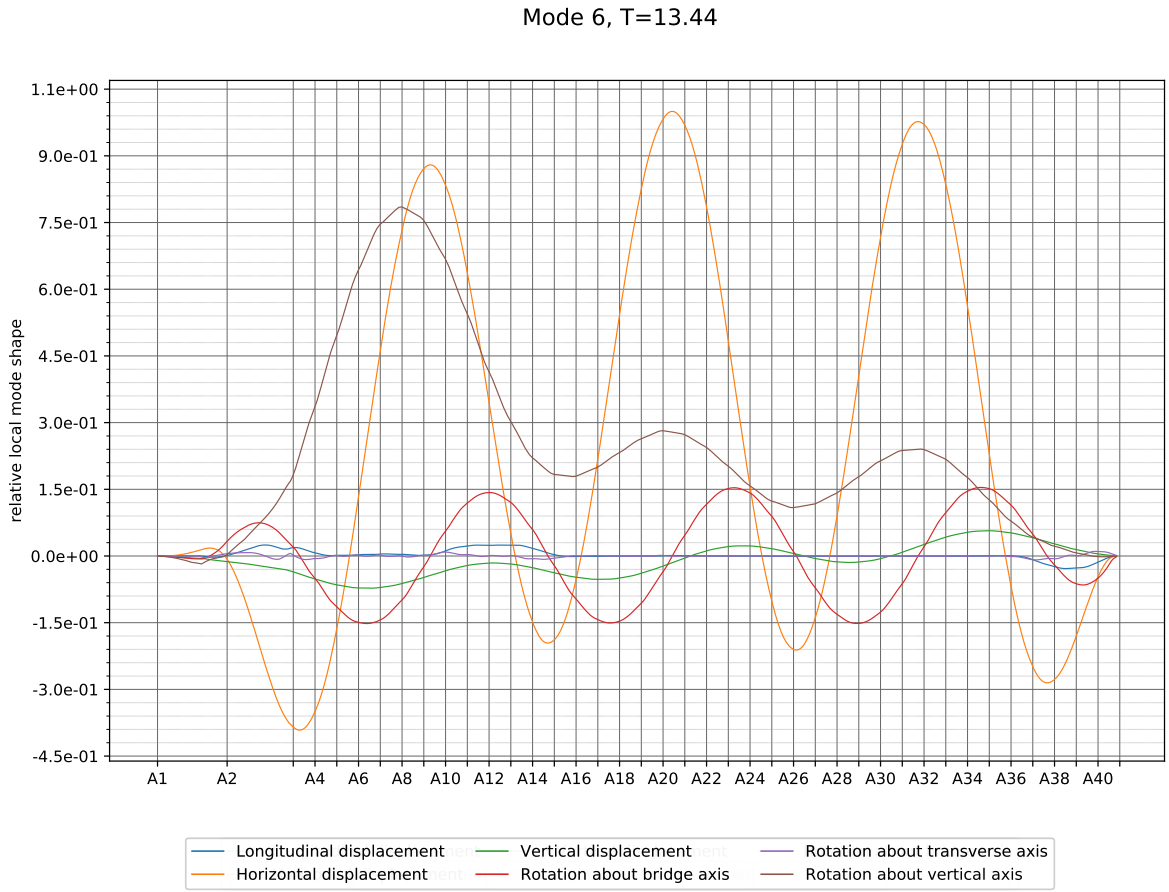
2.4 Mode 4, T=21.42



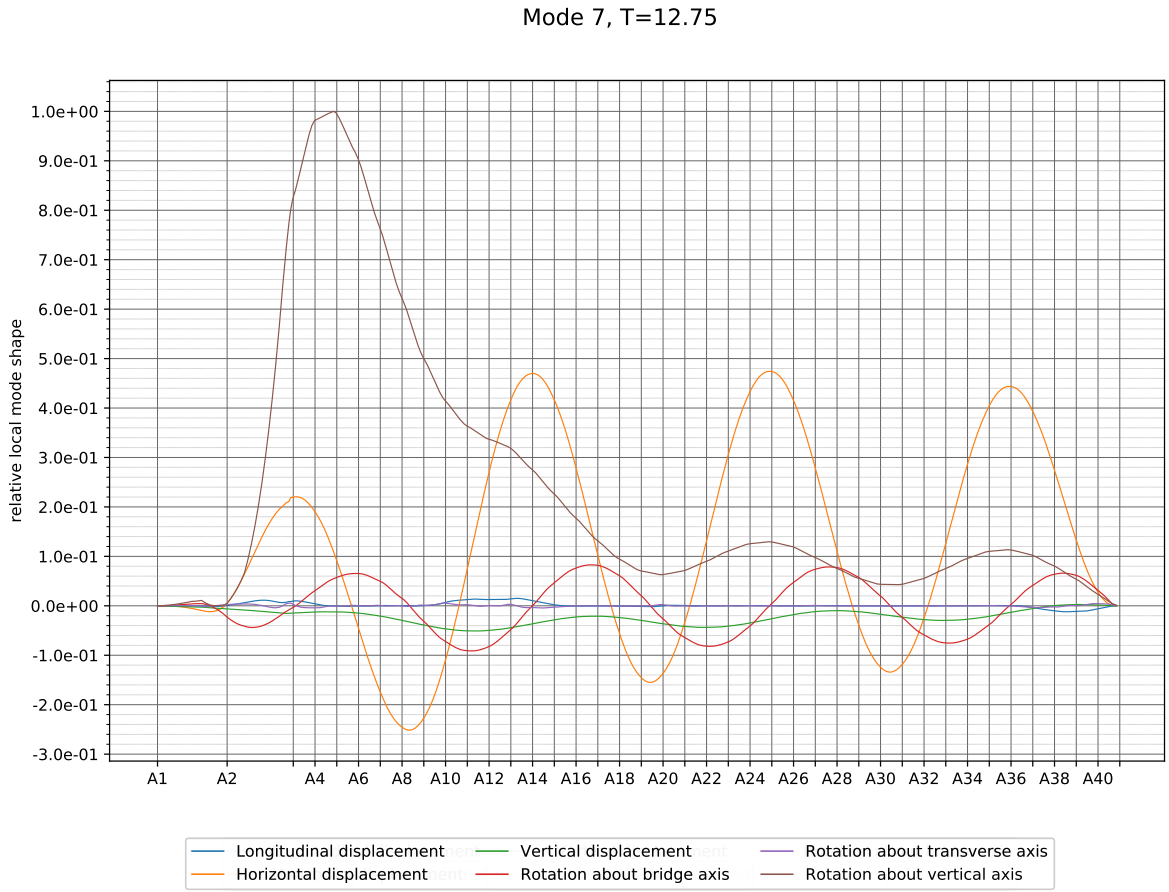
2.5 Mode 5, T=17.07



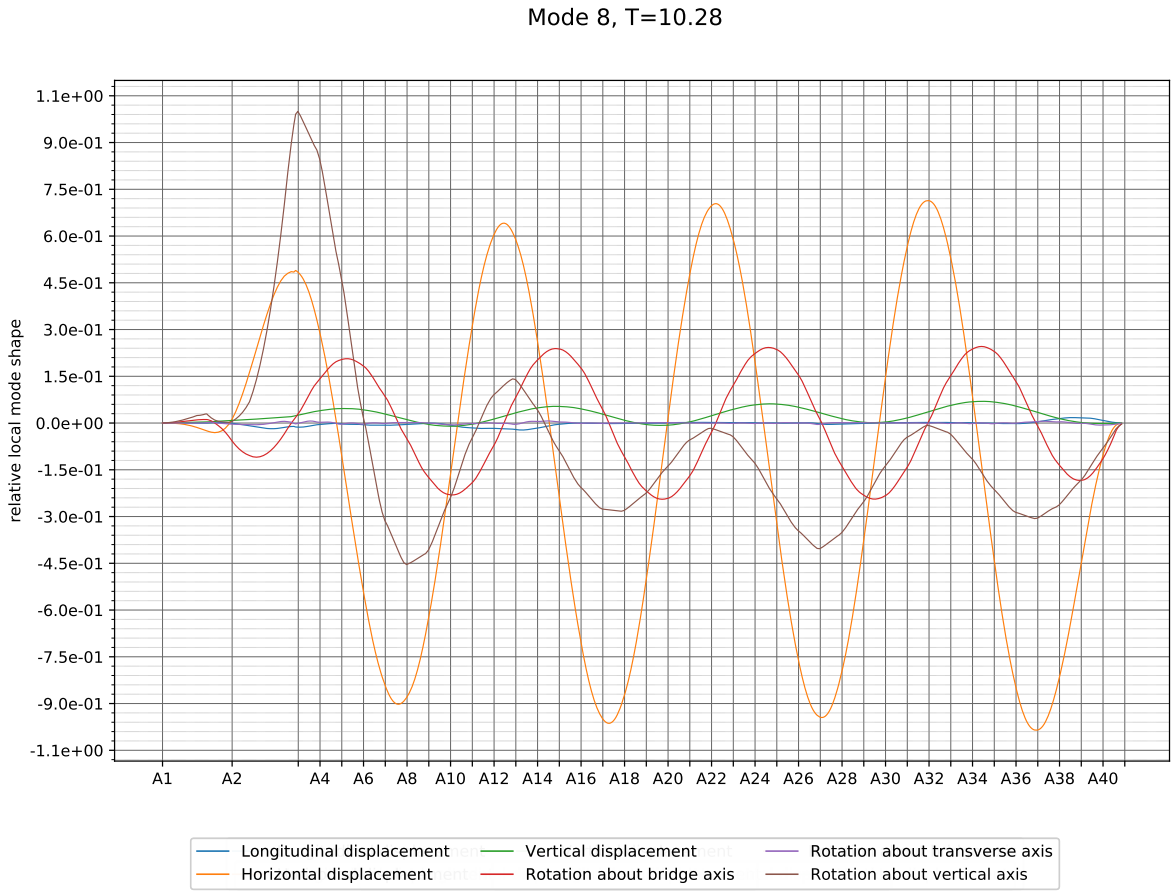
2.6 Mode 6, T=13.44



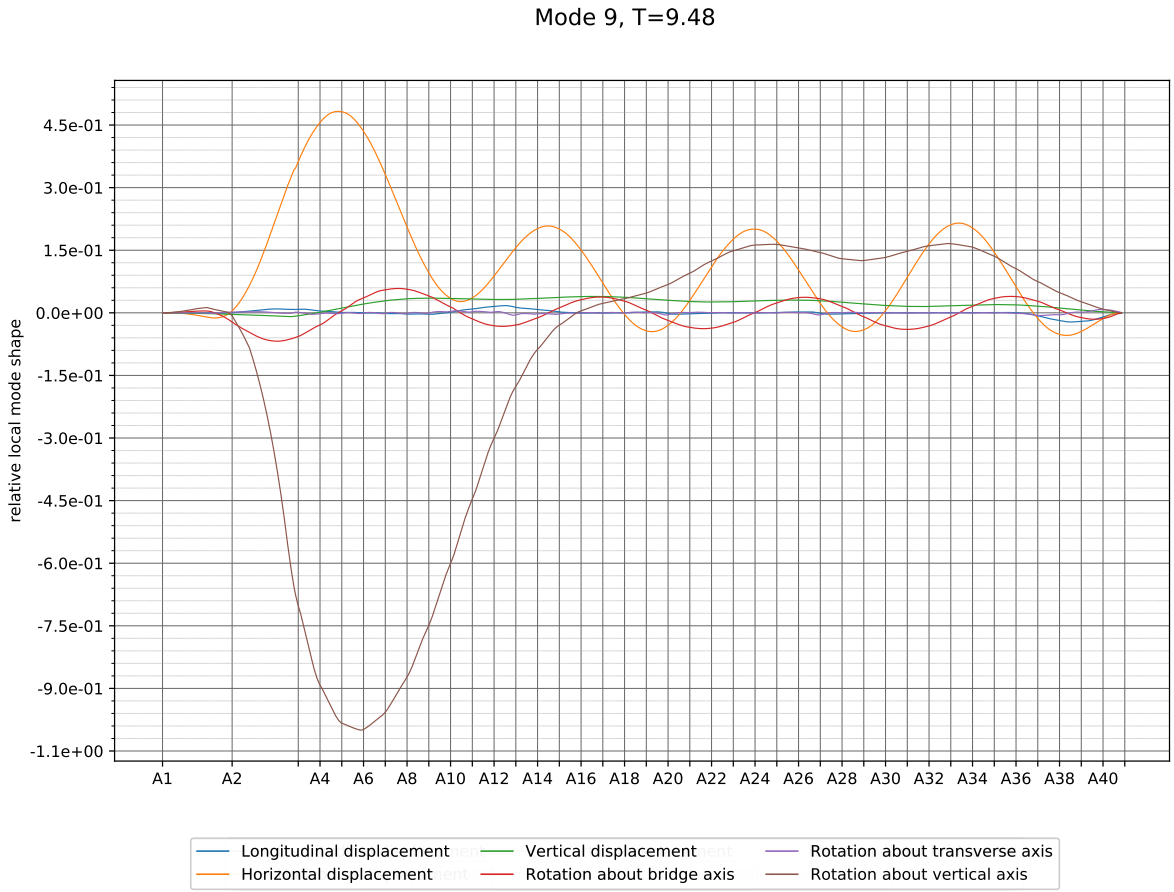
2.7 Mode 7, T=12.75



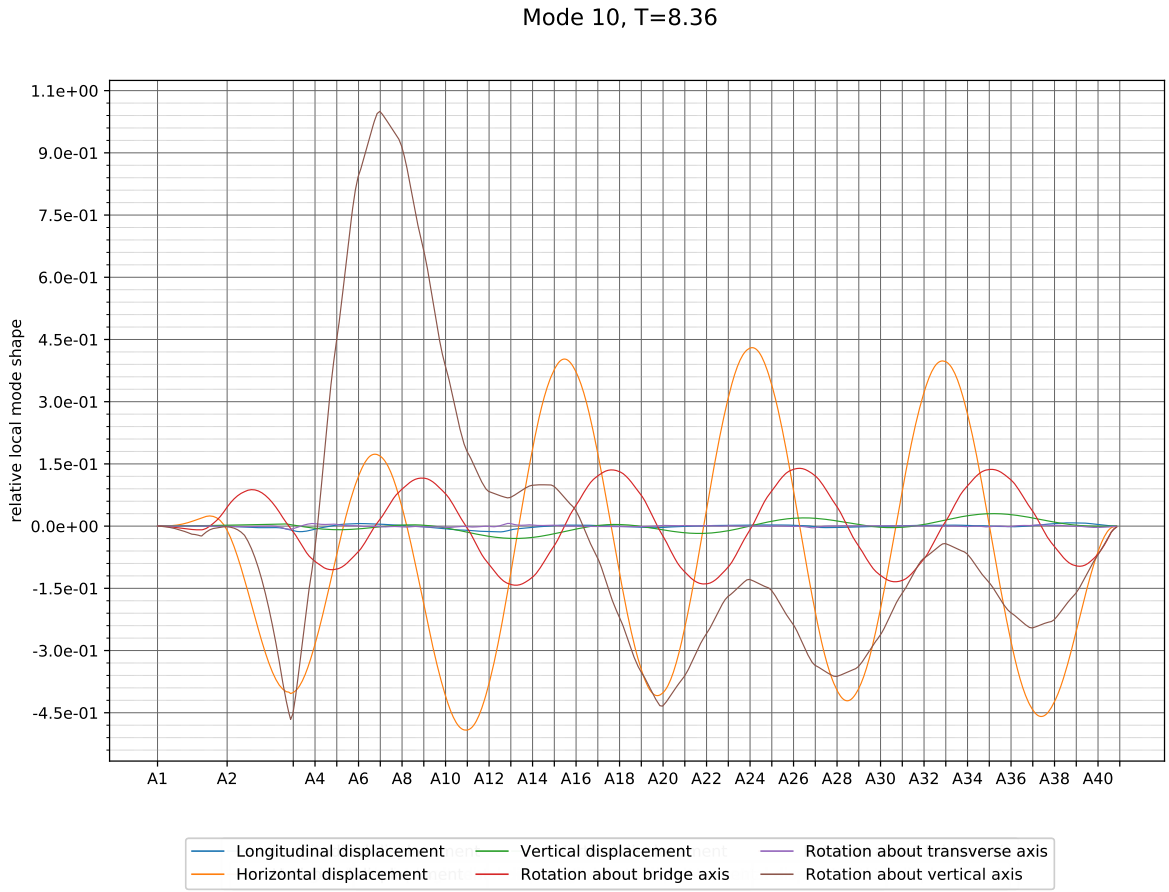
2.8 Mode 8, T=10.28



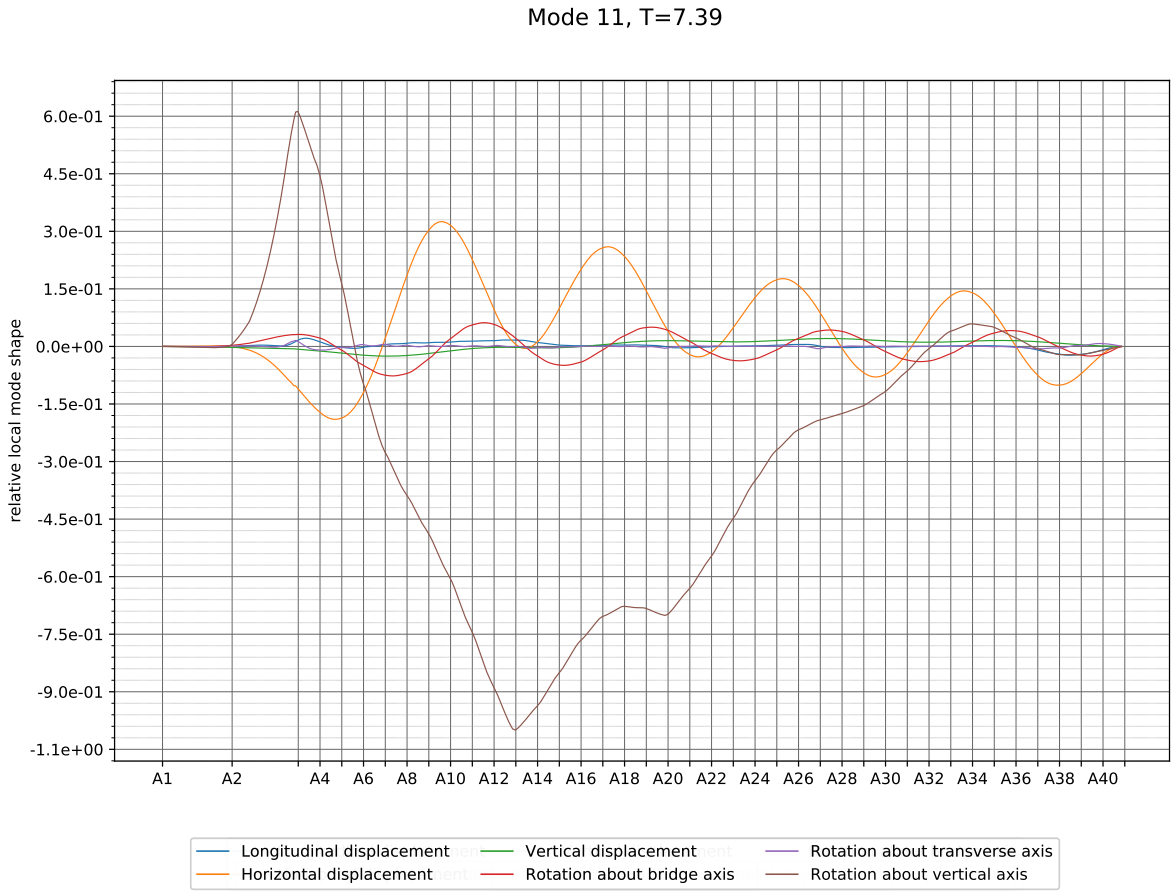
2.9 Mode 9, T=9.48



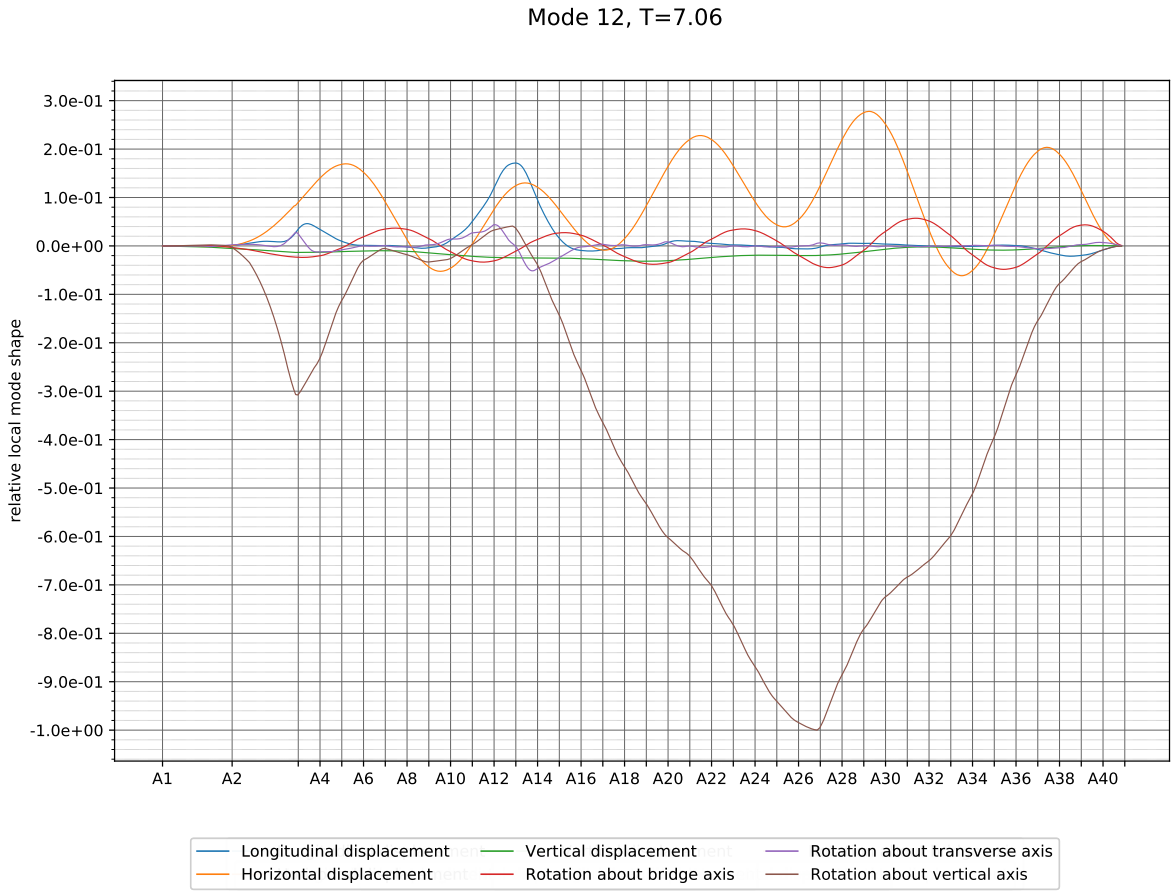
2.10 Mode 10, T=8.36



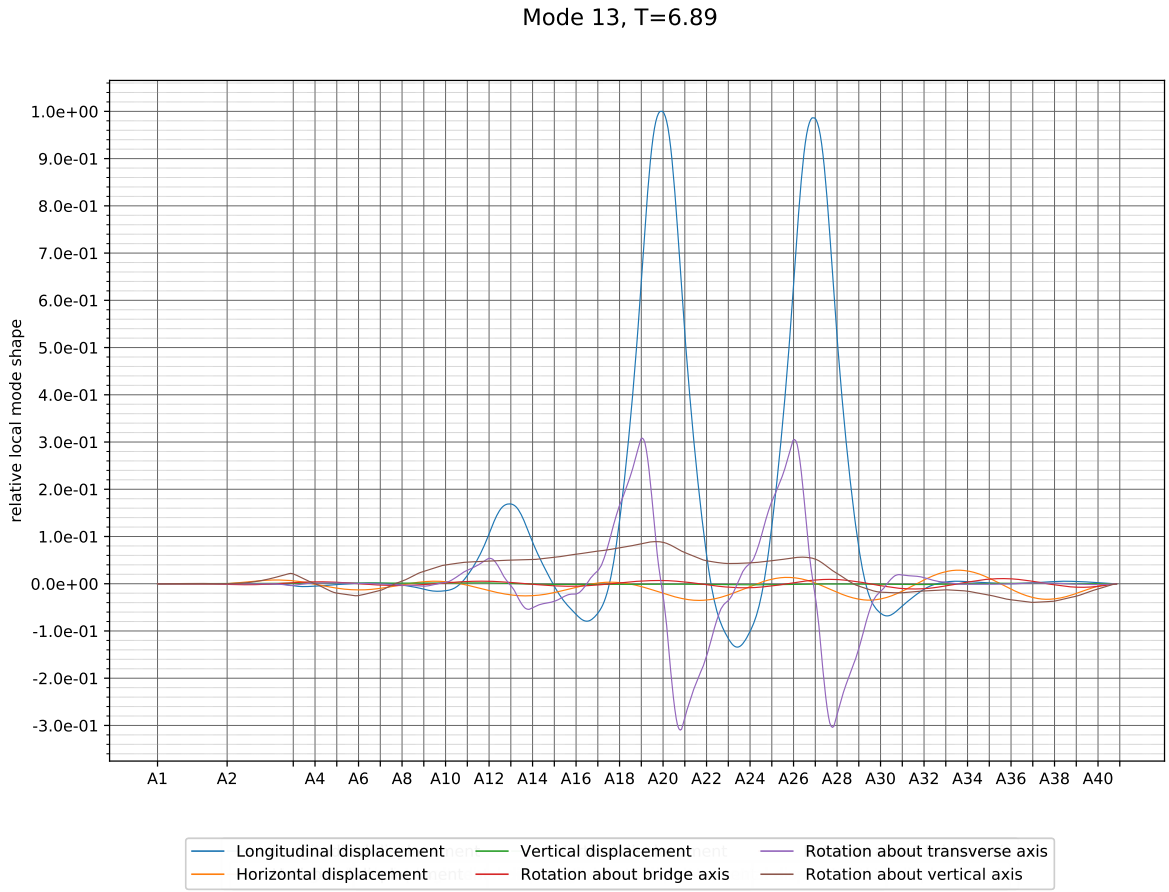
2.11 Mode 11, T=7.39



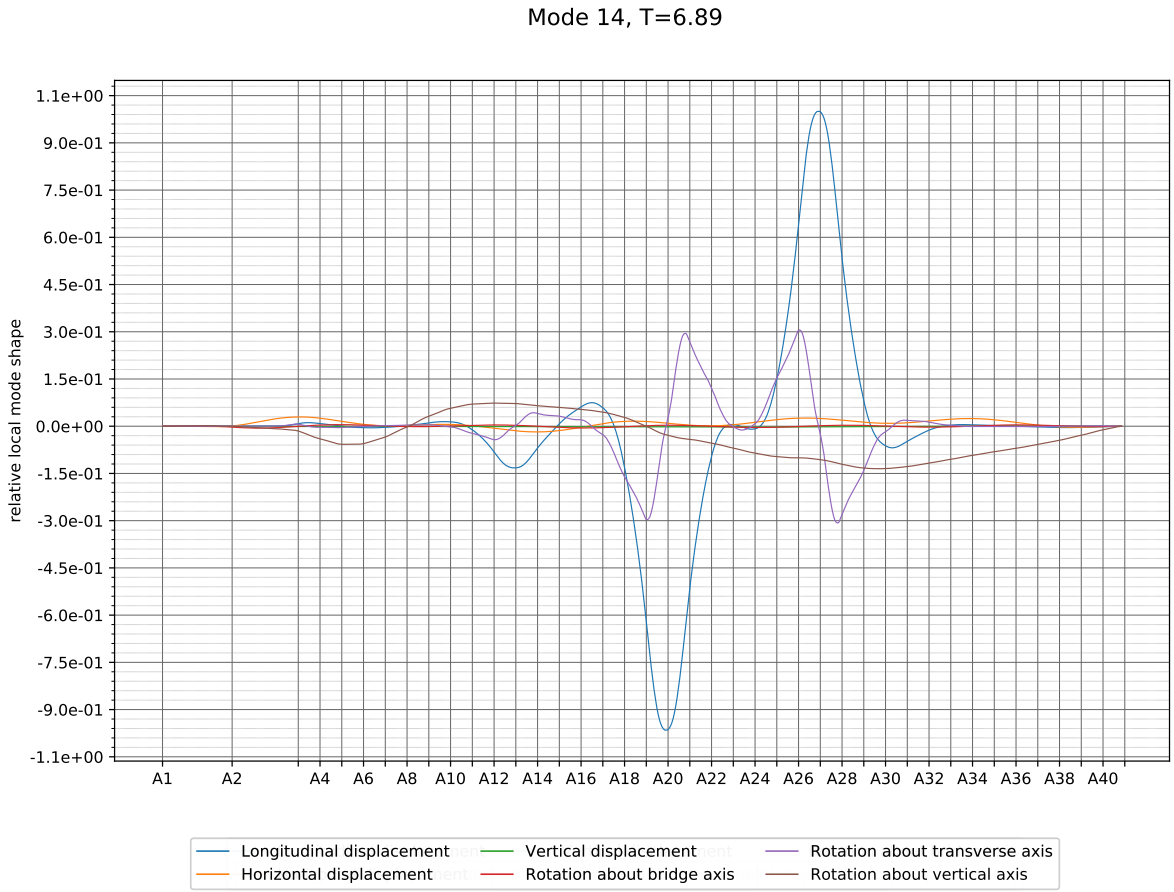
2.12 Mode 12, T=7.06



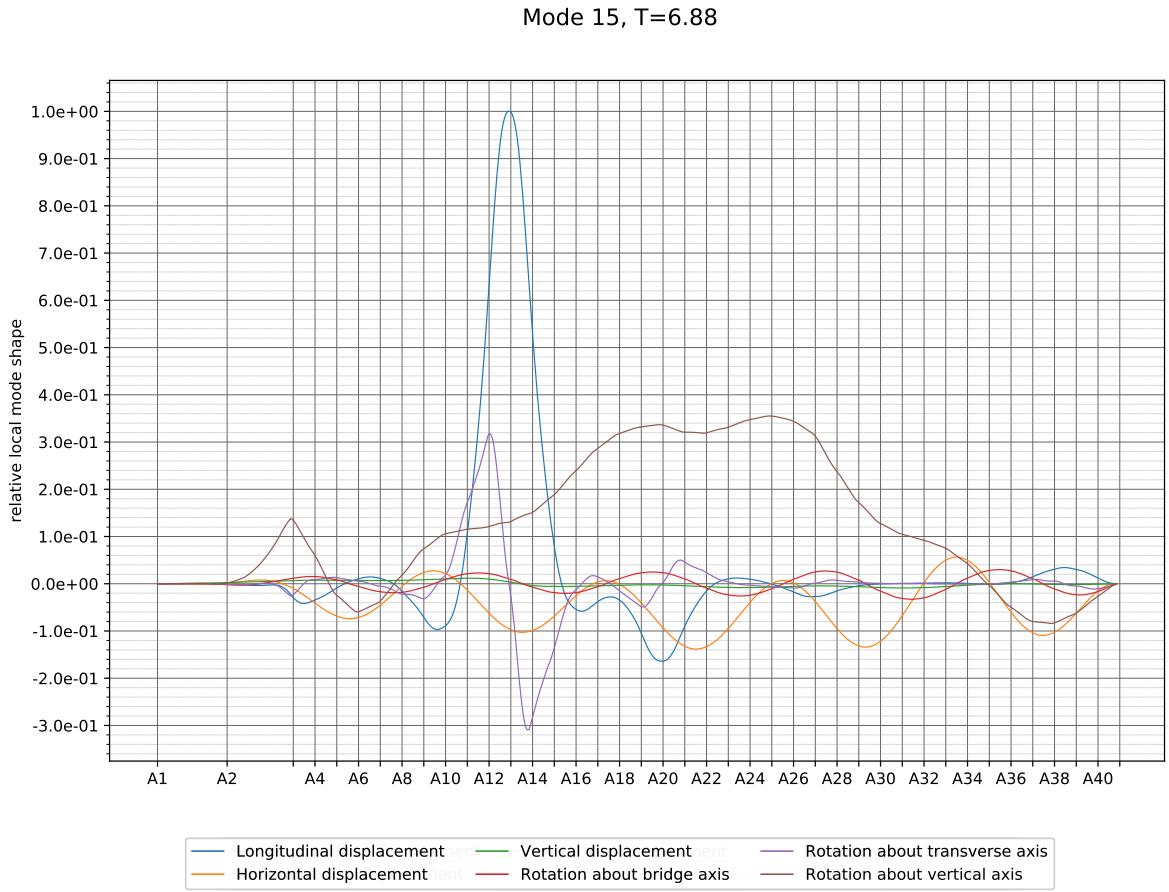
2.13 Mode 13, T=6.89



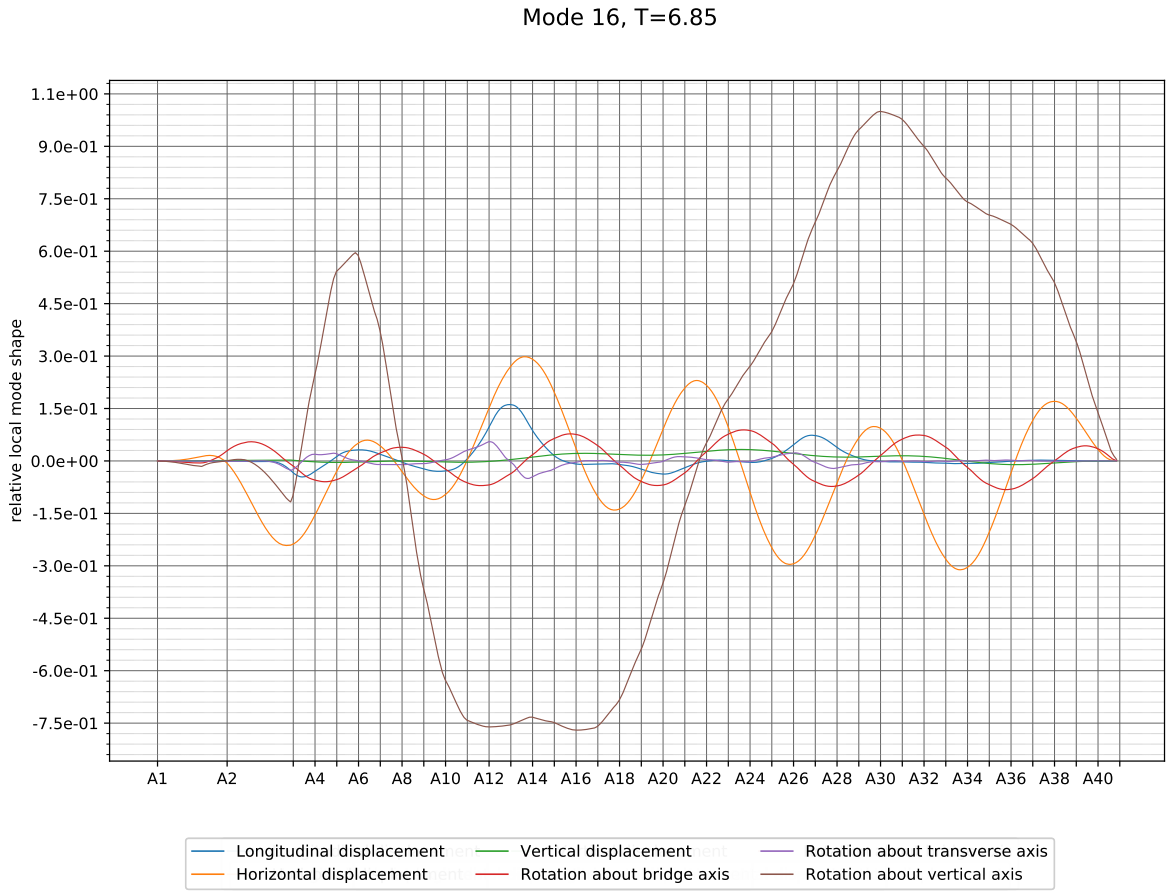
2.14 Mode 14, T=6.89



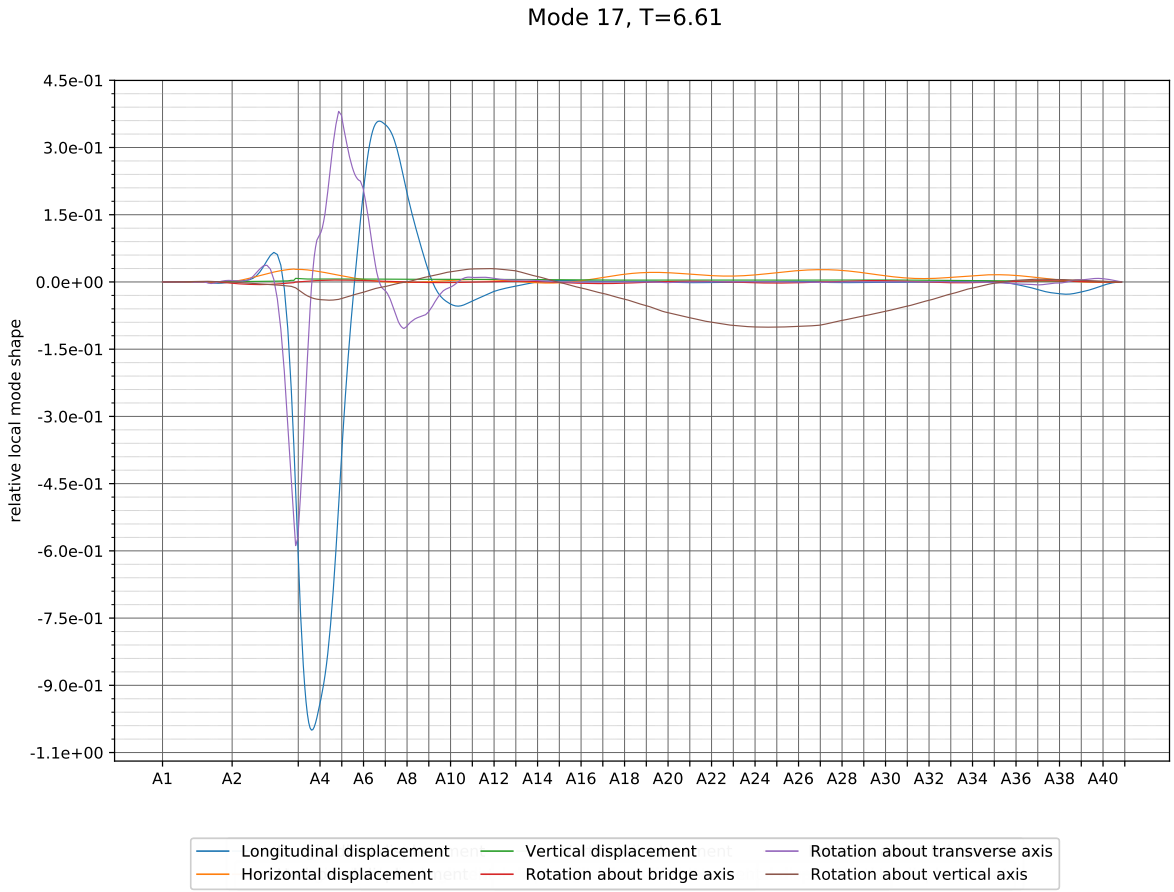
2.15 Mode 15, T=6.88



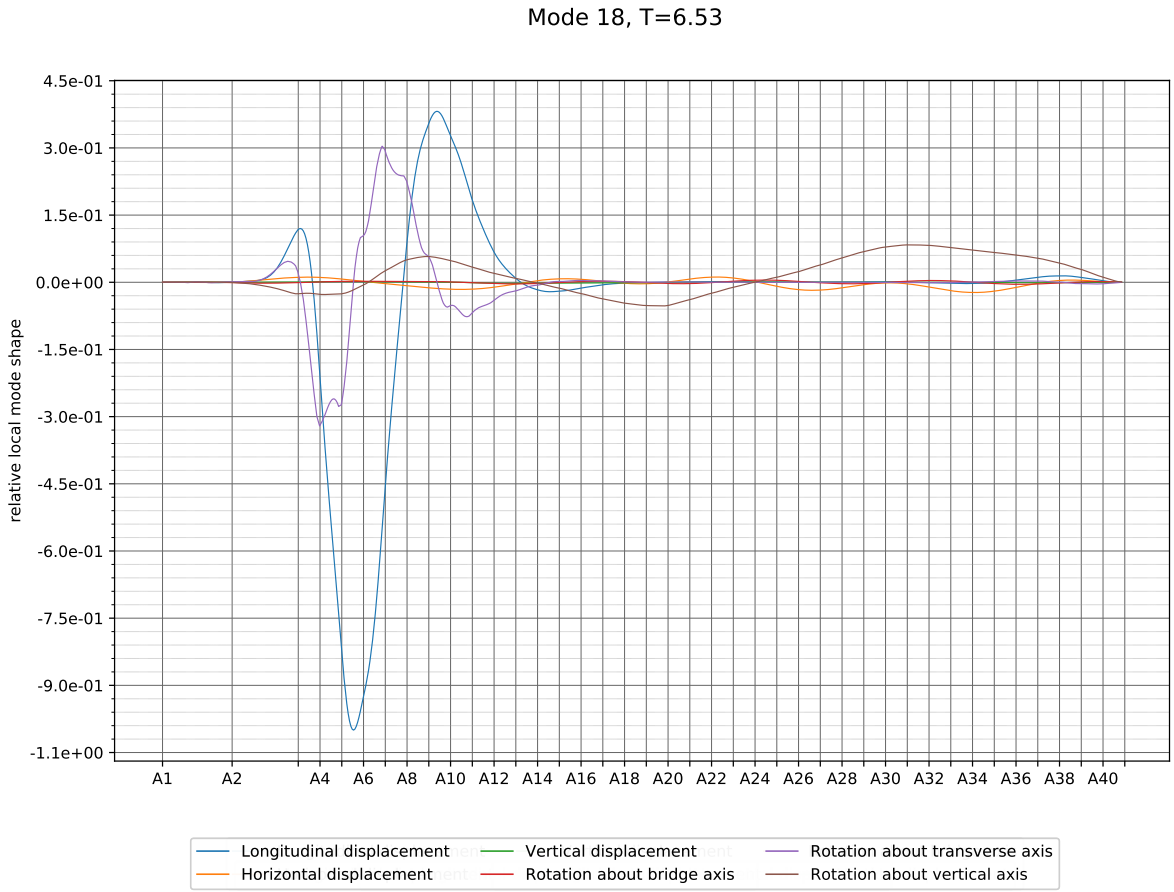
2.16 Mode 16, T=6.85



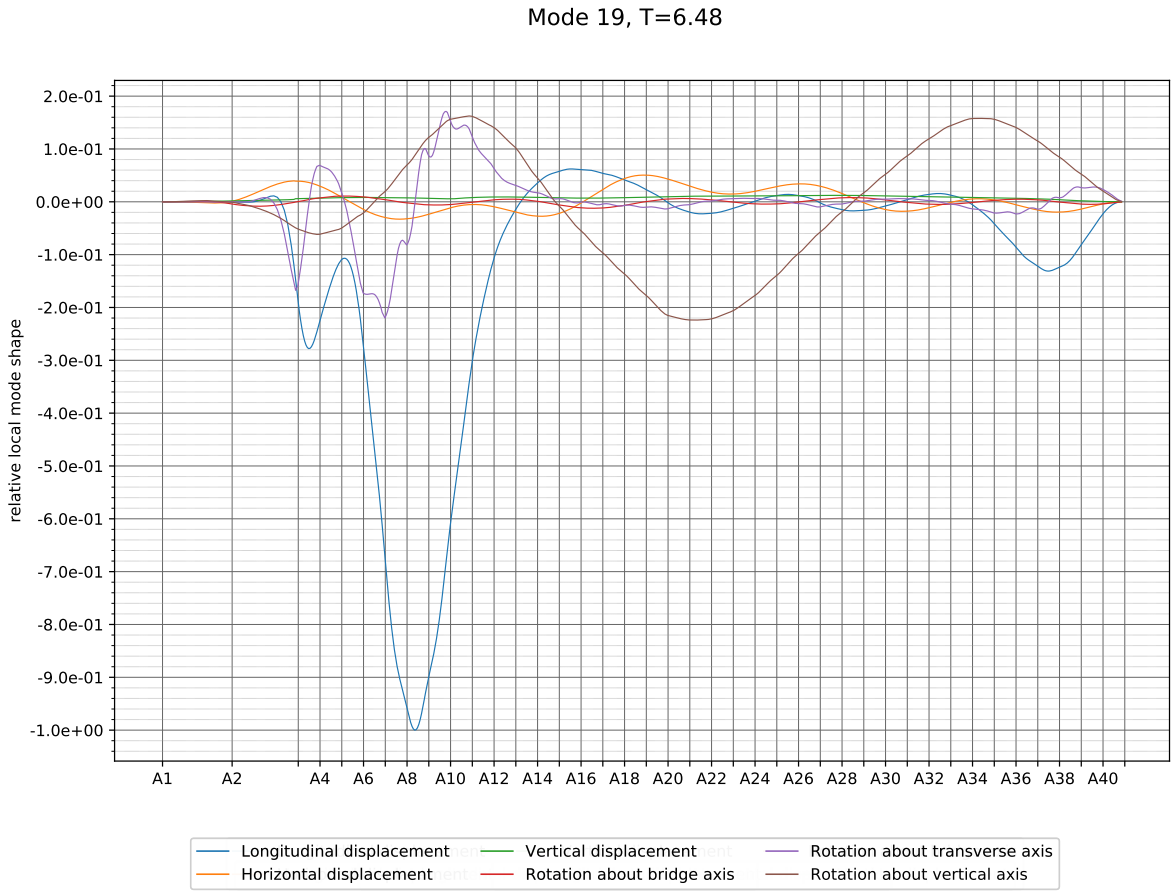
2.17 Mode 17, T=6.61



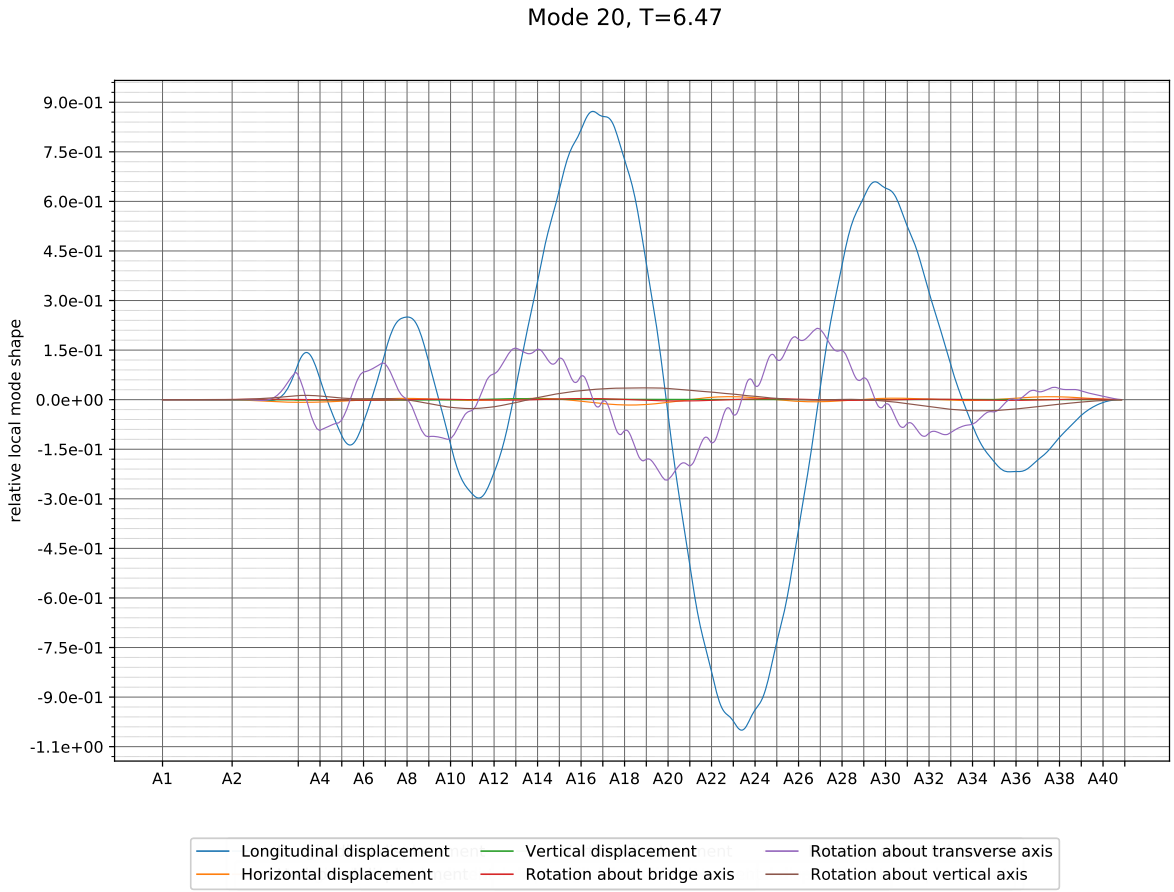
2.18 Mode 18, T=6.53



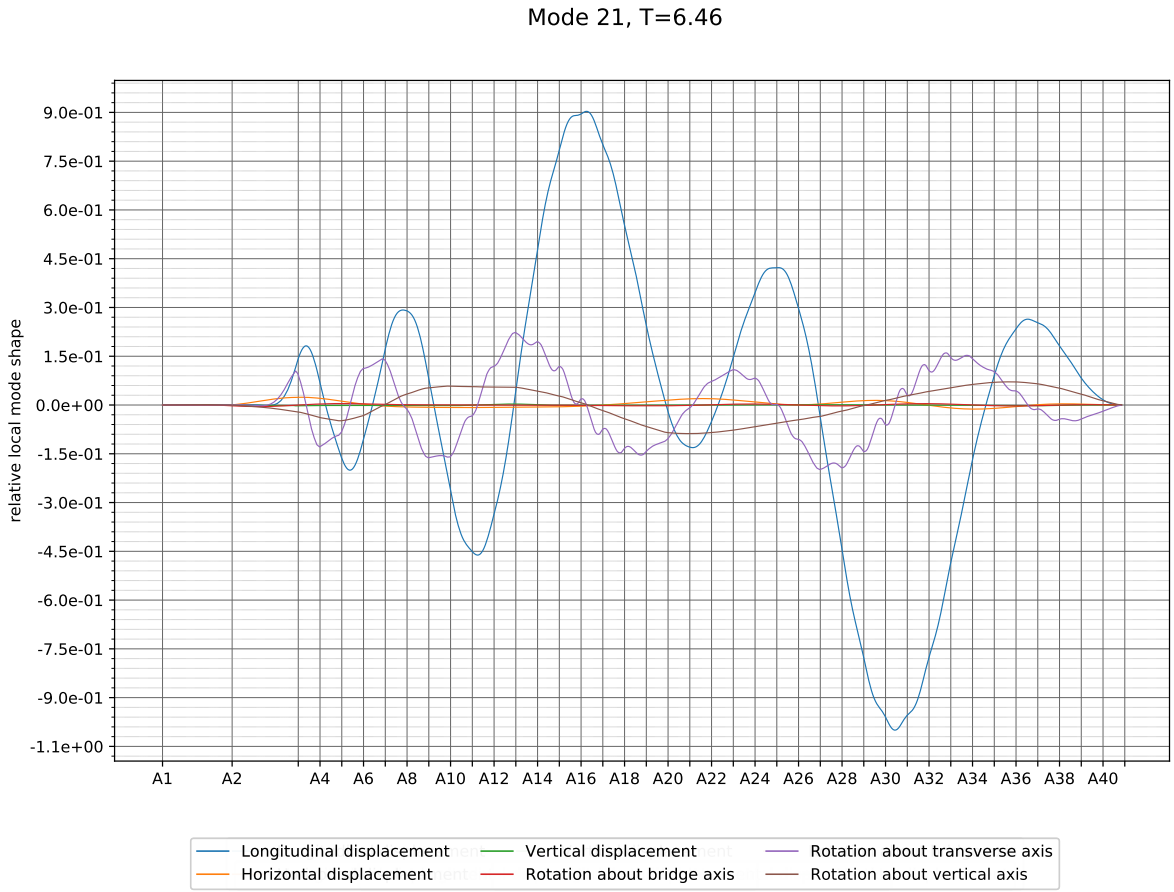
2.19 Mode 19, T=6.48



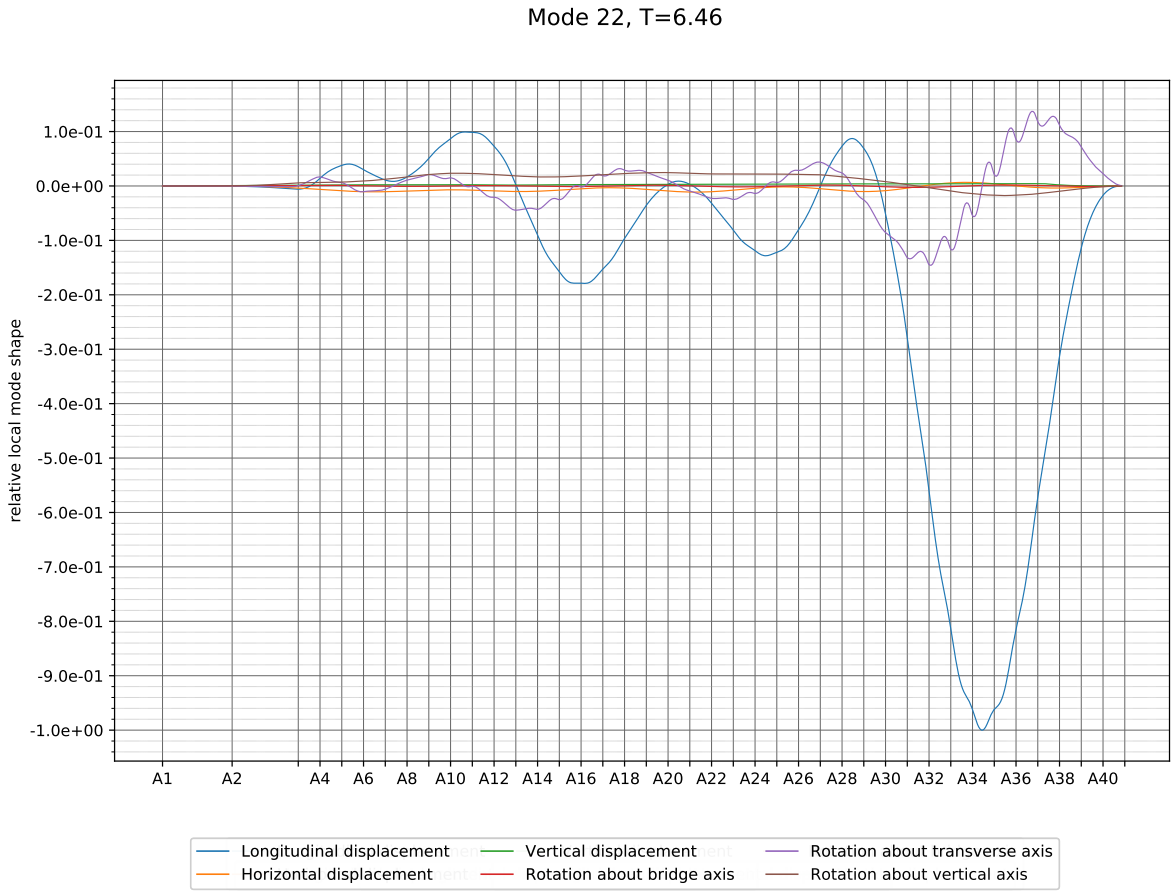
2.20 Mode 20, T=6.47



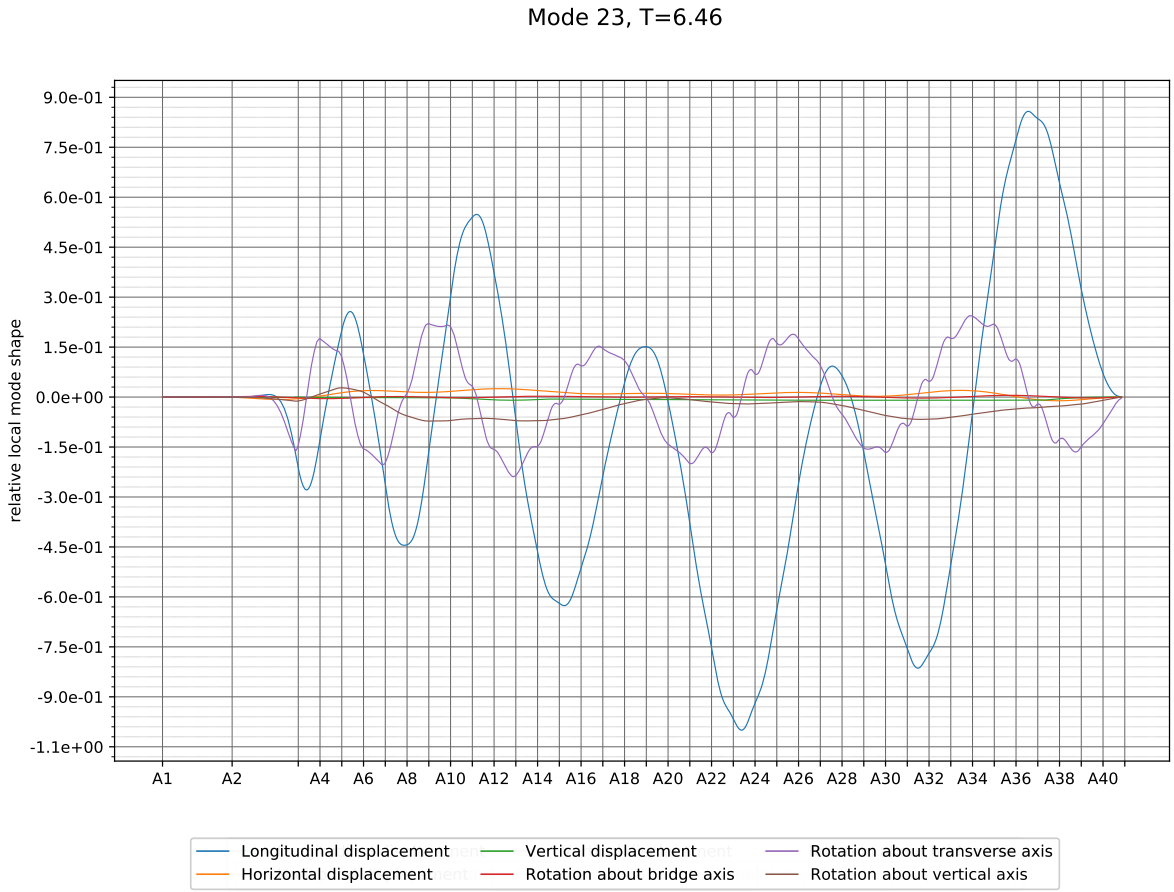
2.21 Mode 21, T=6.46



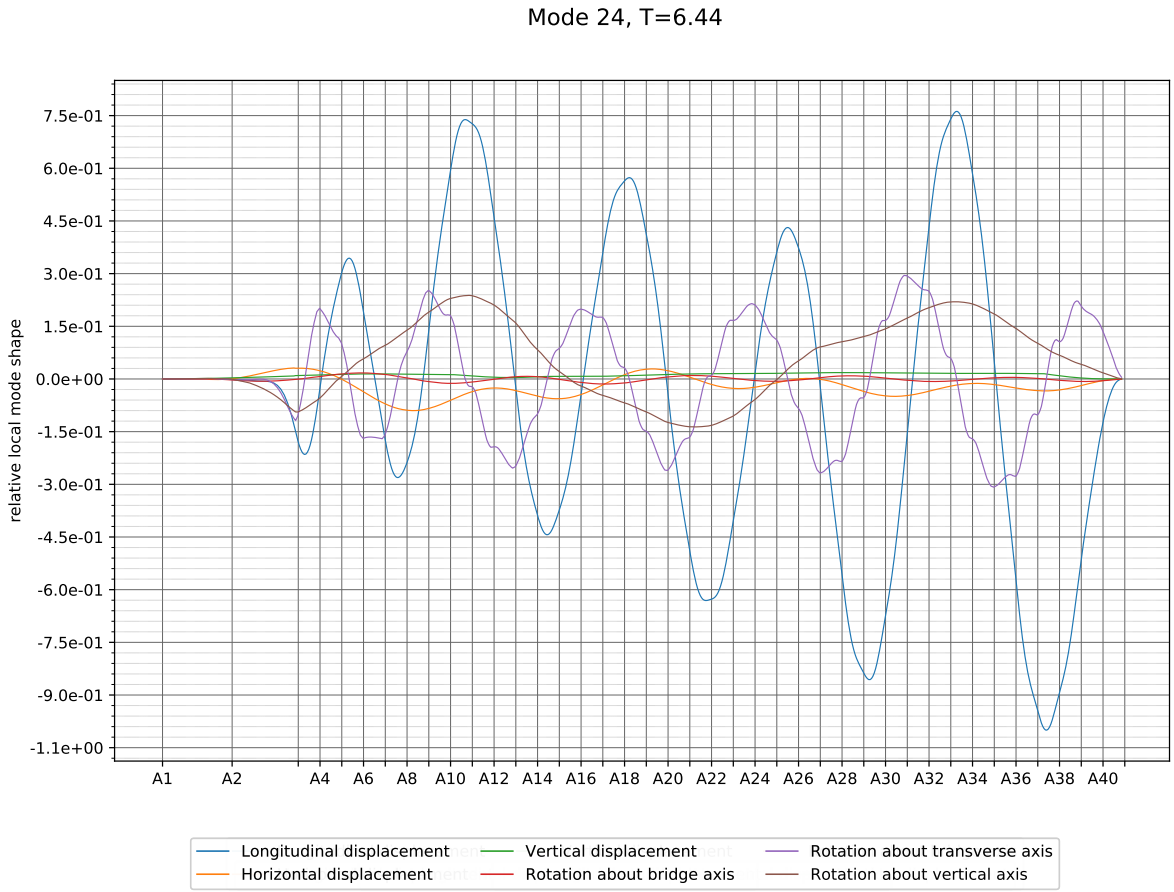
2.22 Mode 22, T=6.46



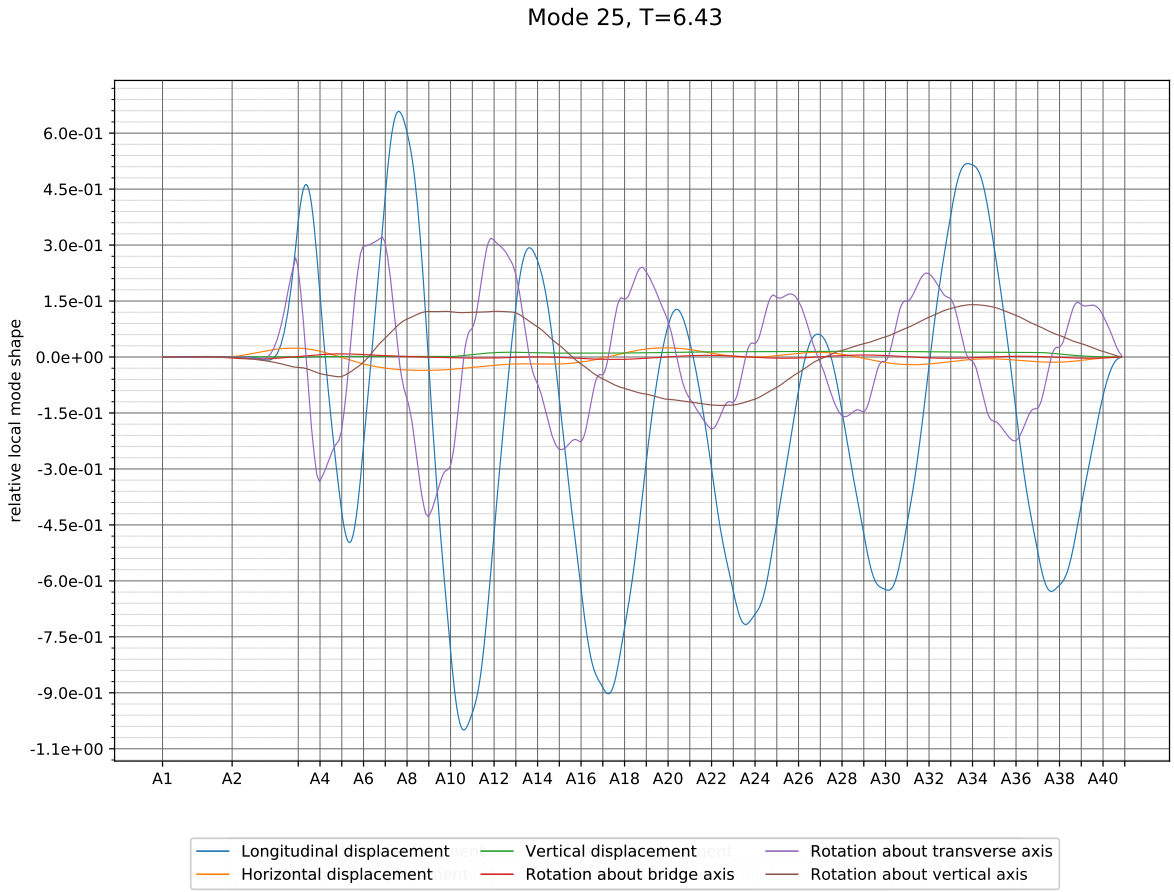
2.23 Mode 23, T=6.46



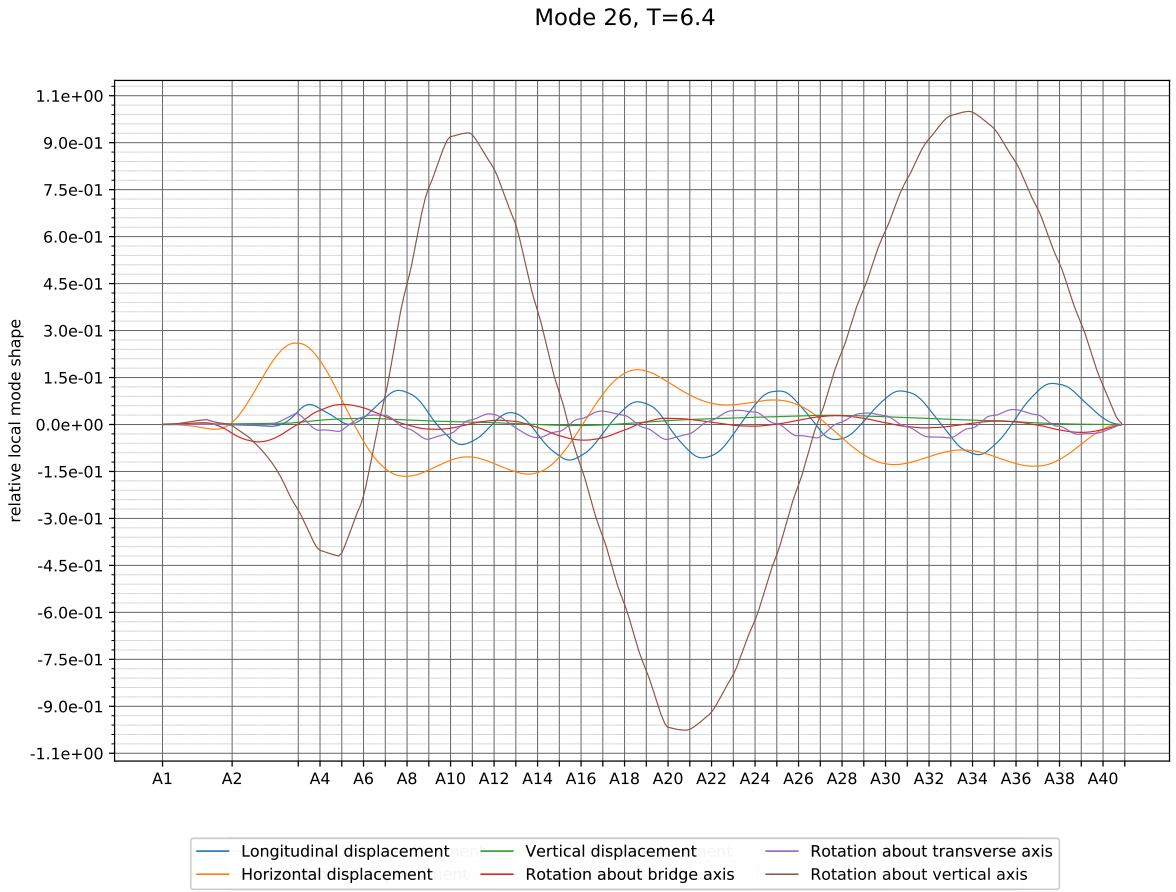
2.24 Mode 24, T=6.44



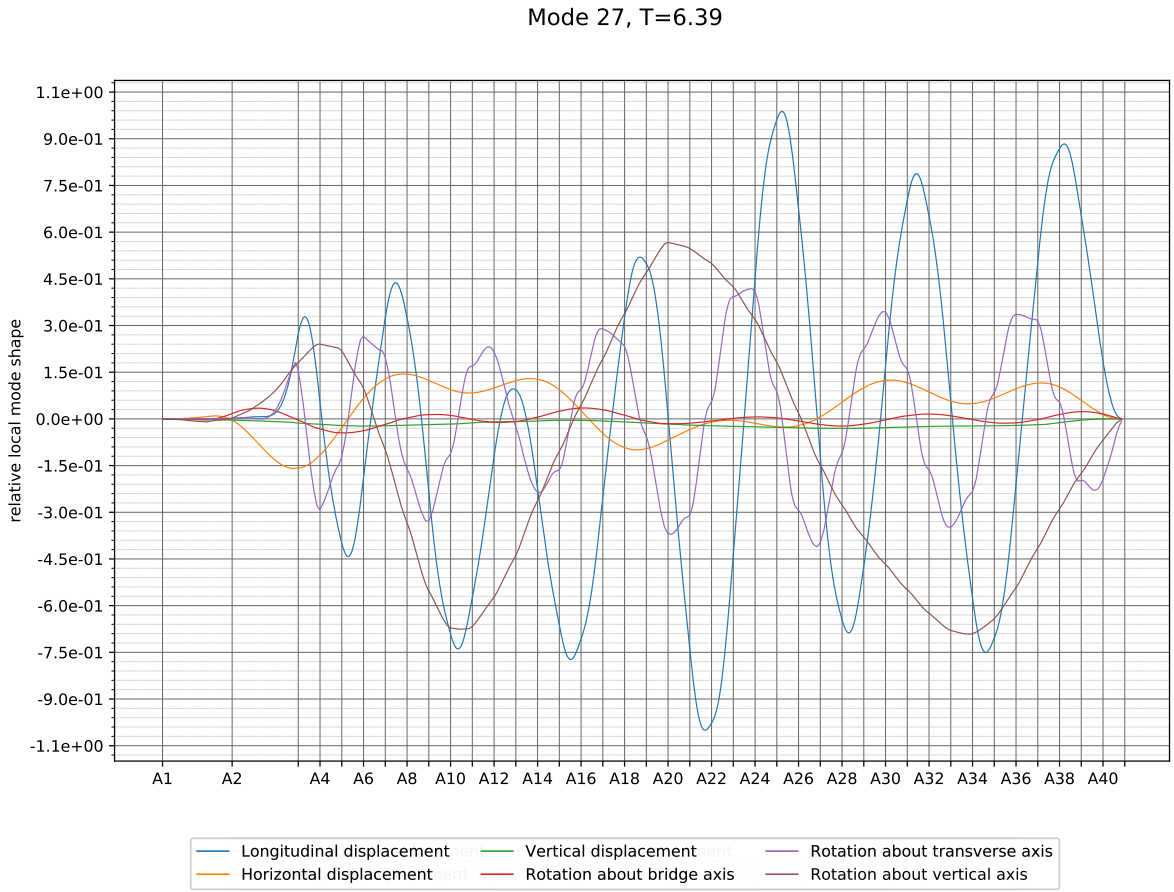
2.25 Mode 25, T=6.43



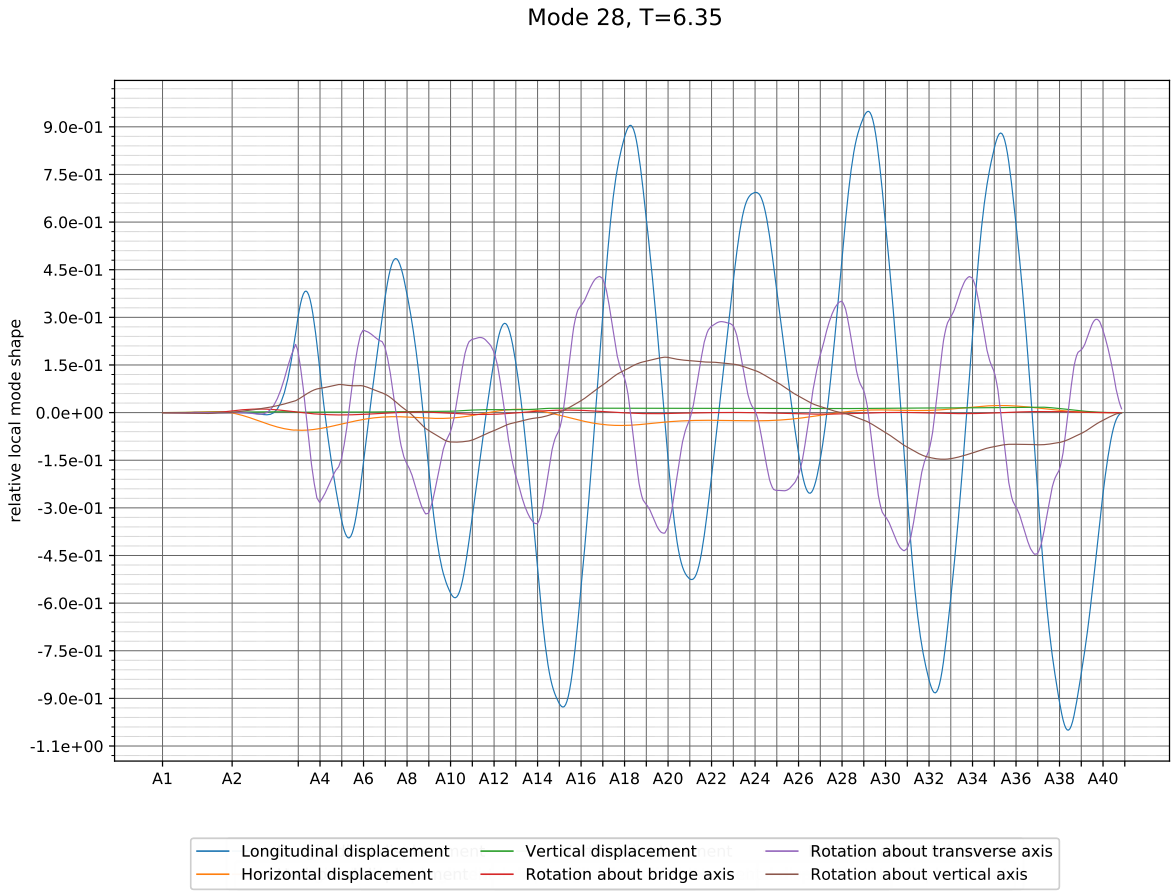
2.26 Mode 26, T=6.4



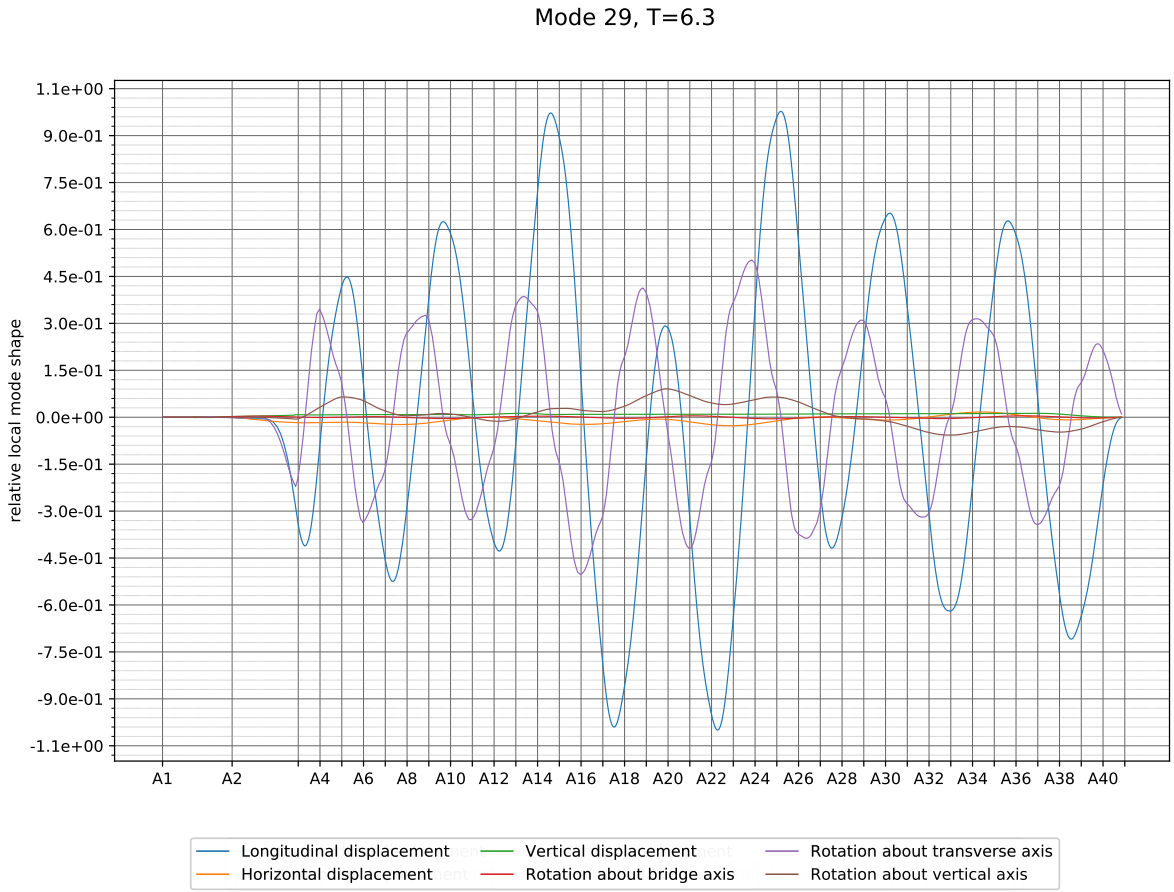
2.27 Mode 27, T=6.39



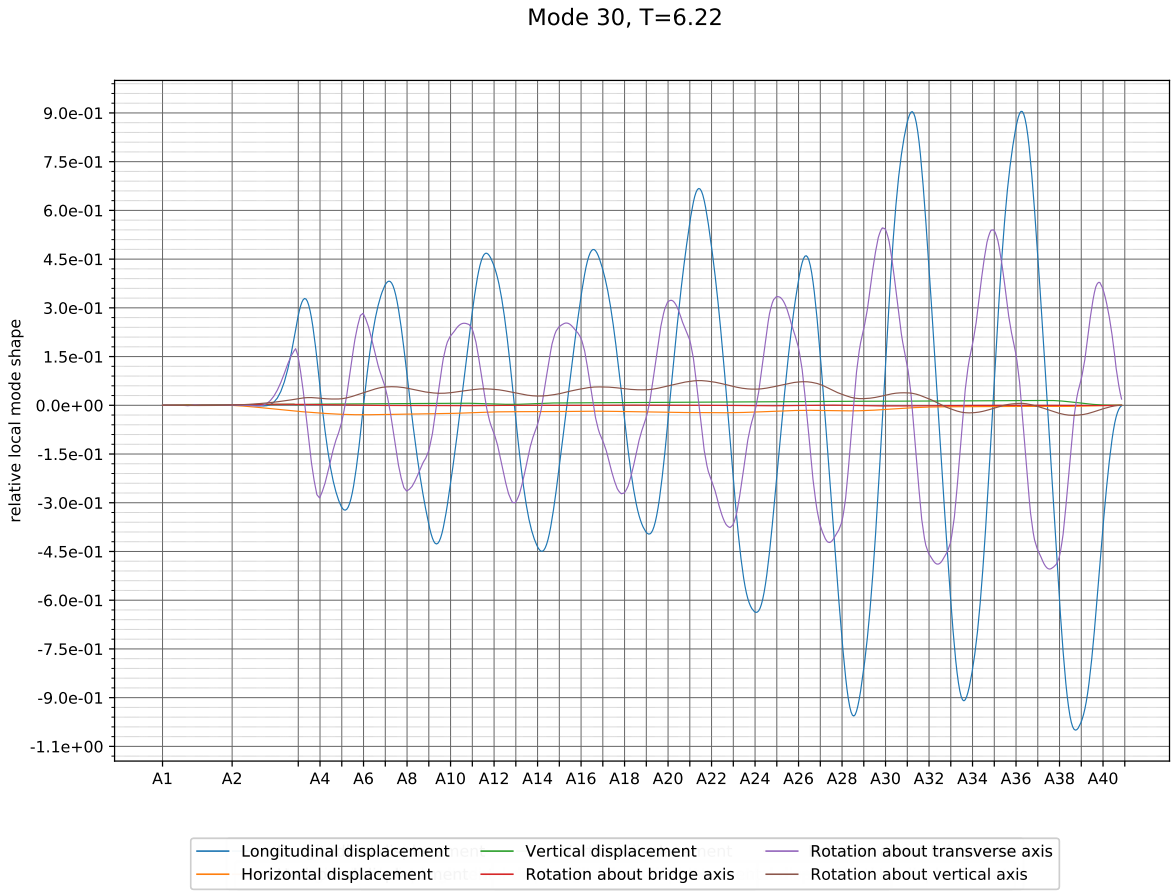
2.28 Mode 28, T=6.35



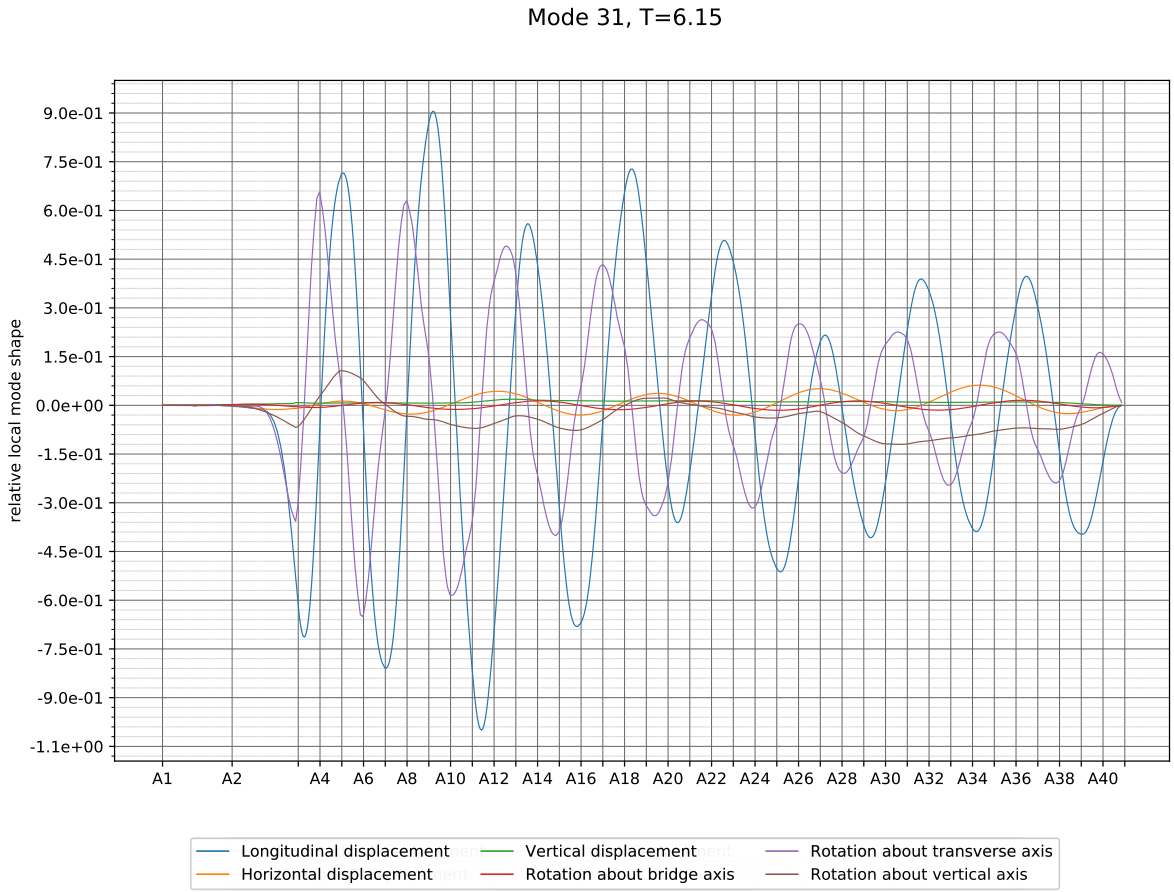
2.29 Mode 29, T=6.3



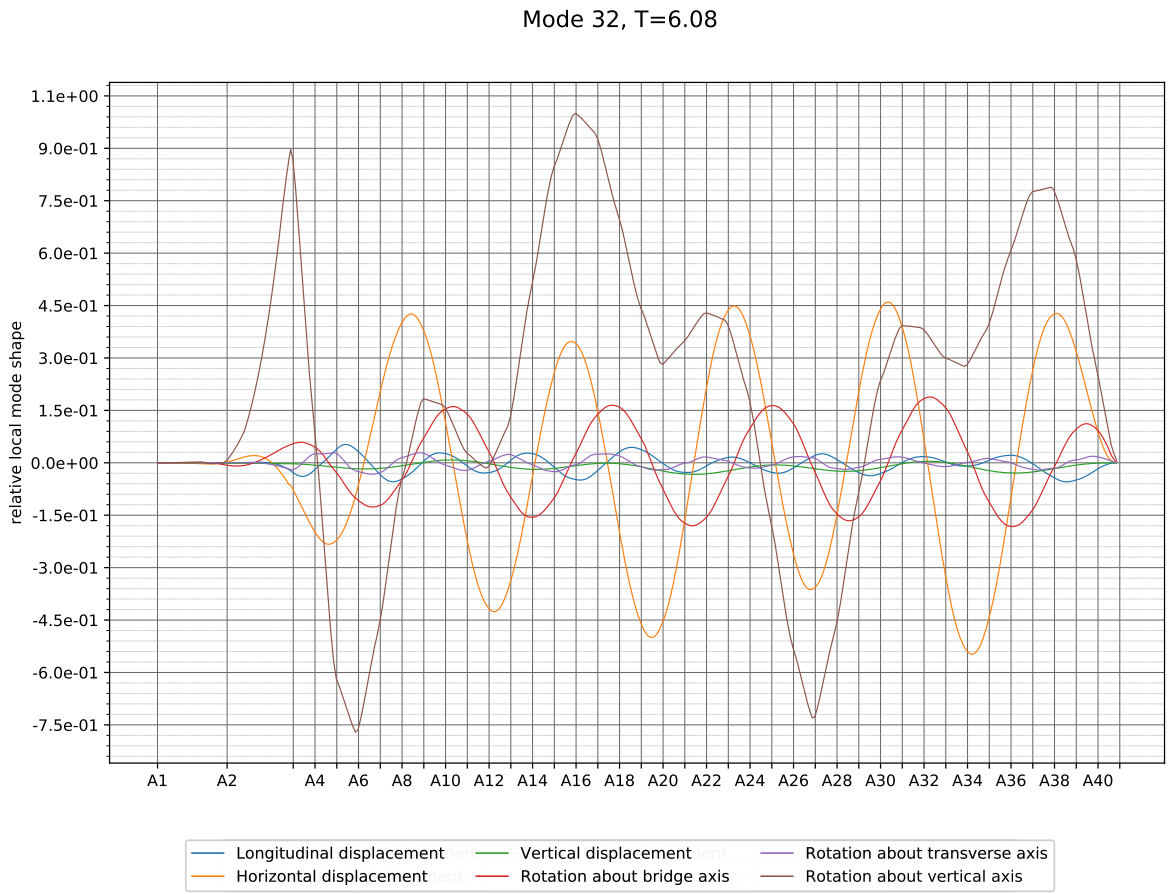
2.30 Mode 30, T=6.22



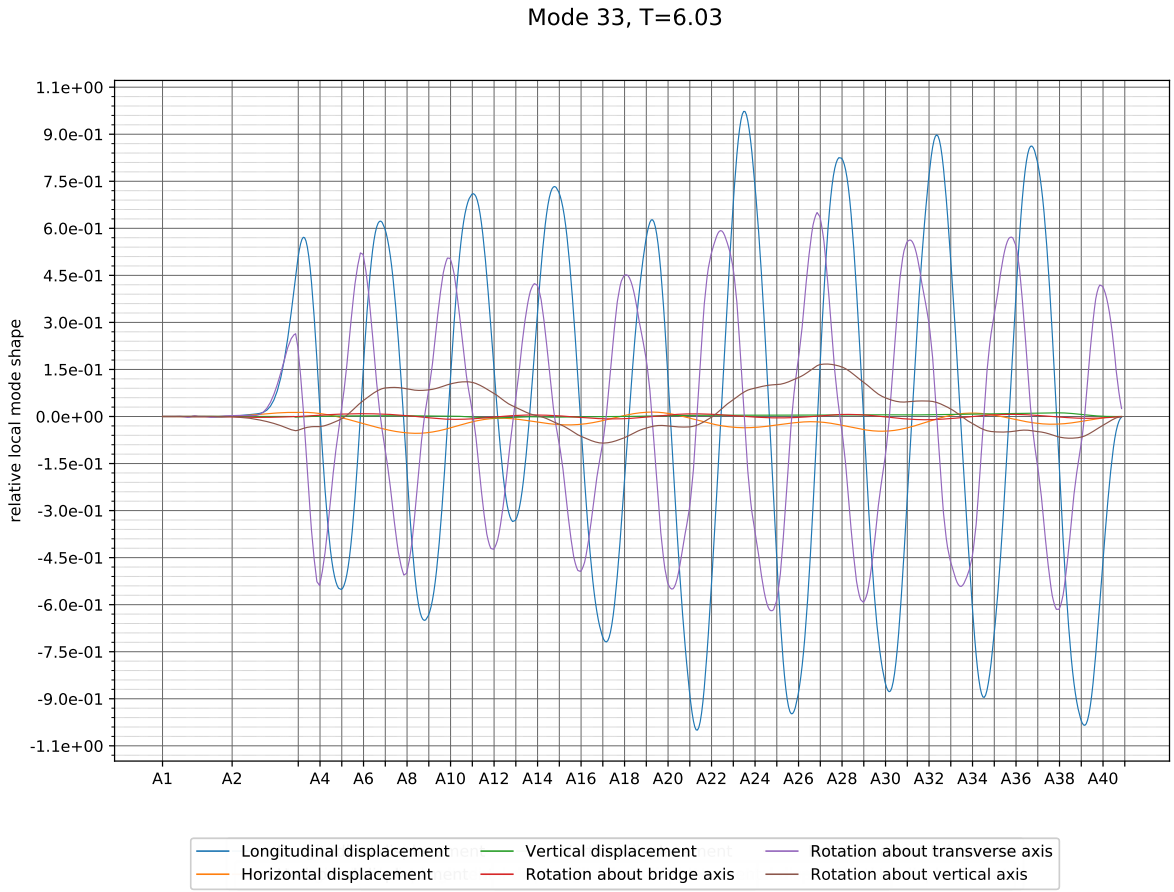
2.31 Mode 31, T=6.15



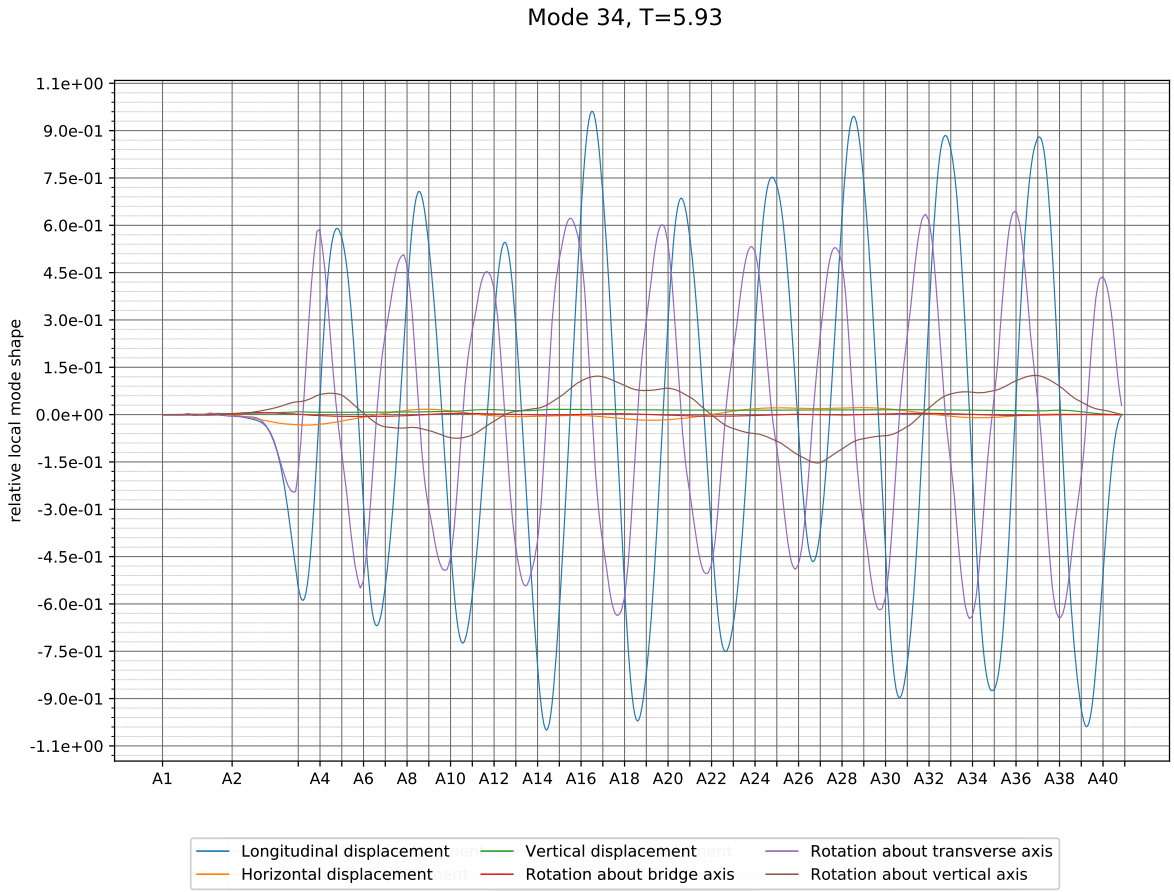
2.32 Mode 32, T=6.08



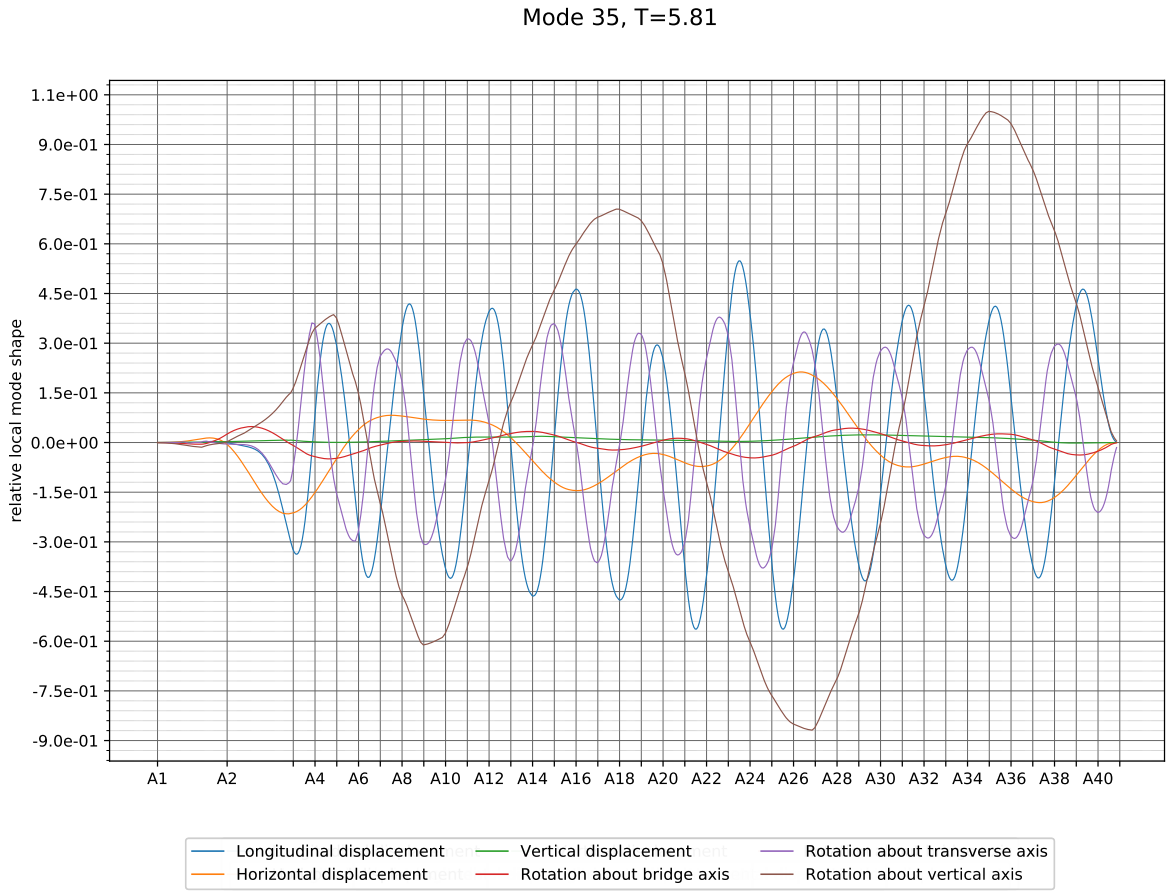
2.33 Mode 33, T=6.03



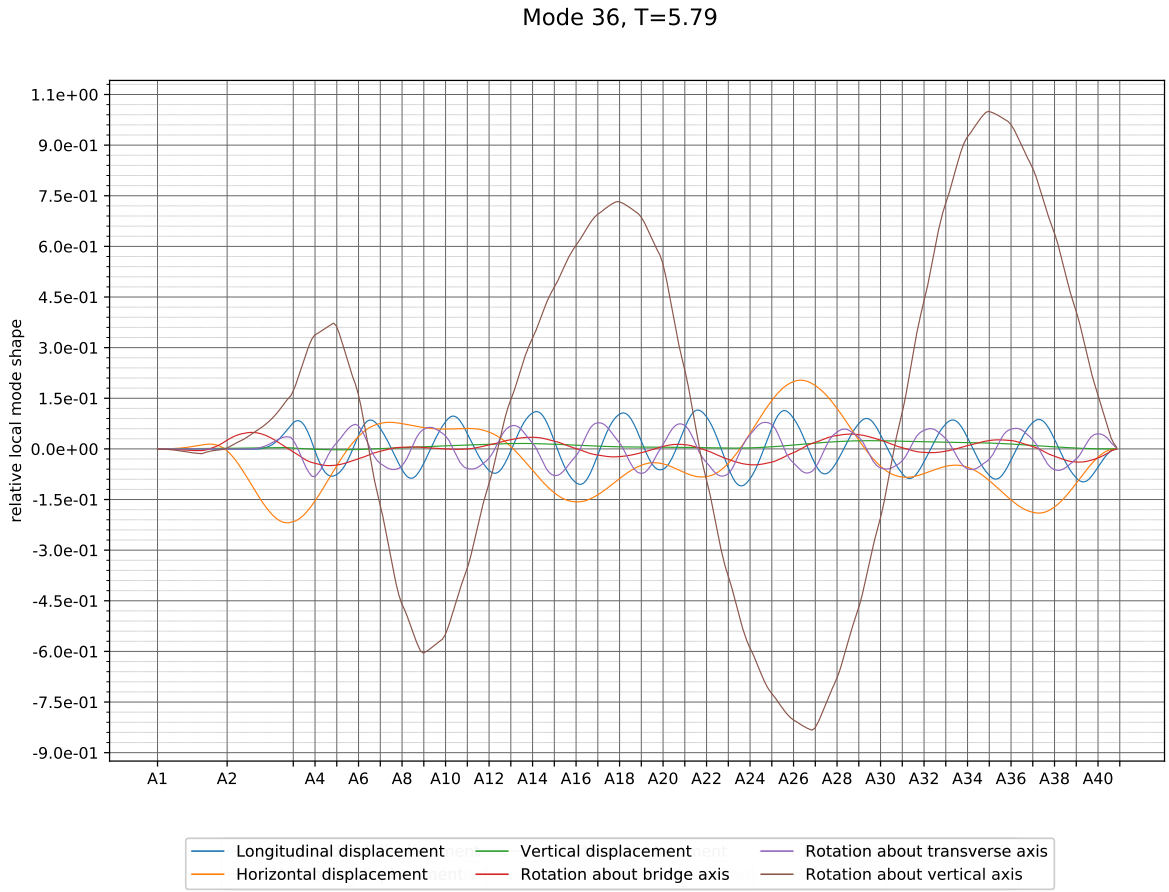
2.34 Mode 34, T=5.93



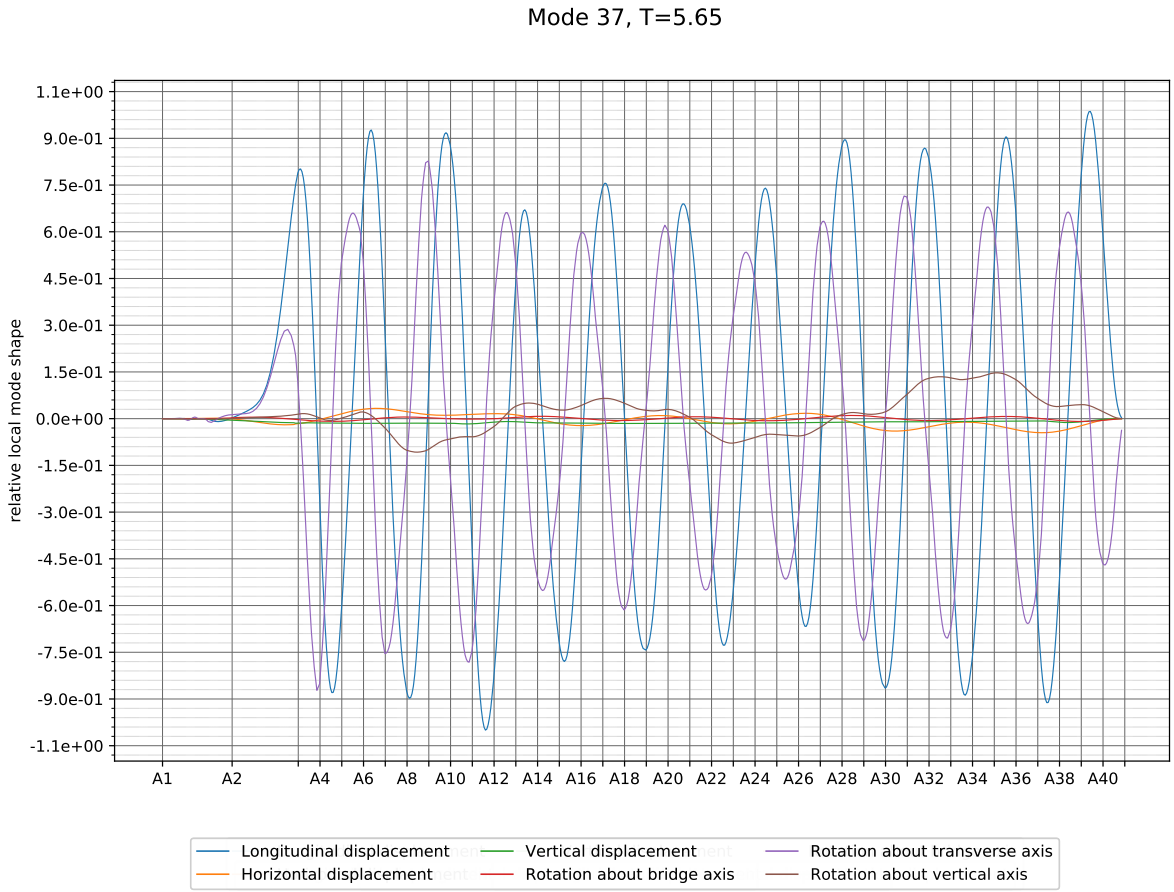
2.35 Mode 35, T=5.81



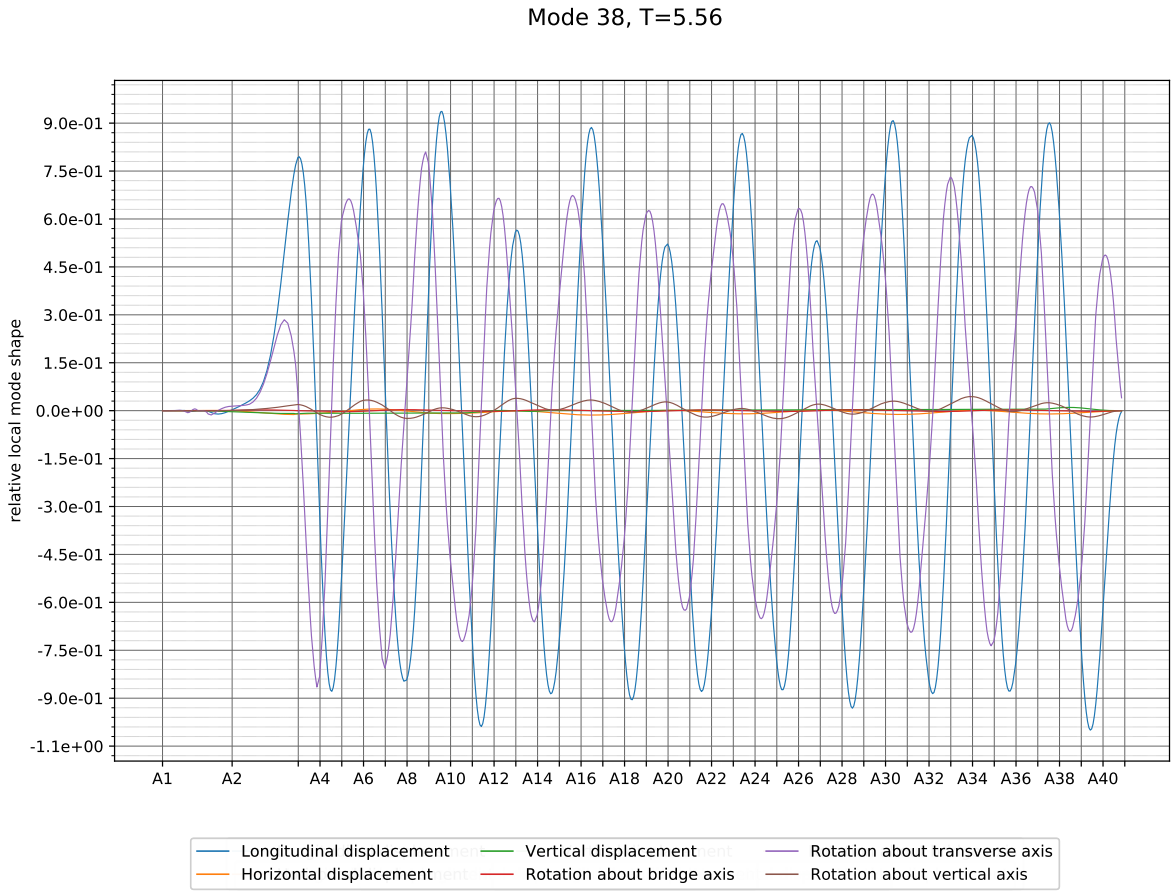
2.36 Mode 36, T=5.79



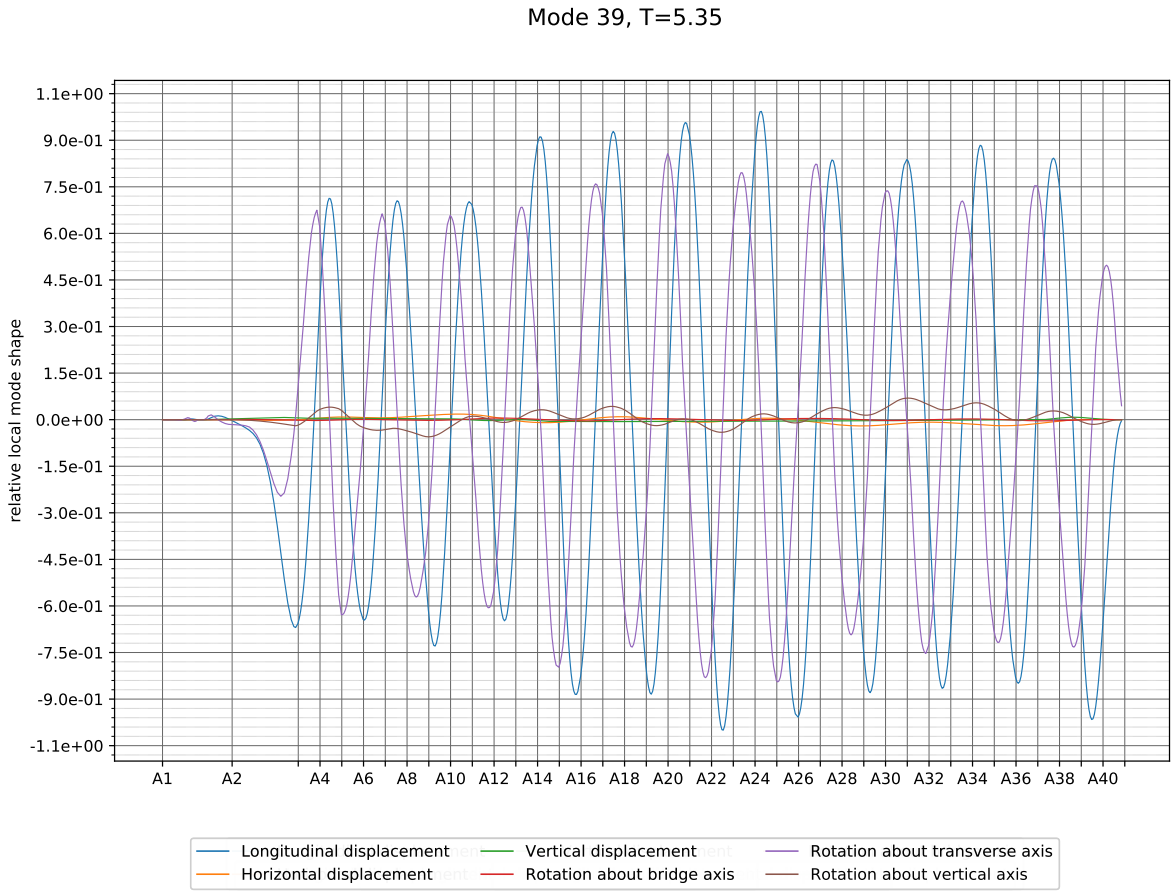
2.37 Mode 37, T=5.65



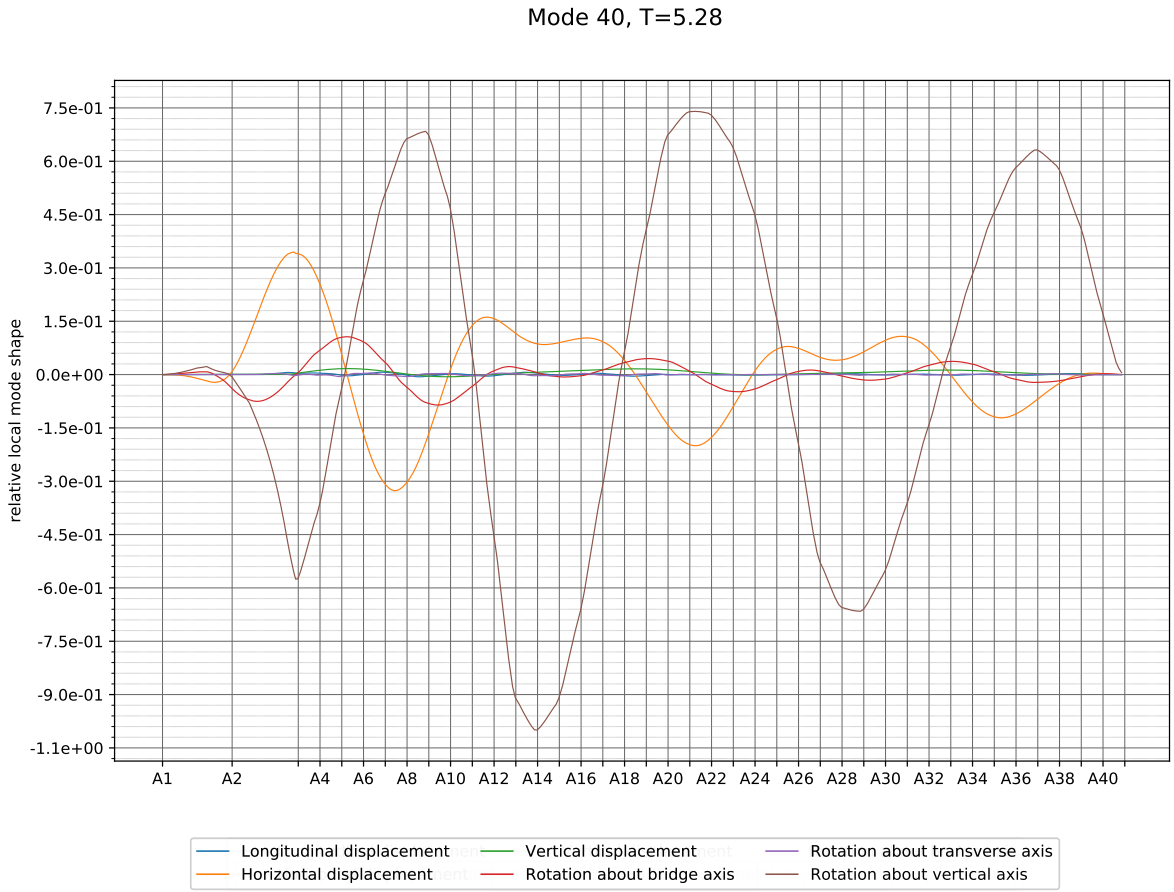
2.38 Mode 38, T=5.56



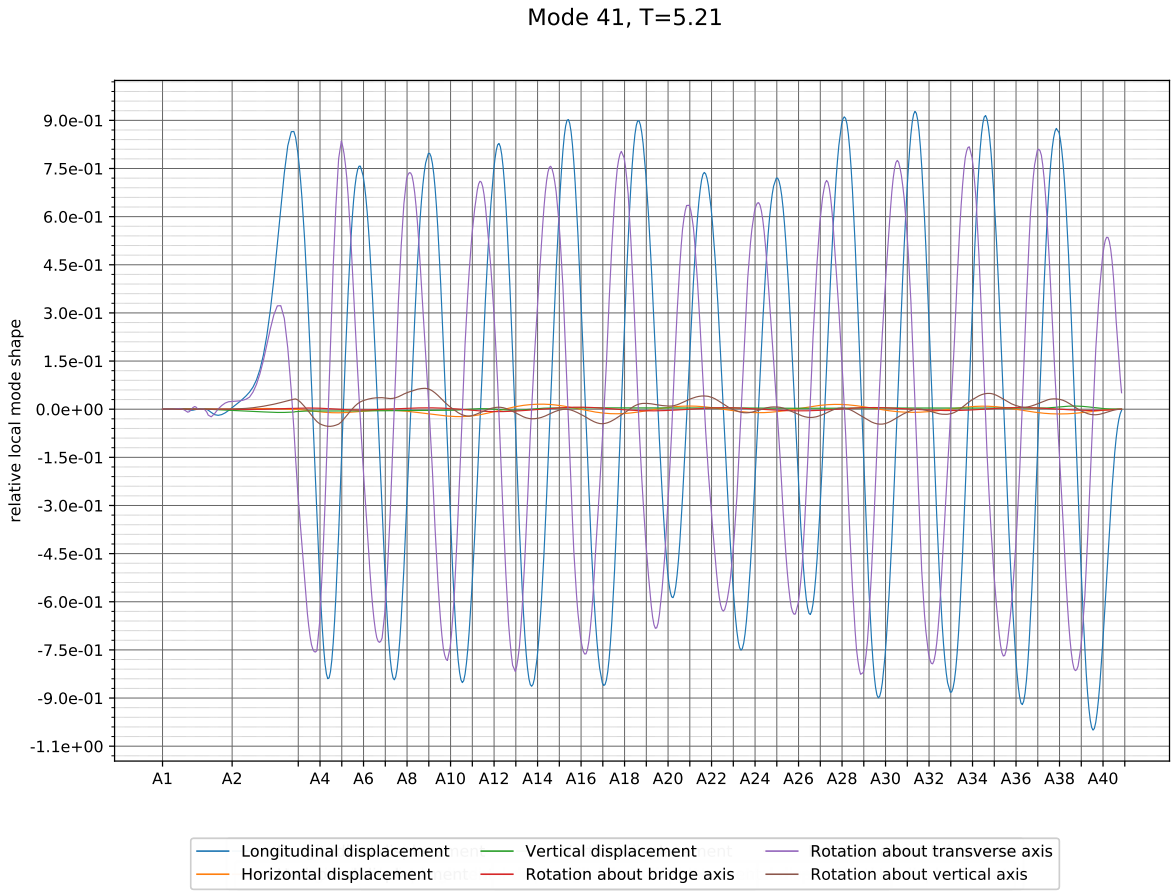
2.39 Mode 39, T=5.35



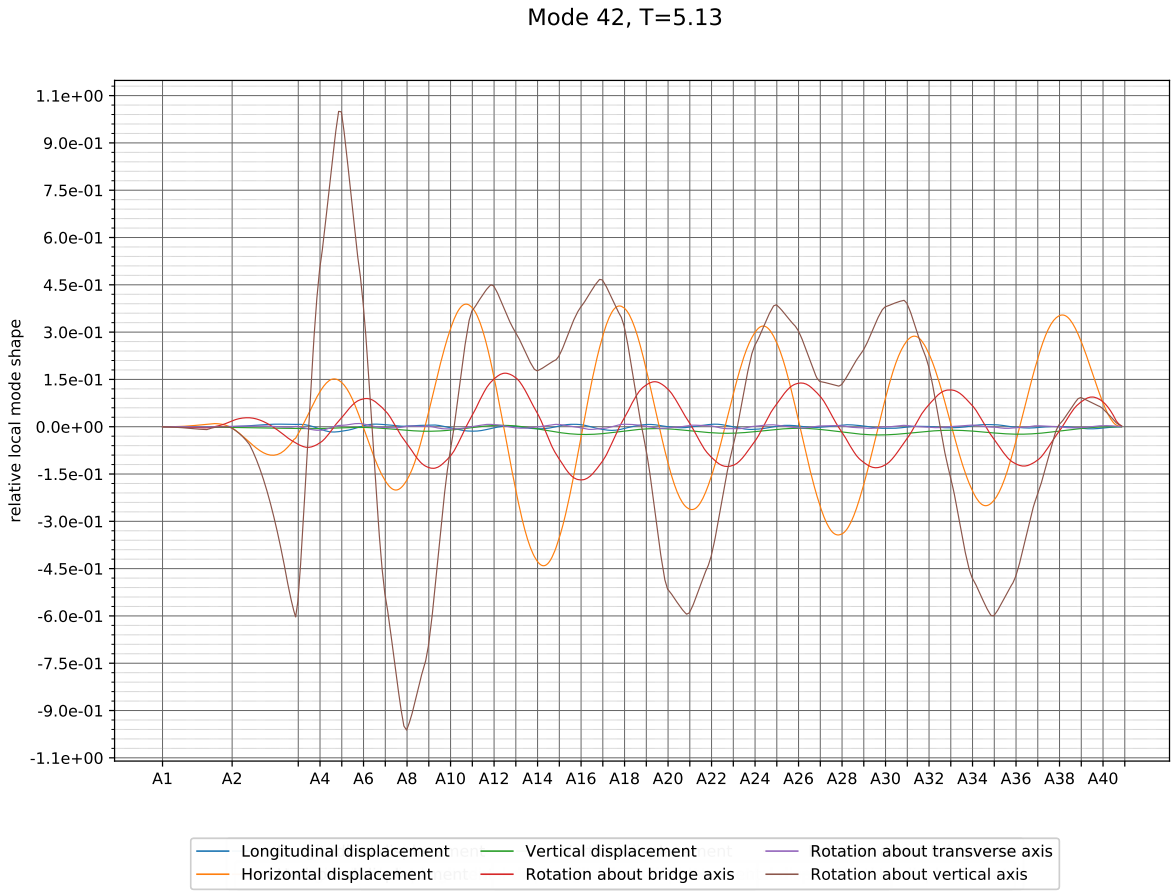
2.40 Mode 40, T=5.28



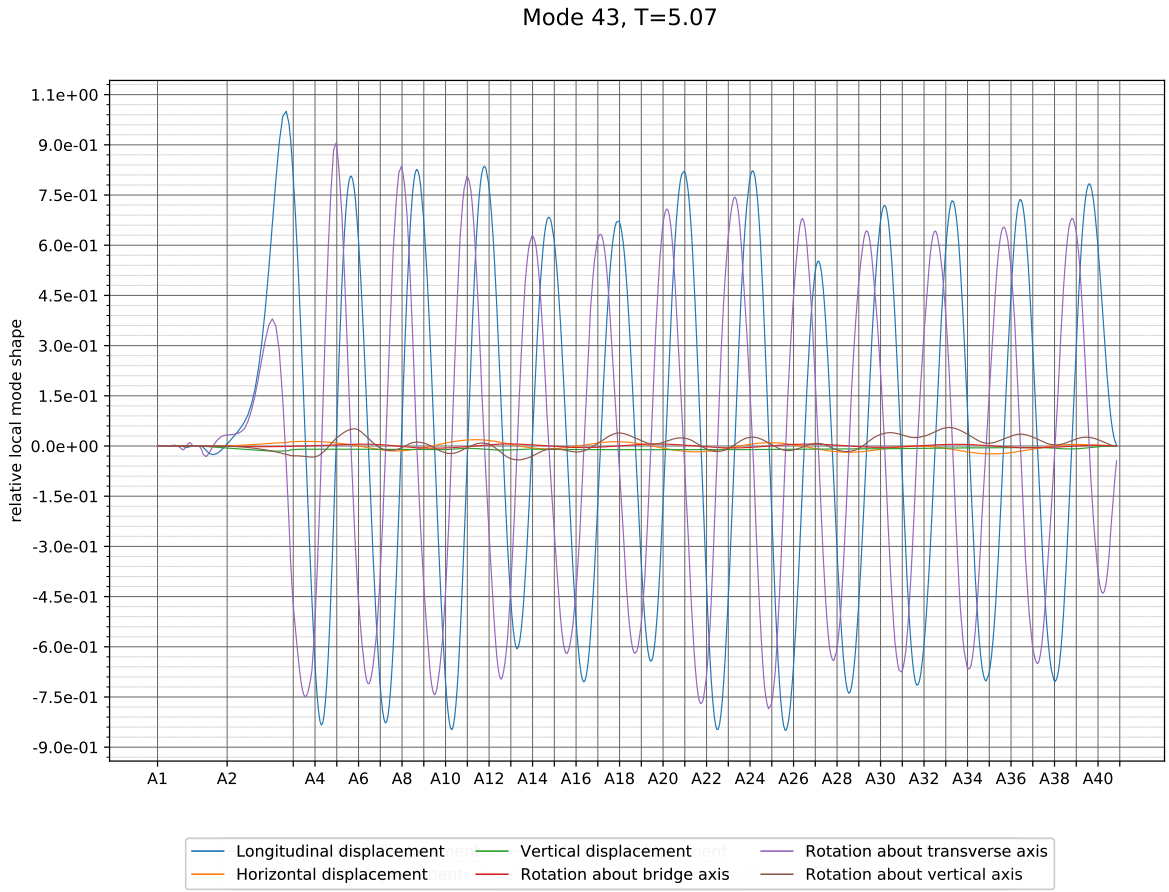
2.41 Mode 41, T=5.21



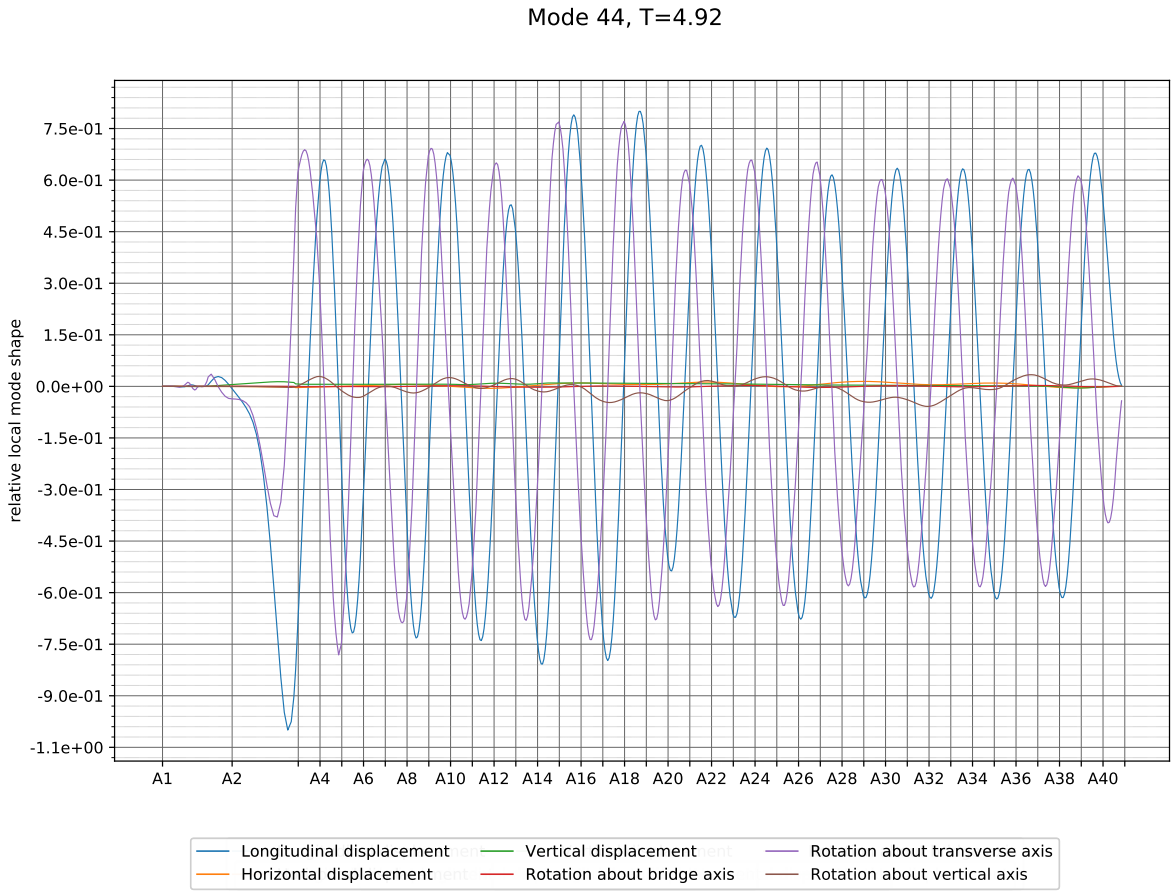
2.42 Mode 42, T=5.13



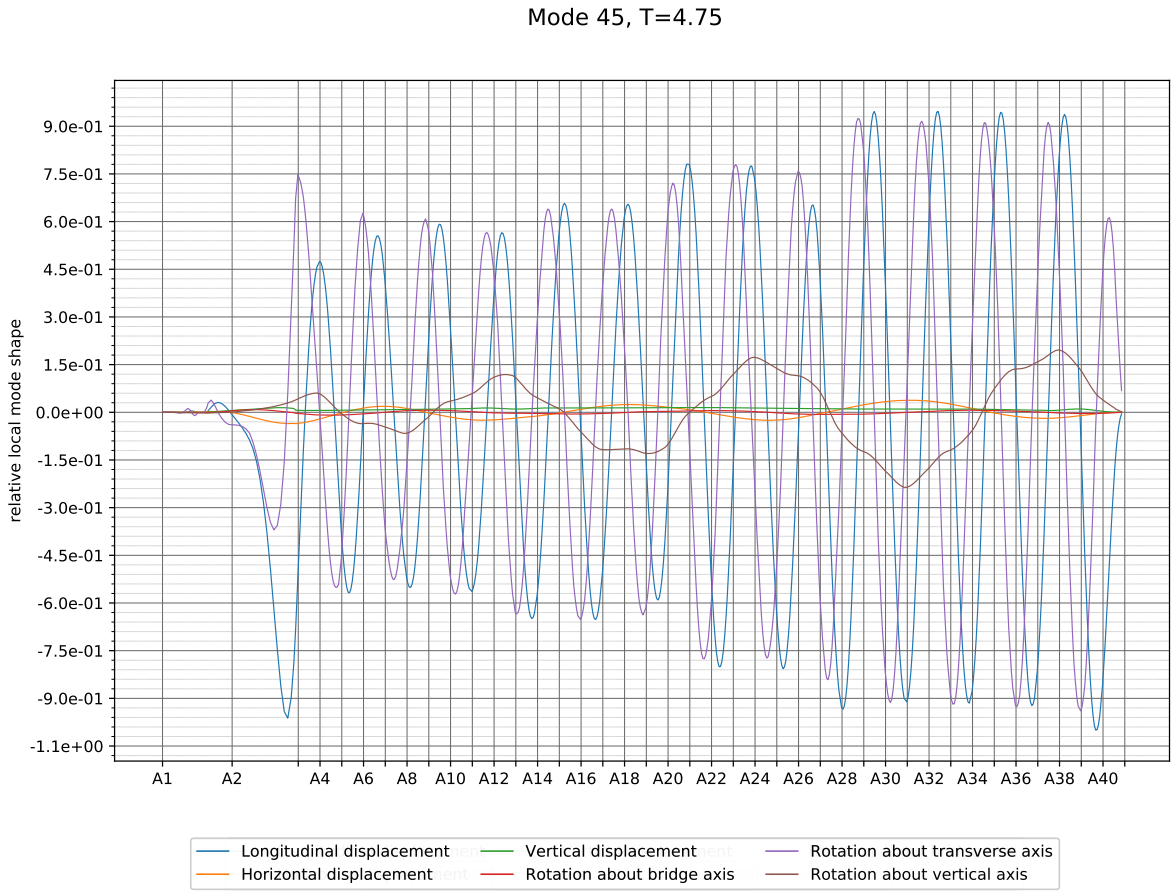
2.43 Mode 43, T=5.07



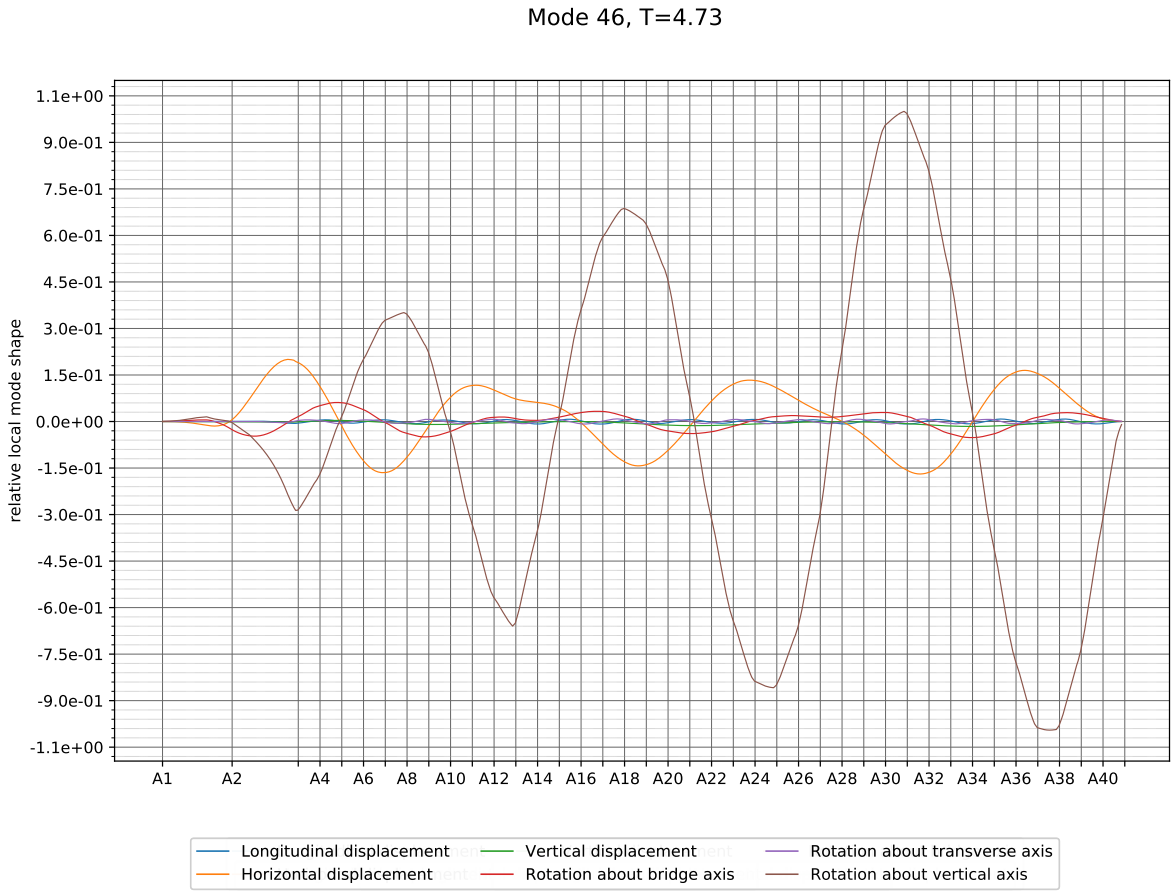
2.44 Mode 44, T=4.92



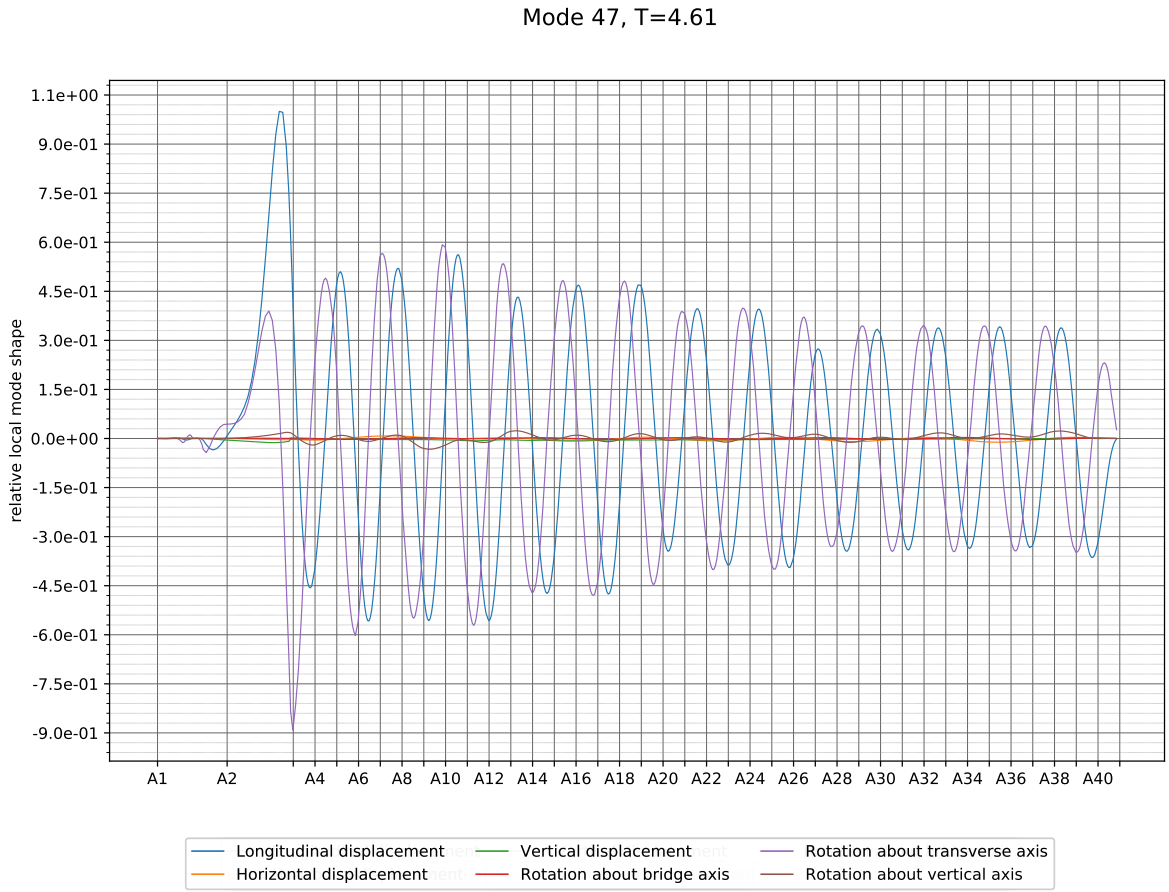
2.45 Mode 45, T=4.75



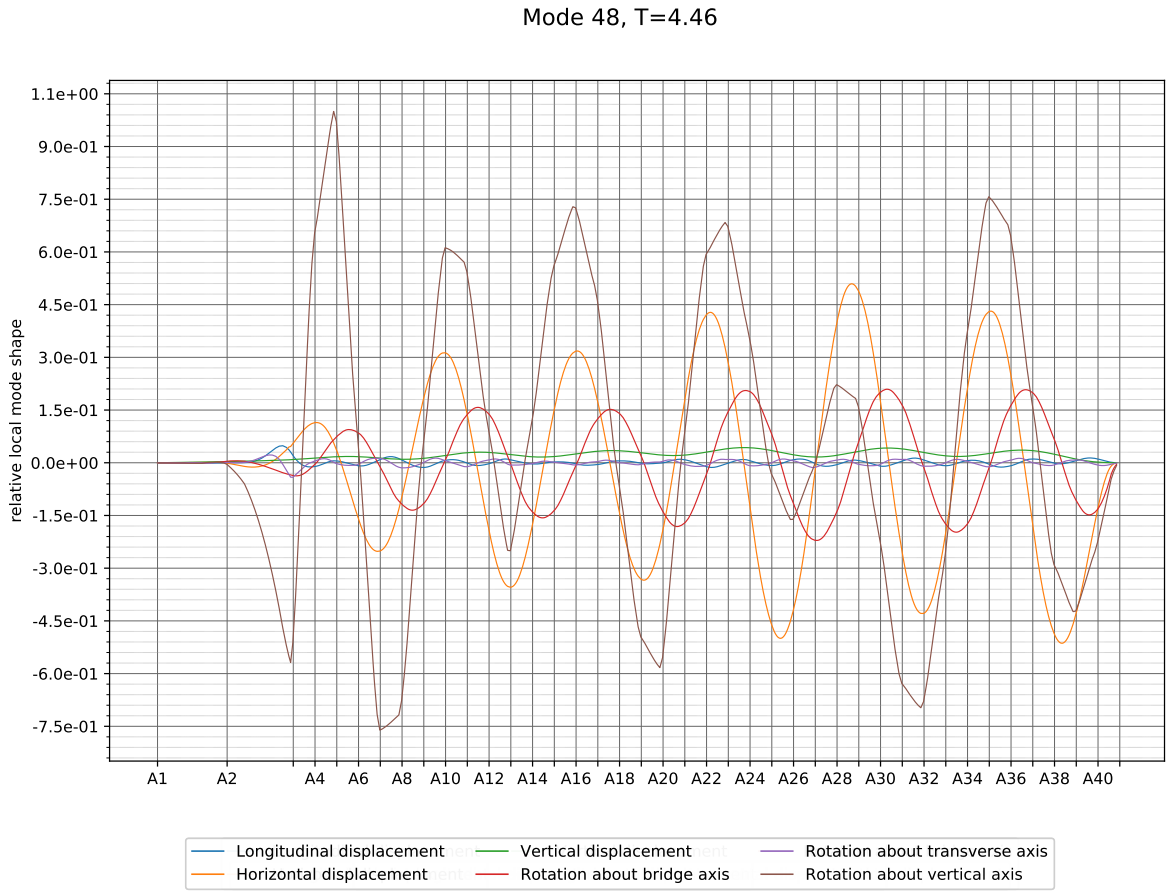
2.46 Mode 46, T=4.73



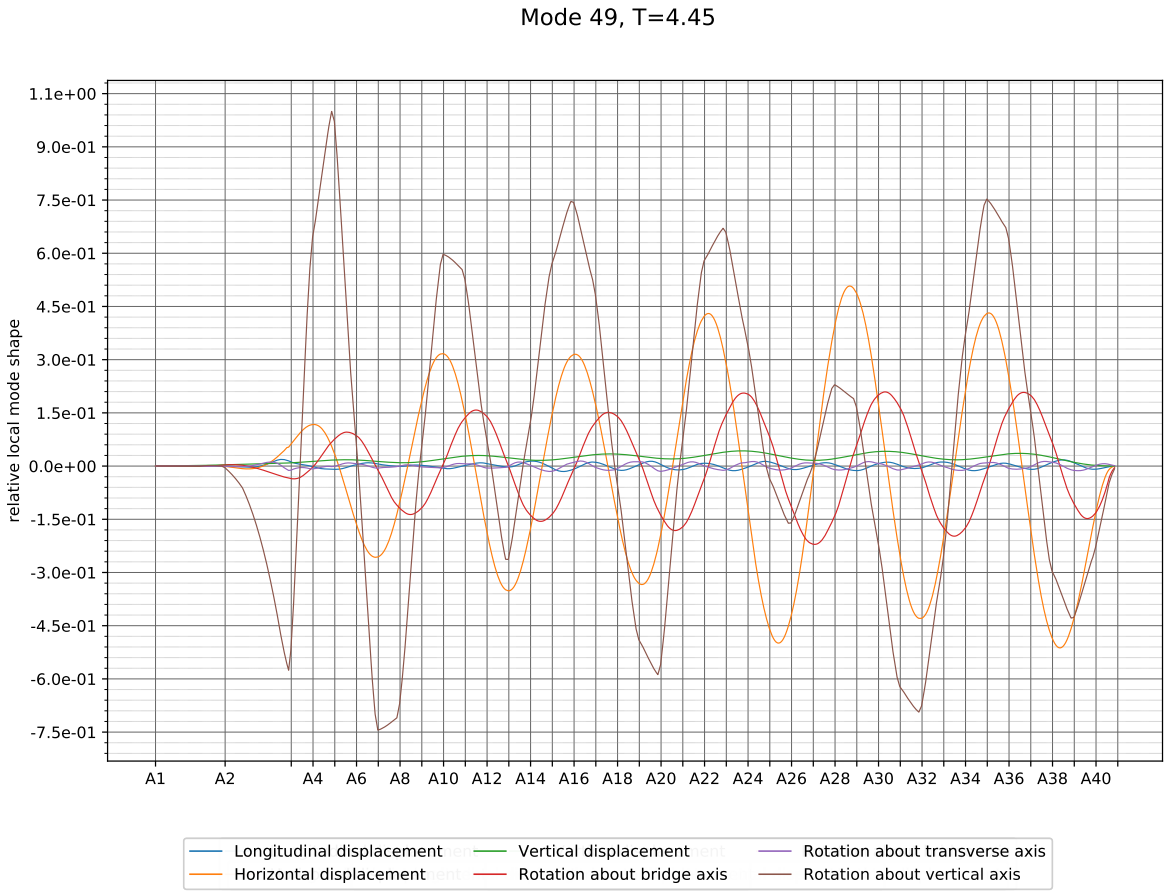
2.47 Mode 47, T=4.61



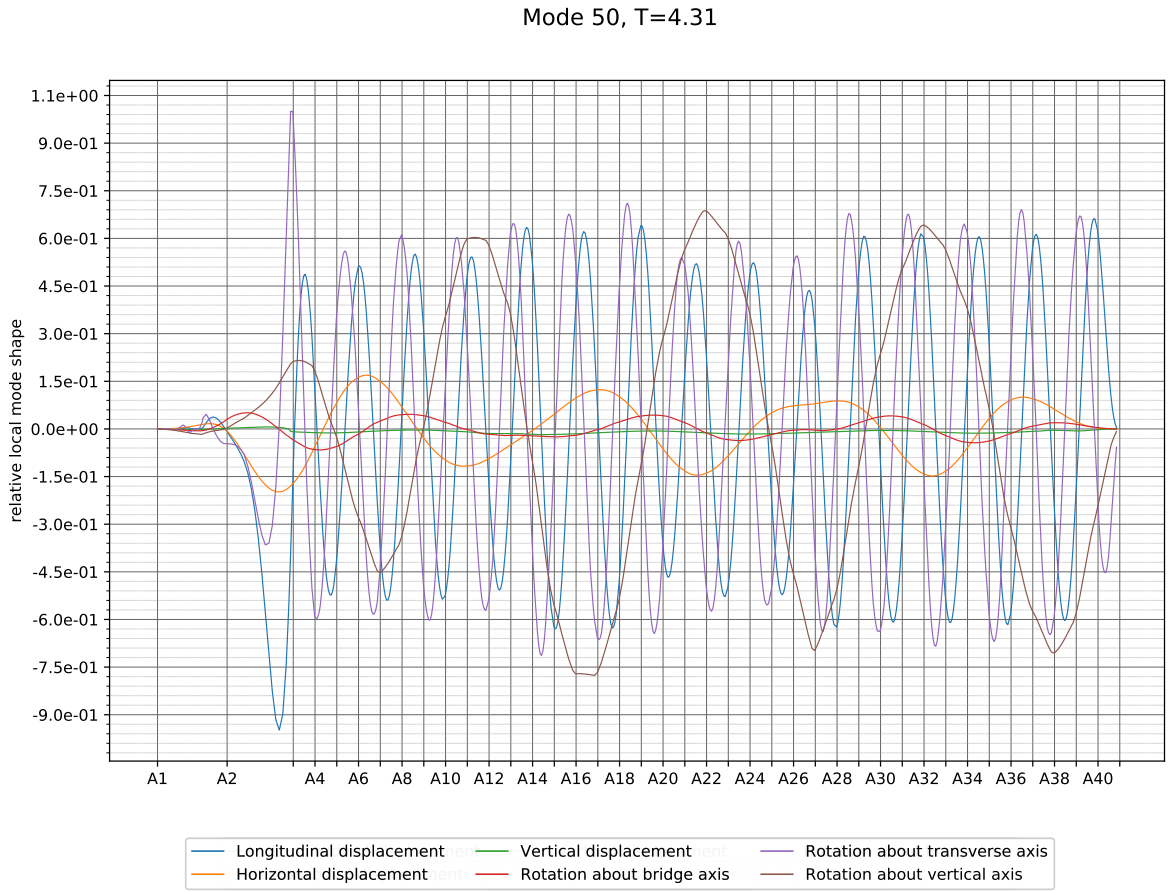
2.48 Mode 48, T=4.46



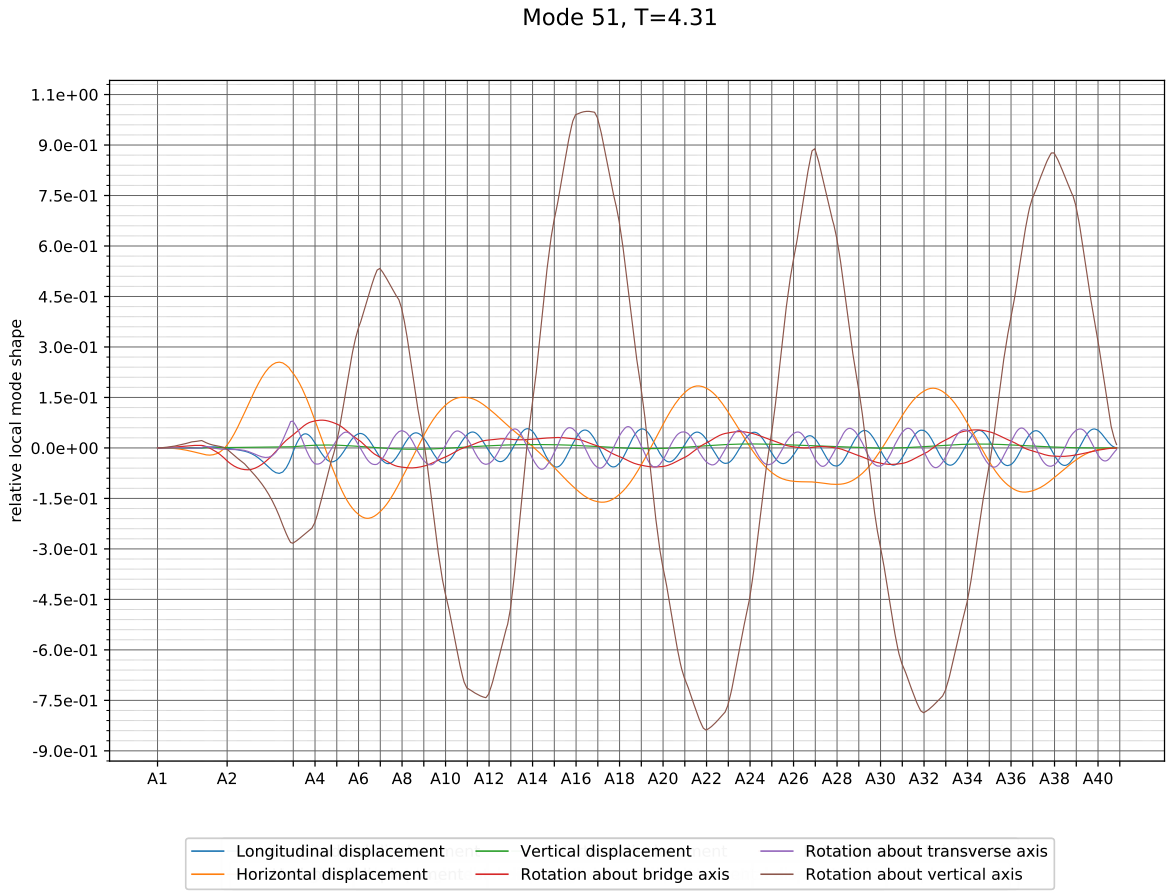
2.49 Mode 49, T=4.45



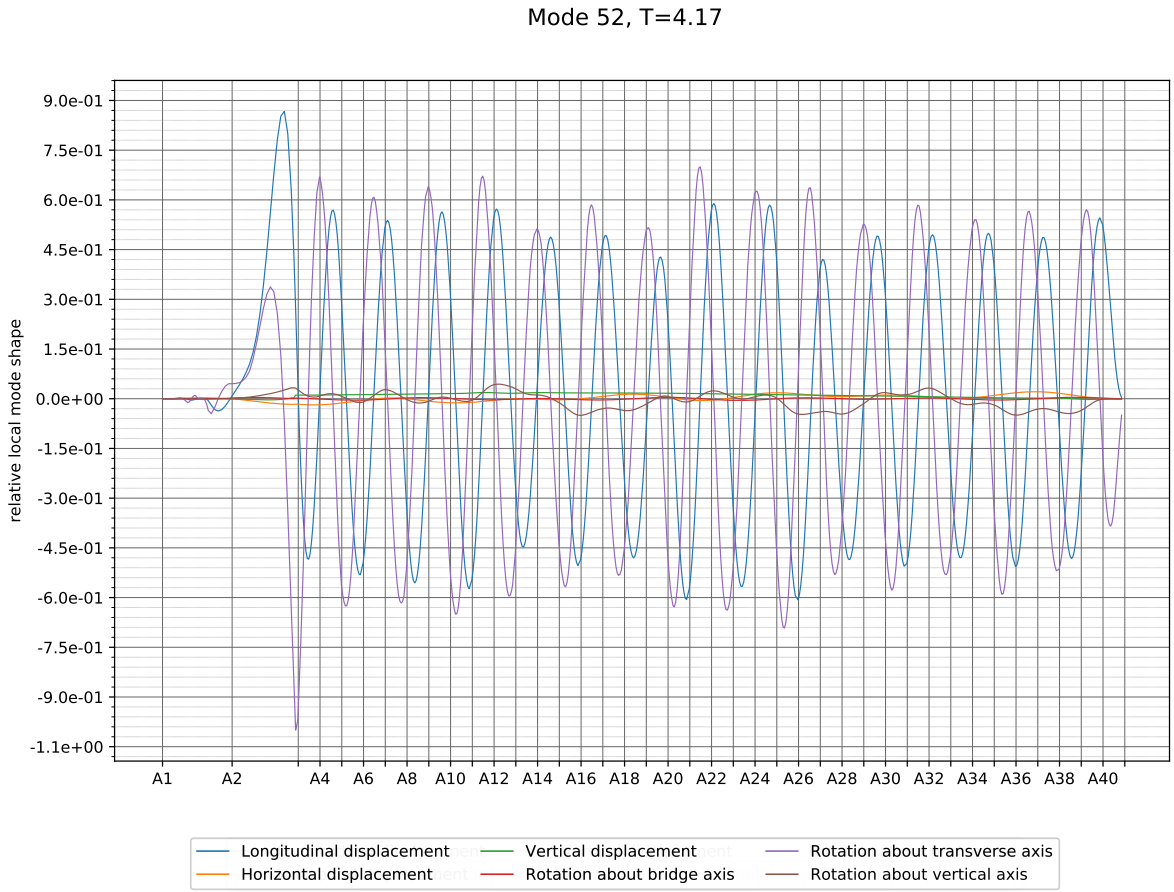
2.50 Mode 50, T=4.31



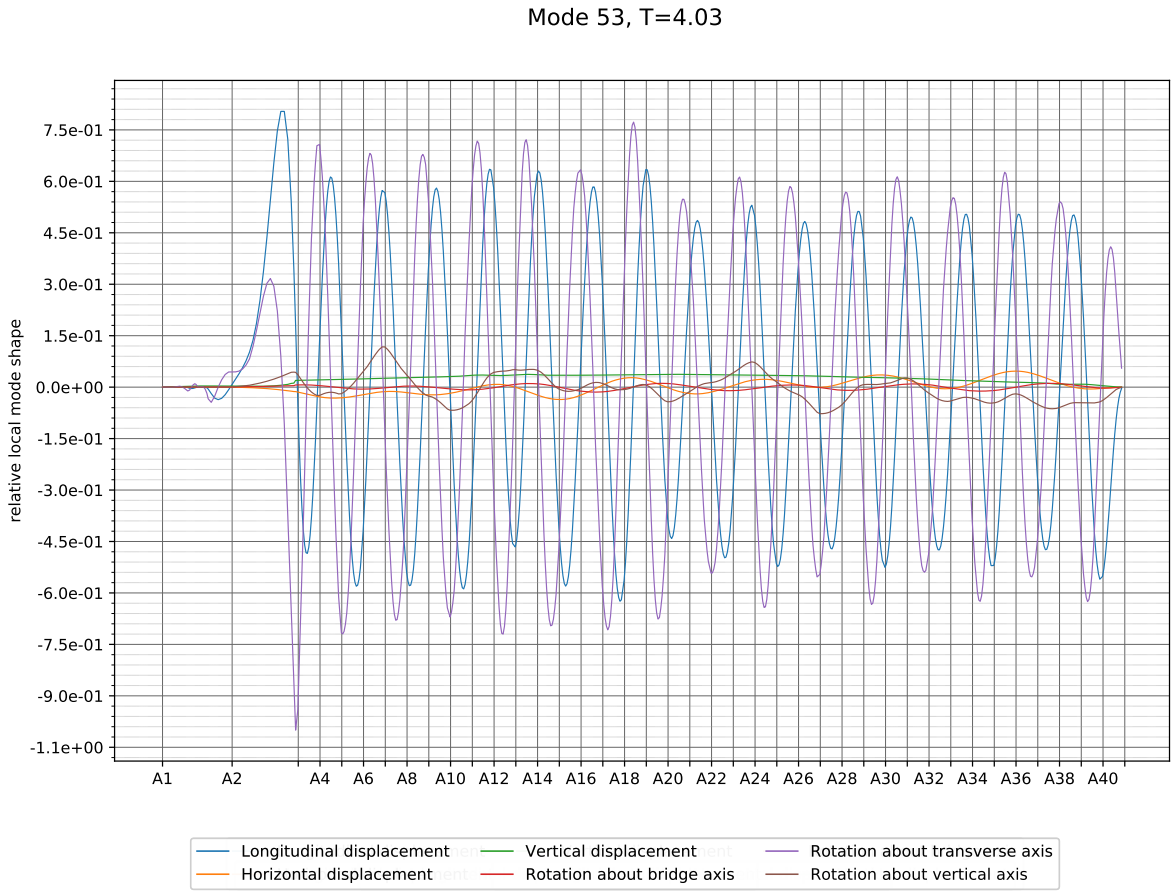
2.51 Mode 51, T=4.31



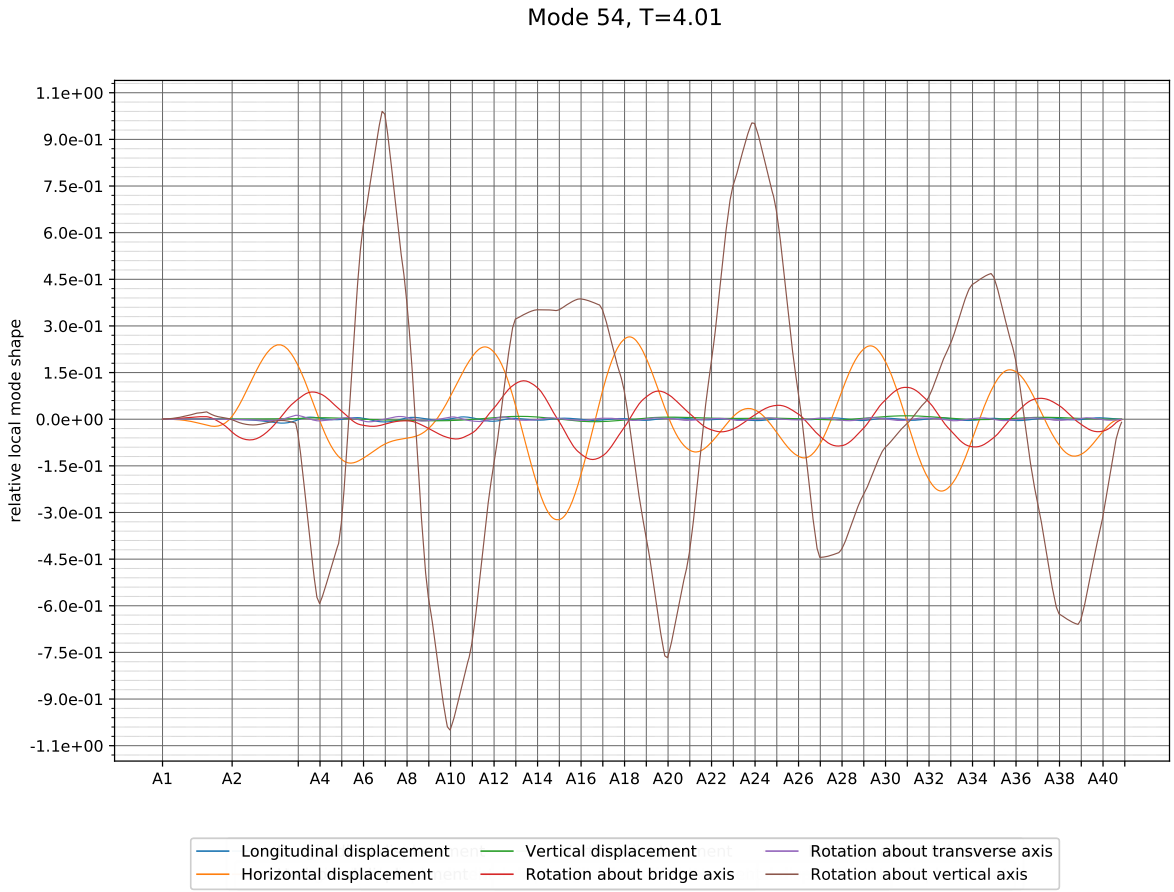
2.52 Mode 52, T=4.17



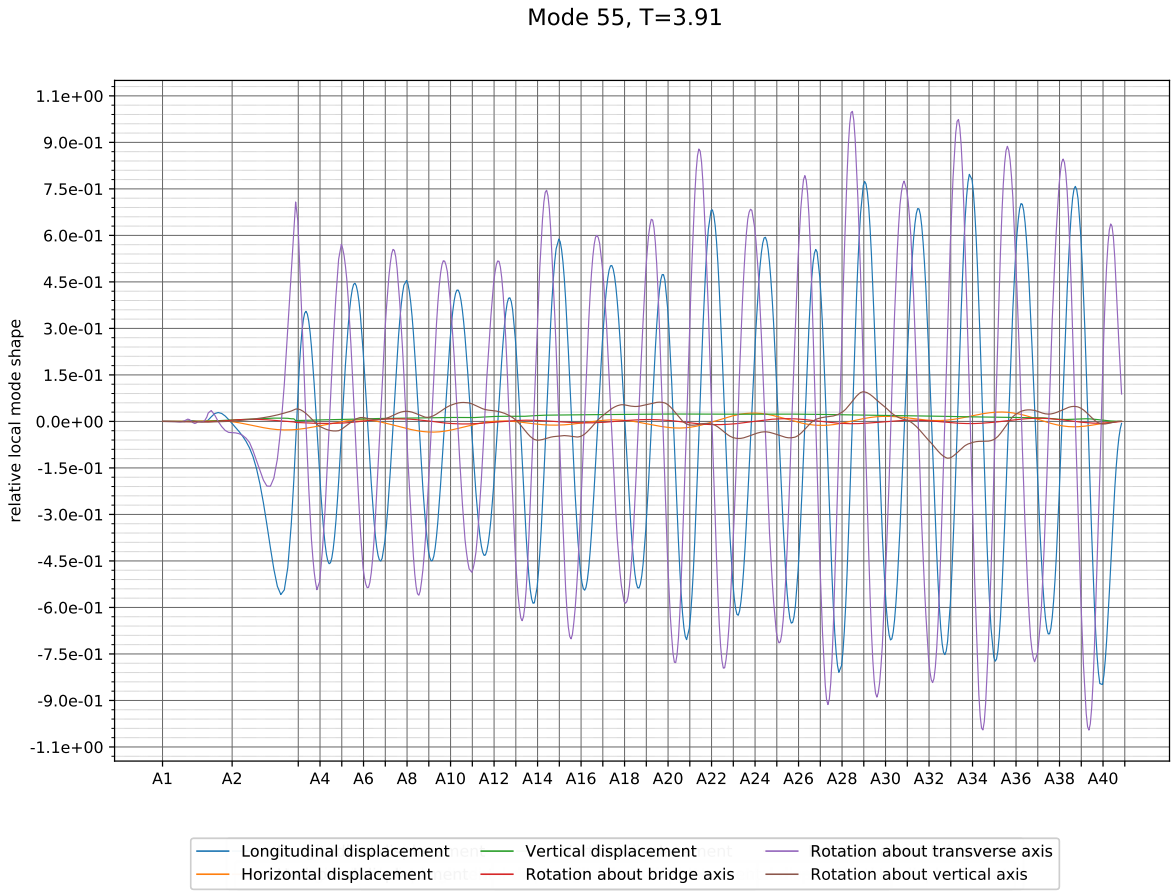
2.53 Mode 53, T=4.03



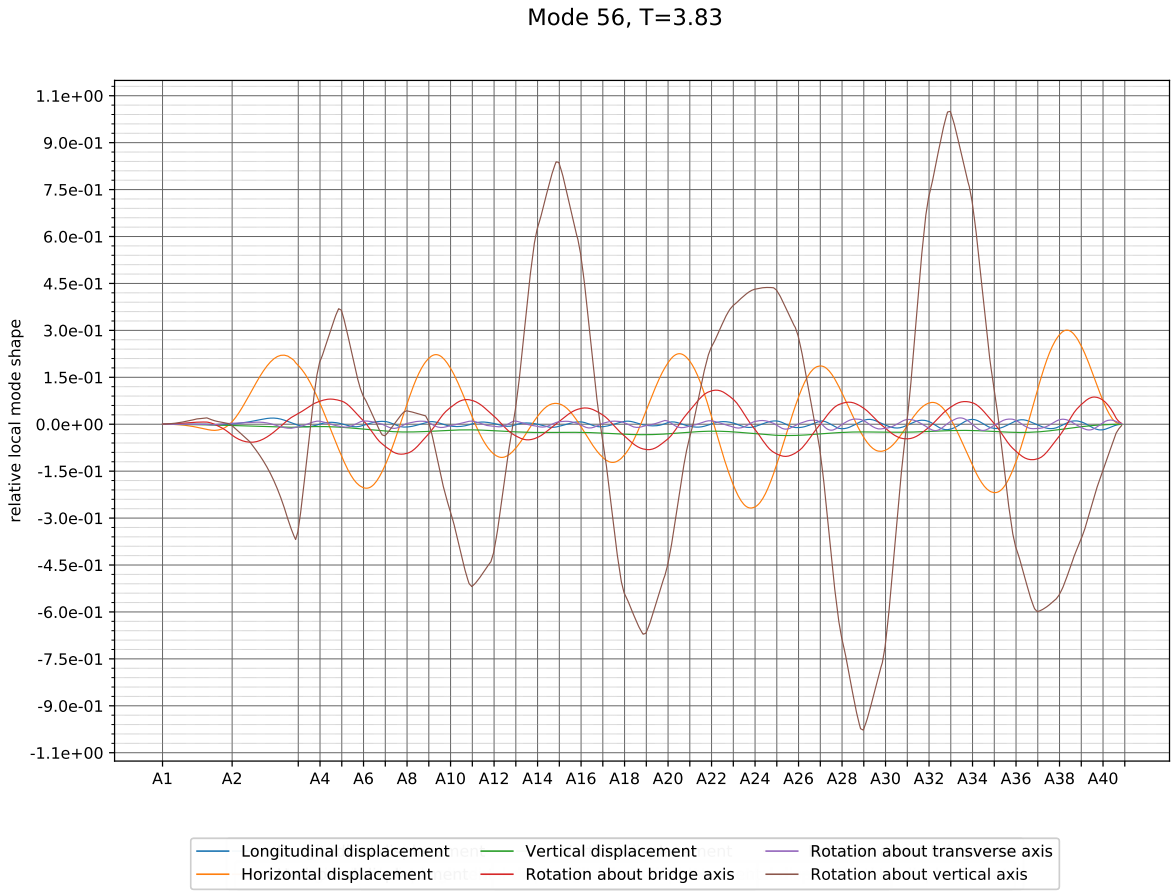
2.54 Mode 54, T=4.01



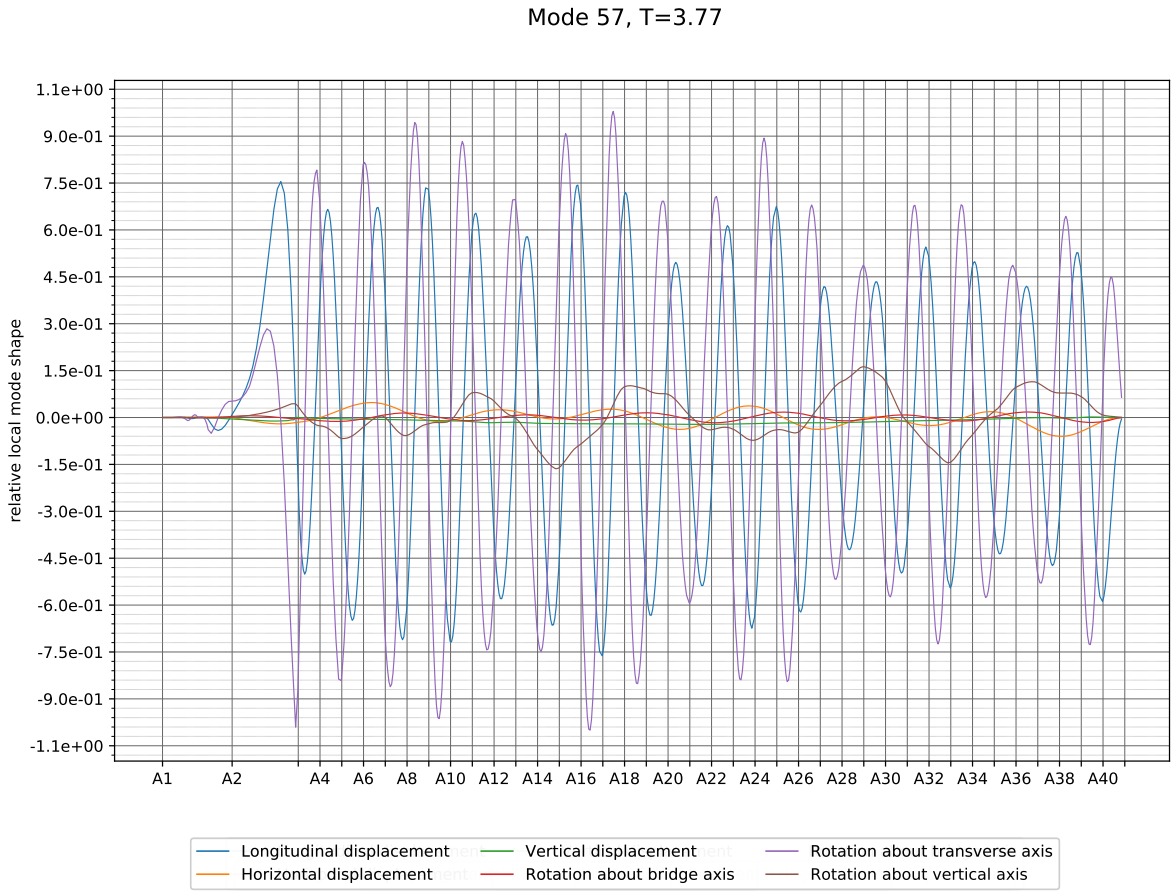
2.55 Mode 55, T=3.91



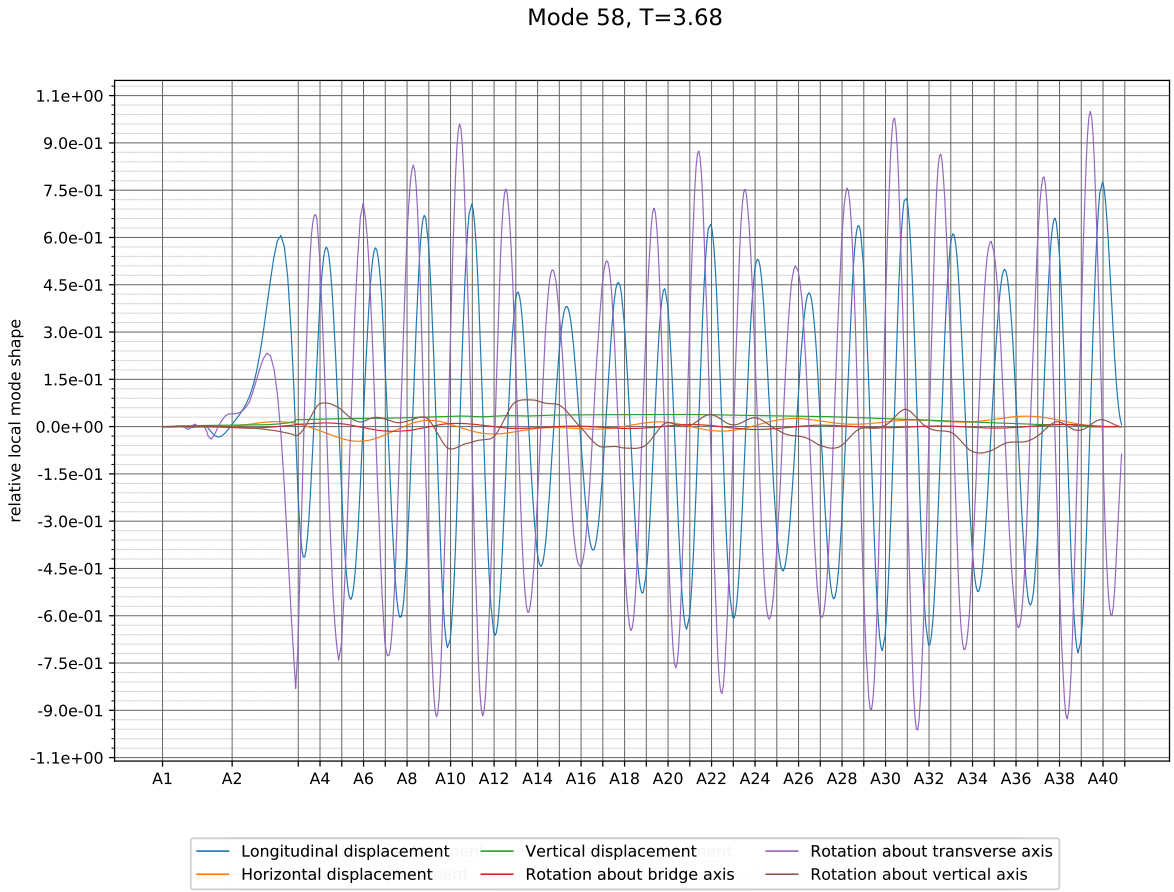
2.56 Mode 56, T=3.83



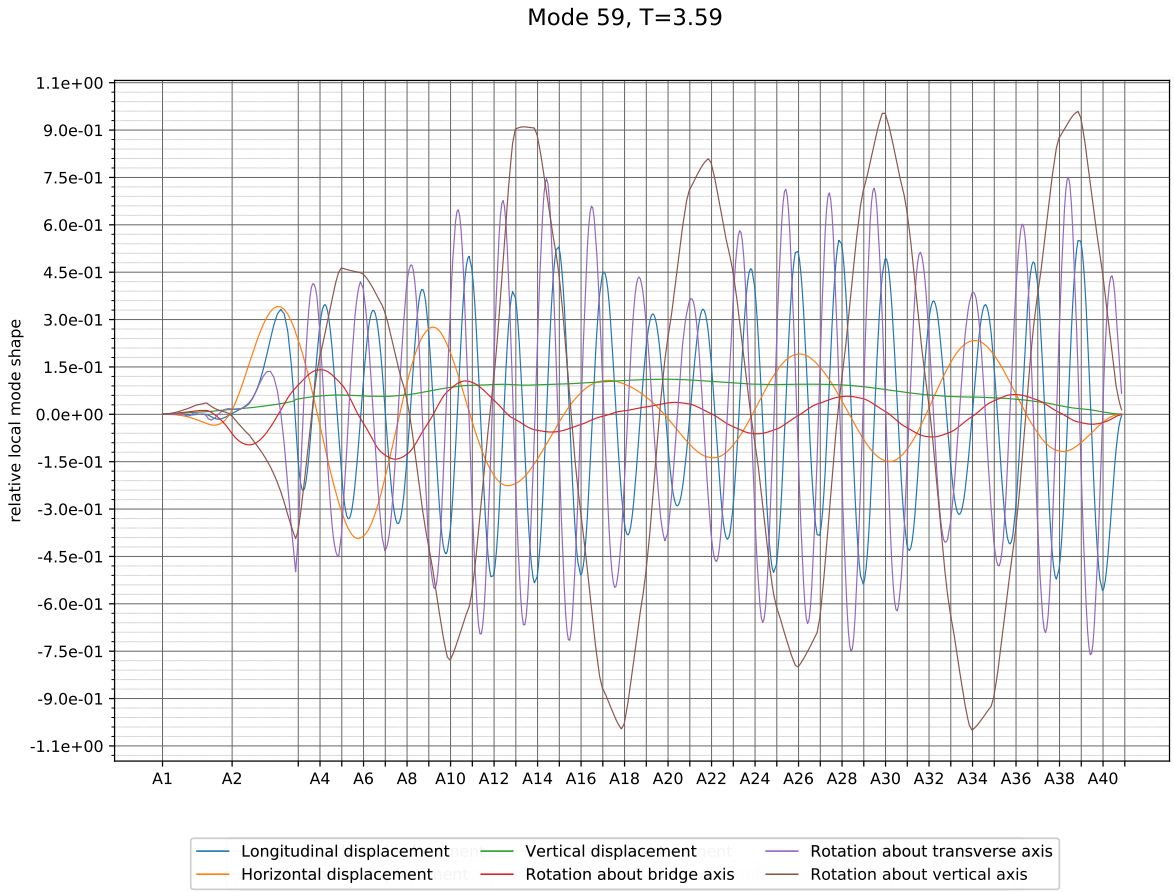
2.57 Mode 57, T=3.77



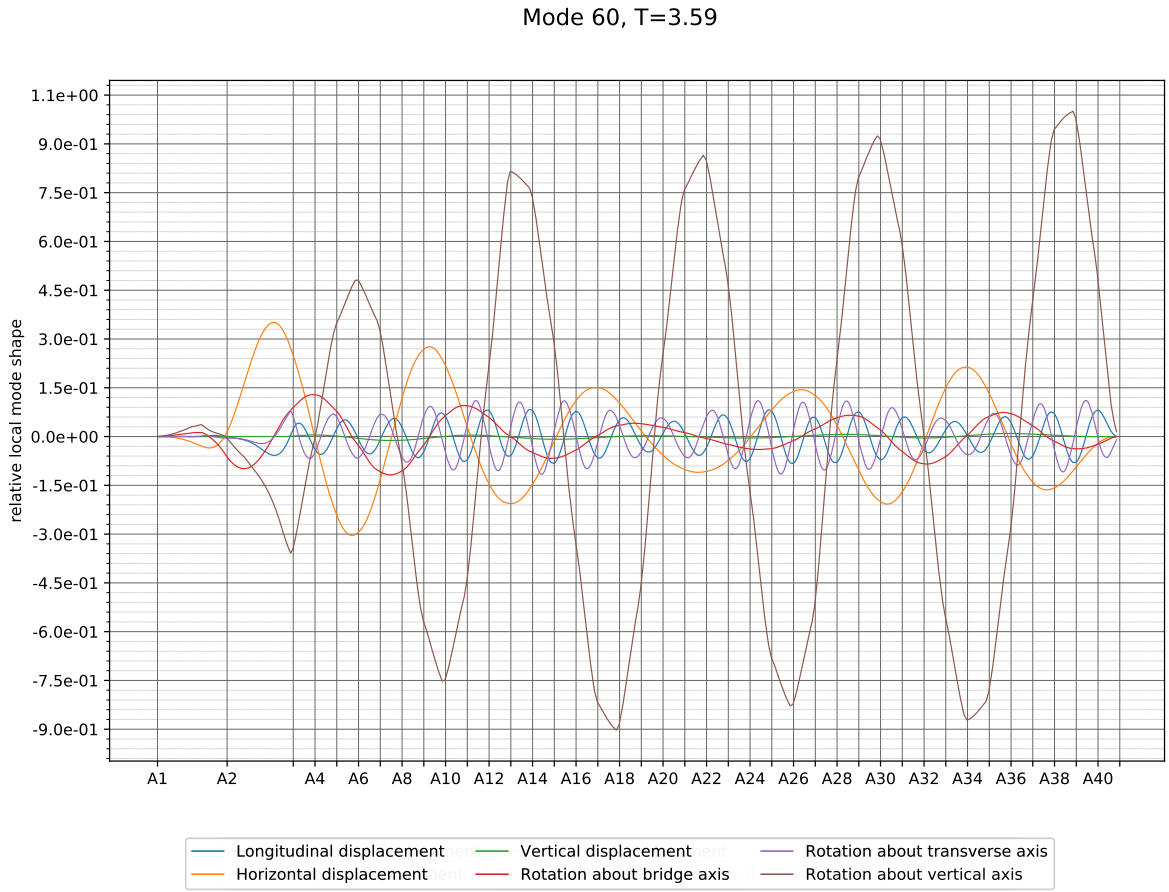
2.58 Mode 58, T=3.68



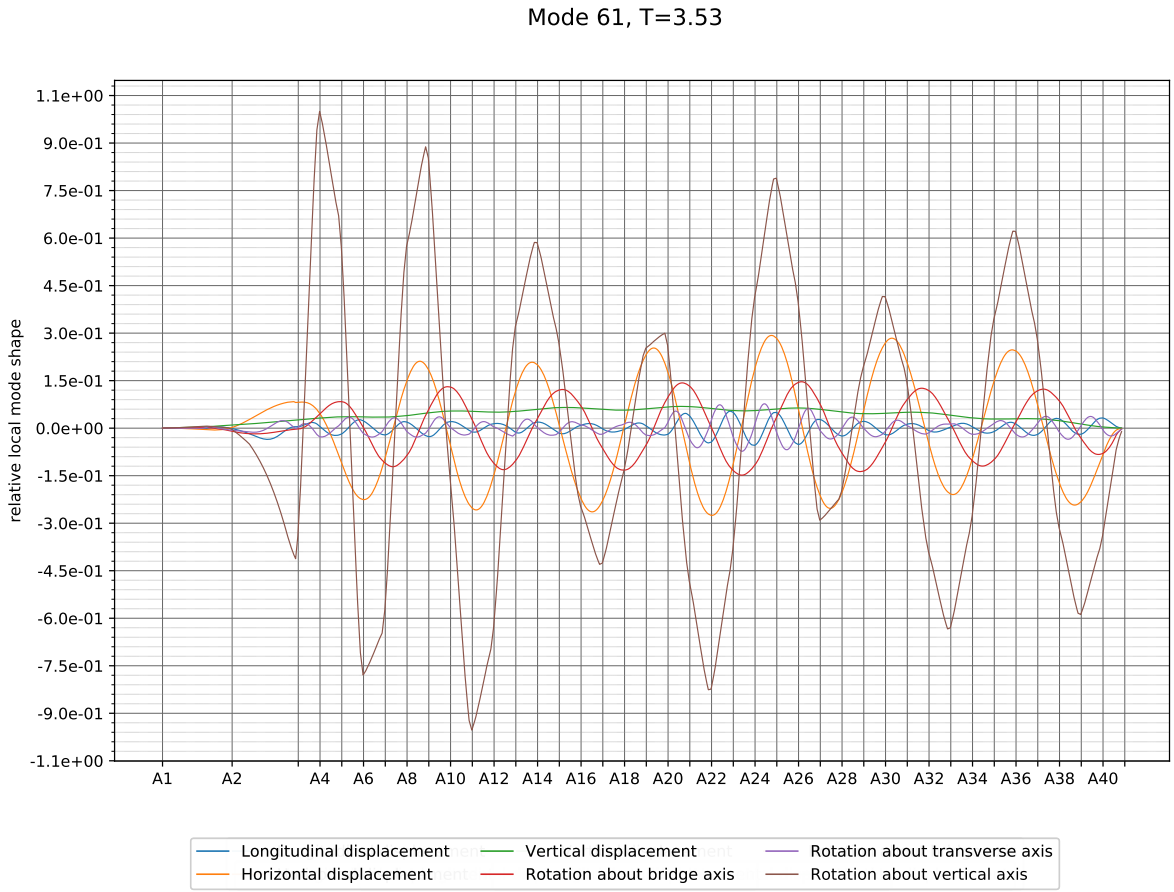
2.59 Mode 59, T=3.59



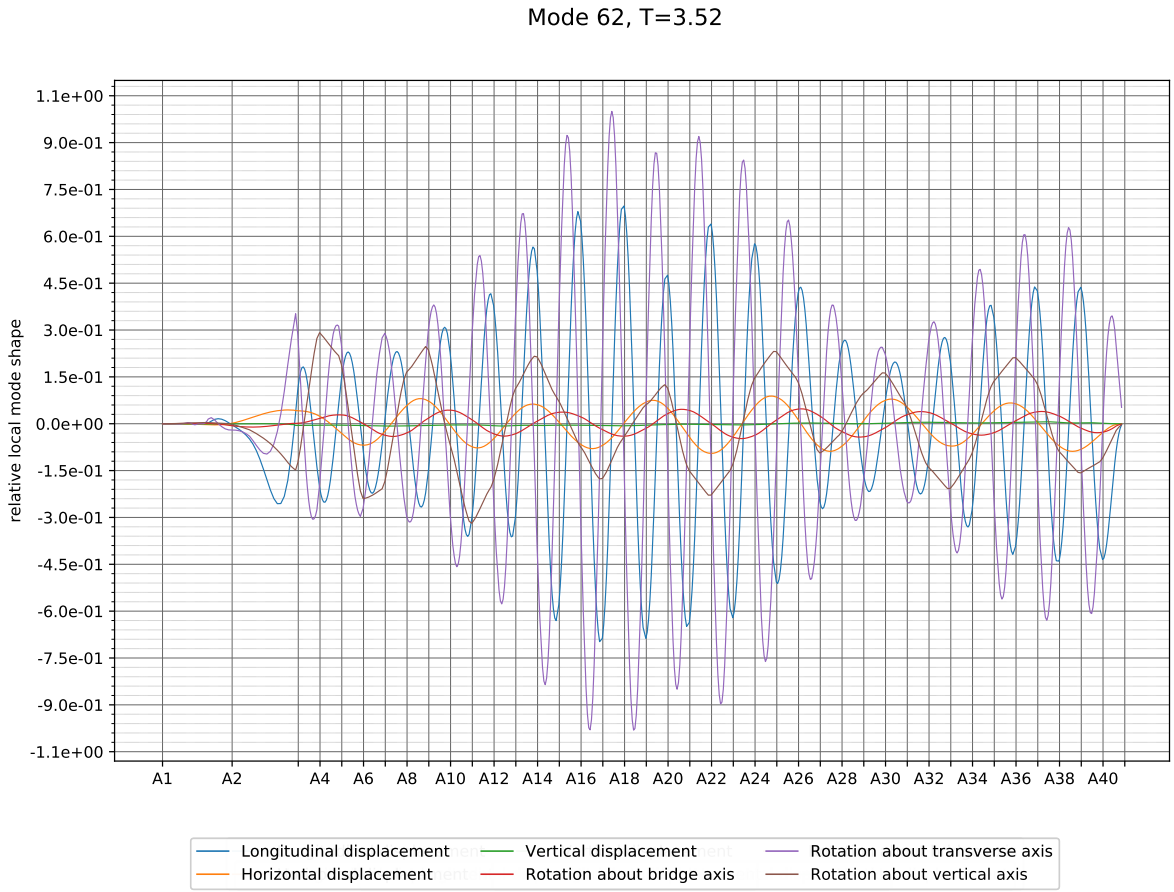
2.60 Mode 60, T=3.59



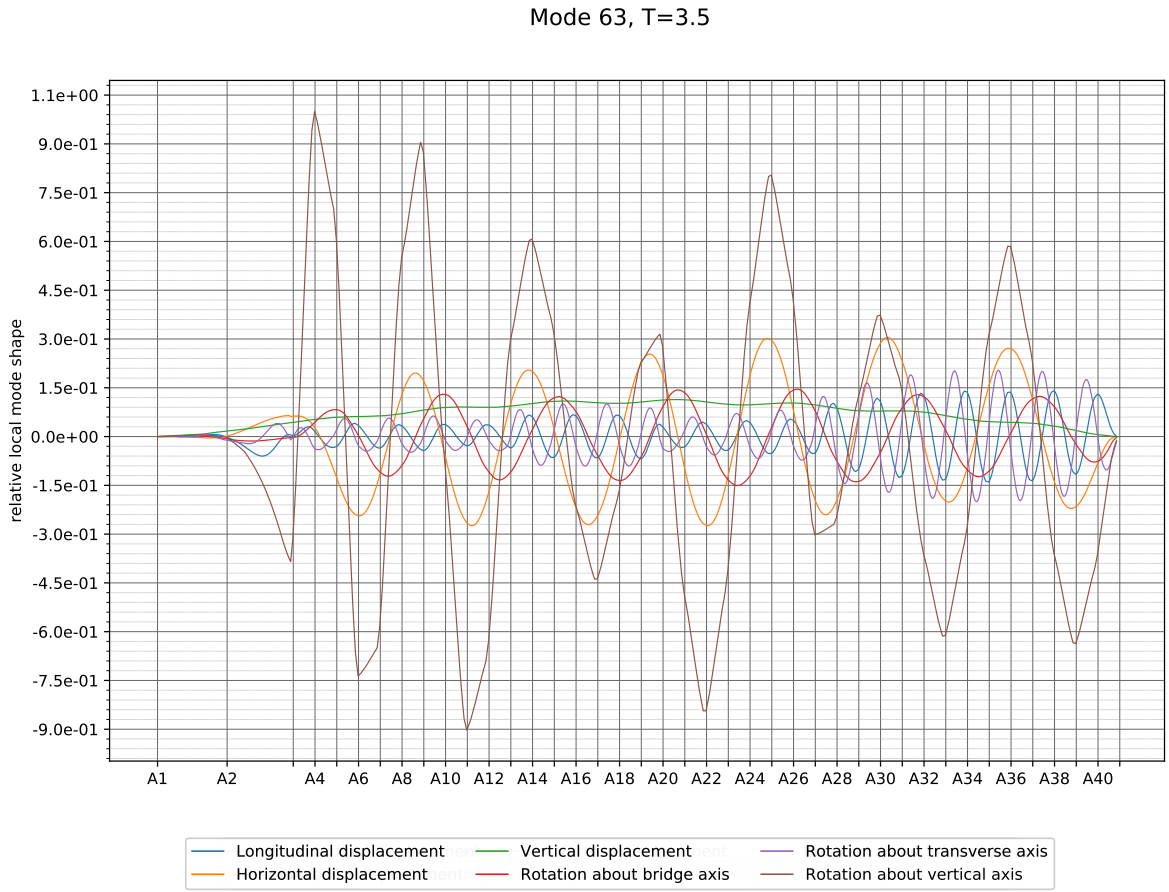
2.61 Mode 61, T=3.53



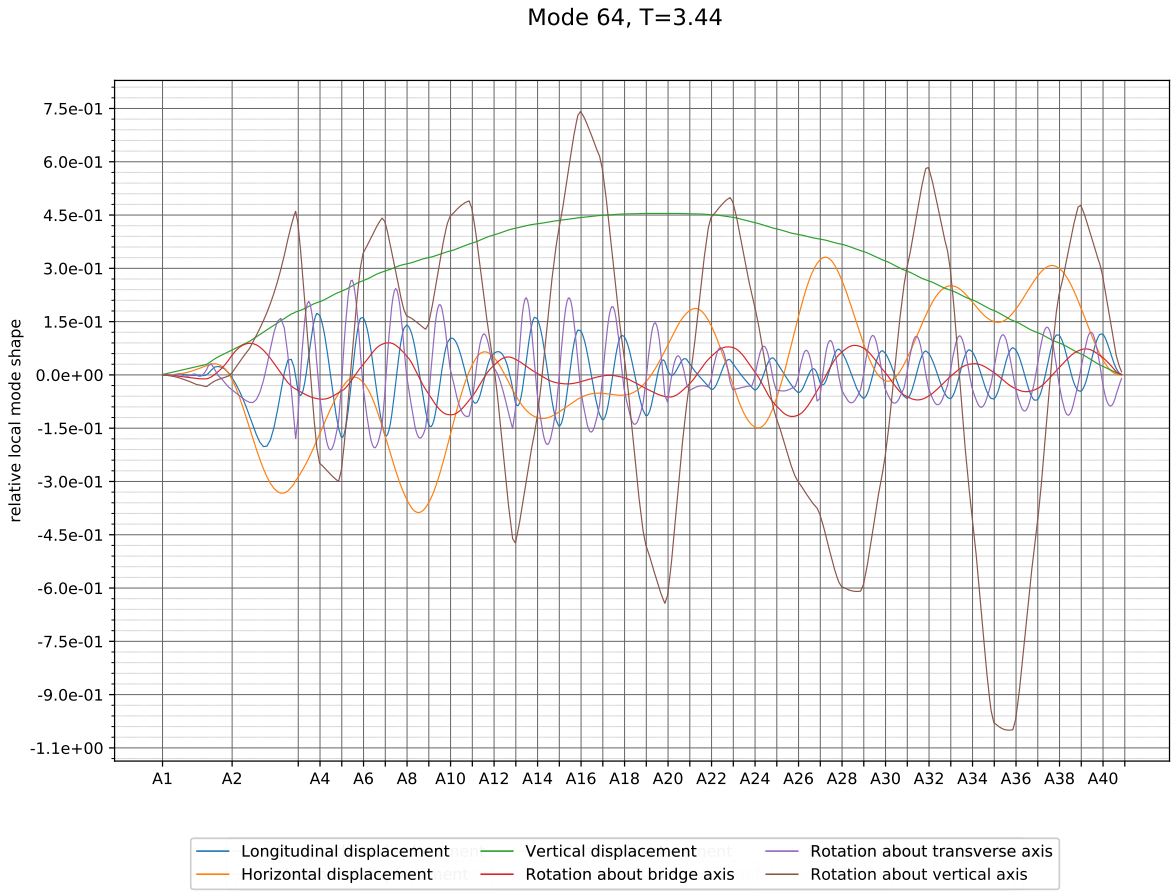
2.62 Mode 62, T=3.52



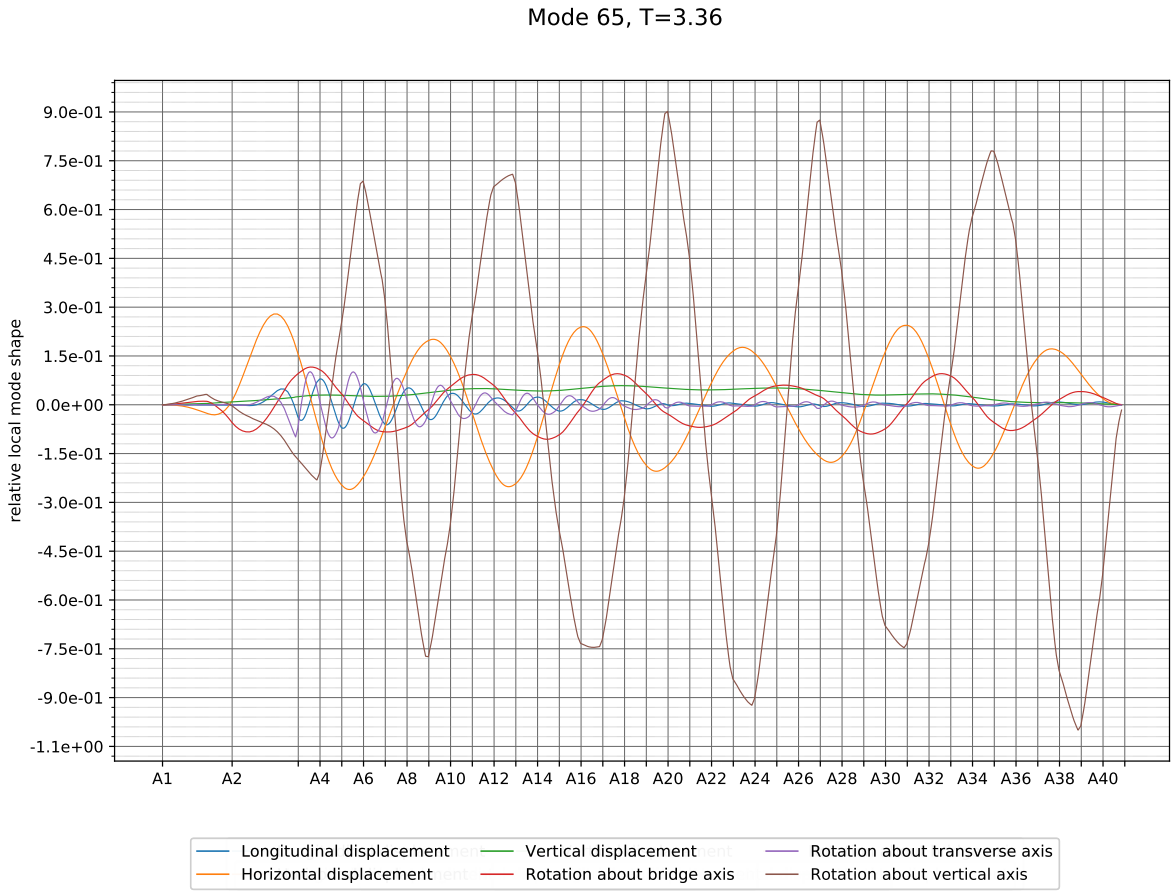
2.63 Mode 63, T=3.5



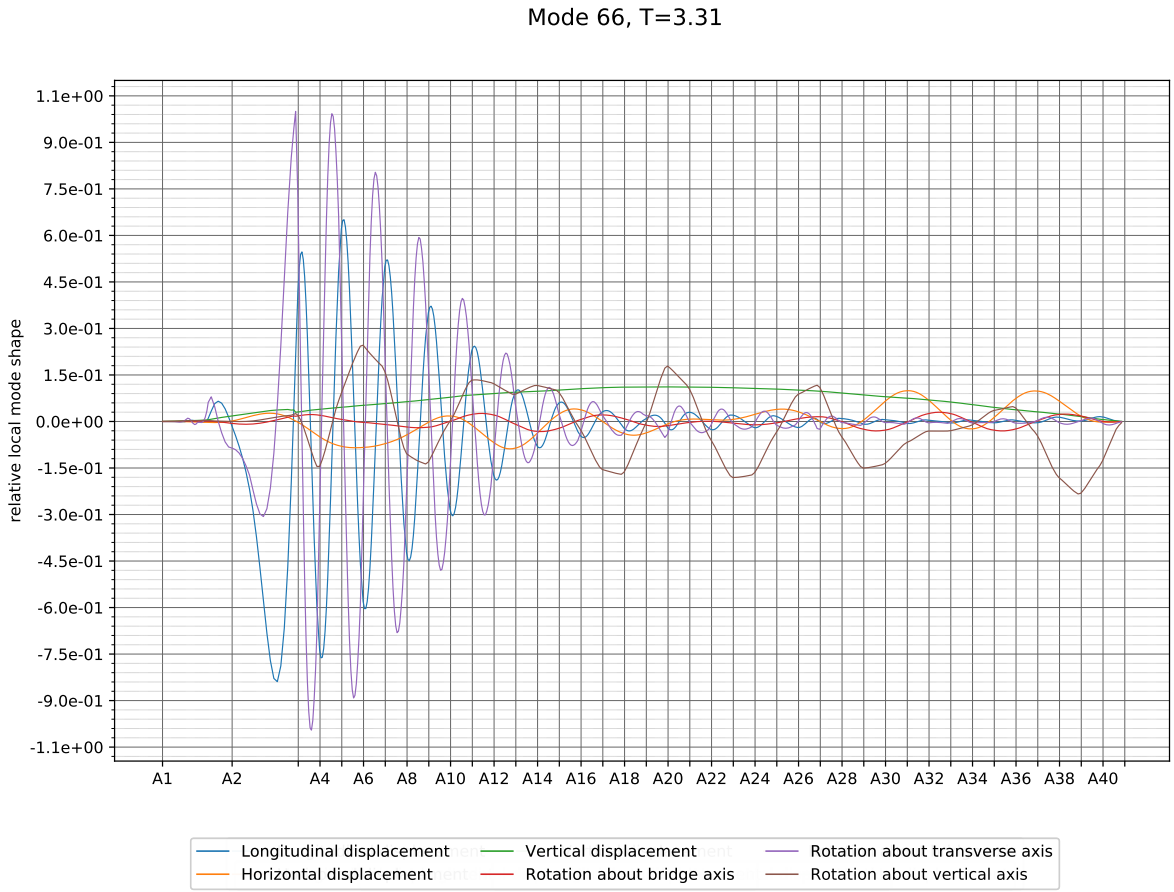
2.64 Mode 64, T=3.44



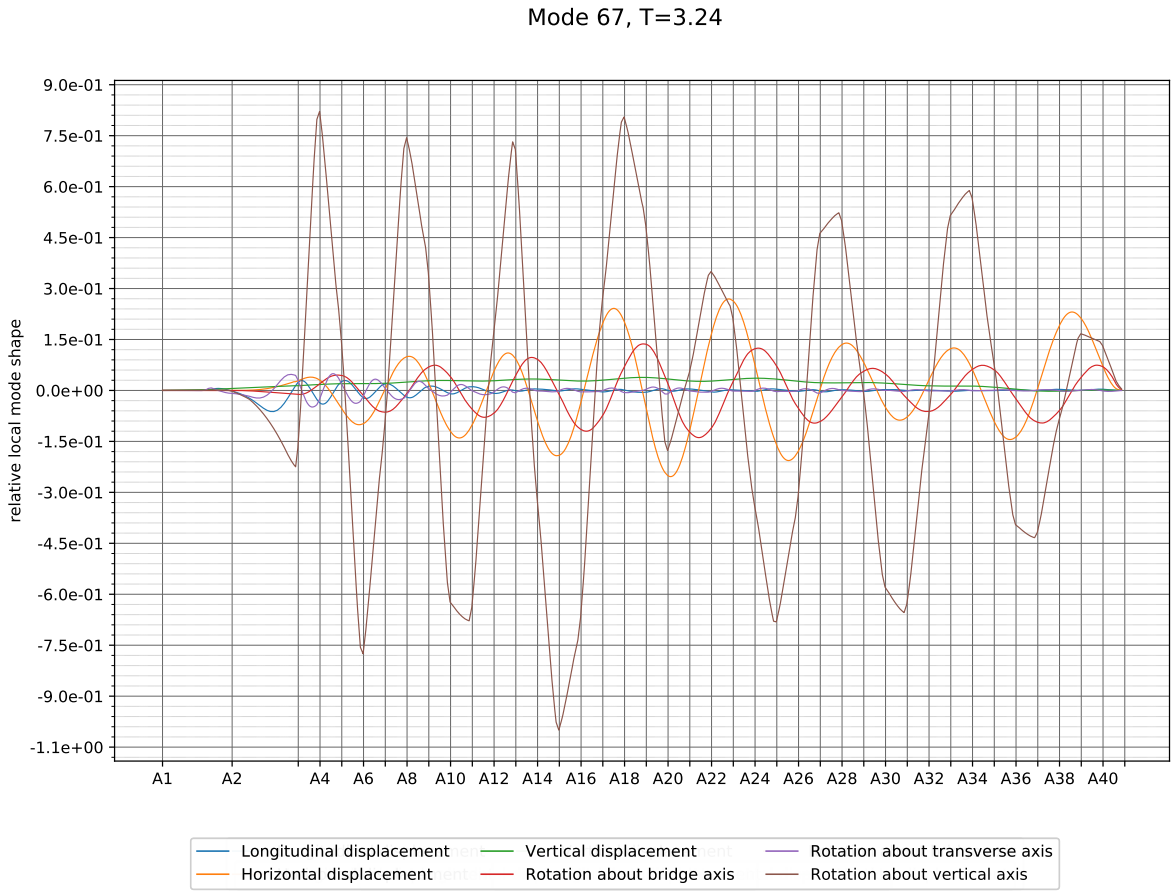
2.65 Mode 65, T=3.36



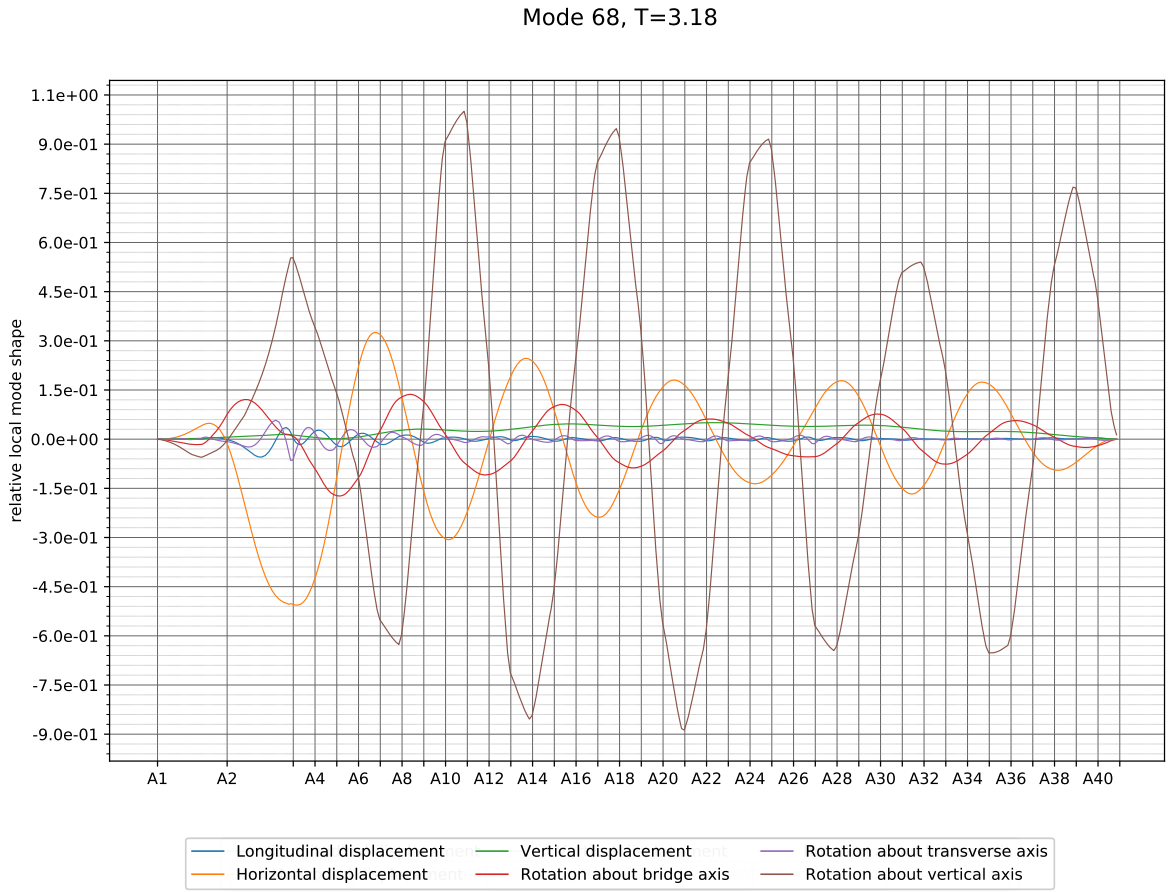
2.66 Mode 66, T=3.31



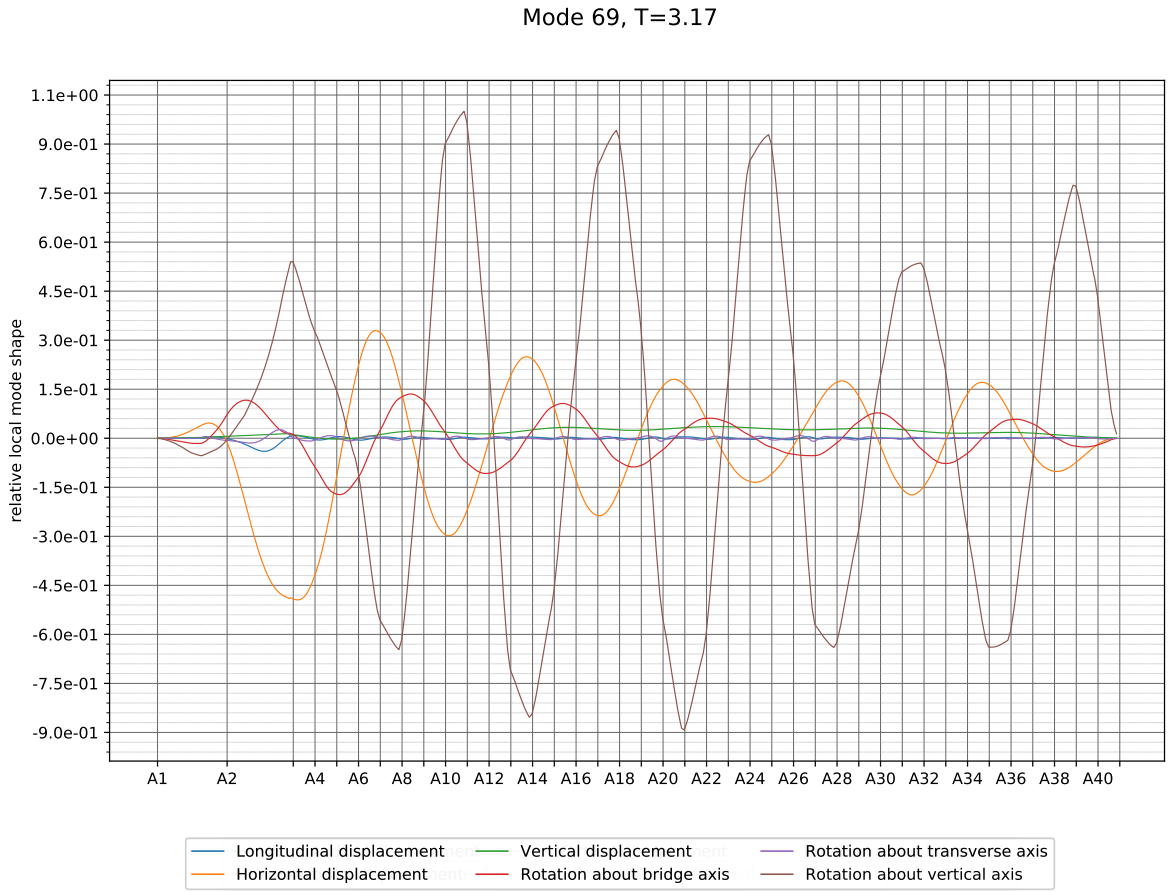
2.67 Mode 67, T=3.24



2.68 Mode 68, T=3.18



2.69 Mode 69, T=3.17



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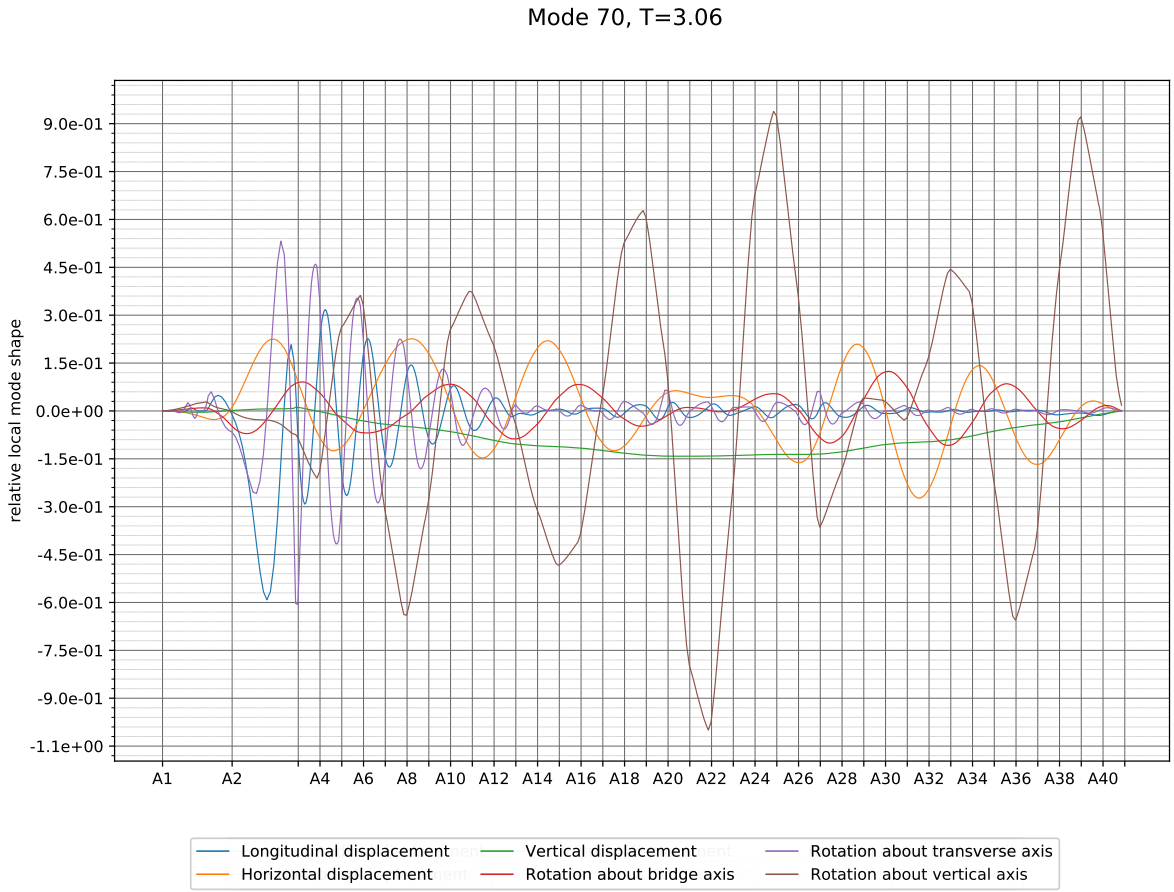
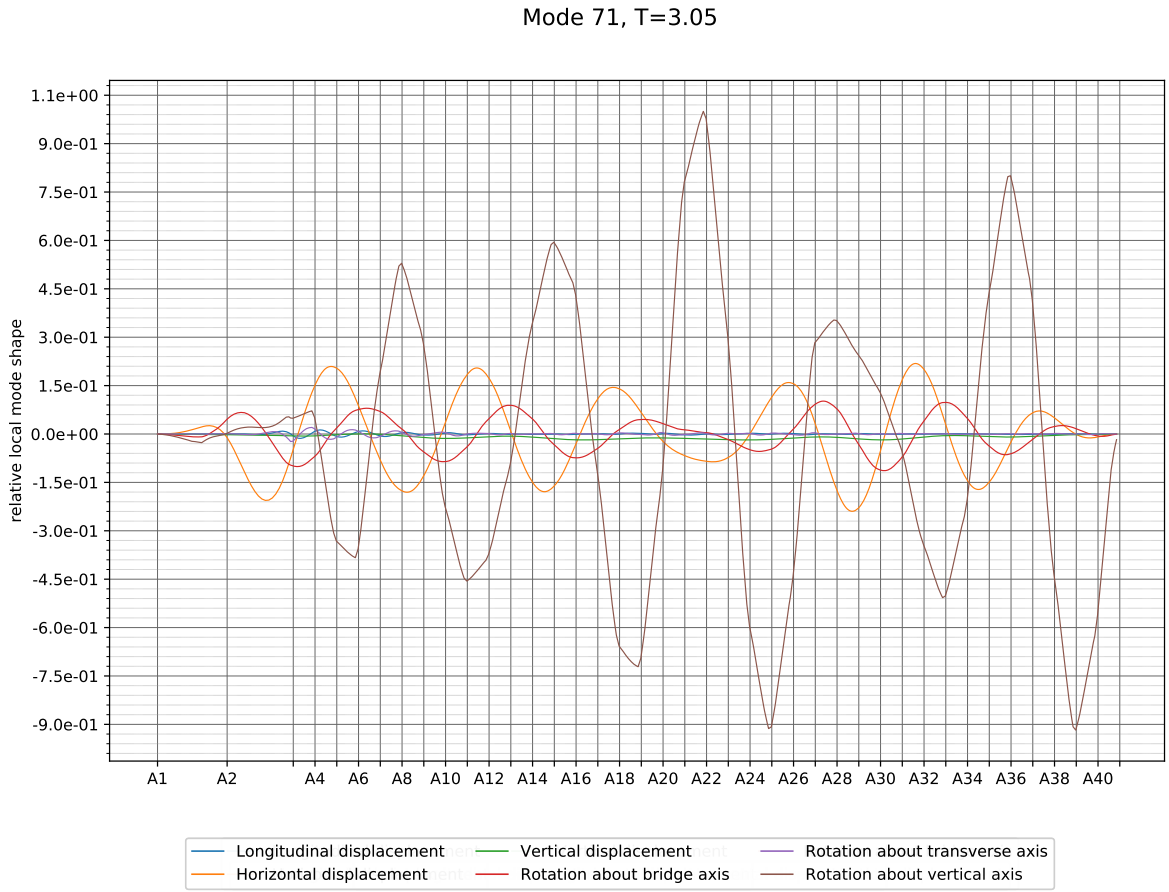
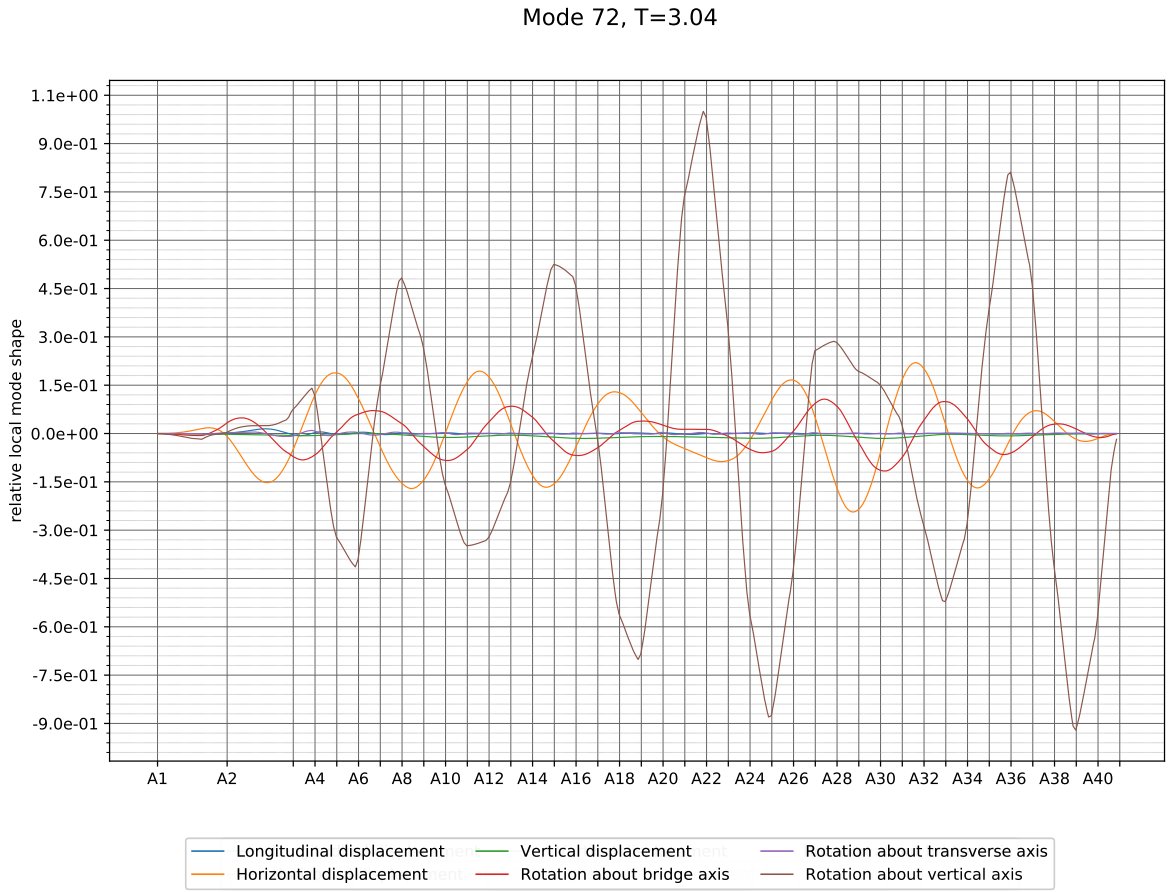


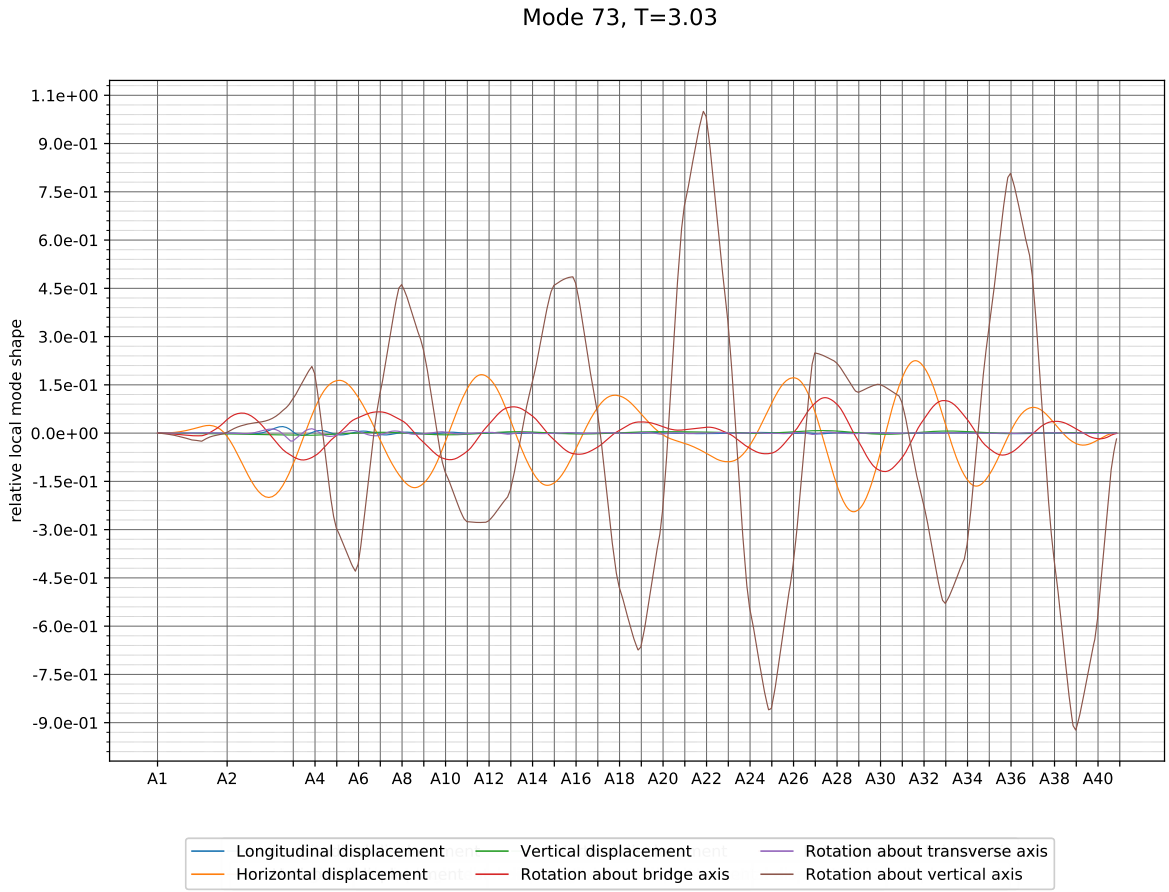
2.71 Mode 71, T=3.05



2.72 Mode 72, T=3.04



2.73 Mode 73, T=3.03



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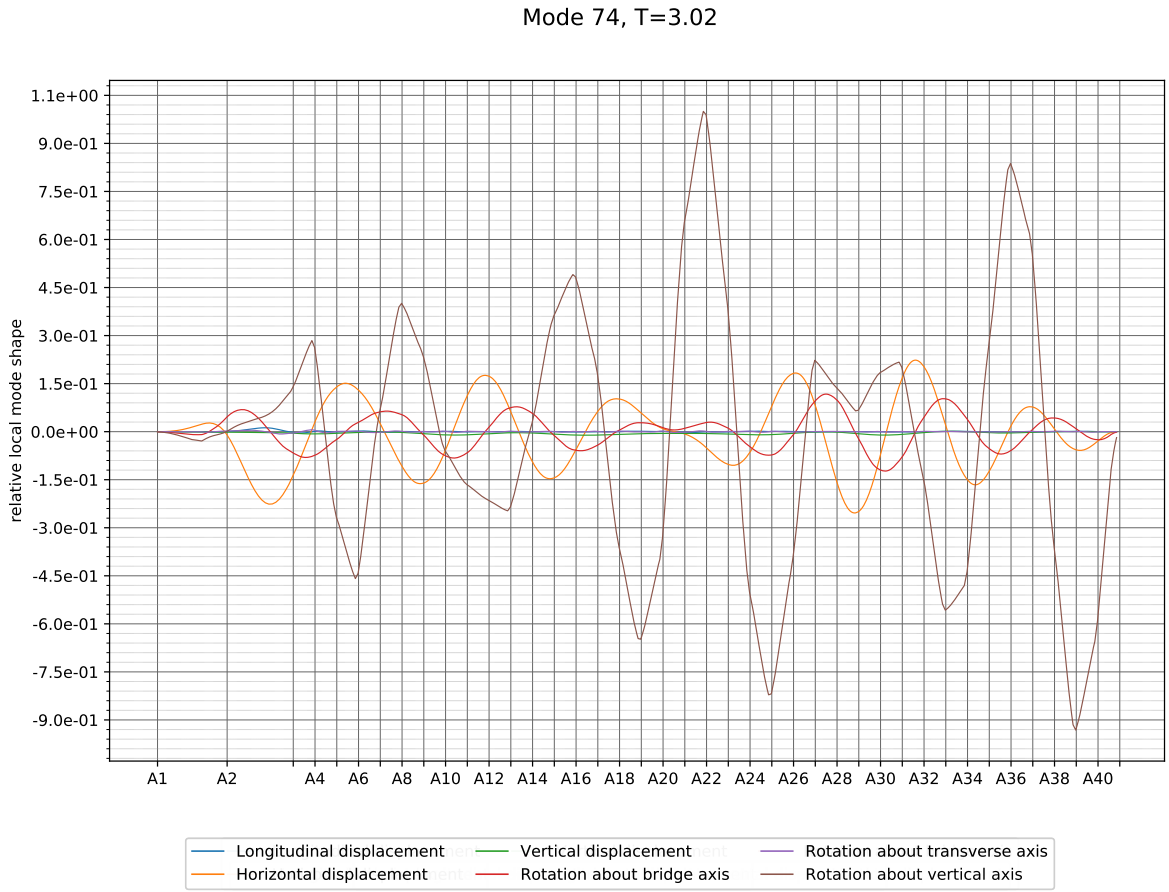

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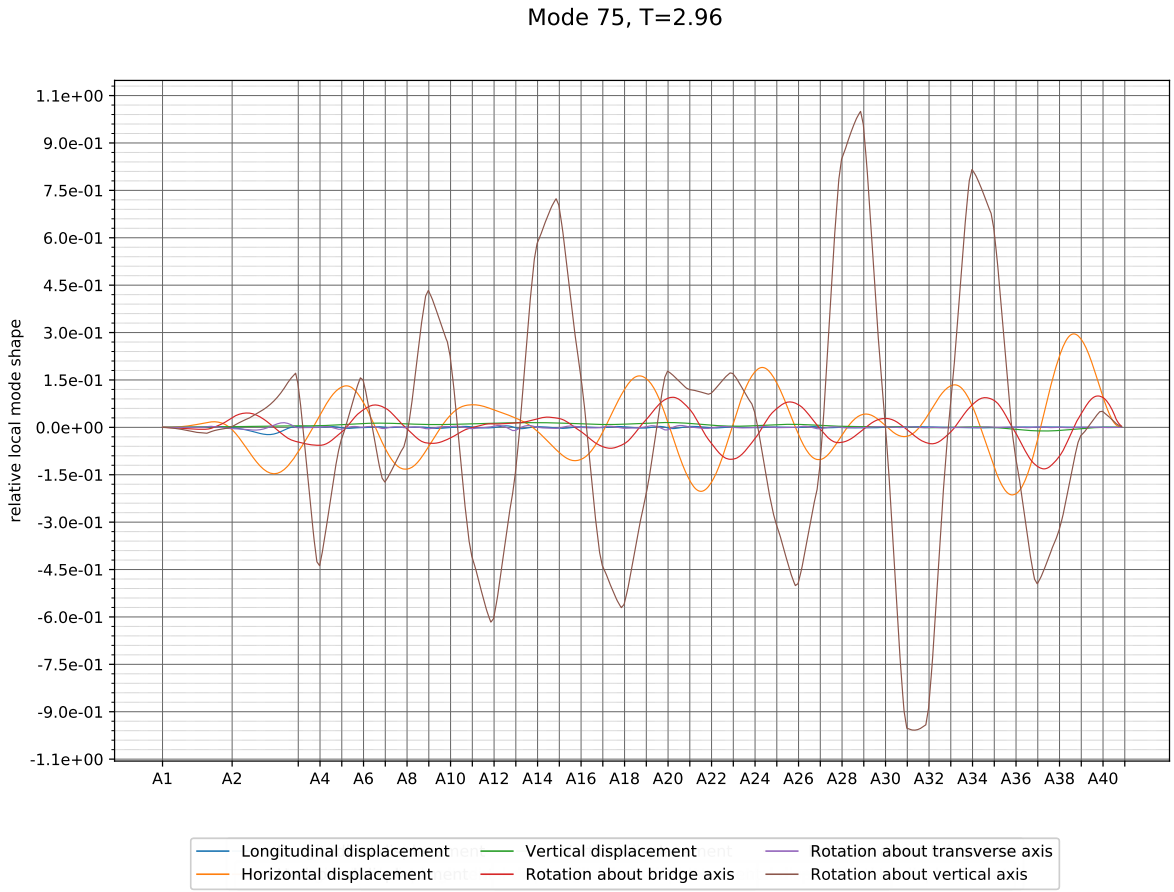
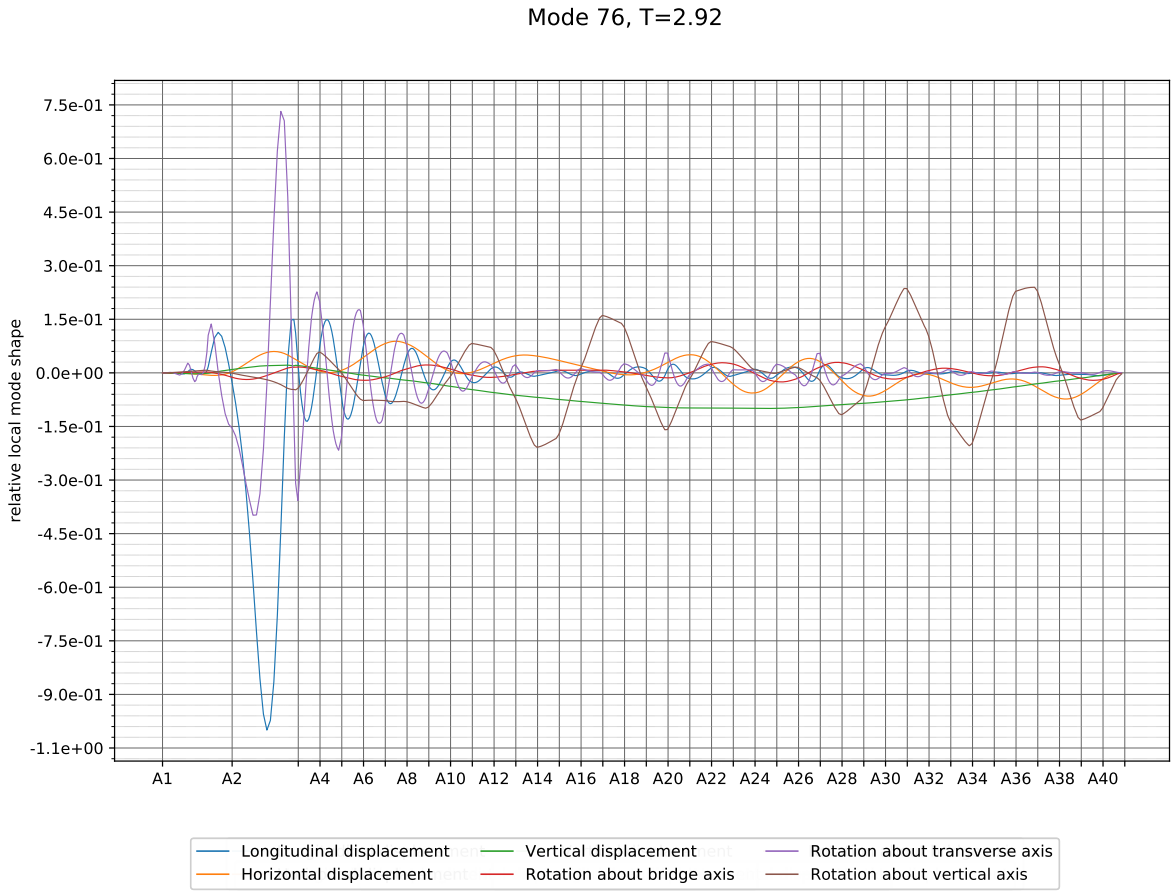
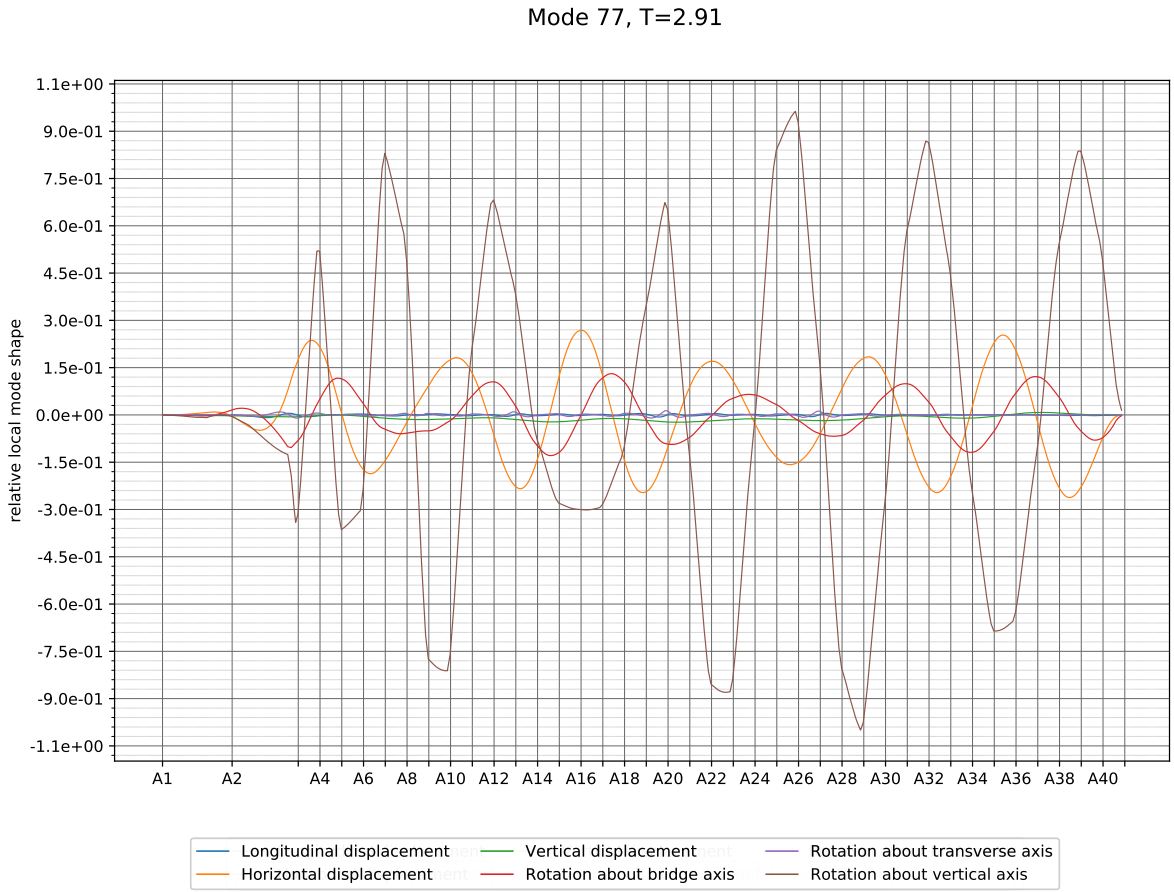


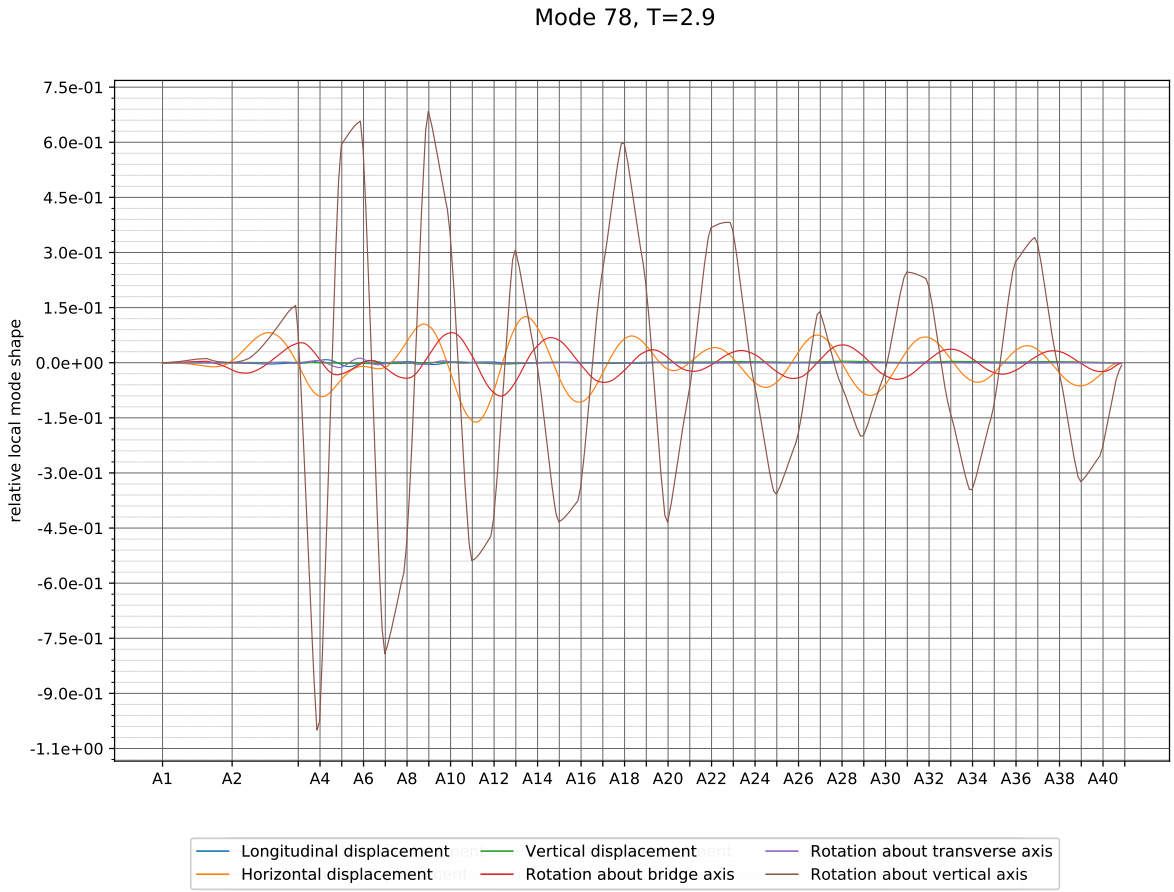
2.76 Mode 76, T=2.92



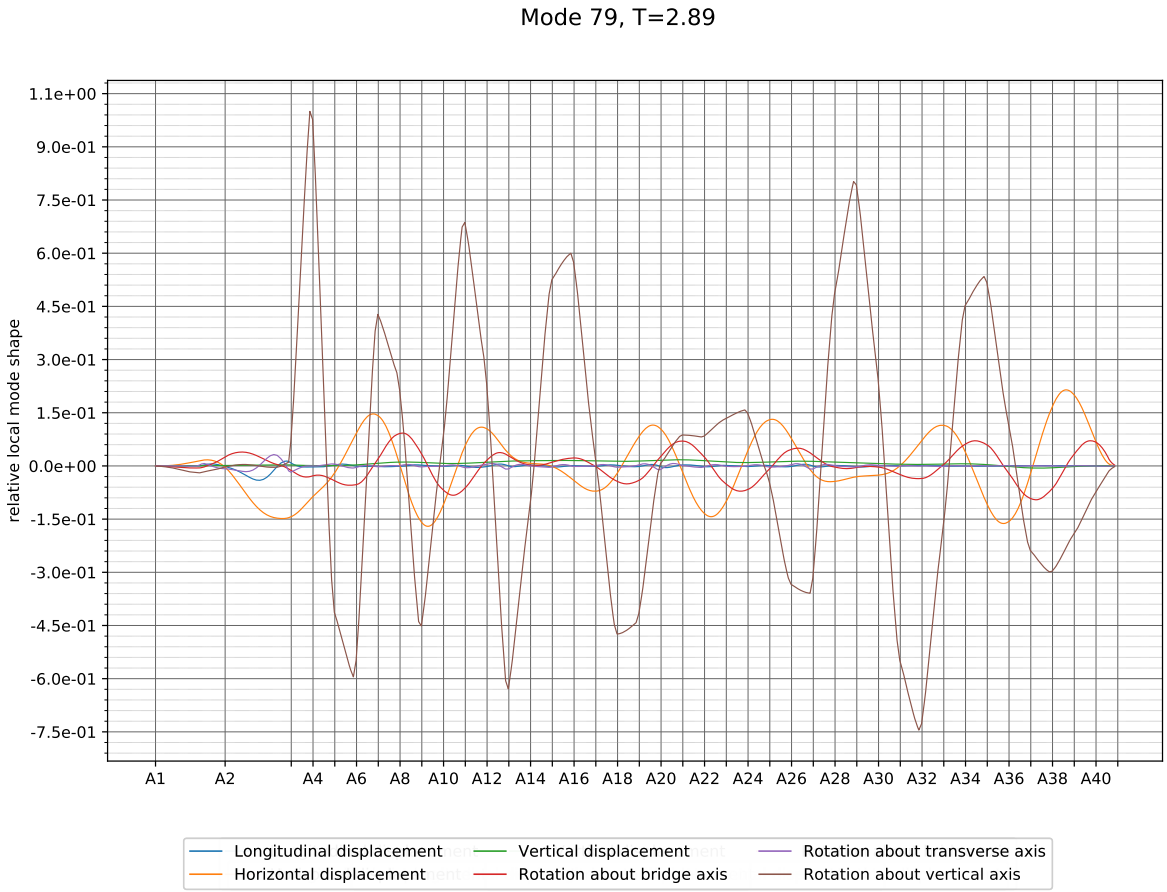
2.77 Mode 77, T=2.91



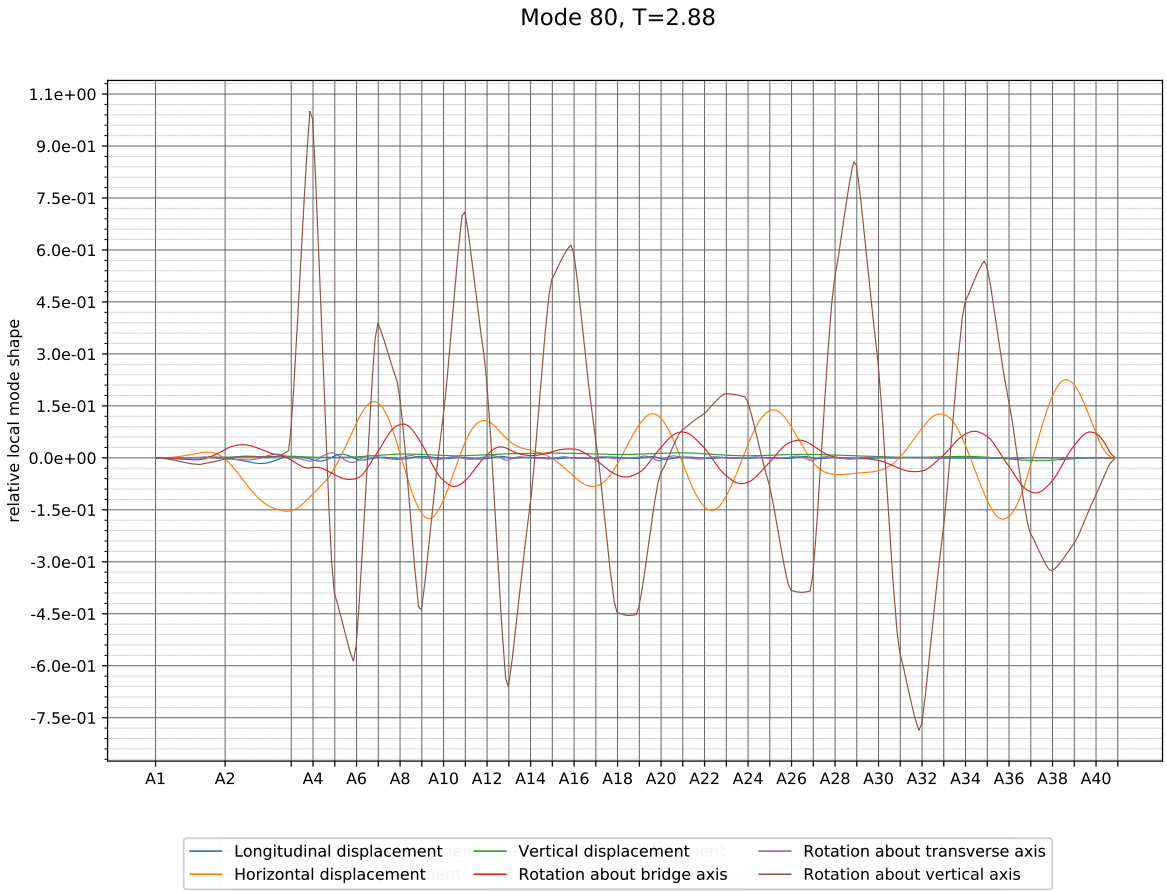
2.78 Mode 78, T=2.9



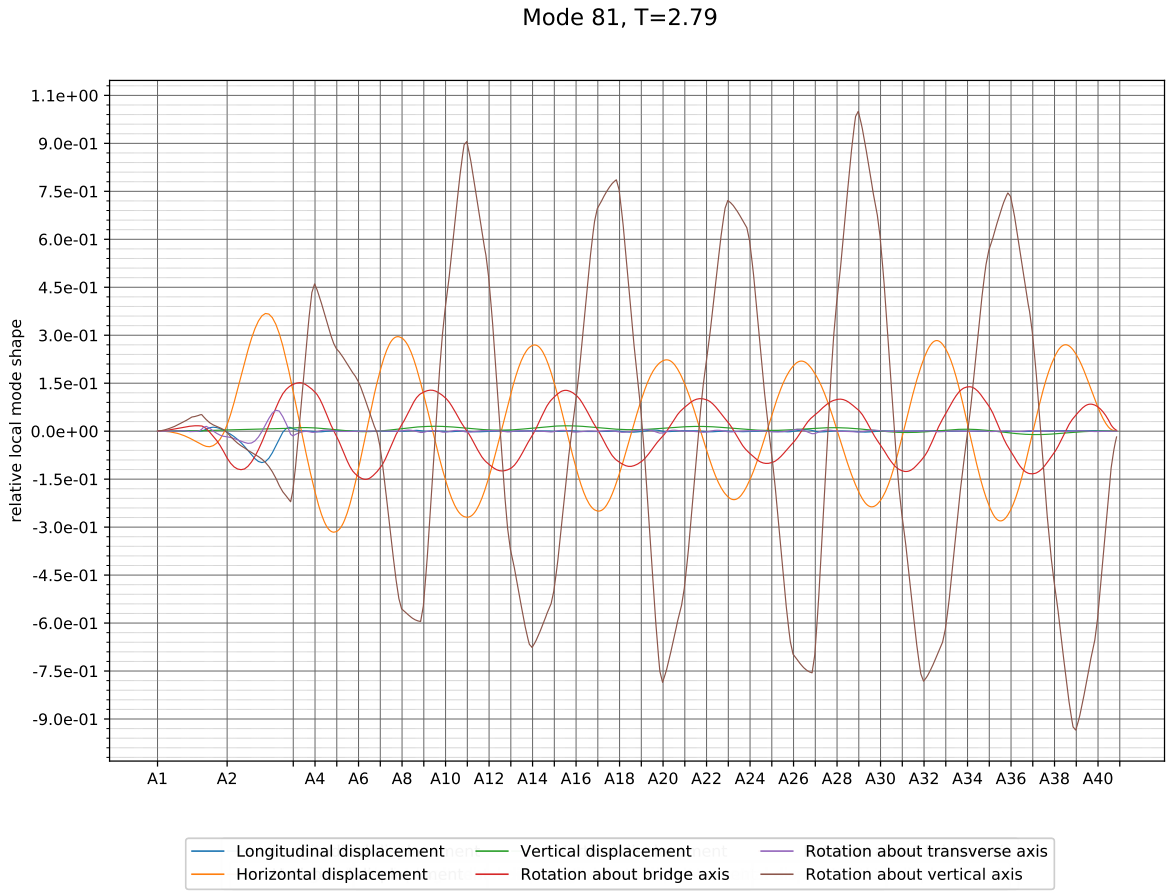
2.79 Mode 79, T=2.89



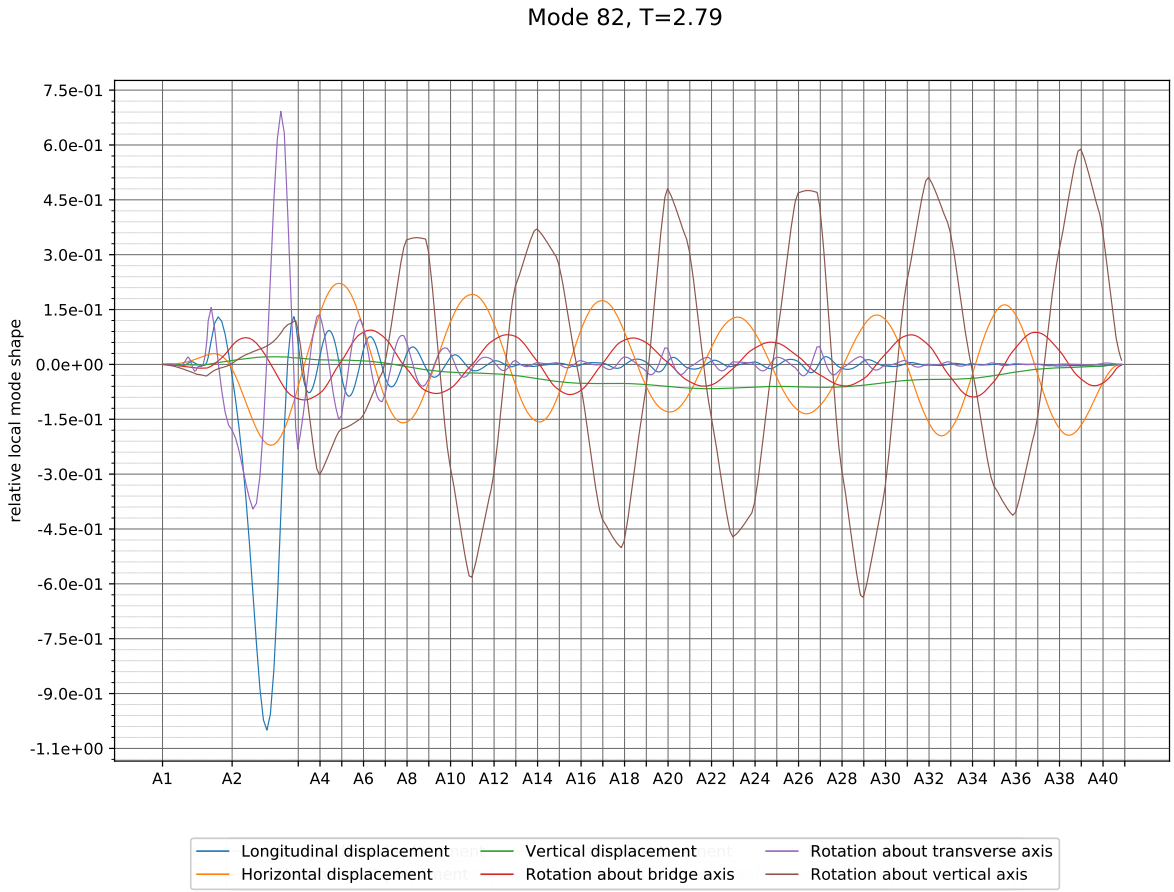
2.80 Mode 80, T=2.88



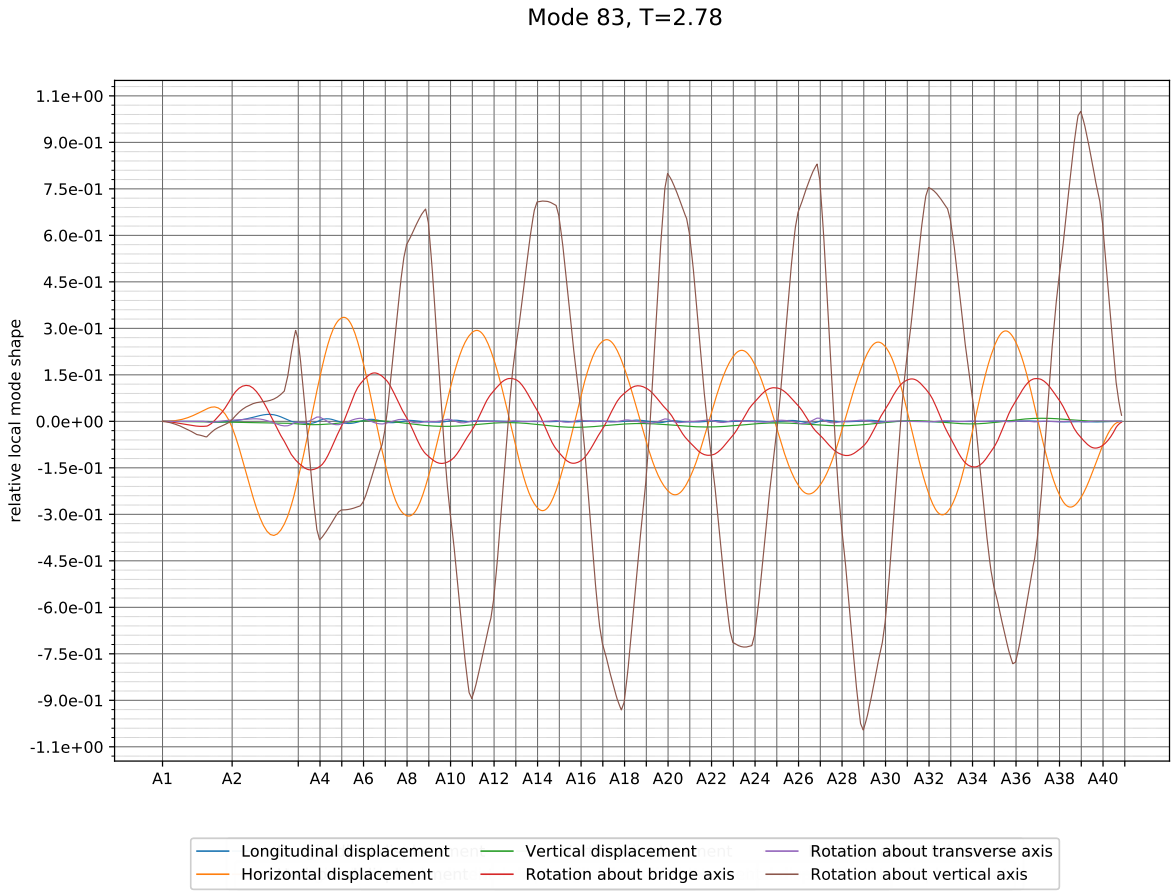
2.81 Mode 81, T=2.79



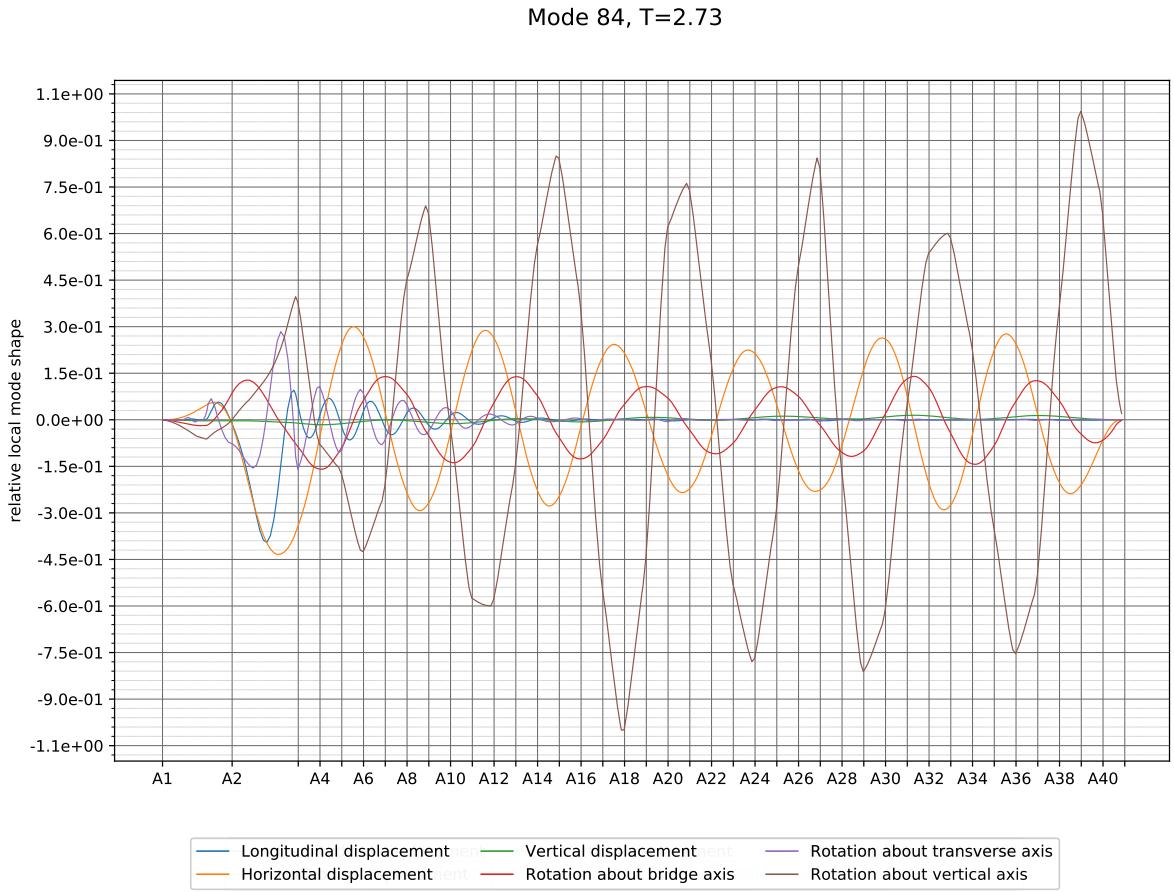
2.82 Mode 82, T=2.79



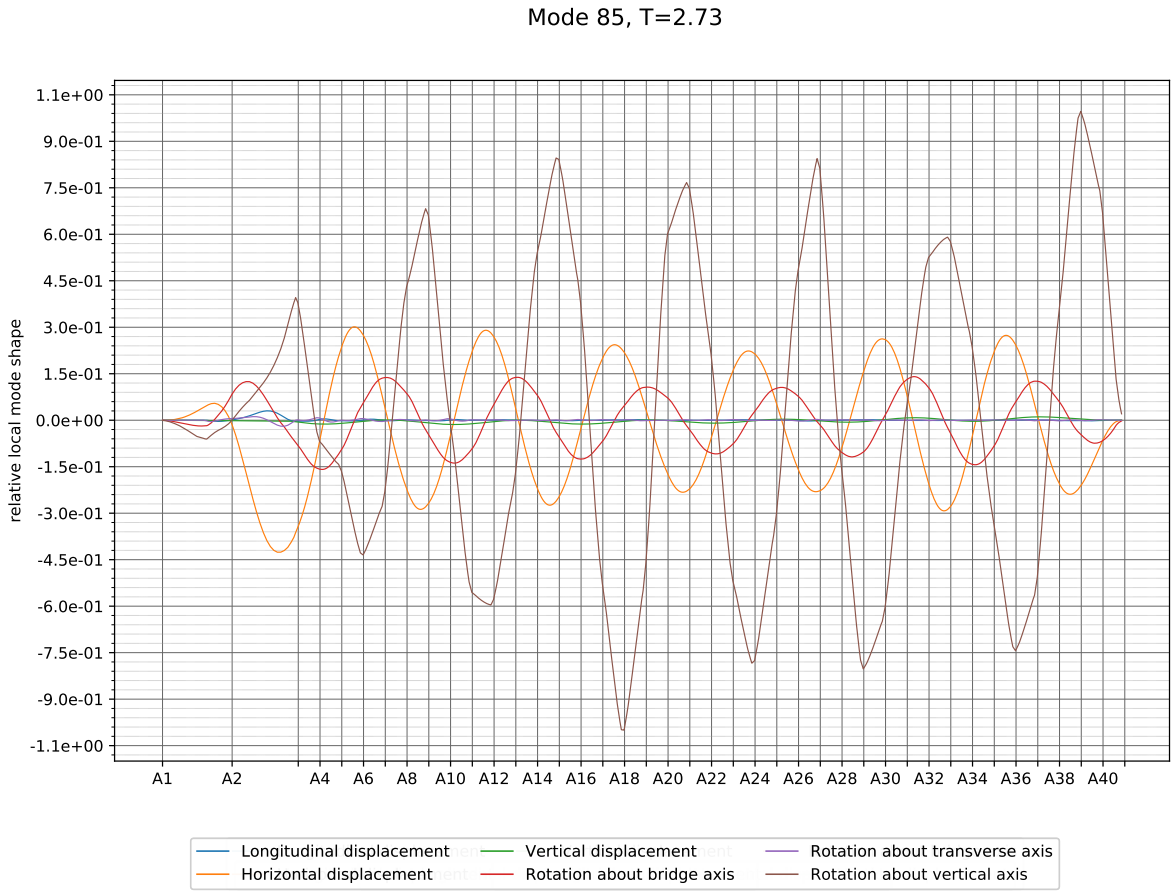
2.83 Mode 83, T=2.78



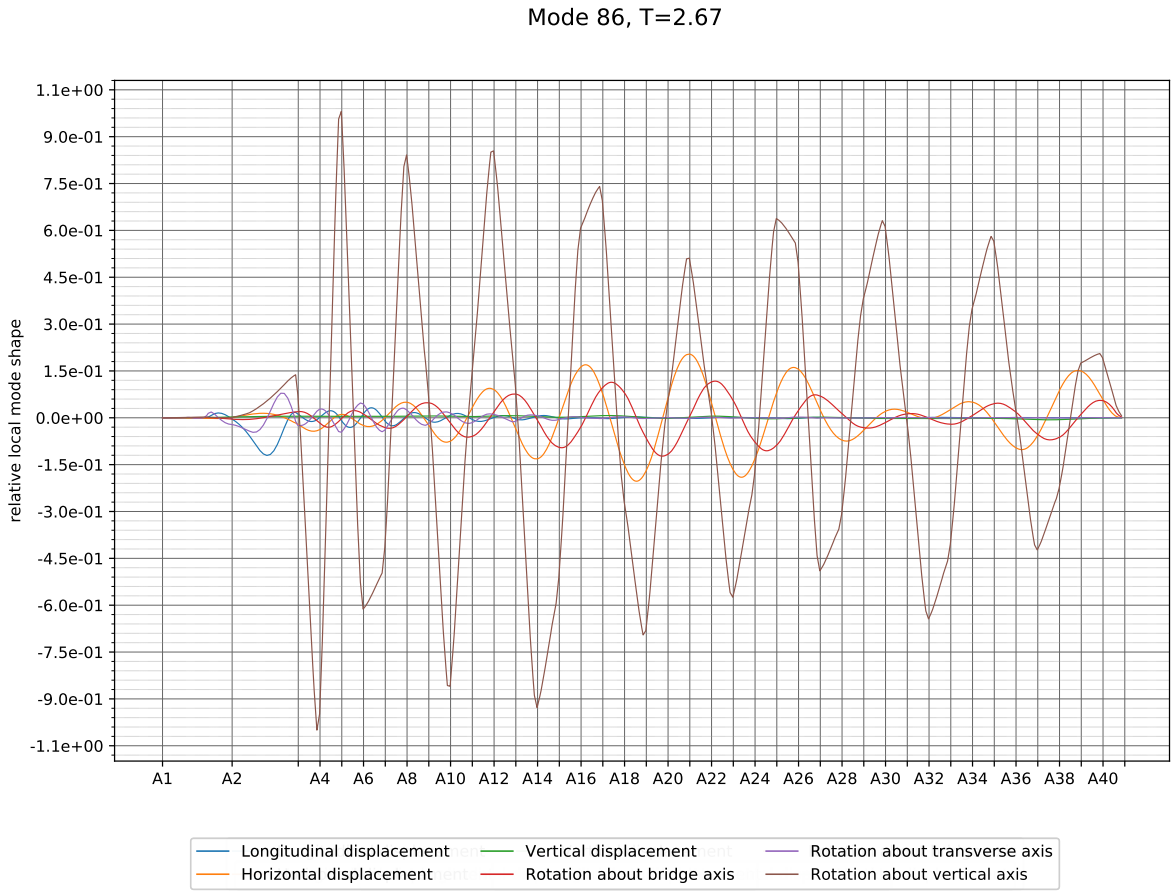
2.84 Mode 84, T=2.73



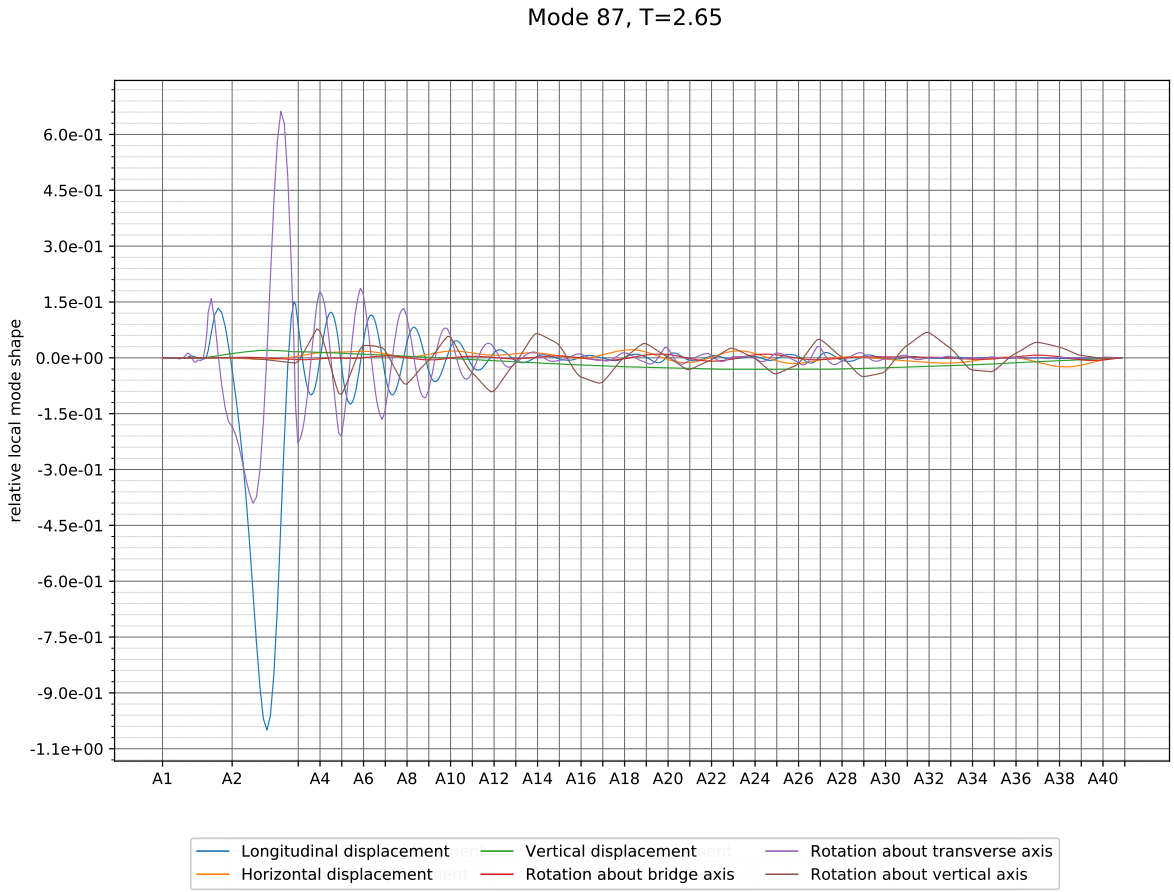
2.85 Mode 85, T=2.73



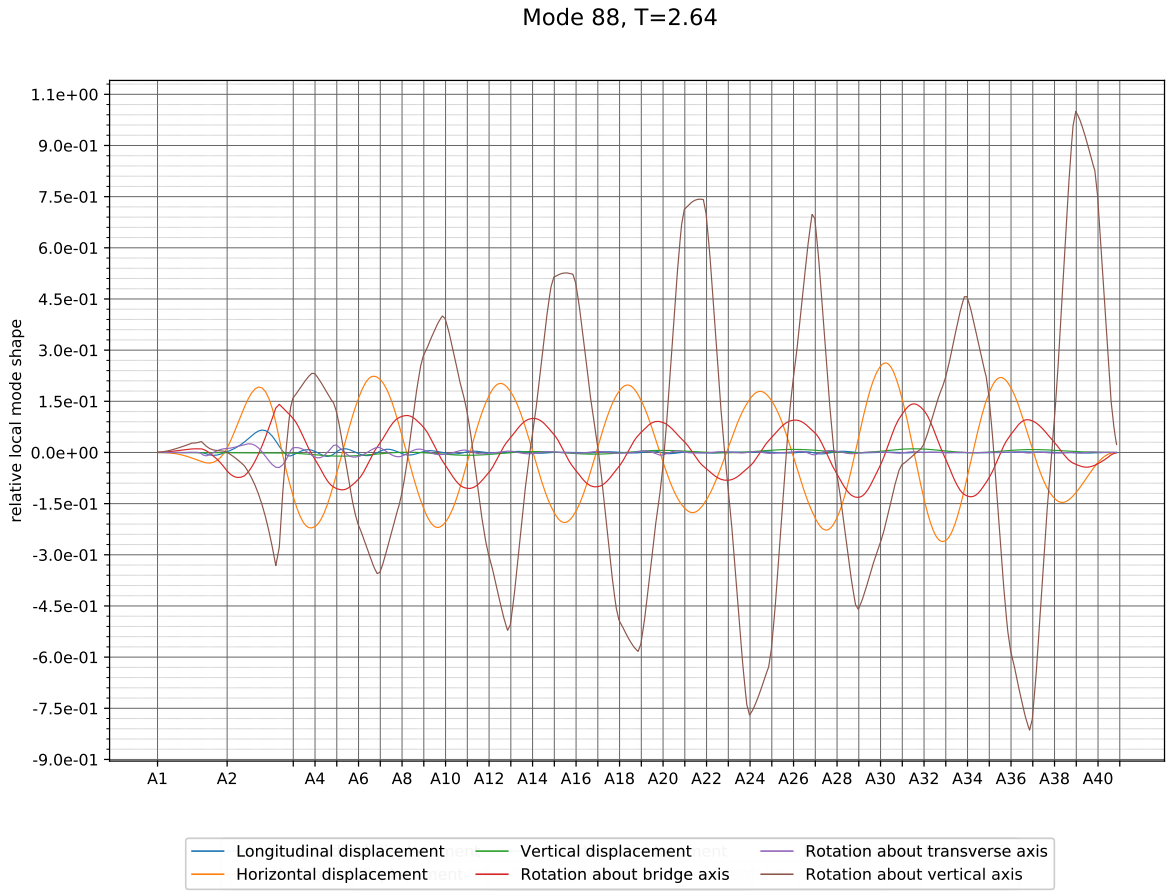
2.86 Mode 86, T=2.67



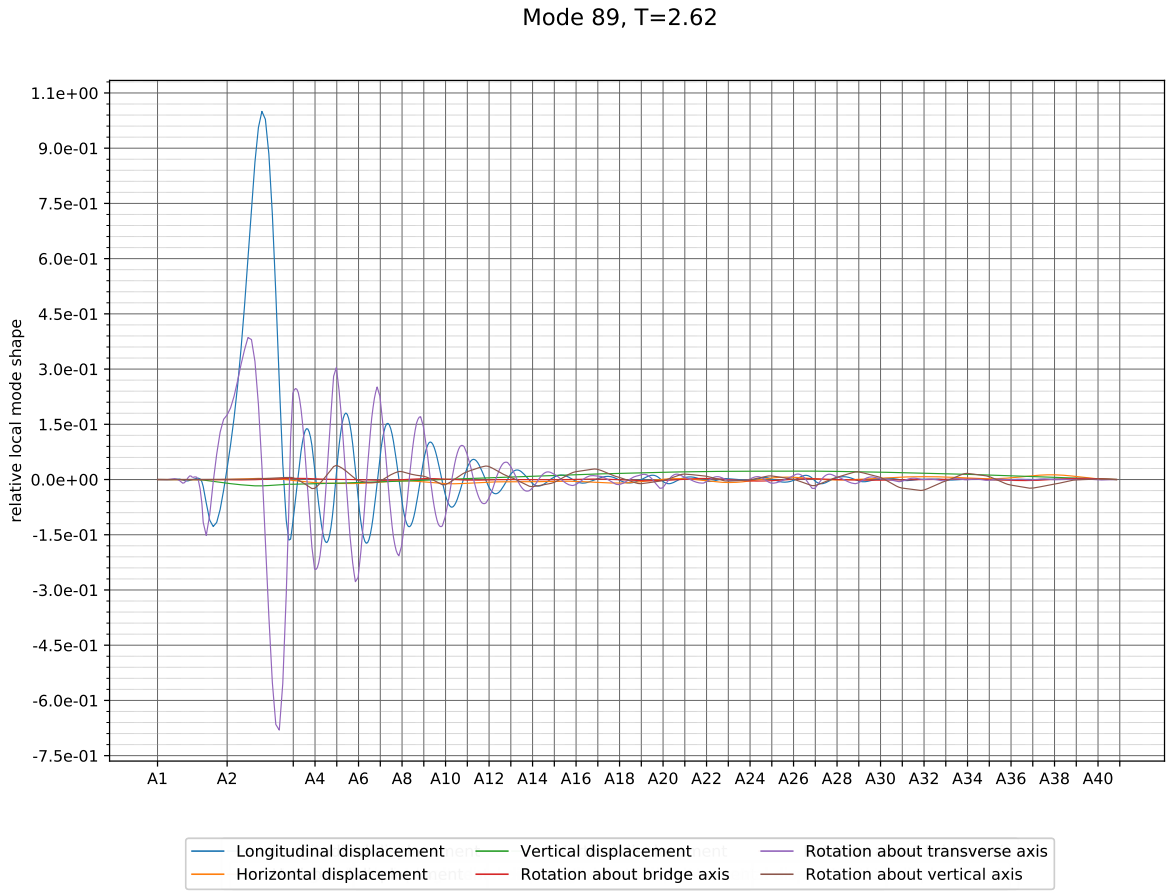
2.87 Mode 87, T=2.65



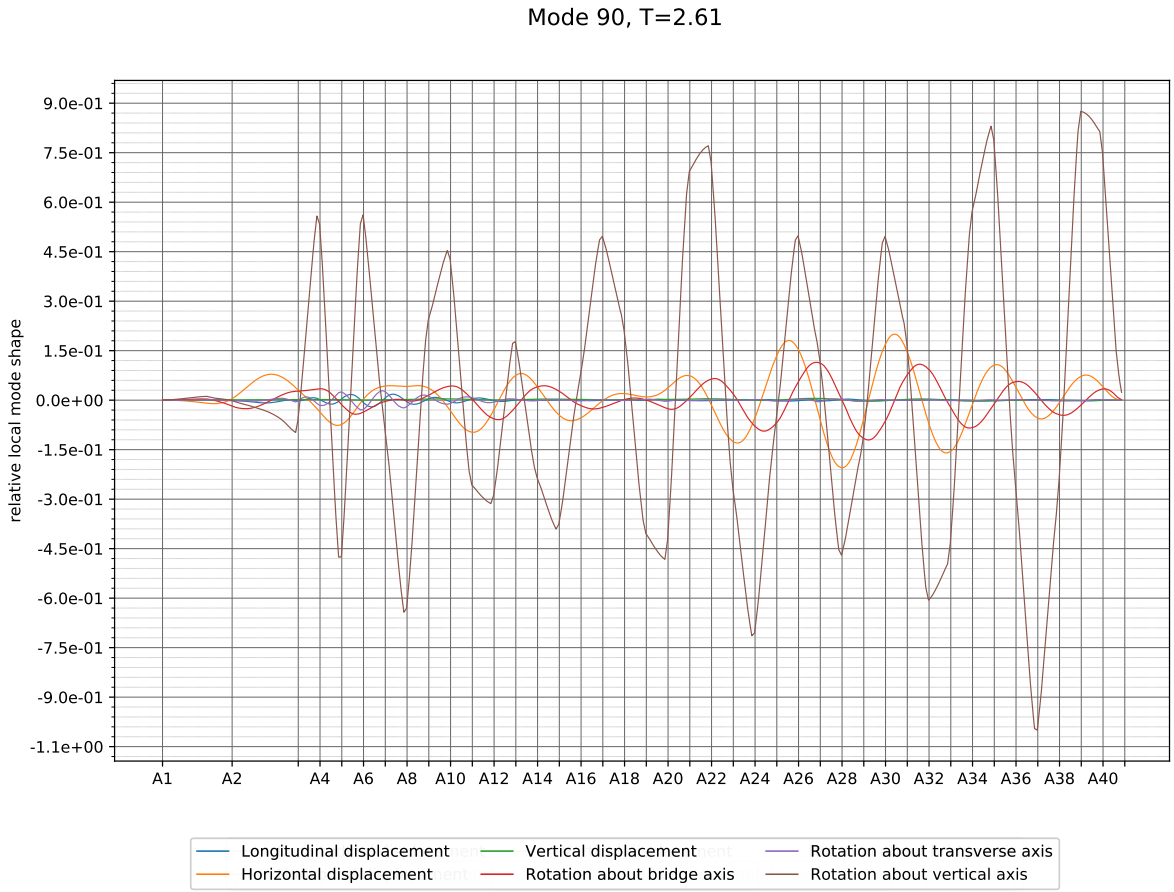
2.88 Mode 88, T=2.64



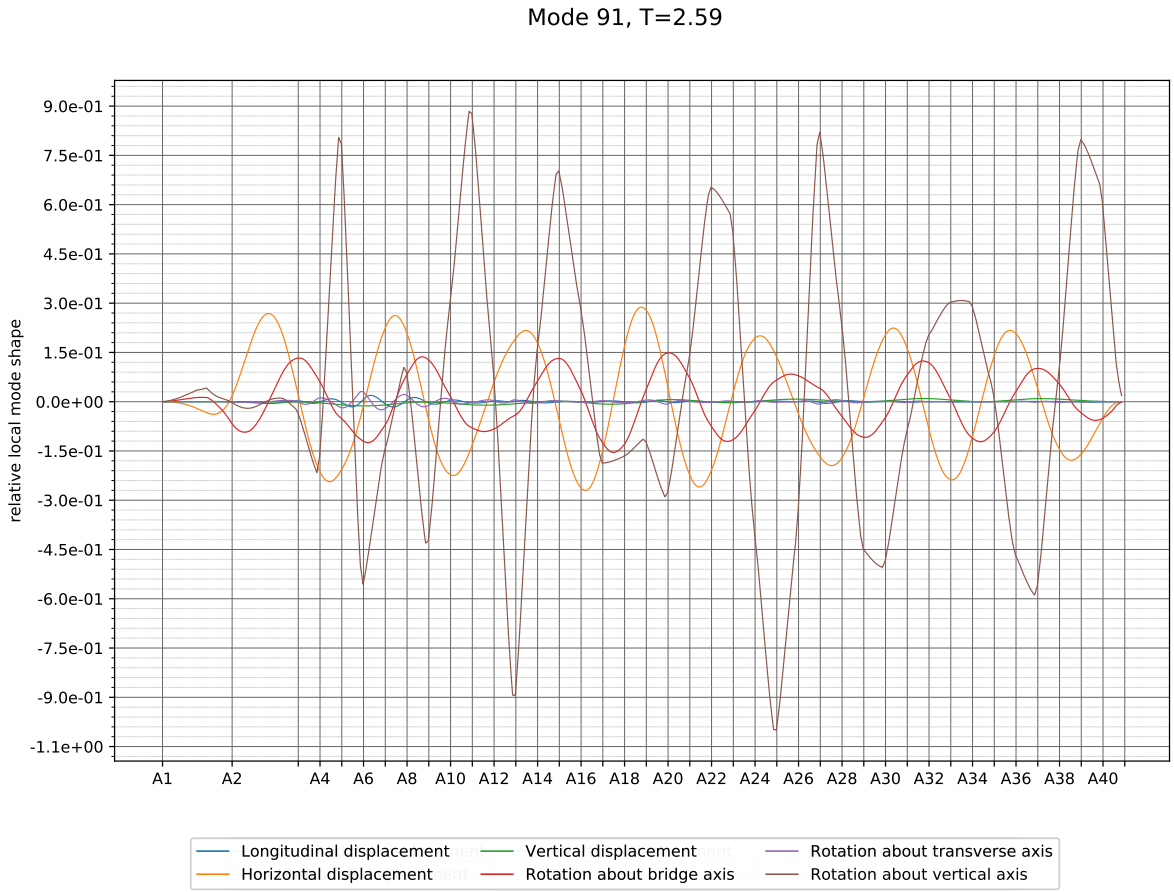
2.89 Mode 89, T=2.62



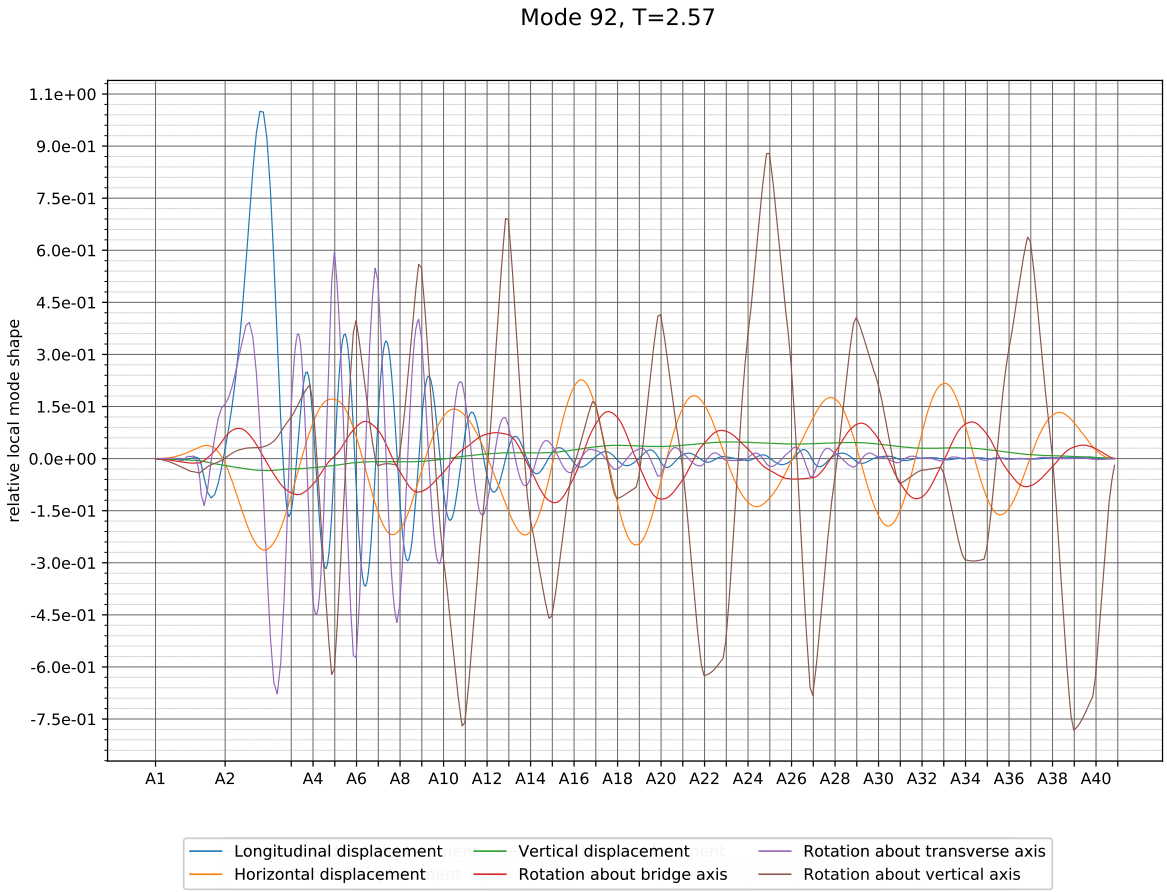
2.90 Mode 90, T=2.61



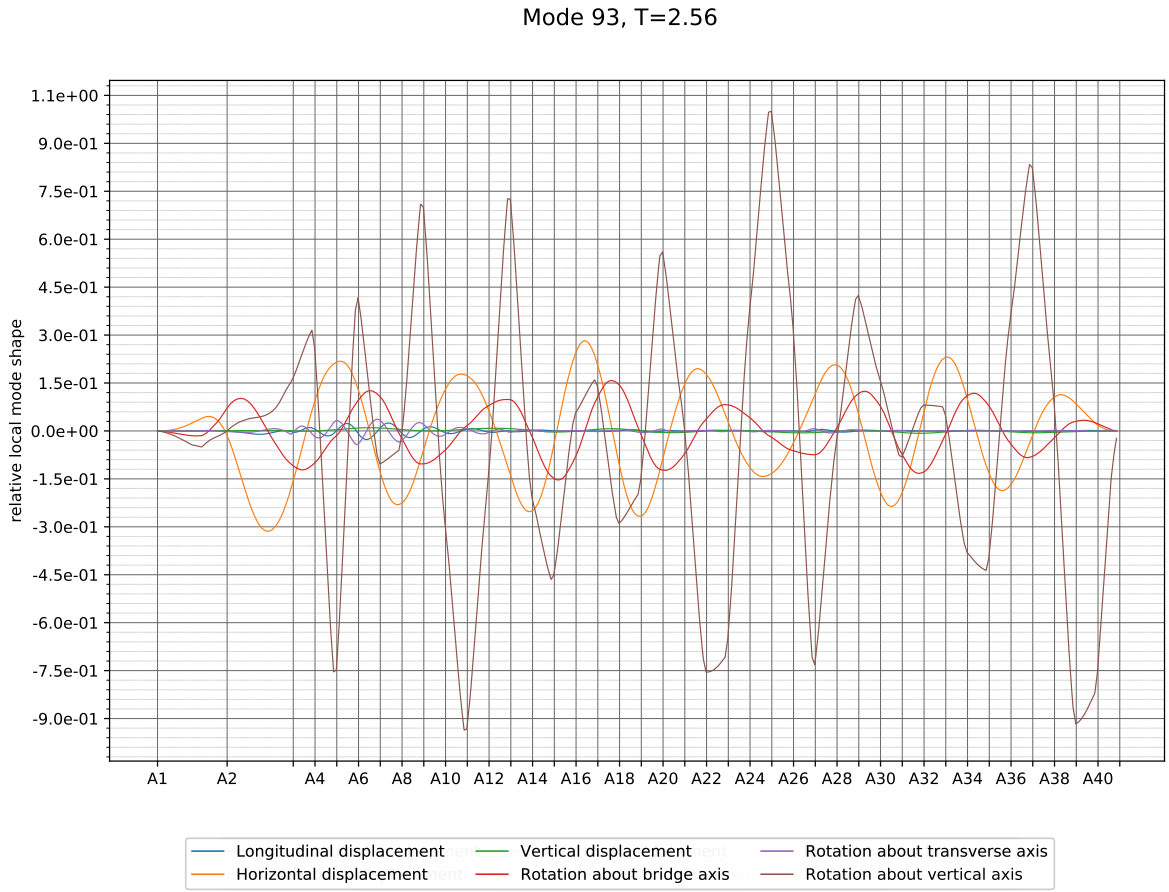
2.91 Mode 91, T=2.59



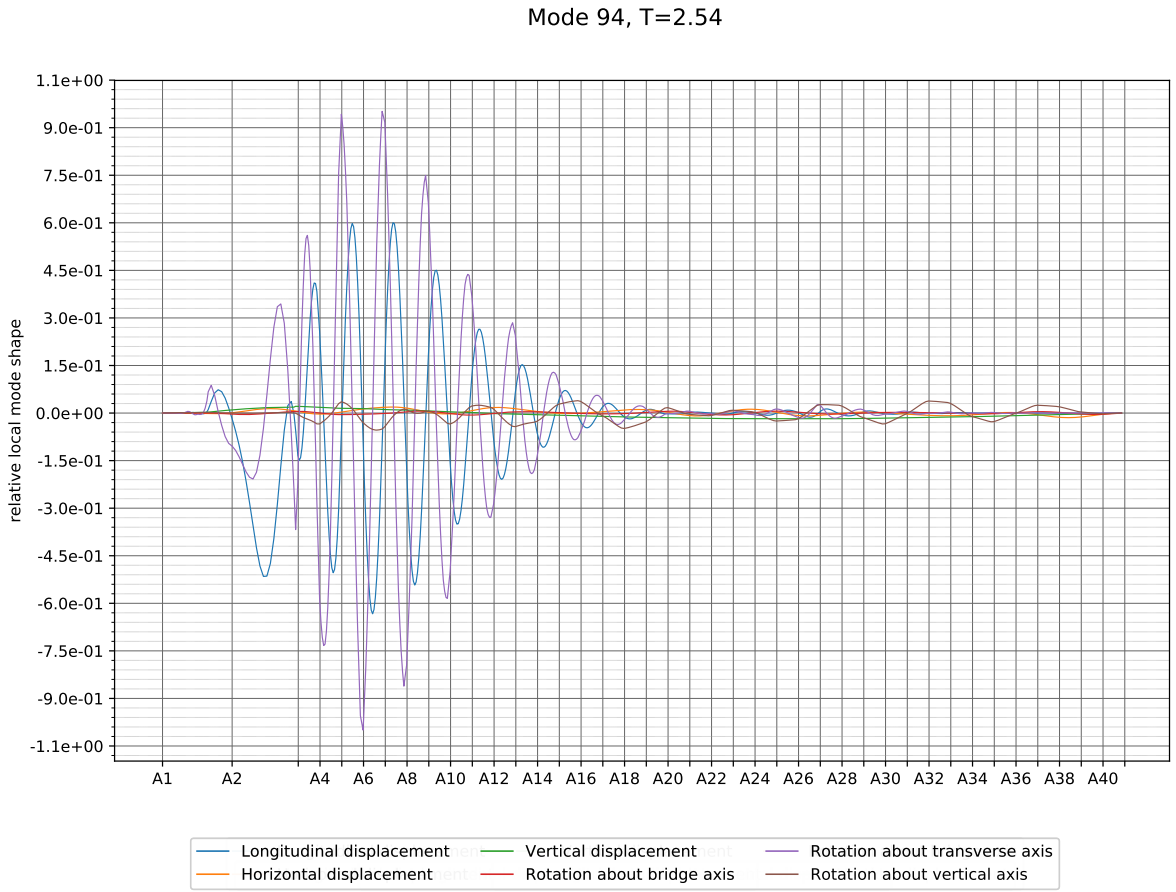
2.92 Mode 92, T=2.57



2.93 Mode 93, T=2.56

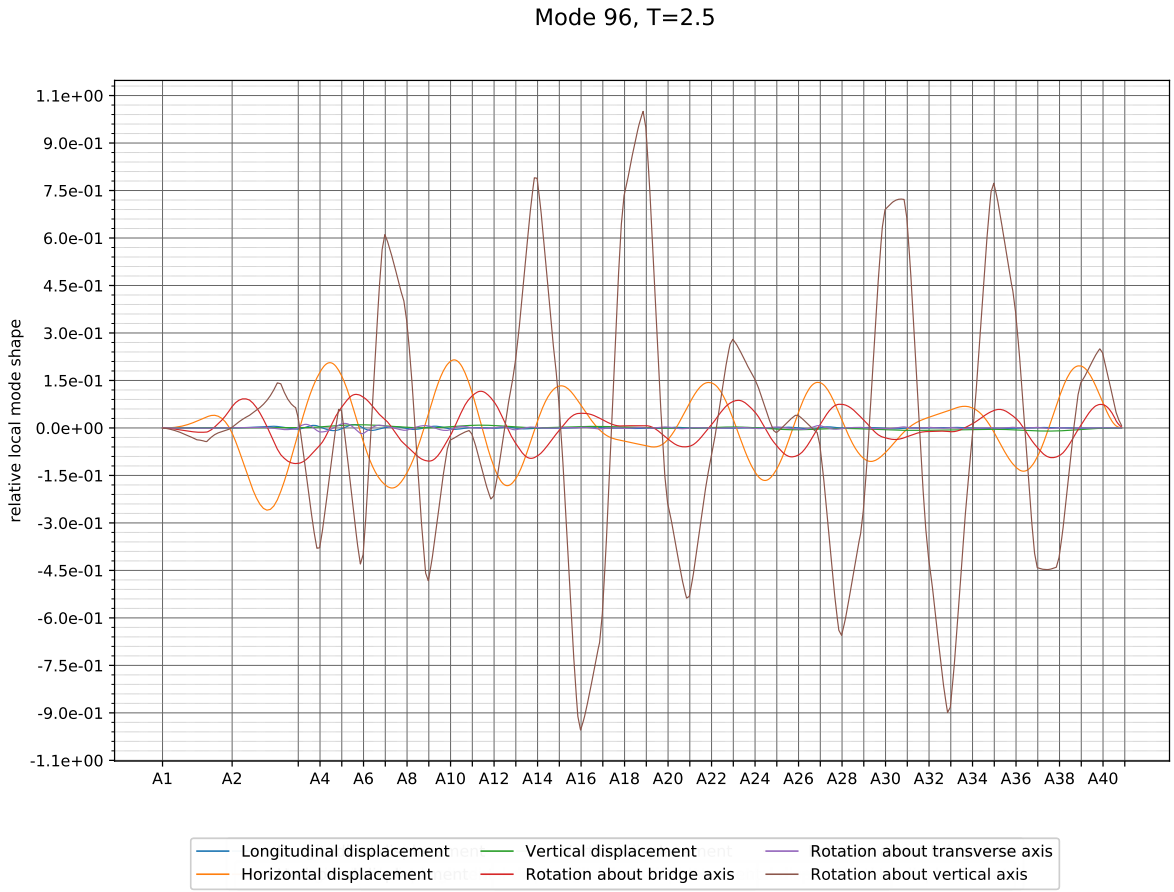


2.94 Mode 94, T=2.54

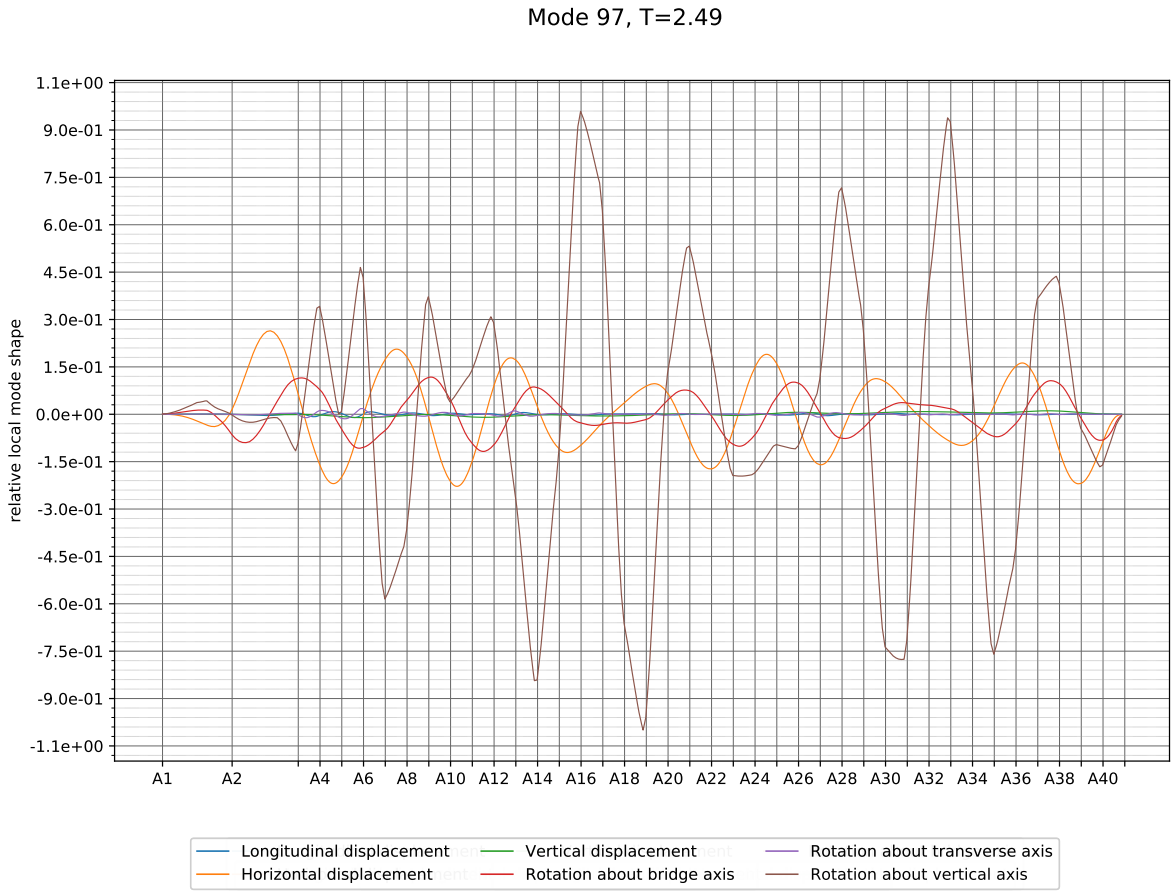


2.95 Mode 95, T=2.5

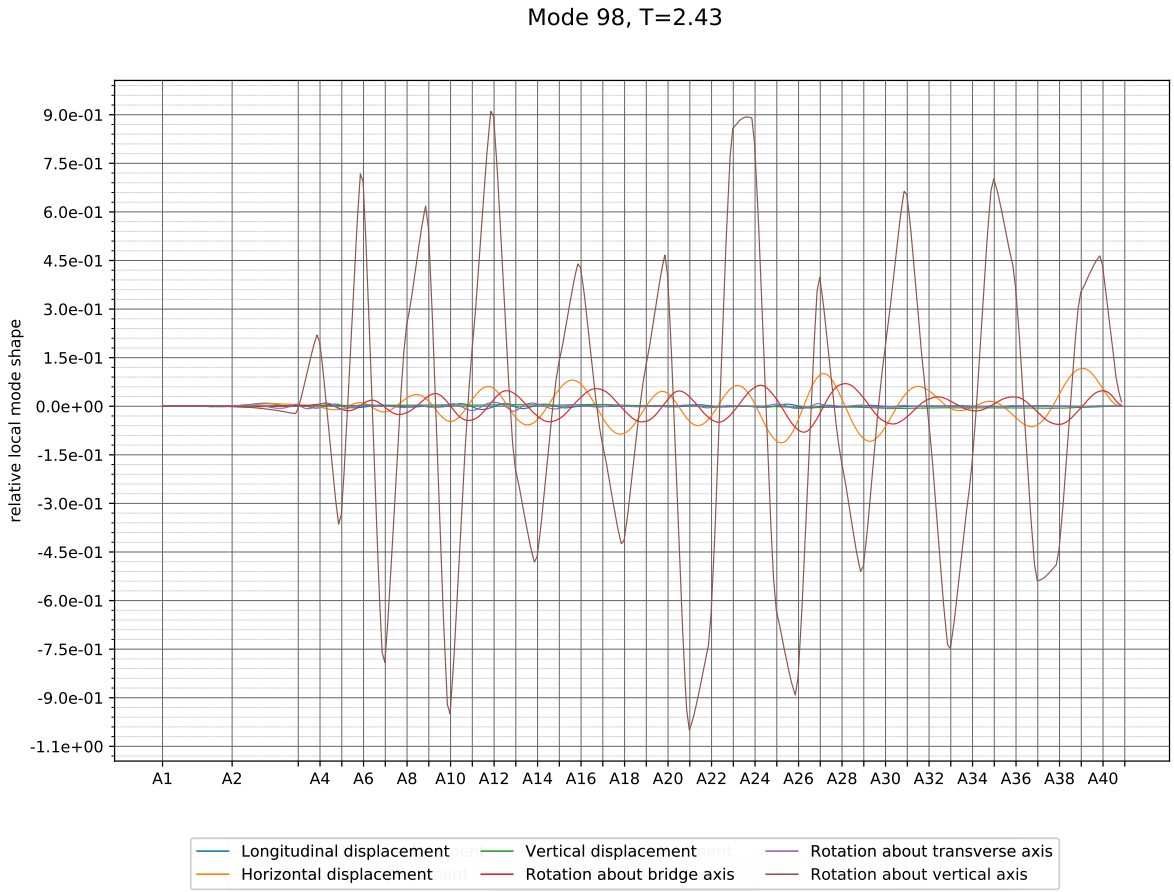
2.96 Mode 96, T=2.5



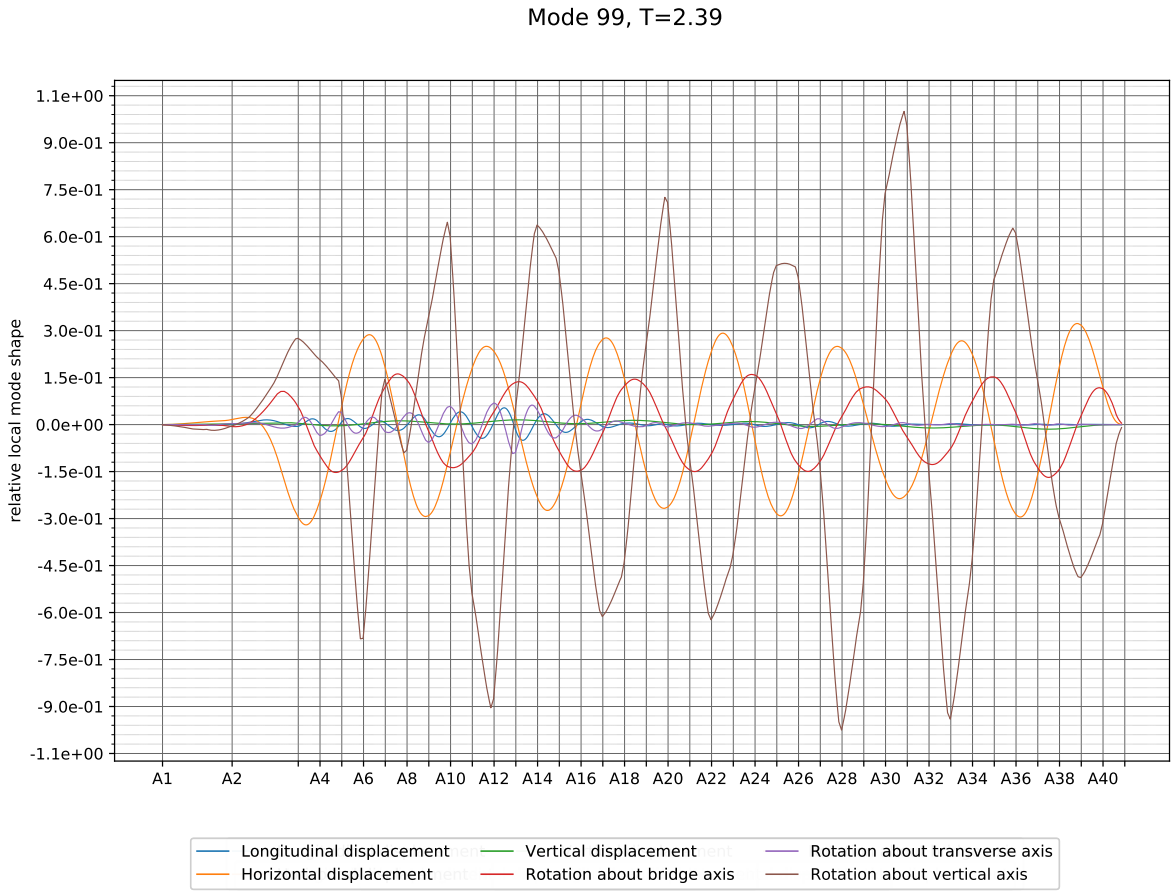
2.97 Mode 97, T=2.49



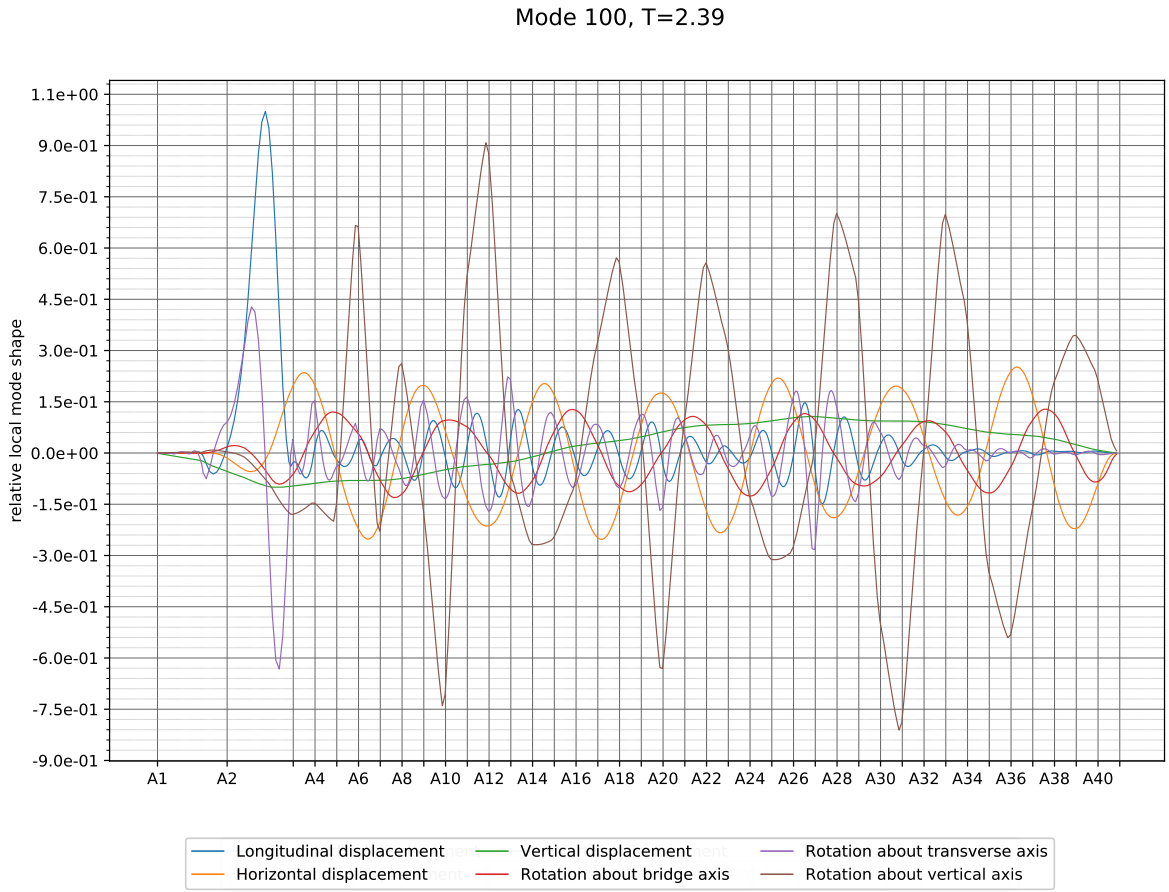
2.98 Mode 98, T=2.43



2.99 Mode 99, T=2.39



2.100 Mode 100, T=2.39



Concept development, floating bridge E39 Bjørnafjorden

Appendix G – Enclosure 2

Load combinations direct method

K12_07_PROD_load_combinations_direct

June 25, 2019

Contents

1 Load groups

1.1 Permanent

run case	Description
1	LC 1

1.2 Temperature

run case	Description
1	Min N
2	Min Qy
3	Min Qz
4	Min Mx
5	Min My
6	Min Mz
7	Max N
8	Max Qy
9	Max Qz
10	Max Mx
11	Max My
12	Max Mz

1.3 Traffic

run case	Description
1	Min N
2	Min Qy
3	Min Qz
4	Min Mx
5	Min My
6	Min Mz
7	Max N
8	Max Qy
9	Max Qz
10	Max Mx
11	Max My
12	Max Mz

1.4 Tide

run case	Description
1	LC 1
2	LC 2

1.5 Dynamic wind 1 y

run case	Description
1	From west
2	From east

1.6 Static wind 1y

run case	Description
1	From west
2	From east

1.7 Wave 1 y

run case	Description
1	Hs=1.0, Tp=4.0, dir=75
2	Hs=0.9, Tp=3.7, dir=105
3	Hs=0.9, Tp=3.7, dir=195
4	Hs=1.2, Tp=4.3, dir=315

1.8 Swell 1 y

run case	Description
1	Hs=0.22, Tp=13.44, dir=300
2	Hs=0.22, Tp=17.07, dir=300

1.9 Current

run case	Description
1	LC 1
2	LC 2
3	LC 3
4	LC 4

1.10 Dynamic wind 100 y

run case	Description
1	From west
2	From east

1.11 Static wind 100 y

run case	Description
1	From west
2	From east

1.12 Wave 100 y

run case	Description
1	Hs=2.1, Tp=5.5, dir=75
2	Hs=2.1, Tp=5.5, dir=105
3	Hs=1.4, Tp=4.6, dir=195
4	Hs=2.0, Tp=5.2, dir=315

1.13 Swell 100 y

run case	Description
1	Hs=0.34, Tp=13.44, dir=300
2	Hs=0.34, Tp=17.07, dir=300

2 Load combinations

2.1 ULS2

2.1.1 Load group info

load group	load_factor	return_period	system	restype	use_envelope
Permanent	1.20	N/A	rmbridge	static	N/A
Temperature	0.84	N/A	rmbridge	static	True
Traffic	1.35	N/A	rmbridge	static	True
Tide	1.12	100	orcaflex	static	True
Dynamic wind 1 y	1.12	1	orcaflex	timeseries	False
Static wind 1y	1.12	1	numpy	static	False
Wave 1 y	1.12	1	orcaflex	timeseries	False
Swell 1 y	1.12	1	orcaflex	timeseries	False
Current	1.12	100	orcaflex	static	True

2.1.2 Combination info

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Permanent	1	1	1	1	1	1
Temperature	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Traffic	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Tide	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Dynamic wind 1 y	2	2	1	1	1	1
Static wind 1y	2	2	1	1	1	1
Wave 1 y	1	2	3	4	3	4
Swell 1 y			1	1	2	2
Current	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope

2.2 ULS3

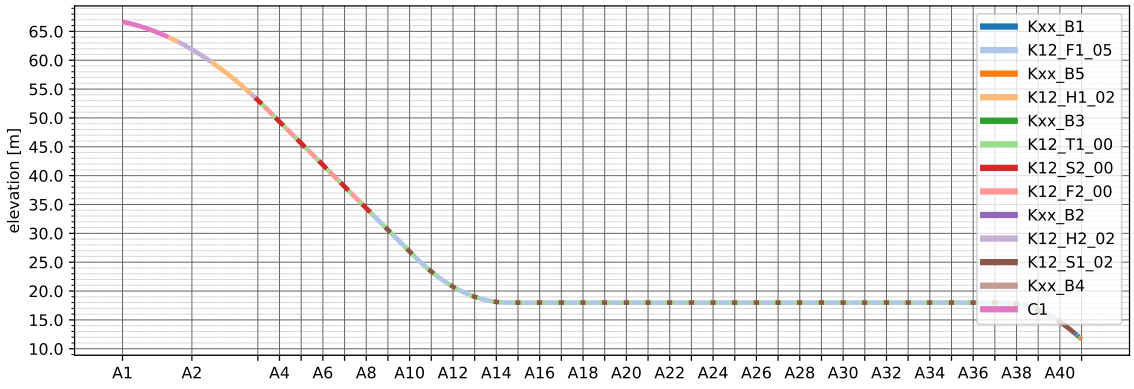
2.2.1 Load group info

load group	load_factor	return_period	system	restype	use_envelope
Permanent	1.20	N/A	rmbridge	static	N/A
Temperature	0.84	N/A	rmbridge	static	True
Tide	1.60	100	orcaflex	static	True
Dynamic wind 100 y	1.60	100	orcaflex	timeseries	False
Static wind 100 y	1.60	100	numpy	static	False
Wave 100 y	1.60	100	orcaflex	timeseries	False
Swell 100 y	1.60	100	orcaflex	timeseries	False
Current	1.60	100	orcaflex	static	True

2.2.2 Combination info

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Permanent	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Temperature	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Tide	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Dynamic wind 100 y	2	2	1	1	1	1
Static wind 100 y	2	2	1	1	1	1
Wave 100 y	1	2	3	4	3	4
Swell 100 y			1	1	2	2
Current	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope

3 Section types



4 Stress point description

Stress point	Description
Pt. A	Lower flange west
Pt. B	Upper flange west
Pt. C	Upper flange east
Pt. D	Lower flange east
Pt. A´	Knuckle west
Pt. B´	Upper flange mid
Pt. C´	Knuckle east

5 Stress coefficients - ULS

Section type	Stress point	A	W_strong	W_weak	W_torsion	A_vert	
C1	Pt. A	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. B	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. C	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. D	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. A´	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. B´	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. C´	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
K12_F1_05	Pt. A	1.2699	10.608467	-1.408093	2.252976	-0.122399	
	Pt. B	1.2699	6.275785	2.442868	2.252976	-0.083333	-
	Pt. C	1.2699	-6.260940	2.663681	2.252976	0.084034	-
	Pt. D	1.2699	-10.566118	-1.408093	2.252976	0.121655	
	Pt. A´	1.2699	6.275785	-4.198973	2.252976	-0.086207	
	Pt. B´	1.2699	46.182116	1.936649	3.003968	-0.813008	-
	Pt. C´	1.2699	-6.260940	-4.198973	2.252976	0.087719	
K12_F2_00	Pt. A	1.3310	11.224881	-1.557238	2.628472	-0.142045	
	Pt. B	1.3310	6.638782	2.463707	2.628472	-0.098039	-
	Pt. C	1.3310	-6.621120	2.672783	2.628472	0.097330	-
	Pt. D	1.3310	-11.174482	-1.557238	2.628472	0.141243	
	Pt. A´	1.3310	6.638782	-5.001431	2.628472	-0.100503	
	Pt. B´	1.3310	48.906659	1.976258	3.003968	-0.826446	-
	Pt. C´	1.3310	-6.621120	-5.001431	2.628472	0.101523	
K12_H1_02	Pt. A	1.2970	11.234910	-1.236506	1.930800	-0.102354	
	Pt. B	1.2970	6.634875	2.309572	2.574400	-0.093979	-
	Pt. C	1.2970	-6.610869	2.569574	1.930800	0.095663	-
	Pt. D	1.2970	-11.148176	-1.236506	1.930800	0.102145	
	Pt. A´	1.2970	6.634875	-5.097787	1.930800	-0.067227	
	Pt. B´	1.2970	49.219901	1.731784	2.574400	-0.699301	-
	Pt. C´	1.2970	-6.610869	-5.097787	1.930800	0.077519	
K12_H2_02	Pt. A	1.7969	15.469710	-1.928723	3.218000	-0.170940	
	Pt. B	1.7969	9.134266	2.872534	3.218000	-0.134138	-
	Pt. C	1.7969	-9.097883	3.148356	3.218000	0.133869	-
	Pt. D	1.7969	-15.365641	-1.928723	3.218000	0.170358	
	Pt. A´	1.7969	9.134266	-11.129969	3.218000	-0.107701	
	Pt. B´	1.7969	67.657707	2.228720	3.218000	-0.884956	-
	Pt. C´	1.7969	-9.097883	-11.129969	3.218000	0.109469	

Continued on n

Section type	Stress point	A	W_strong	W_weak	W_torsion	A_vert
K12_S1_02	Pt. A	1.7790	13.827655	-2.247520	3.759600	-1.926782
	Pt. B	1.7790	8.178989	2.739420	2.631720	-0.312500
	Pt. C	1.7790	-8.159645	2.936487	2.631720	0.390625
	Pt. D	1.7790	-13.772455	-2.247520	3.759600	1.814882
	Pt. A´	1.7790	8.178989	-9.765086	2.631720	-0.259740
	Pt. B´	1.7790	60.196292	2.260978	3.007680	-0.884956
	Pt. C´	1.7790	-8.159645	-9.765086	2.631720	0.268817
K12_S2_00	Pt. A	1.8829	15.265004	-2.396543	4.135560	-1.633987
	Pt. B	1.8829	9.023776	2.764809	3.007680	-0.306513
	Pt. C	1.8829	-8.998449	2.957340	3.007680	0.318725
	Pt. D	1.8829	-15.192667	-2.396543	4.135560	1.589825
	Pt. A´	1.8829	9.023776	-11.414044	3.759600	-0.342466
	Pt. B´	1.8829	66.537411	2.293917	3.007680	-0.892857
	Pt. C´	1.8829	-8.998449	-11.414044	3.759600	0.351000
K12_T1_00	Pt. A	1.5210	12.346024	-1.871555	3.007840	-0.289855
	Pt. B	1.5210	7.302985	2.627541	2.631860	-0.144092
	Pt. C	1.5210	-7.286791	2.833805	2.631860	0.146843
	Pt. D	1.5210	-12.299813	-1.871555	3.007840	0.287356
	Pt. A´	1.5210	7.302985	-6.757167	2.631860	-0.136293
	Pt. B´	1.5210	53.723706	2.137067	3.007840	-0.877193
	Pt. C´	1.5210	-7.286791	-6.757167	2.631860	0.139110
Kxx_B1	Pt. A	2.0900	17.100000	-2.760000	4.870000	0.320000
	Pt. B	2.0900	11.900000	3.390000	4.870000	0.320000
	Pt. C	2.0900	-11.900000	3.390000	4.870000	0.320000
	Pt. D	2.0900	-17.100000	-2.760000	4.870000	0.320000
	Pt. A´	2.0900	11.900000	-6.410000	4.870000	0.320000
	Pt. B´	2.0900	1000000.000000	2.760000	4.870000	0.320000
	Pt. C´	2.0900	-11.900000	-6.410000	4.870000	0.320000
Kxx_B2	Pt. A	2.2800	18.900000	-3.160000	5.500000	0.320000
	Pt. B	2.2800	14.800000	3.680000	5.500000	0.320000
	Pt. C	2.2800	-14.800000	3.680000	5.500000	0.320000
	Pt. D	2.2800	-18.900000	-3.160000	5.500000	0.320000
	Pt. A´	2.2800	14.800000	-5.040000	5.500000	0.320000
	Pt. B´	2.2800	1000000.000000	2.950000	5.500000	0.320000
	Pt. C´	2.2800	-14.800000	-5.040000	5.500000	0.320000
Kxx_B3	Pt. A	2.8000	24.400000	-4.240000	9.200000	0.400000
	Pt. B	2.8000	19.400000	4.570000	9.200000	0.400000
	Pt. C	2.8000	-19.400000	4.570000	9.200000	0.400000
	Pt. D	2.8000	-24.400000	-4.240000	9.200000	0.400000
	Pt. A´	2.8000	19.400000	-4.240000	9.200000	0.400000
	Pt. B´	2.8000	1000000.000000	3.690000	9.200000	0.400000
	Pt. C´	2.8000	-19.400000	-4.240000	9.200000	0.400000
Kxx_B4	Pt. A	3.3400	28.200000	-5.240000	9.900000	0.480000
	Pt. B	3.3400	24.800000	5.590000	9.900000	0.480000
	Pt. C	3.3400	-24.800000	5.590000	9.900000	0.480000
	Pt. D	3.3400	-28.200000	-5.240000	9.900000	0.480000
	Pt. A´	3.3400	24.800000	-4.510000	9.900000	0.480000
	Pt. B´	3.3400	1000000.000000	4.550000	9.900000	0.480000
	Pt. C´	3.3400	-24.800000	-4.510000	9.900000	0.480000
Kxx_B5	Pt. A	3.4800	35.600000	-5.580000	10.400000	0.480000
	Pt. B	3.4800	25.700000	5.930000	10.400000	0.480000

Continued on n

Section type	Stress point	A	W_strong	W_weak	W_torsion	A_vert
	Pt. C	3.4800	-25.700000	5.930000	10.400000	0.480000
	Pt. D	3.4800	-35.600000	-5.980000	10.400000	0.480000
	Pt. A´	3.4800	25.700000	-4.800000	10.400000	0.480000
	Pt. B´	3.4800	1000000.000000	4.820000	10.400000	0.480000
	Pt. C´	3.4800	-25.700000	-4.820000	10.400000	0.480000

6 Capacity check parameters - Method 1

	K12_F1_05	K12_F2_00	K12_H1_02	K12_H2_02	K12_S1_02	K12_S2_00	K12_T1_00
Aeff_c	1.004000	1.049000	1.032000	1.521000	1.451000	1.552000	1.240000
Aeff_t	1.269900	1.331000	1.297000	1.796900	1.779000	1.882900	1.521000
ew_N_c	-0.064000	-0.071000	-0.057000	-0.005000	0.020000	0.030000	-0.008000
ew_N_t	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
es_N_c	0.010000	-0.016000	-0.004000	0.000000	0.018000	0.007000	0.012000
es_N_t	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W_pos_weak	1.077681	1.185575	0.940834	1.653827	1.903196	2.054337	1.540270
W_neg_weak	-1.621417	-1.653886	-1.460815	-1.916000	-1.872232	-1.905601	-1.771596
W_pos_strong	5.305701	5.584846	5.676491	8.101229	7.088986	7.878492	6.283661
W_neg_strong	-5.305701	-5.584846	-5.676491	-8.101229	-7.088986	-7.878492	-6.283661

7 Capacity check parameters - Method 2

		K12_F1_05	K12_F2_00	K12_H1_02	K12_H2_02	K12_S1_02	K12_S2_00	K12_T
Pt. A	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	1.0780	1.186	0.941	1.6540	1.903	2.0540	
	W_neg_weak	1.3900	1.530	1.220	1.9000	2.193	2.3360	
	W_pos_strong	-10.5080	-11.114	-11.119	-15.2950	-13.706	-15.0860	-1
	W_neg_strong	-8.6320	-9.080	-9.271	-13.3380	-11.596	-12.9240	-1
Pt. B	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	-2.4270	-2.446	-2.257	-2.8260	-2.719	-2.7400	
	W_neg_weak	-2.0000	-2.020	-1.870	-2.3900	-2.231	-2.2620	
	W_pos_strong	-5.9590	-6.293	-6.320	-8.7840	-7.826	-8.6350	
	W_neg_strong	-5.3060	-5.585	-5.676	-8.1010	-7.089	-7.8780	
Pt. C	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	

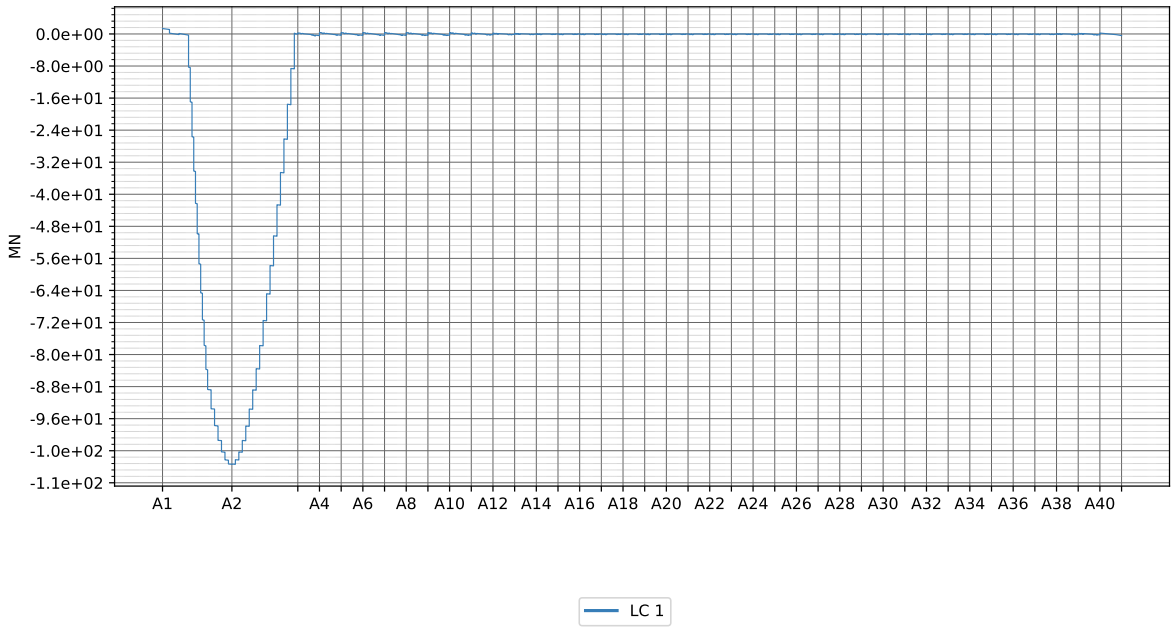
Continued on next

		K12_F1_05	K12_F2_00	K12_H1_02	K12_H2_02	K12_S1_02	K12_S2_00	K12_T
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	-2.6930	-2.697	-2.563	-3.1220	-2.935	-2.9480	
	W_neg_weak	-2.1600	-2.170	-2.050	-2.6000	-2.376	-2.4050	
	W_pos_strong	5.3060	5.585	5.676	8.1010	7.089	7.8780	
	W_neg_strong	5.9590	6.293	6.320	8.7840	7.826	8.6350	
Pt. D	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	1.0780	1.186	0.941	1.6540	1.903	2.0540	
	W_neg_weak	1.3900	1.530	1.220	1.9000	2.193	2.3360	
	W_pos_strong	8.6320	9.080	9.271	13.3380	11.596	12.9240	
	W_neg_strong	10.5080	11.114	11.119	15.2950	13.706	15.0860	
Pt. A´	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	2.7490	3.160	3.064	7.3140	6.670	7.7800	
	W_neg_weak	4.9100	5.910	6.300	15.1700	13.179	16.1030	
	W_pos_strong	-5.9590	-6.293	-6.320	-8.7840	-7.826	-8.6350	
	W_neg_strong	-5.3060	-5.585	-5.676	-8.1010	-7.089	-7.8780	
Pt. B´	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	-1.8520	-1.596	-1.639	-2.1740	-2.208	-2.2400	
	W_neg_weak	-1.6200	-1.650	-1.460	-1.9200	-1.872	-1.9060	
	W_pos_strong	-71.1490	-76.604	-71.902	-87.5220	-84.984	-90.2710	
	W_neg_strong	-28.7950	-28.795	-31.414	-47.5770	-39.927	-45.1170	
Pt. C´	Aeff_c	1.0040	1.049	1.032	1.5210	1.451	1.5520	
	Aeff_t	1.2699	1.331	1.297	1.7969	1.779	1.8829	
	ew_N_c	-0.0640	-0.071	-0.057	-0.0050	0.020	0.0300	
	ew_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	es_N_c	0.0100	-0.016	-0.004	0.0000	0.018	0.0070	
	es_N_t	0.0000	0.000	0.000	0.0000	0.000	0.0000	
	W_pos_weak	2.7490	3.160	3.064	7.3140	6.670	7.7800	
	W_neg_weak	4.9100	5.910	6.300	15.1700	13.179	16.1030	
	W_pos_strong	5.3060	5.585	5.676	8.1010	7.089	7.8780	
	W_neg_strong	5.9590	6.293	6.320	8.7840	7.826	8.6350	

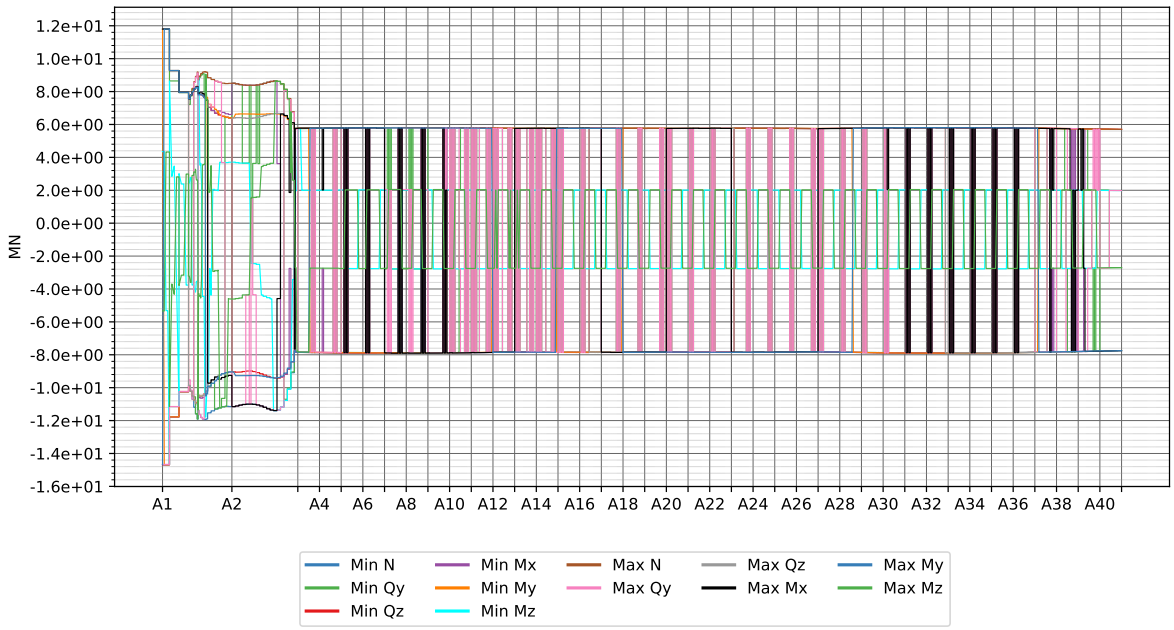
8 Results per load group (characteristic values)

8.1 Axial force

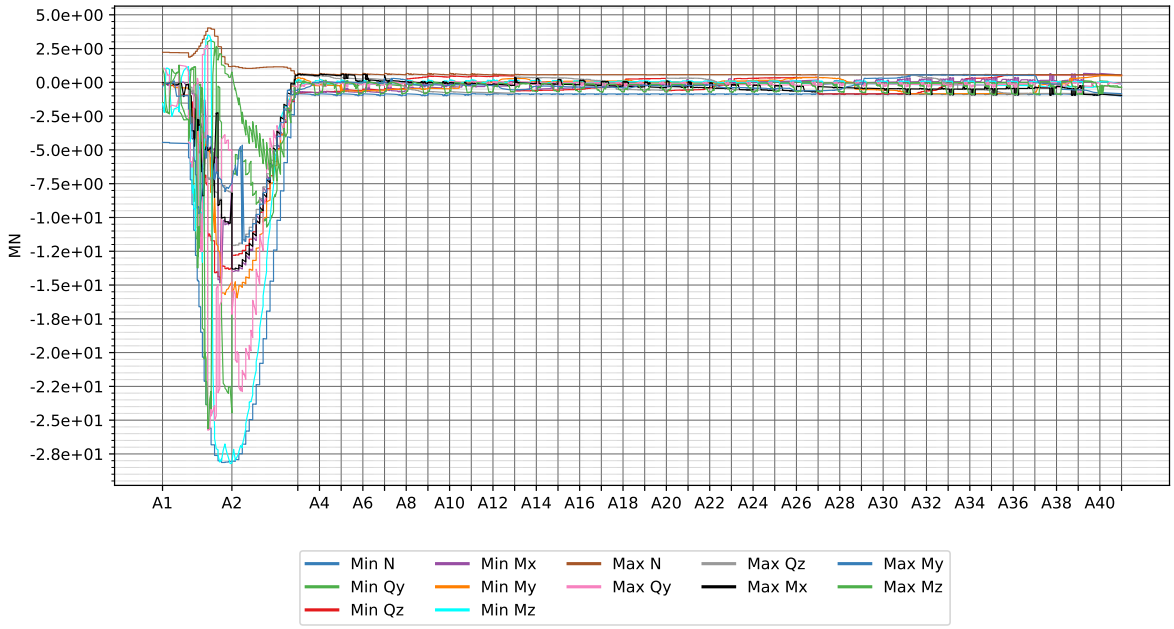
8.1.1 Permanent



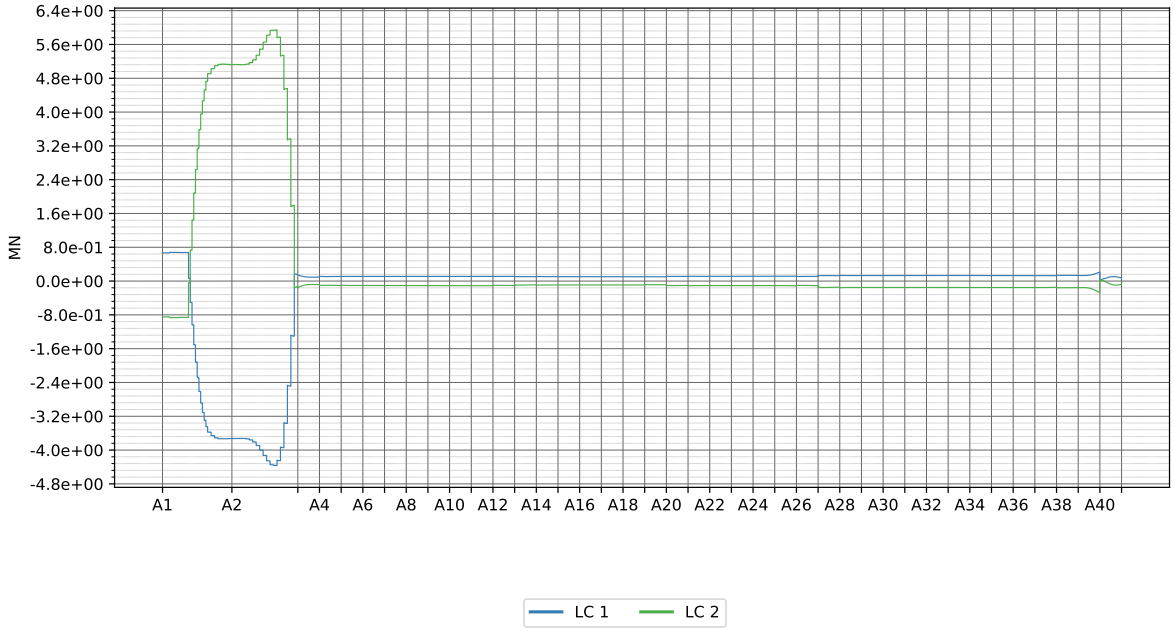
8.1.2 Temperature



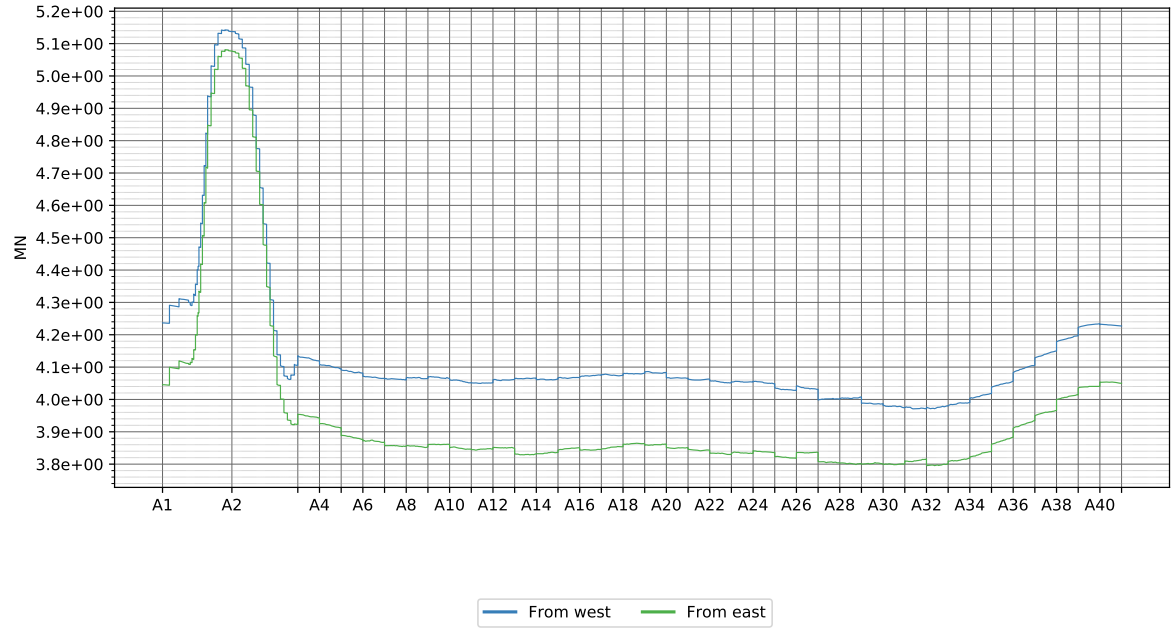
8.1.3 Traffic



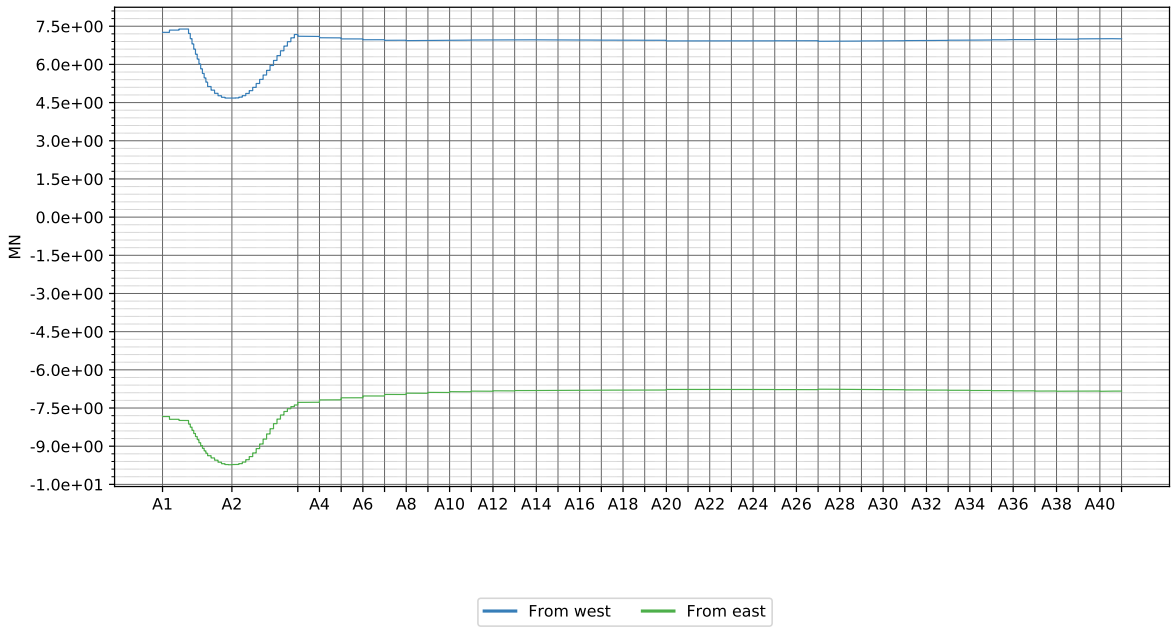
8.1.4 Tide



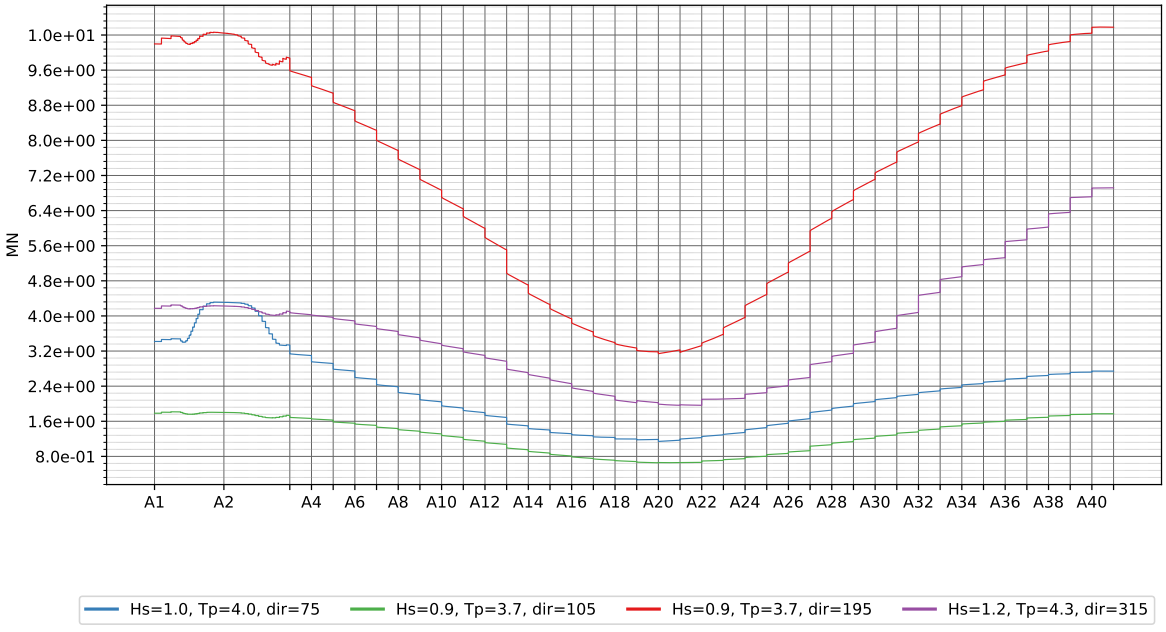
8.1.5 Dynamic wind 1 y



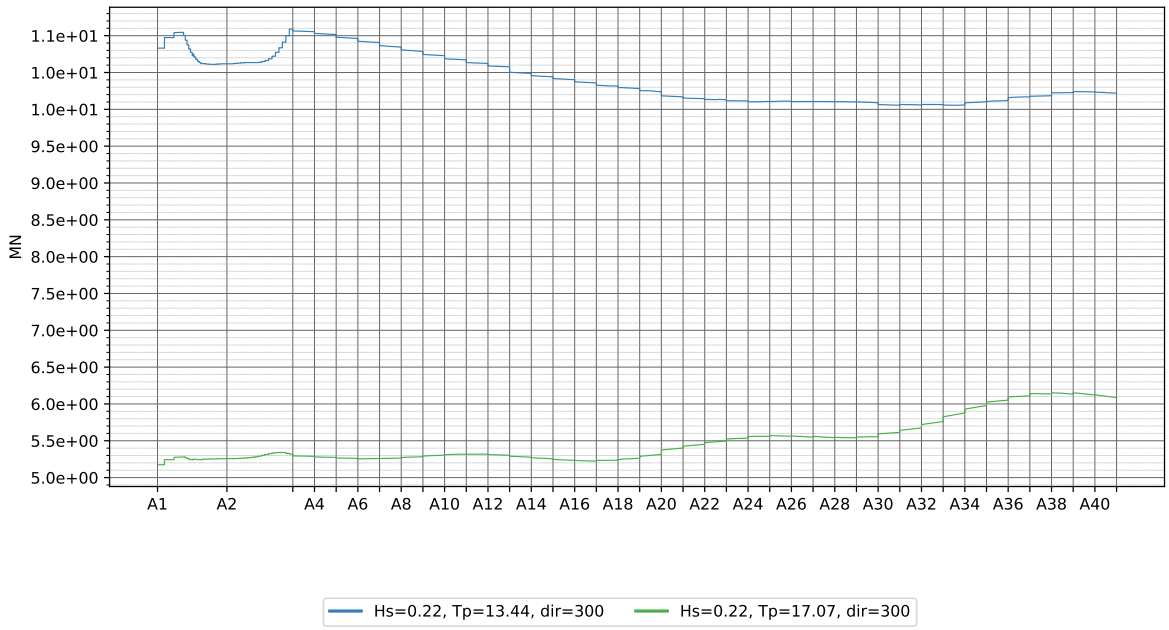
8.1.6 Static wind 1y



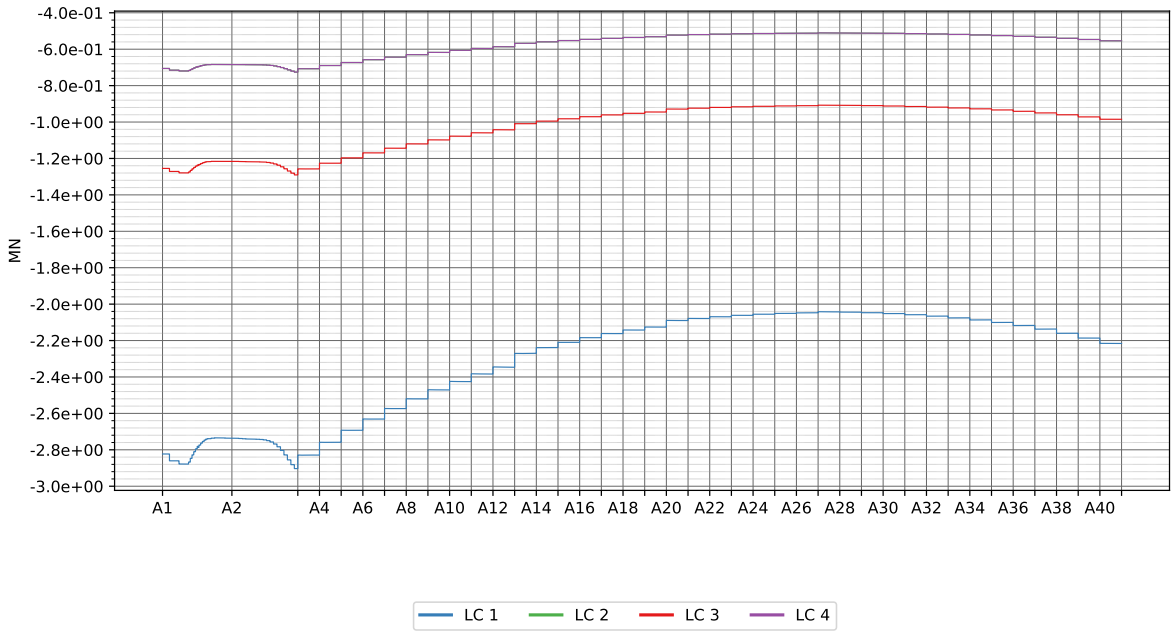
8.1.7 Wave 1 y



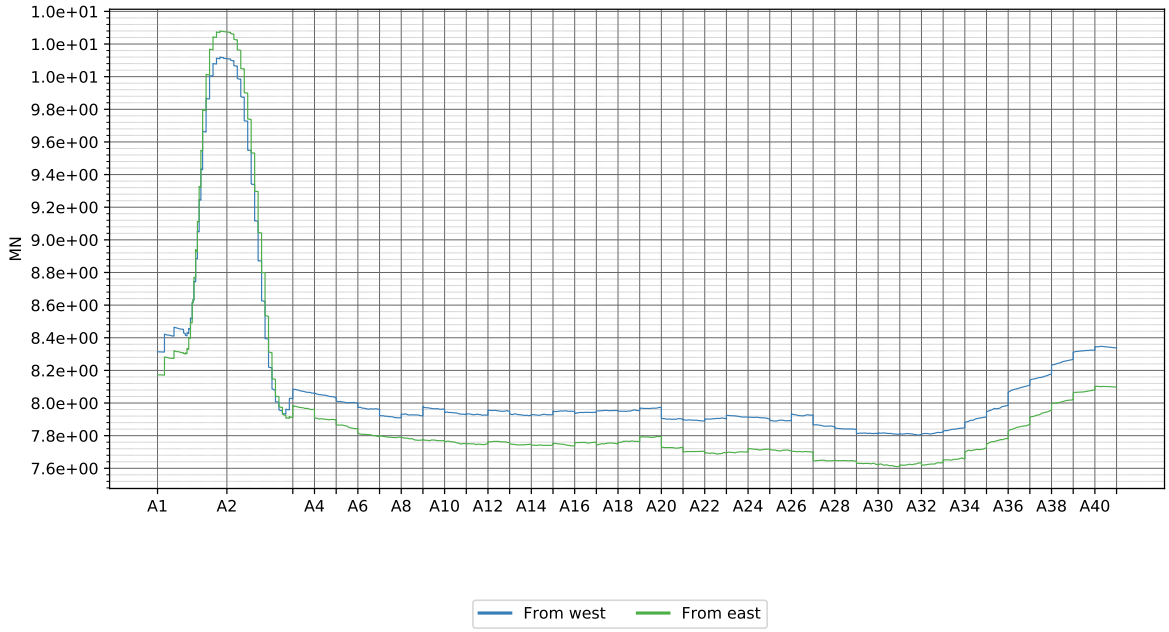
8.1.8 Swell 1 y



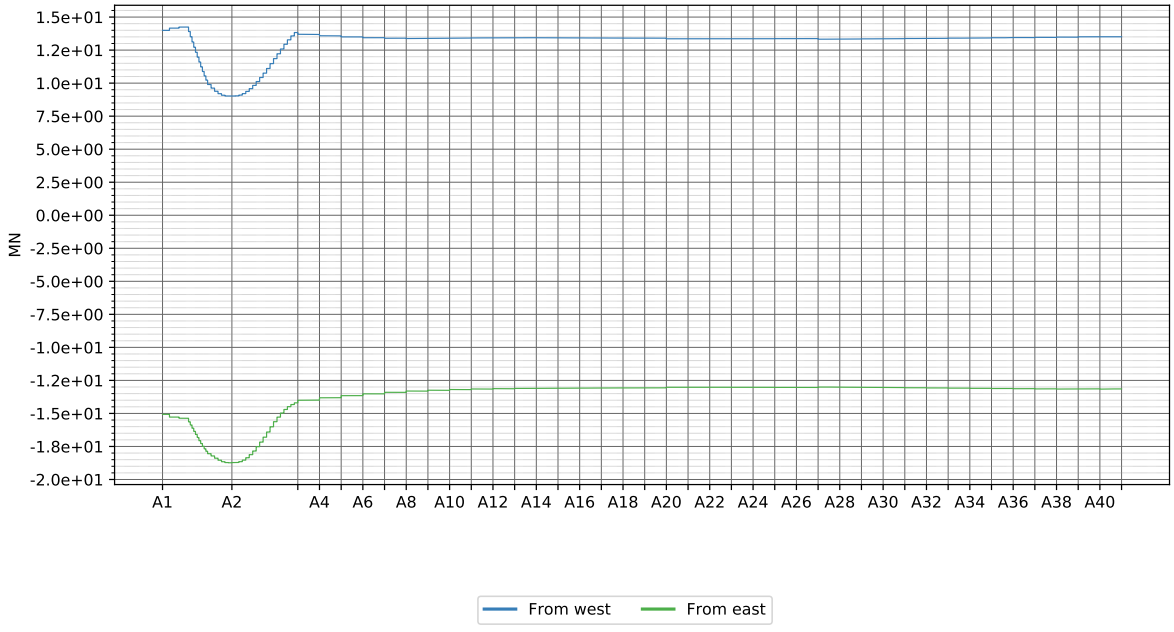
8.1.9 Current



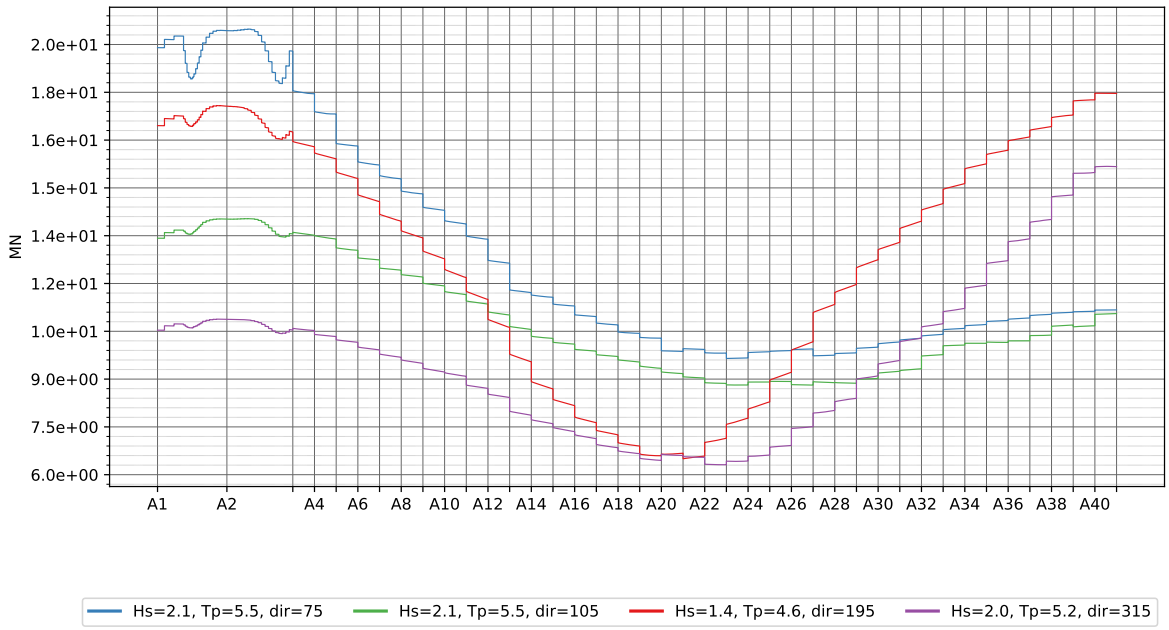
8.1.10 Dynamic wind 100 y



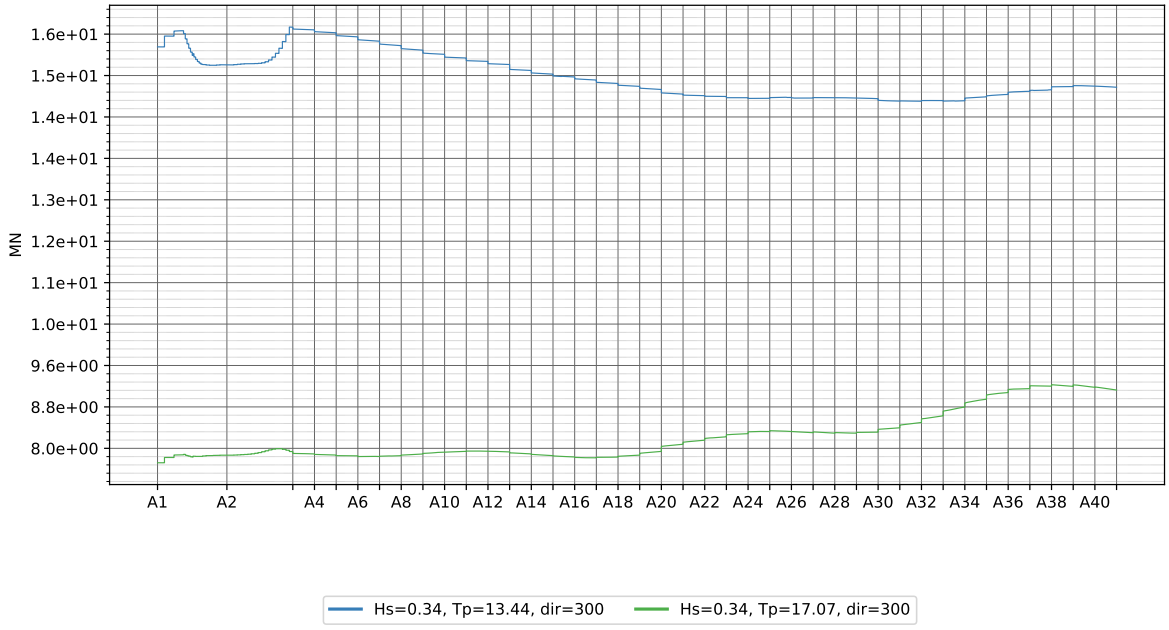
8.1.11 Static wind 100 y



8.1.12 Wave 100 y

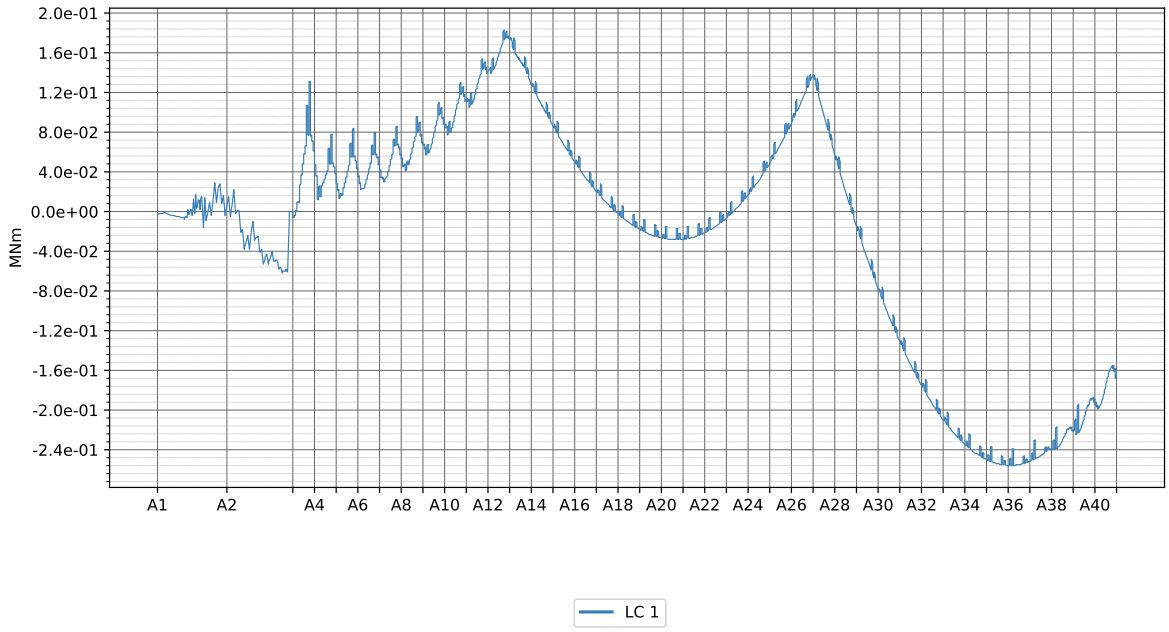


8.1.13 Swell 100 y

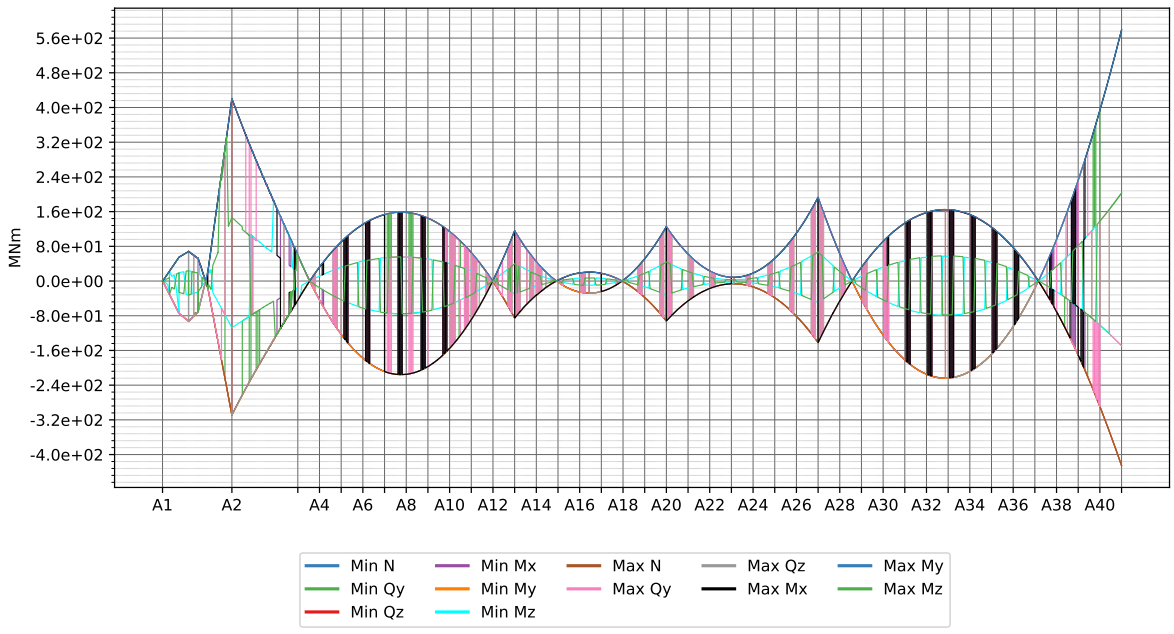


8.2 Bending moment about strong axis

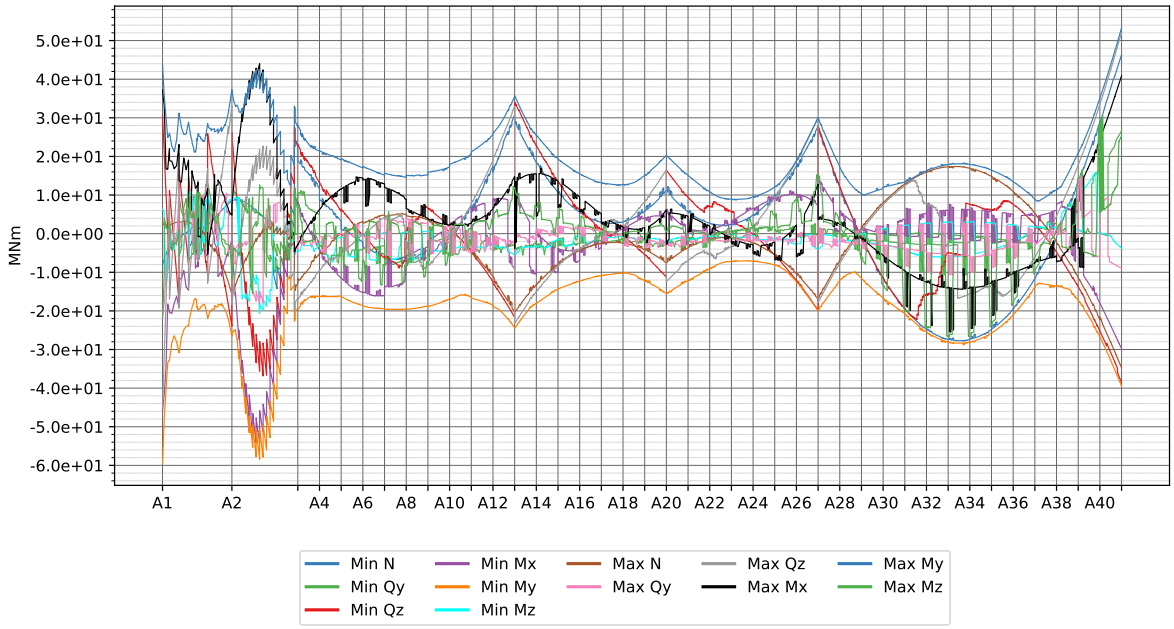
8.2.1 Permanent



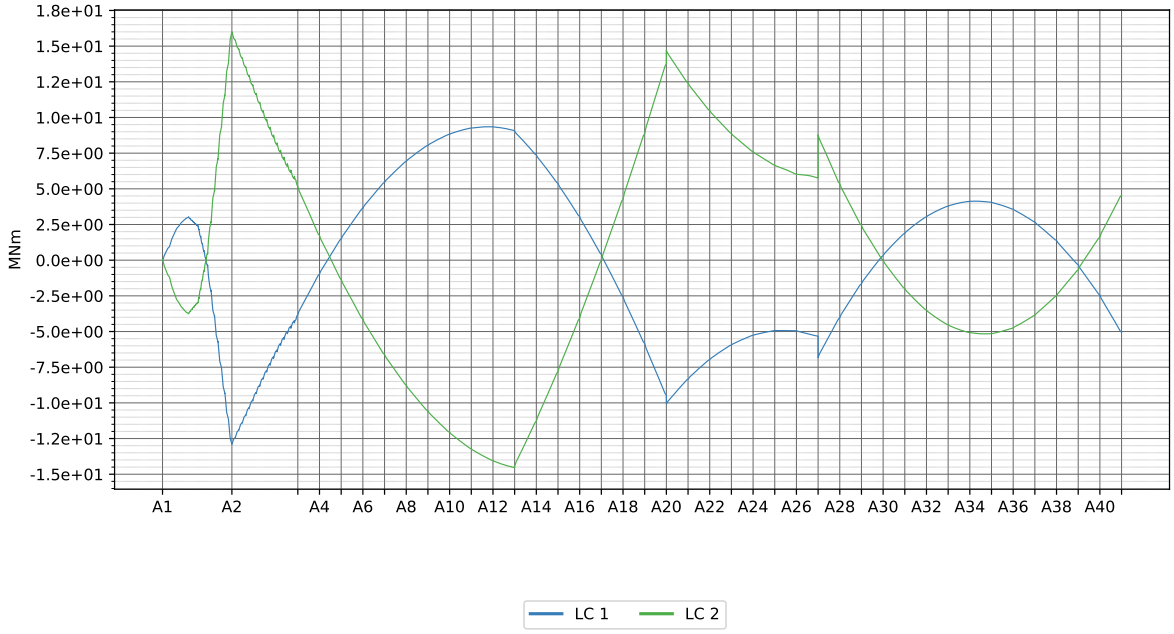
8.2.2 Temperature



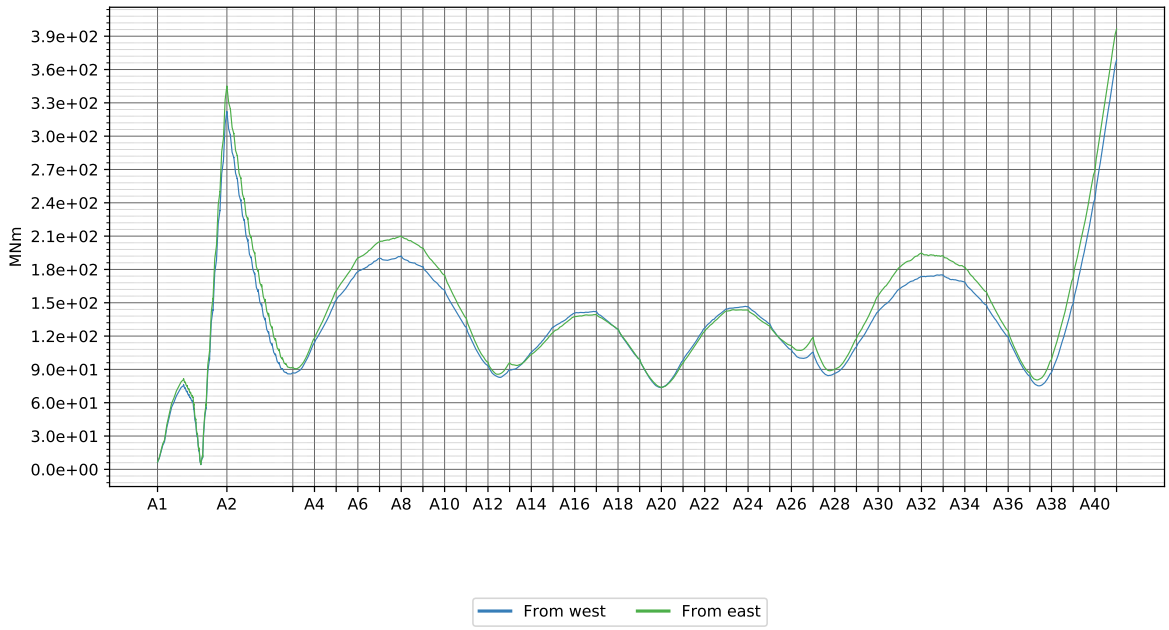
8.2.3 Traffic



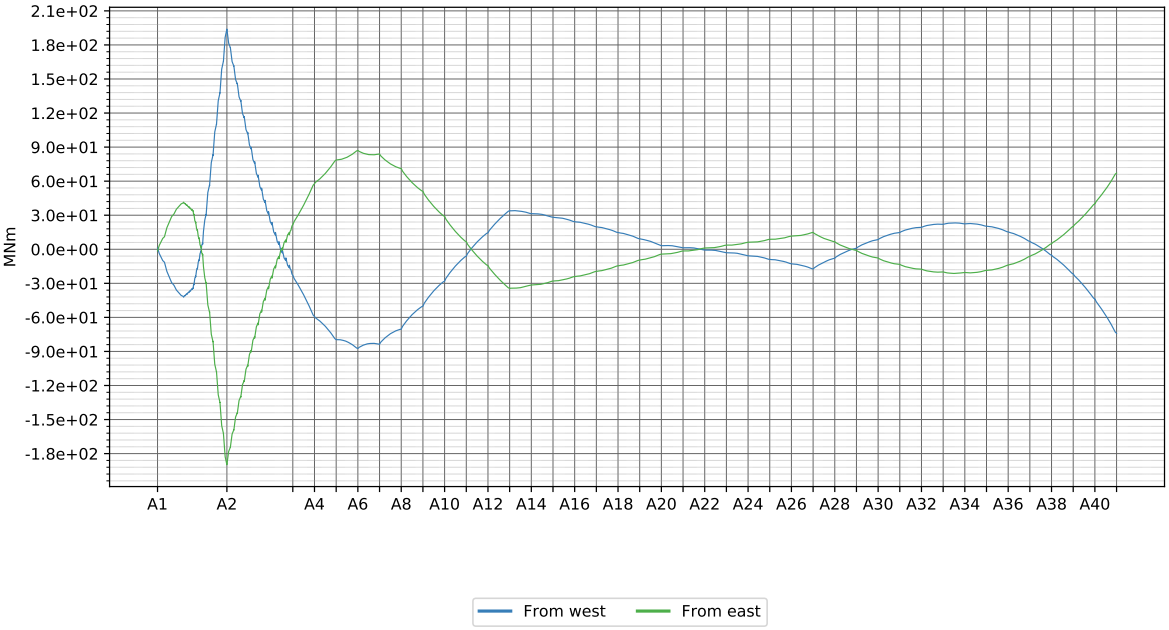
8.2.4 Tide



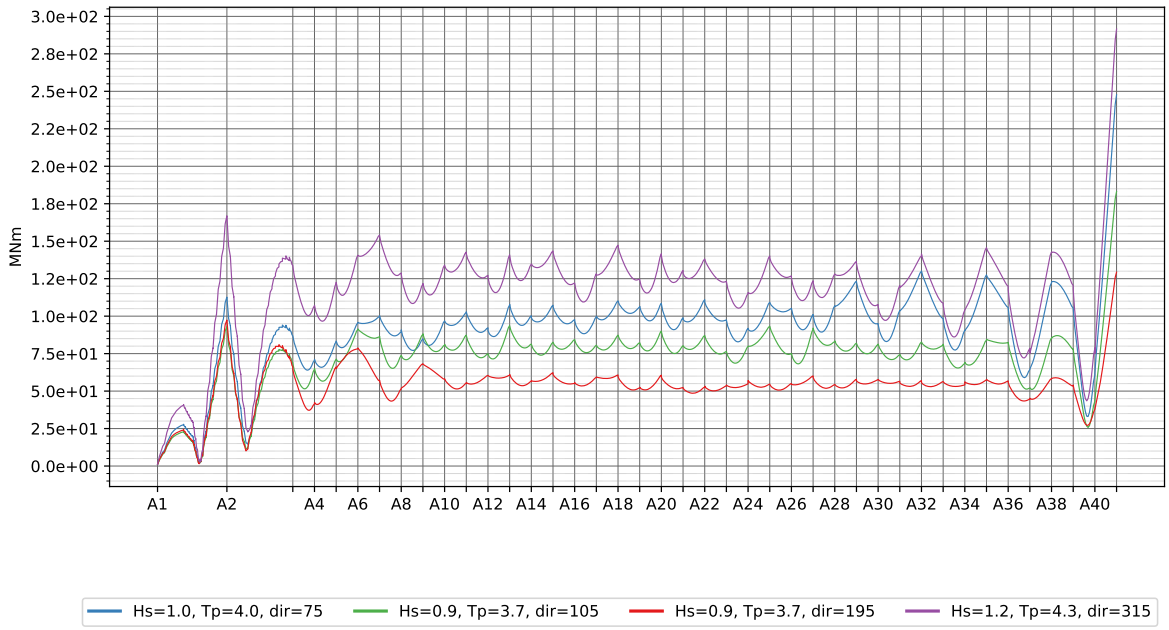
8.2.5 Dynamic wind 1 y



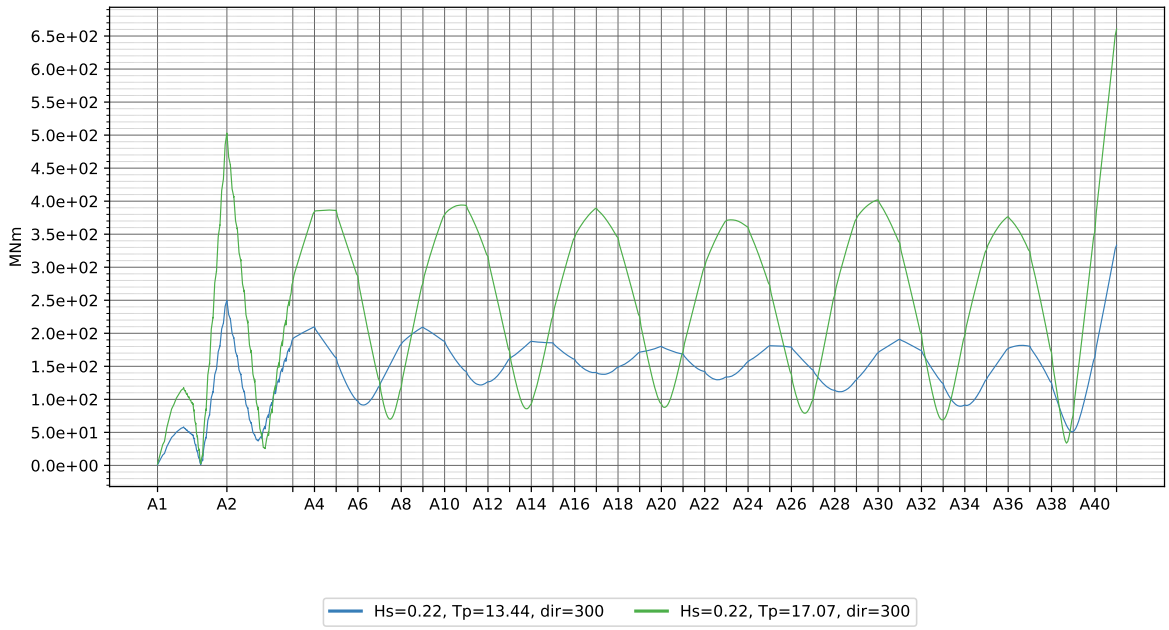
8.2.6 Static wind 1y



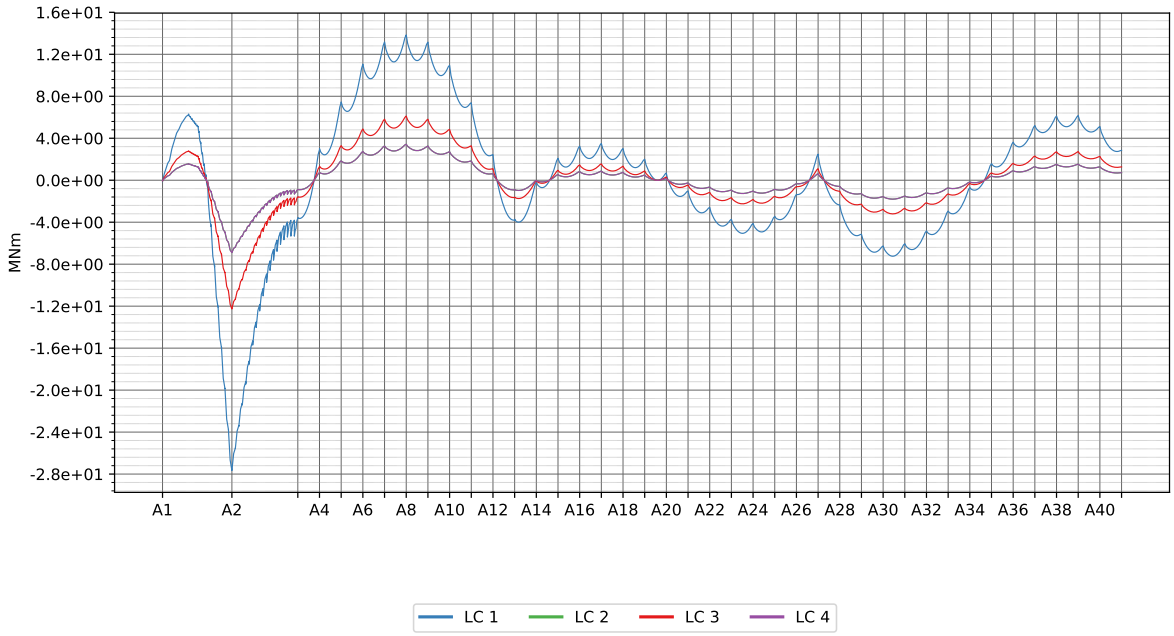
8.2.7 Wave 1 y



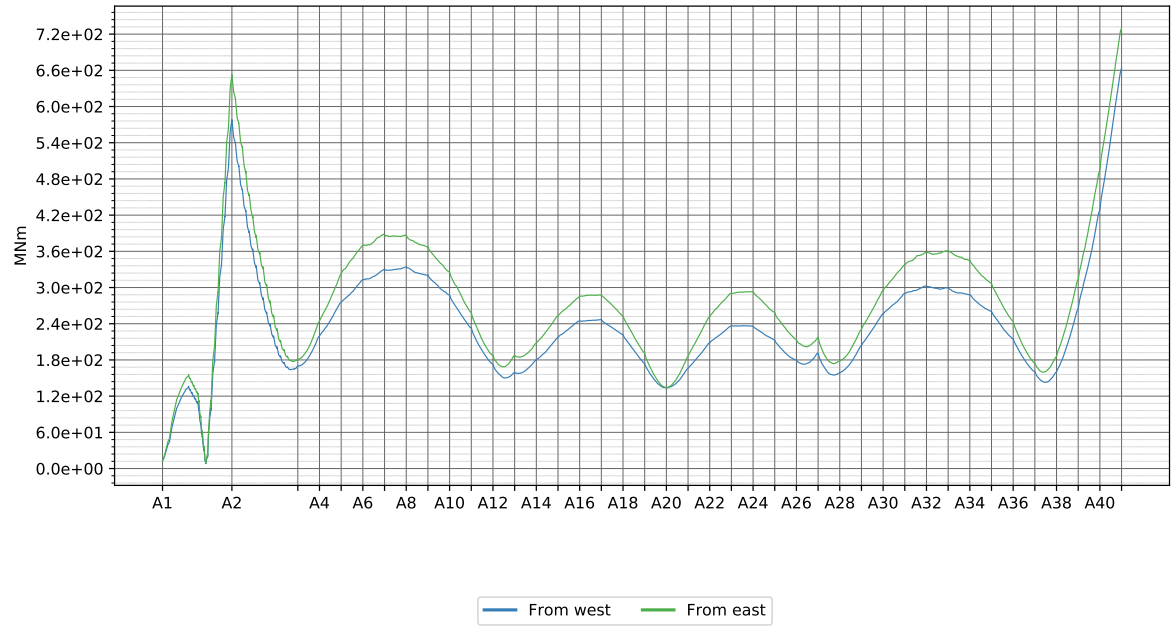
8.2.8 Swell 1 y



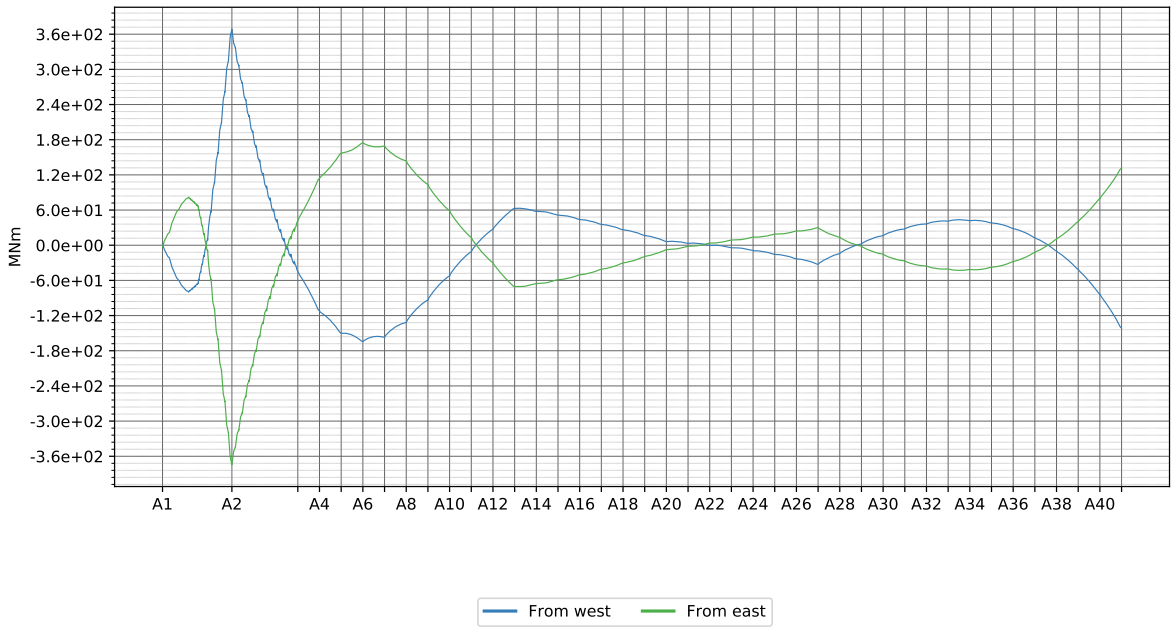
8.2.9 Current



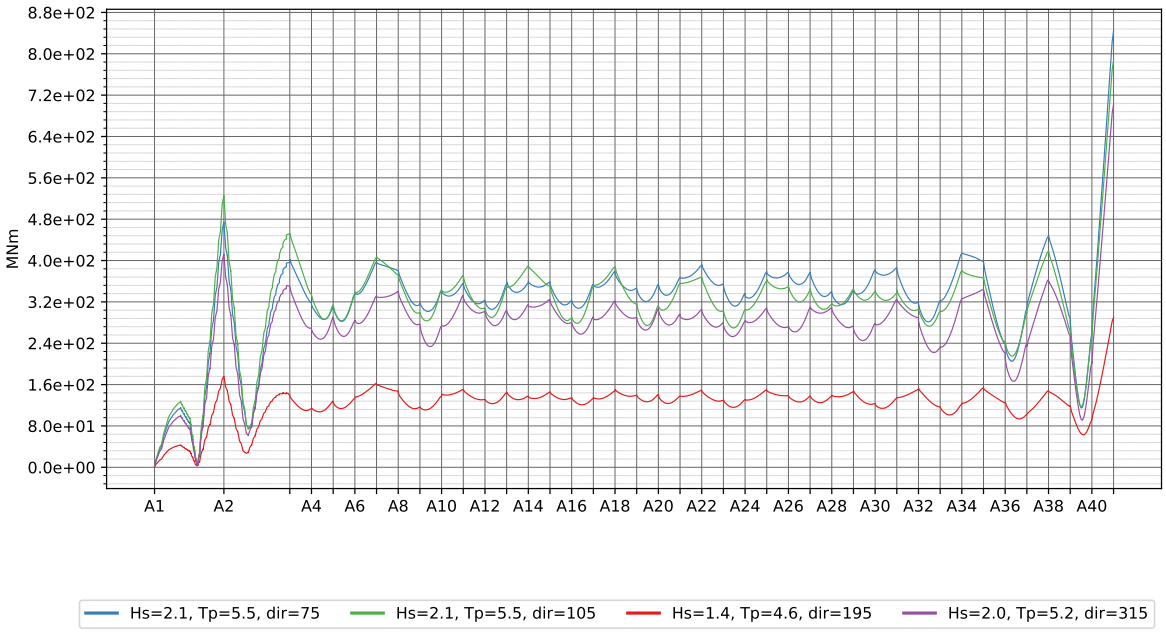
8.2.10 Dynamic wind 100 y



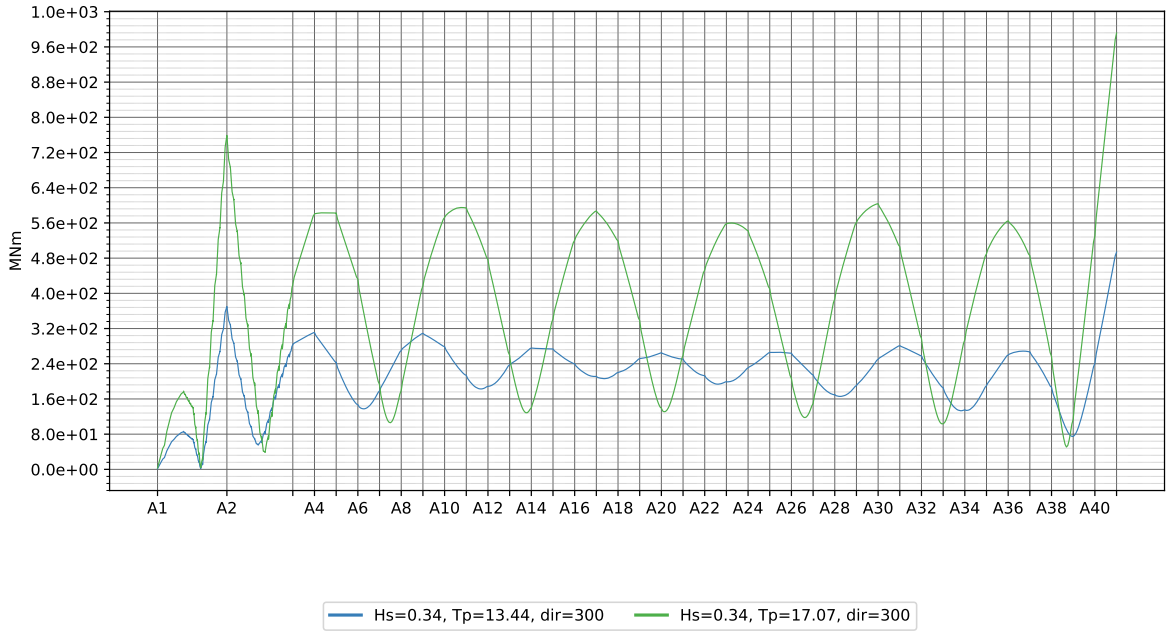
8.2.11 Static wind 100 y



8.2.12 Wave 100 y

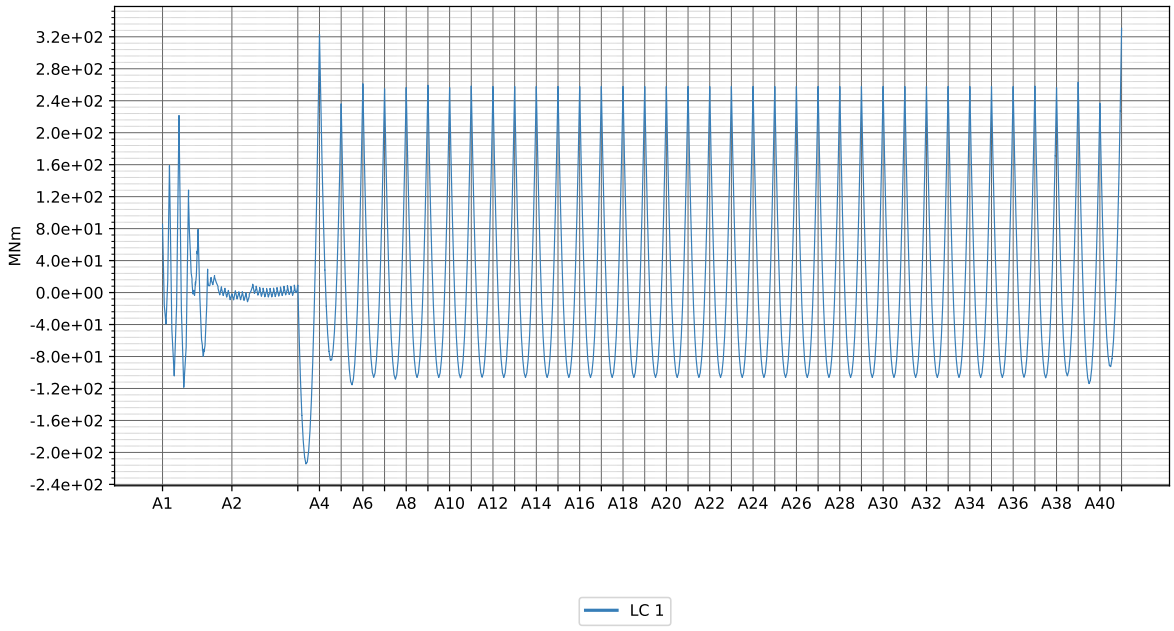


8.2.13 Swell 100 y

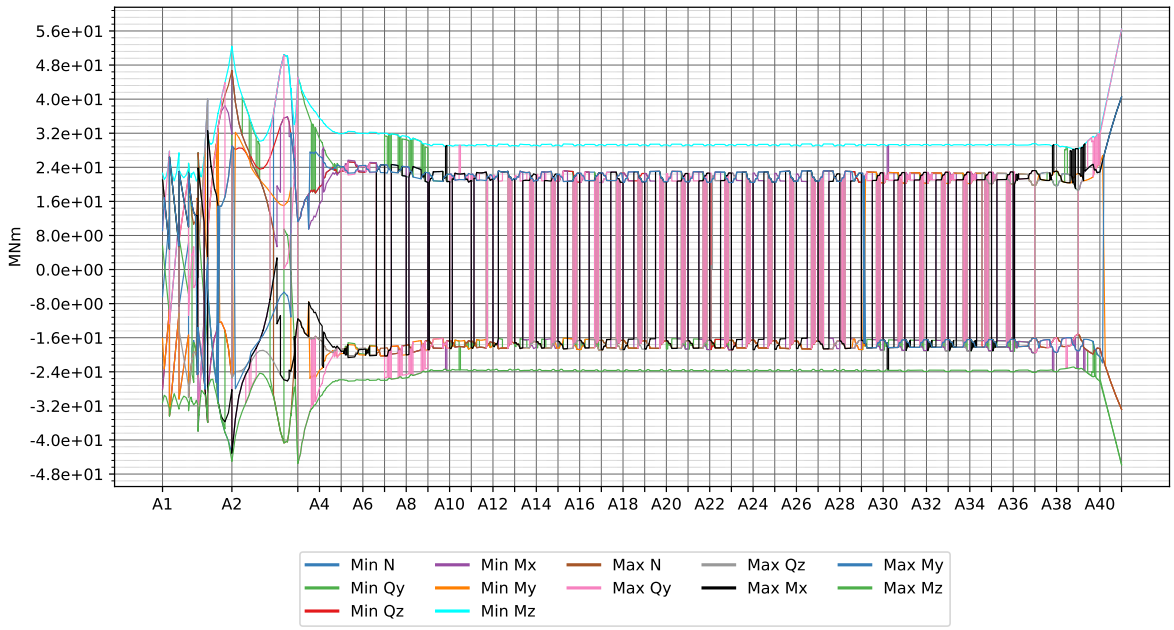


8.3 Bending moment about weak axis

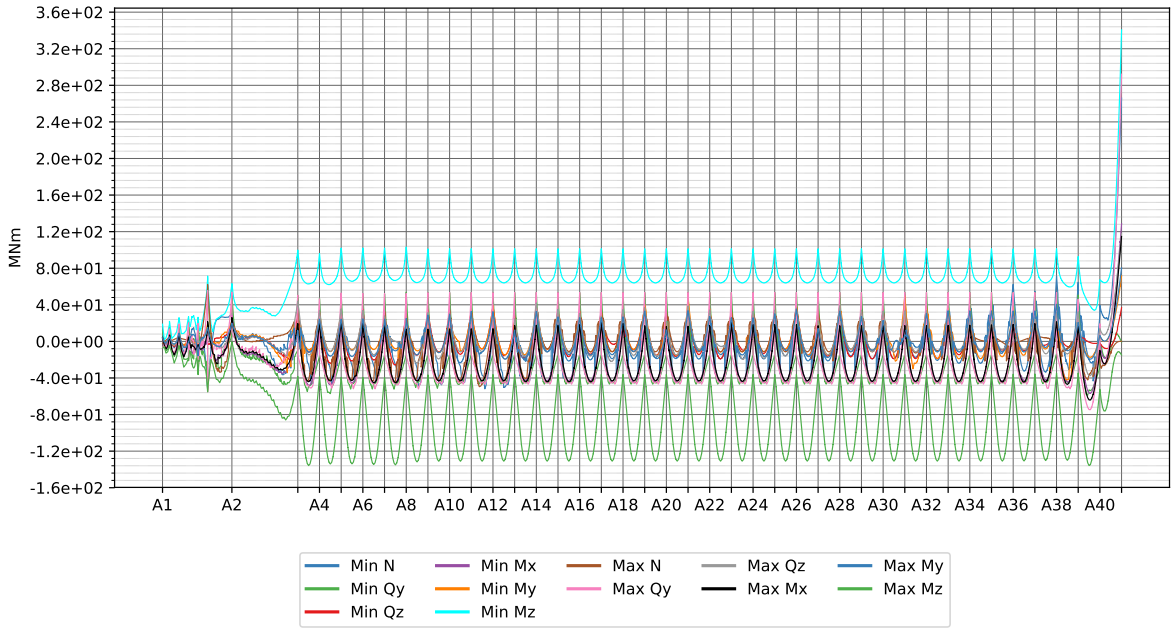
8.3.1 Permanent



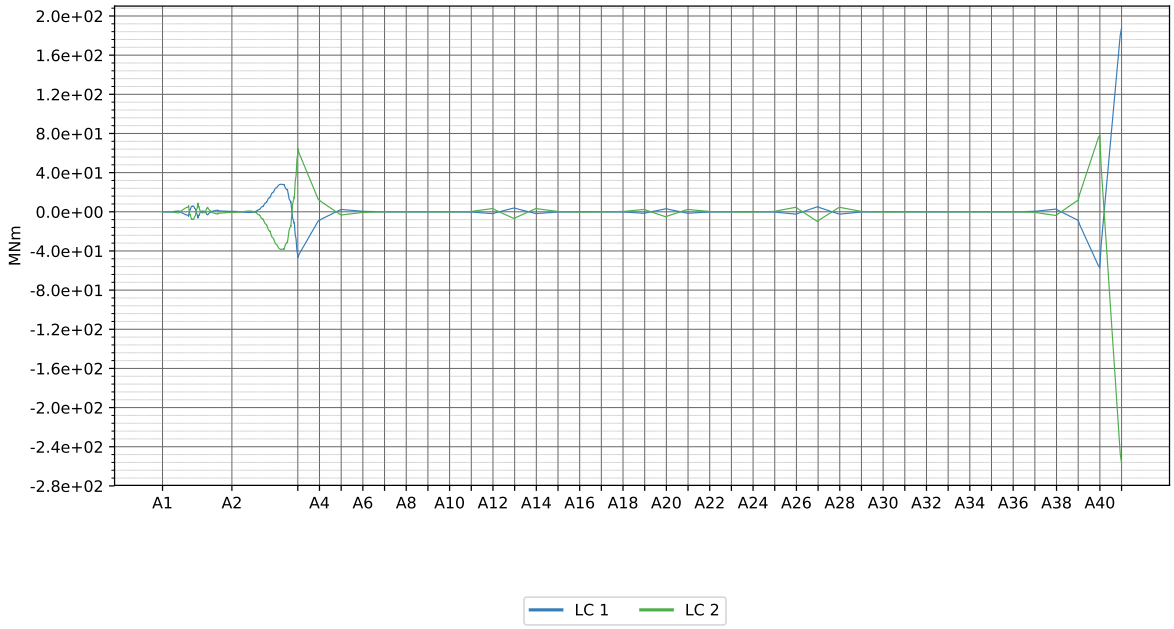
8.3.2 Temperature



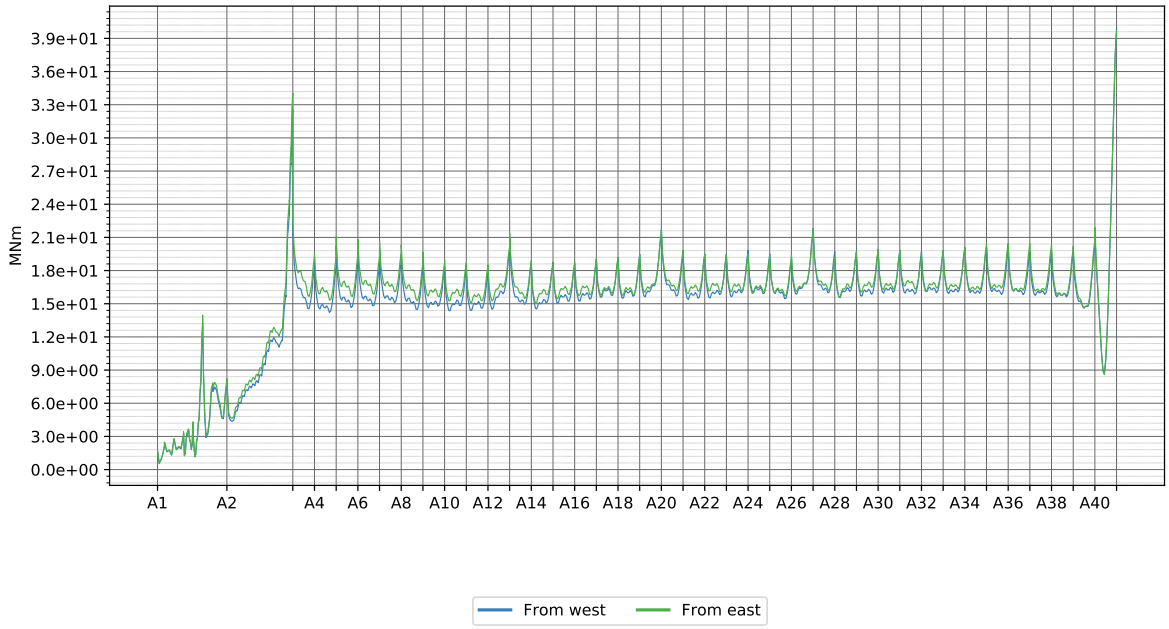
8.3.3 Traffic



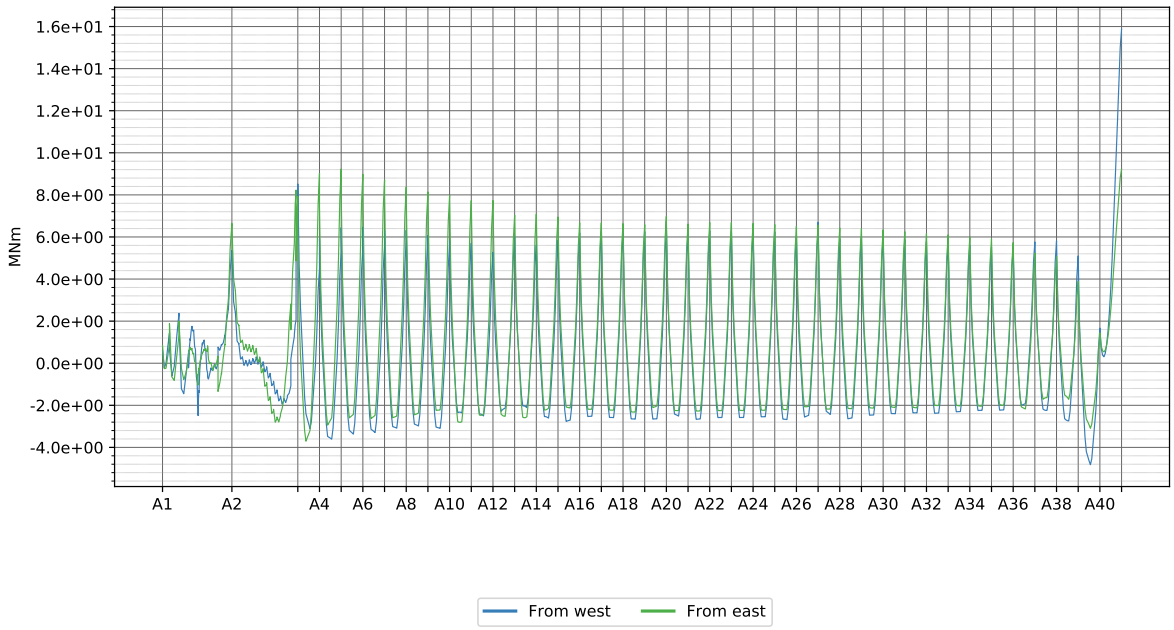
8.3.4 Tide



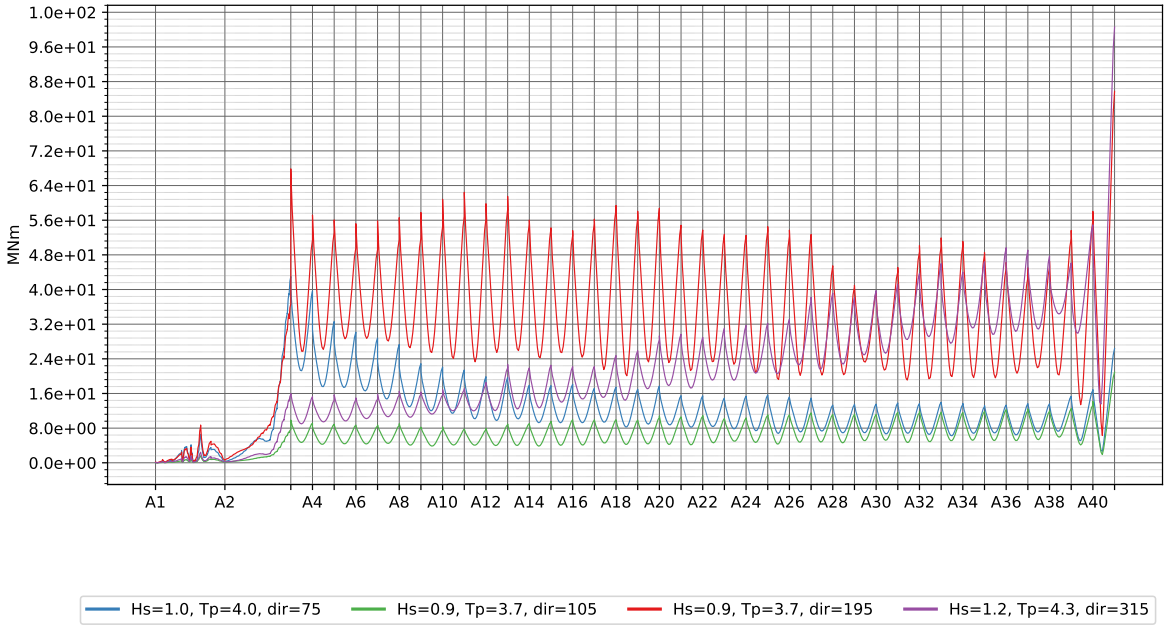
8.3.5 Dynamic wind 1 y



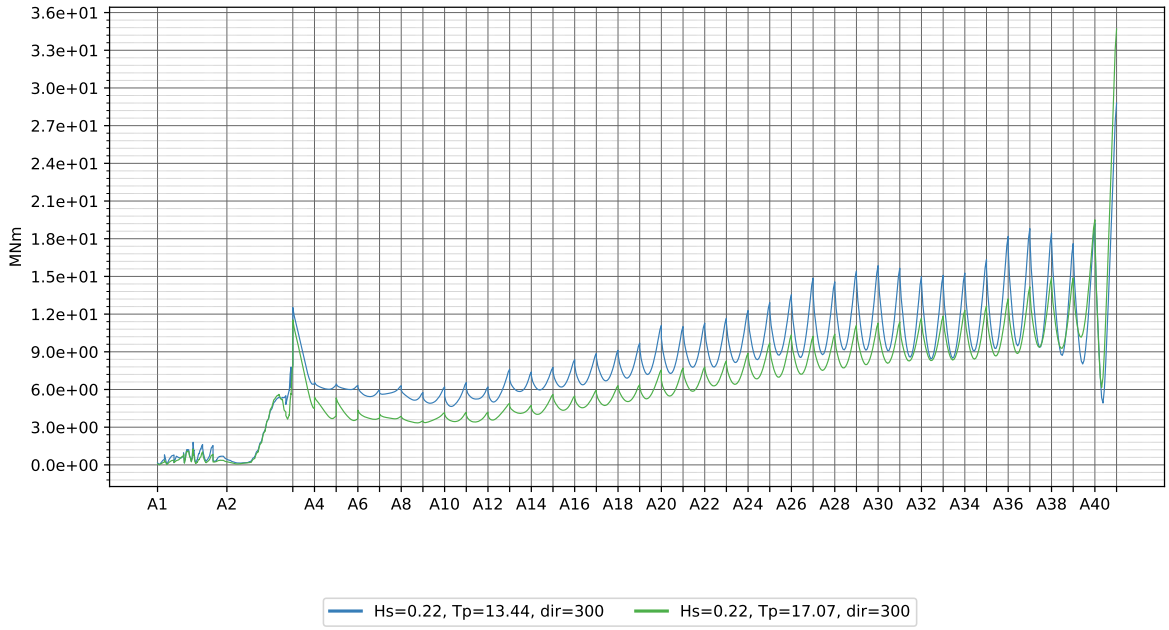
8.3.6 Static wind 1y



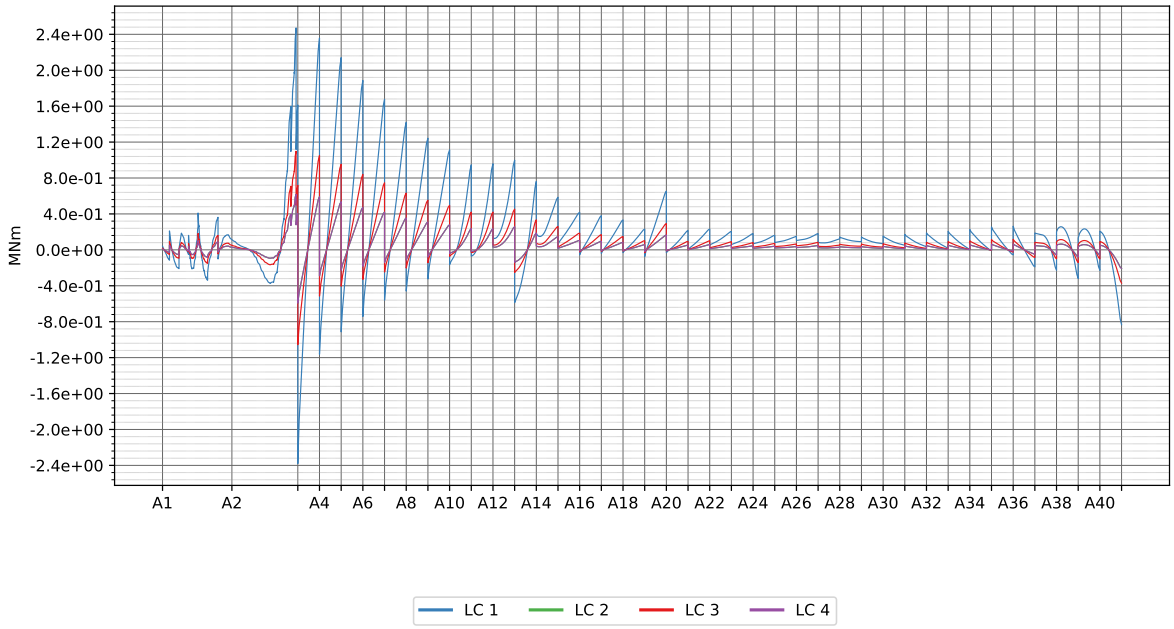
8.3.7 Wave 1 y



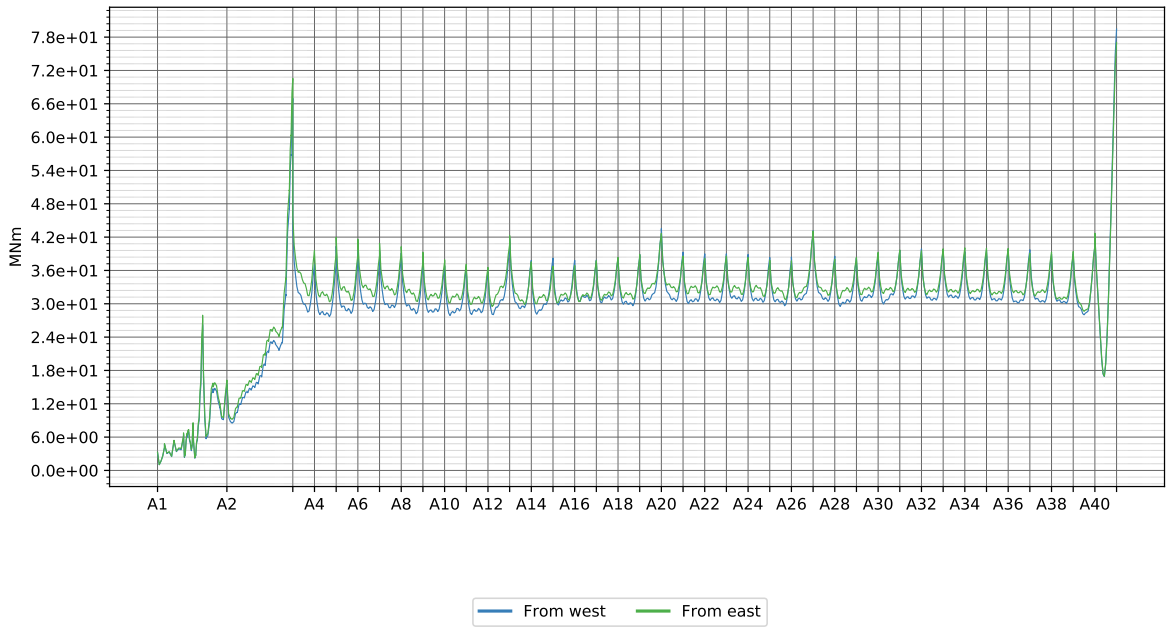
8.3.8 Swell 1 y



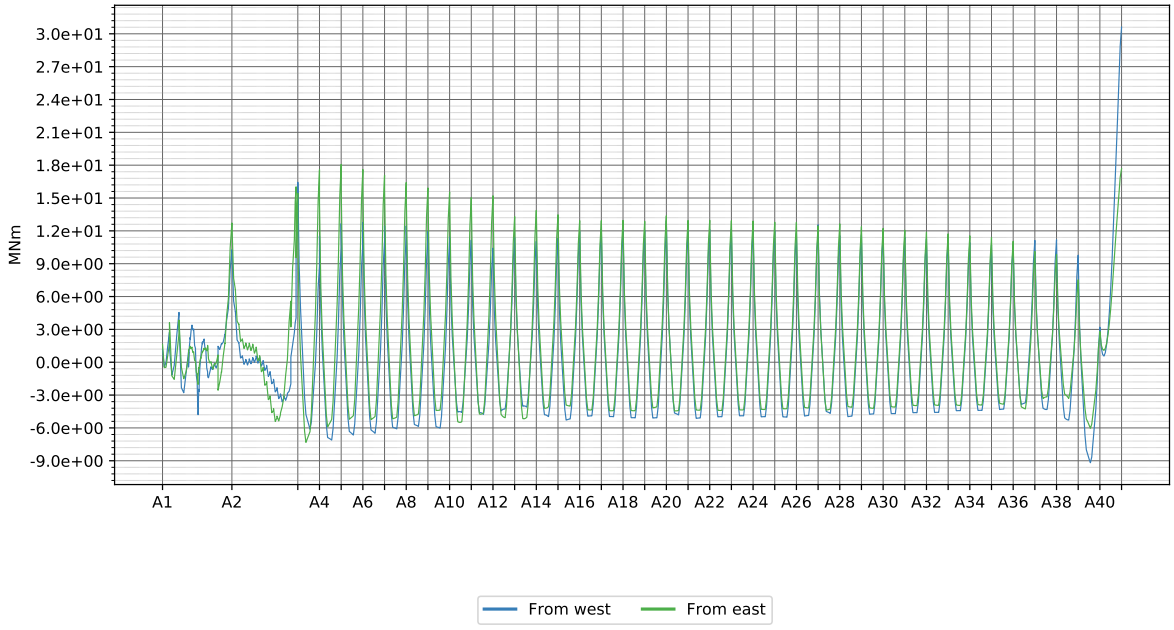
8.3.9 Current



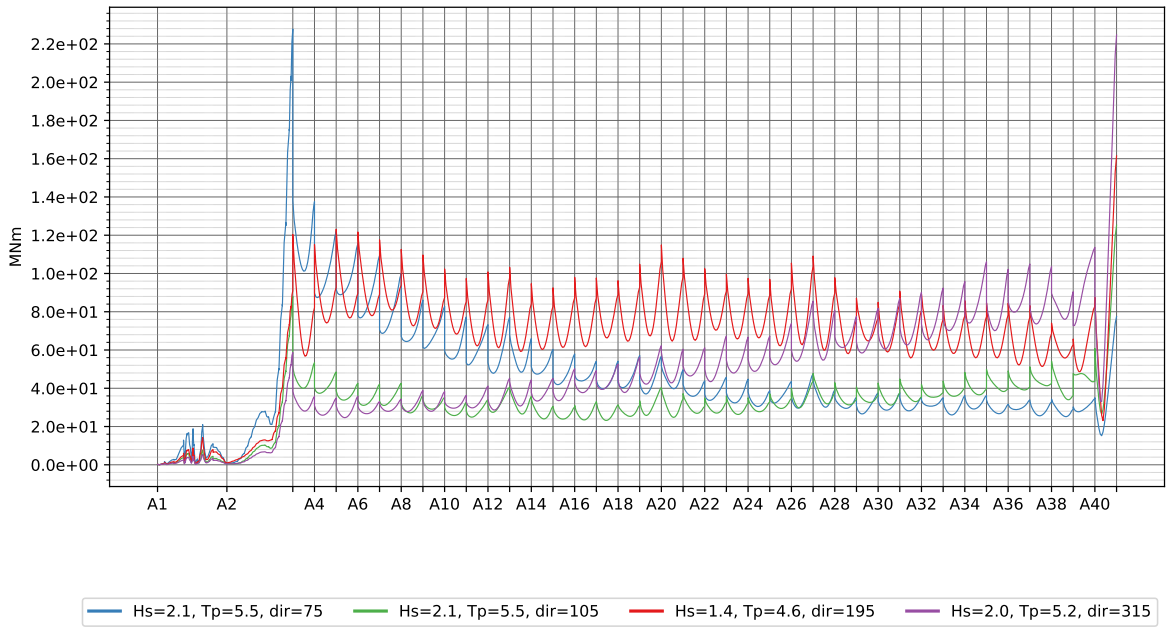
8.3.10 Dynamic wind 100 y



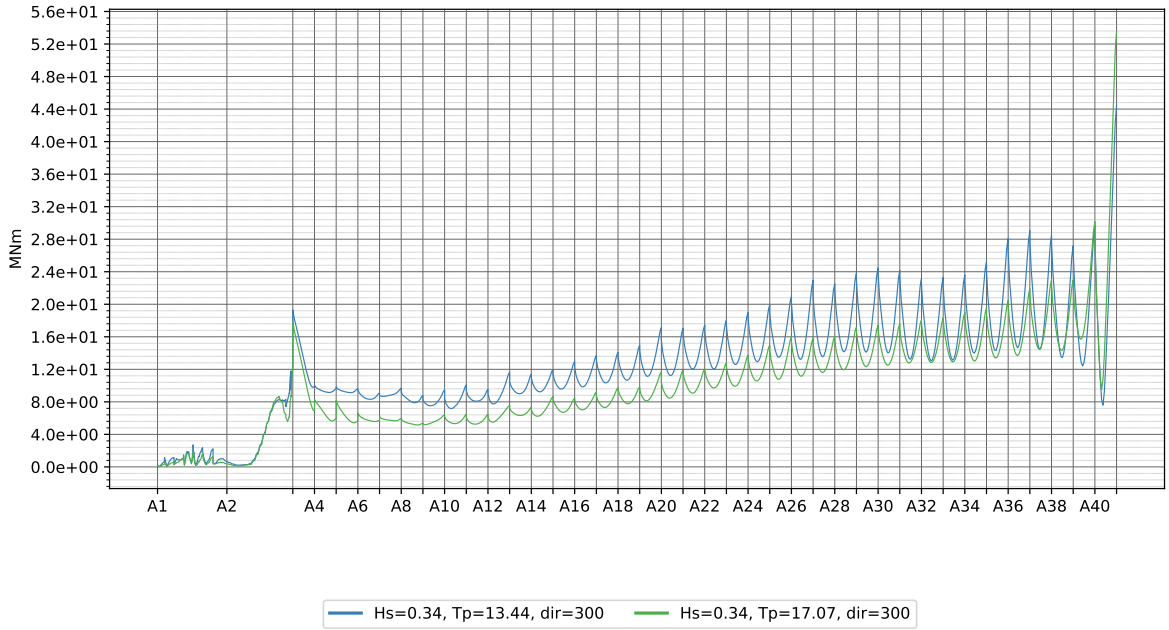
8.3.11 Static wind 100 y



8.3.12 Wave 100 y

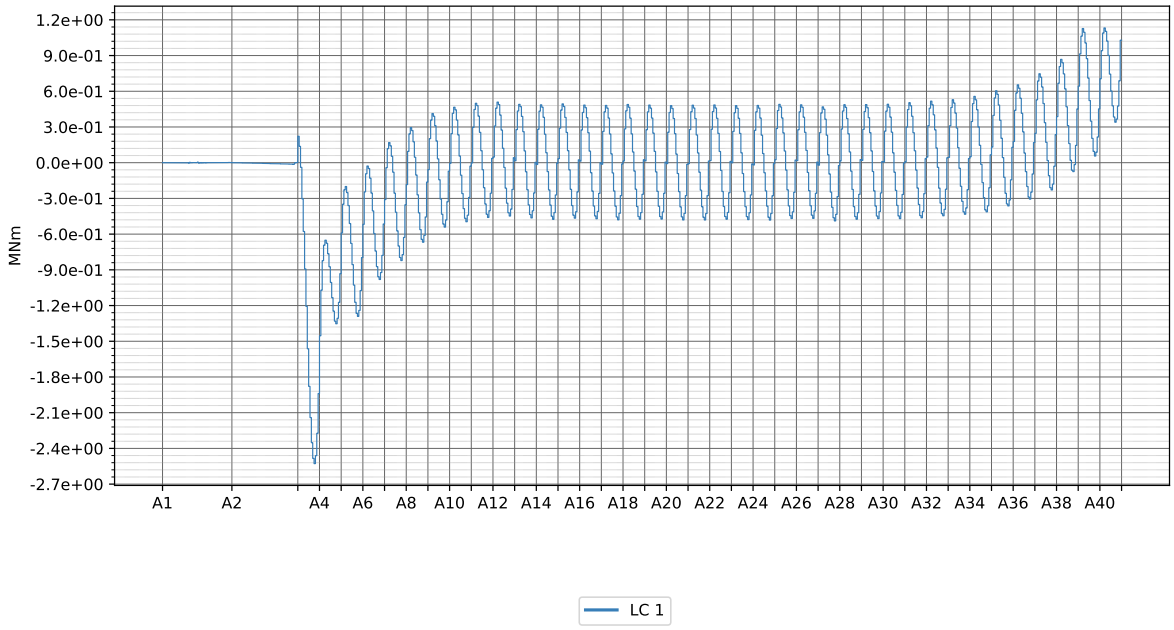


8.3.13 Swell 100 y

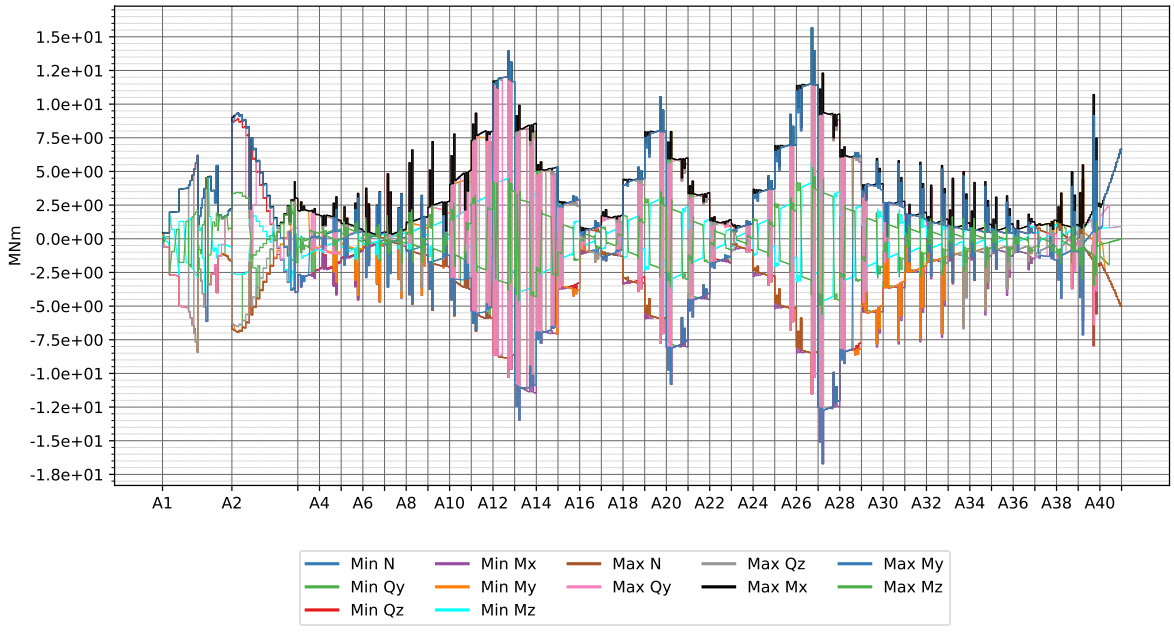


8.4 Torsional moment

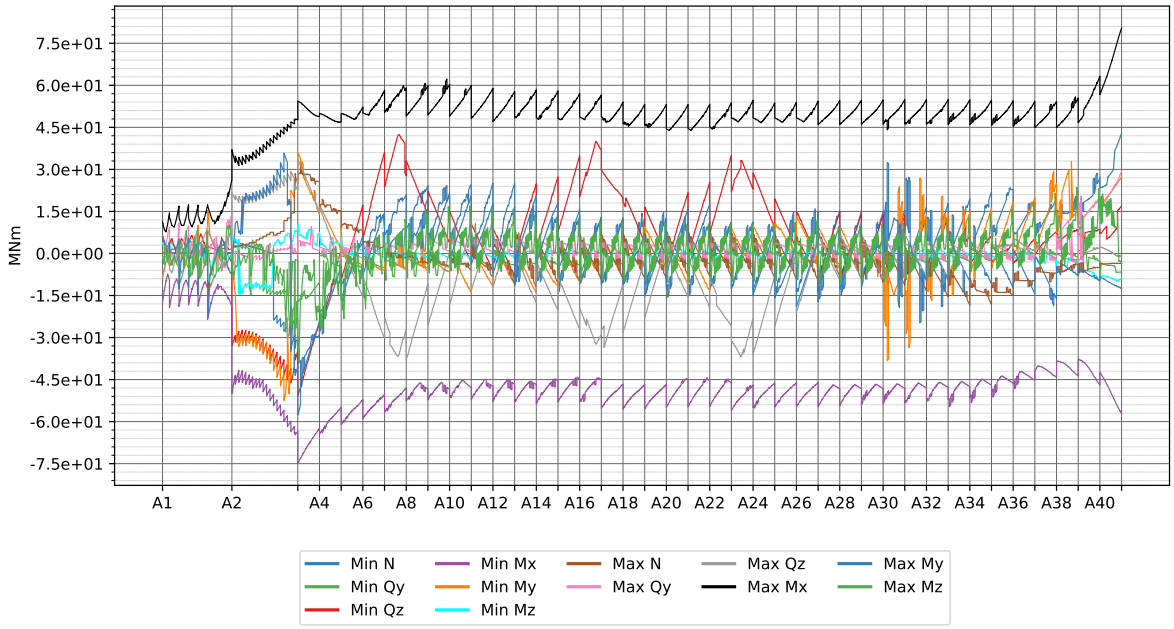
8.4.1 Permanent



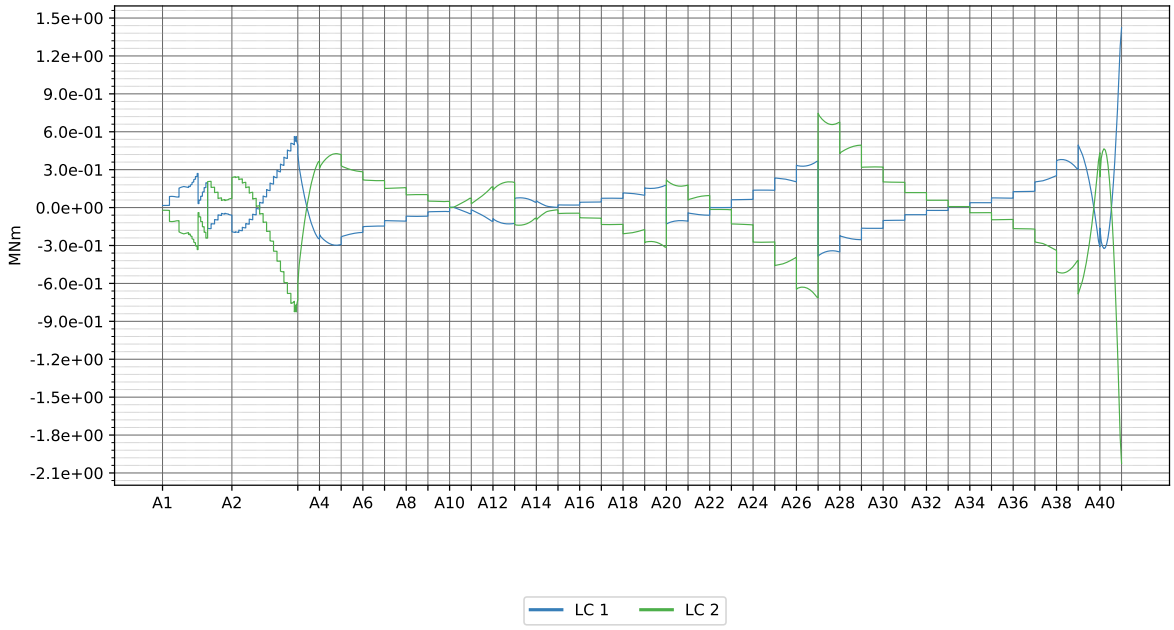
8.4.2 Temperature



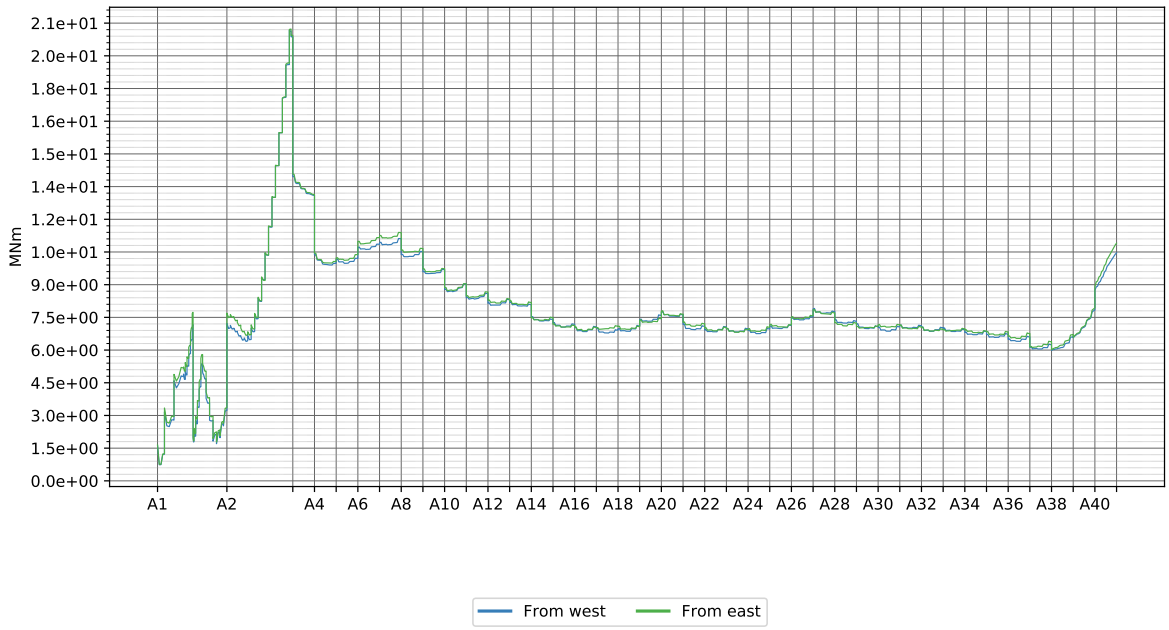
8.4.3 Traffic



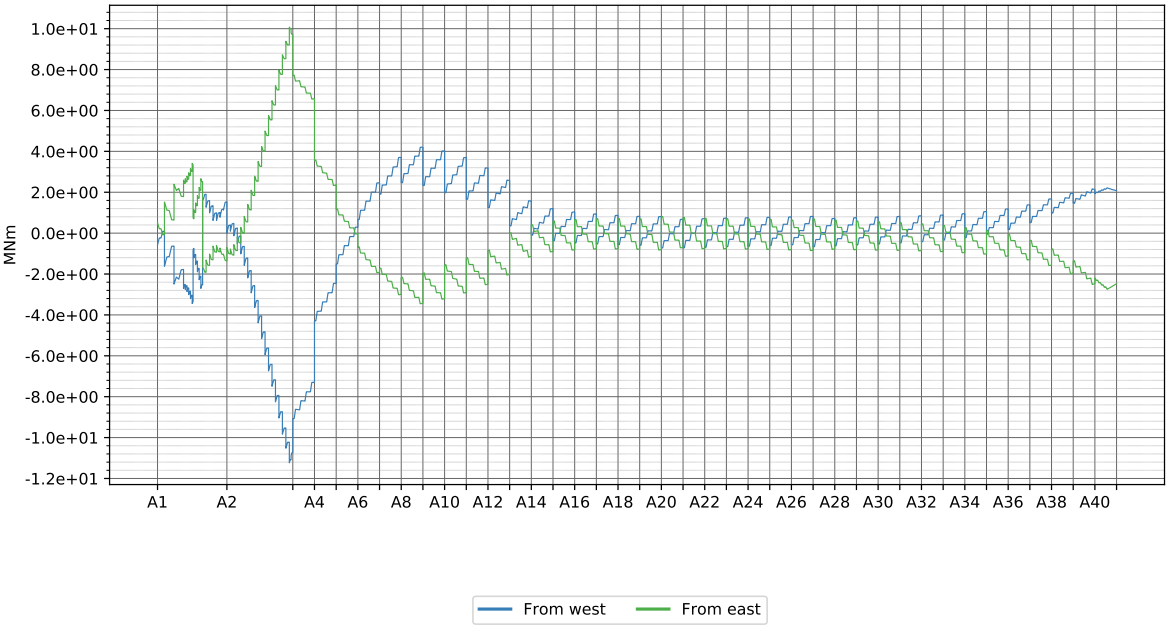
8.4.4 Tide



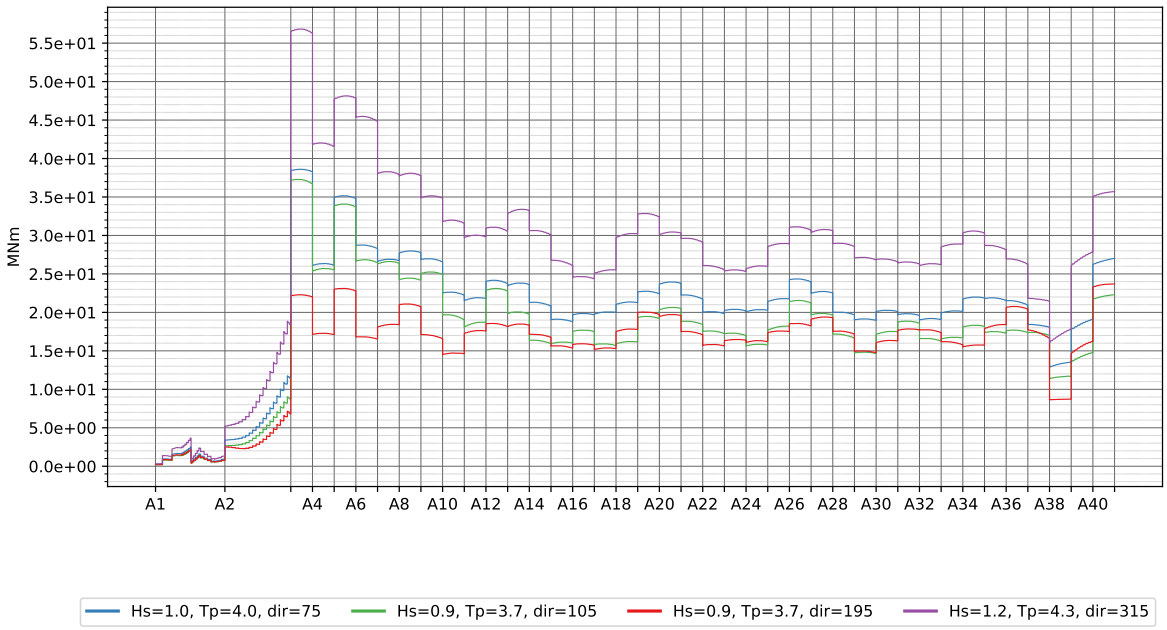
8.4.5 Dynamic wind 1 y



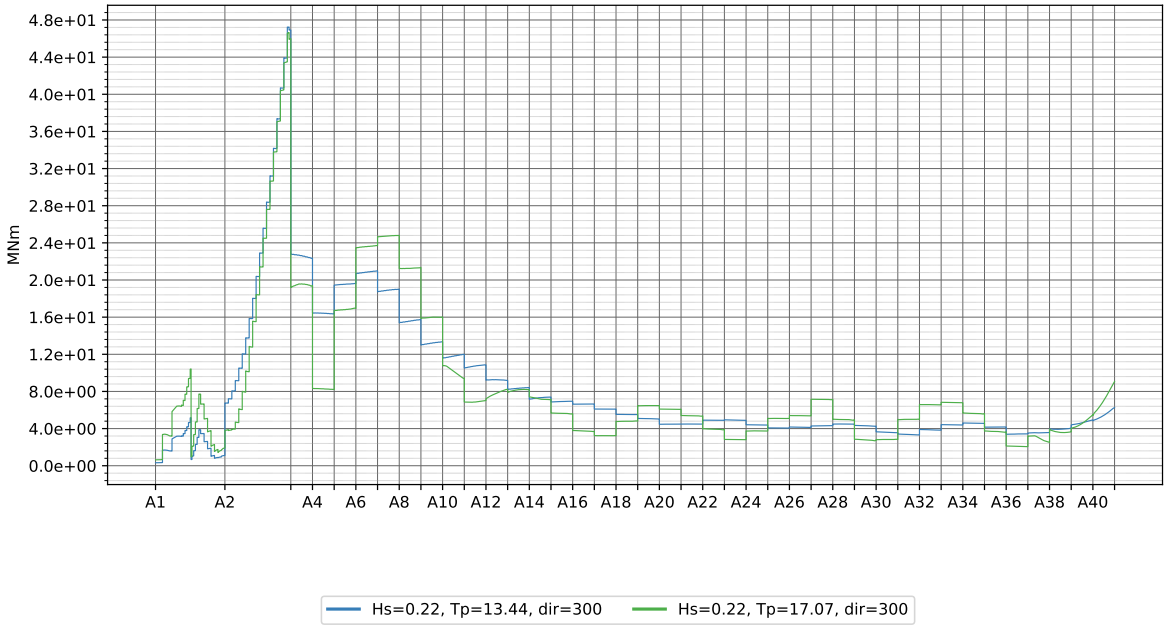
8.4.6 Static wind 1y



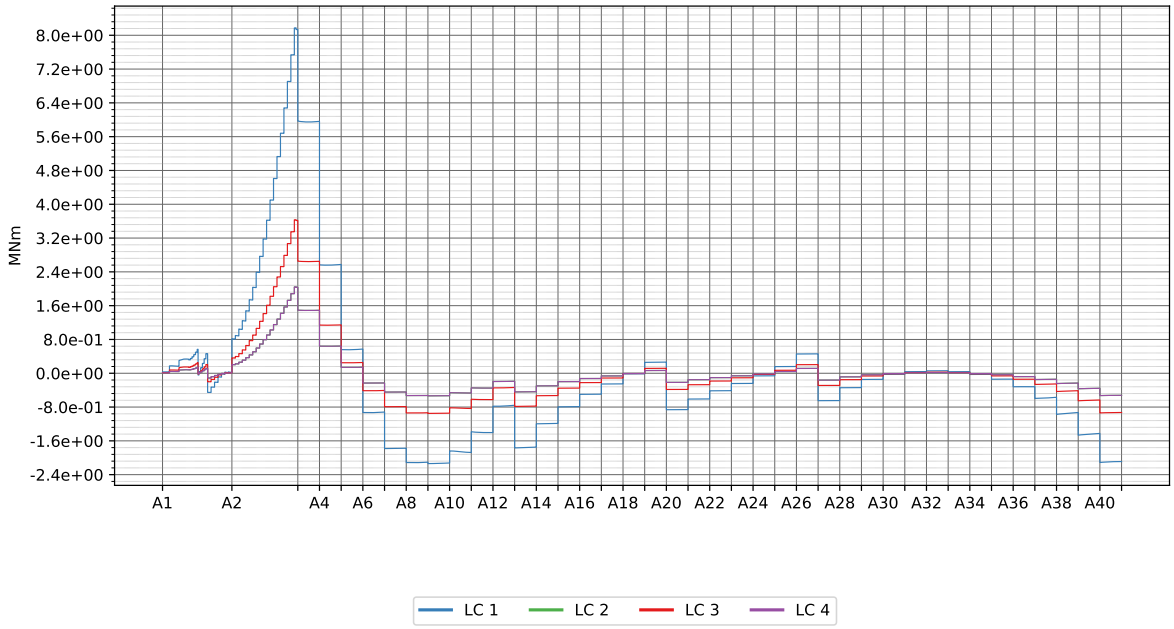
8.4.7 Wave 1 y



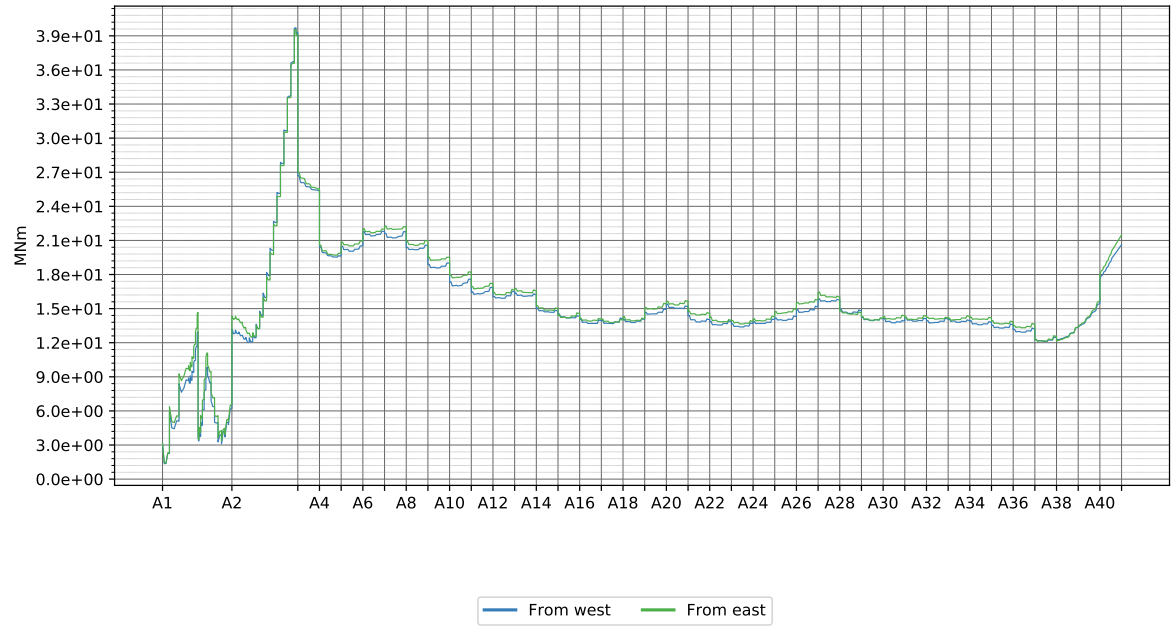
8.4.8 Swell 1 y



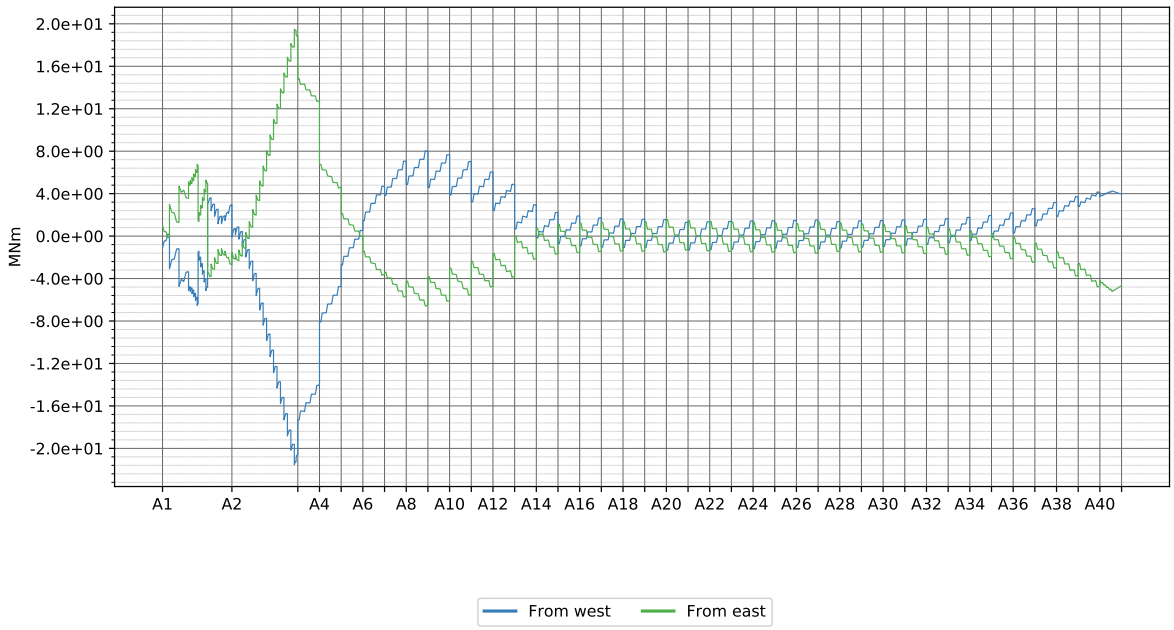
8.4.9 Current



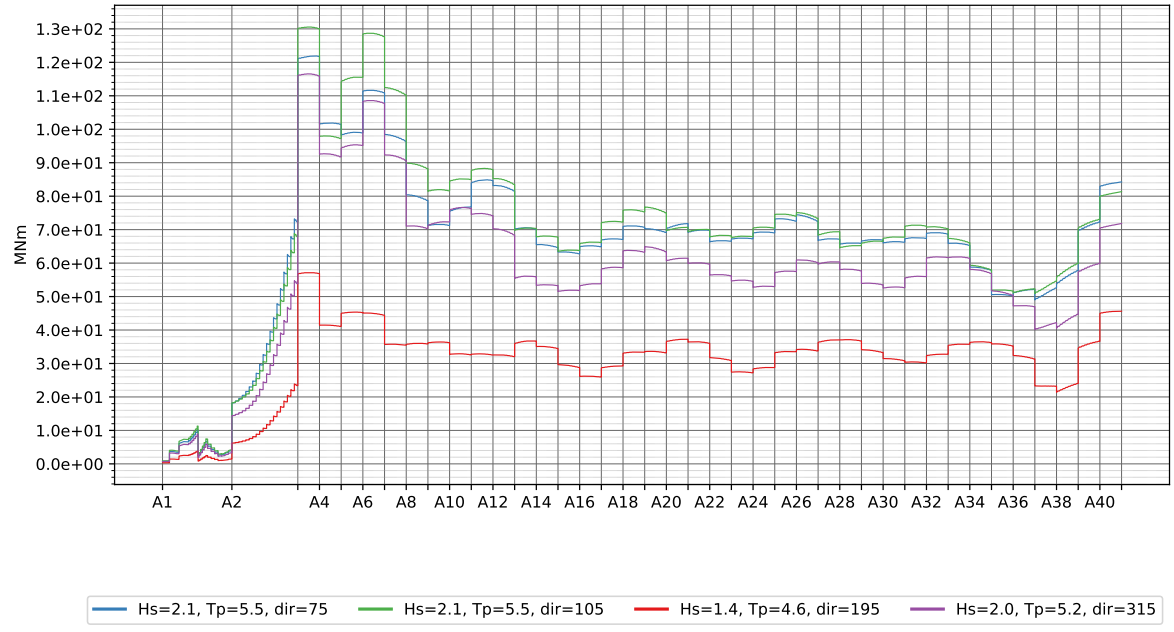
8.4.10 Dynamic wind 100 y



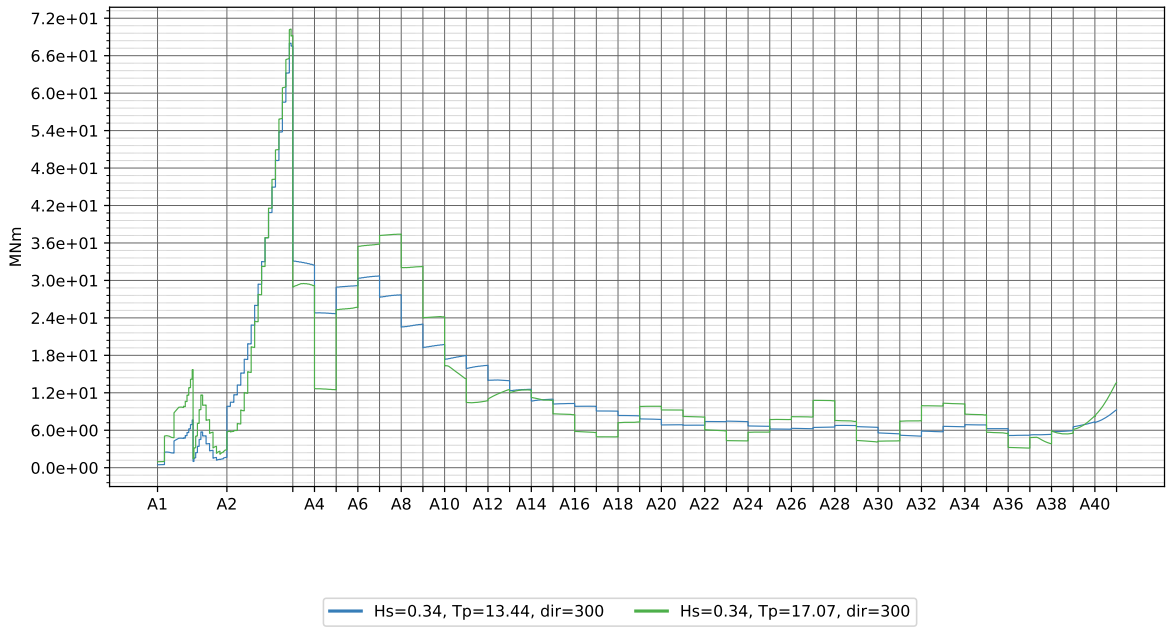
8.4.11 Static wind 100 y



8.4.12 Wave 100 y

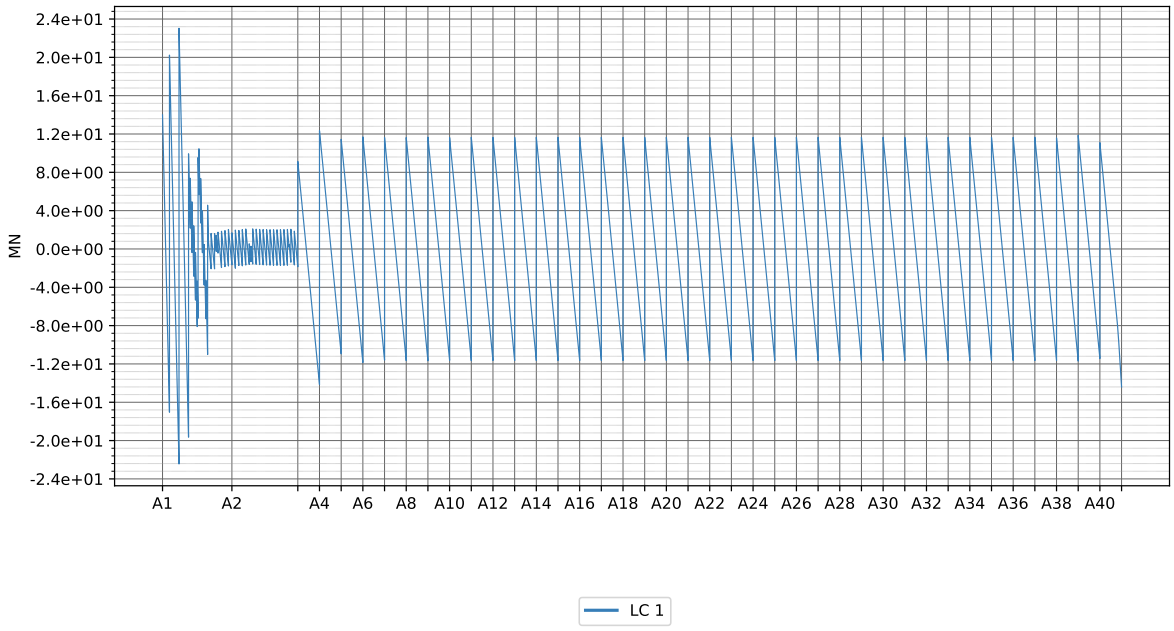


8.4.13 Swell 100 y

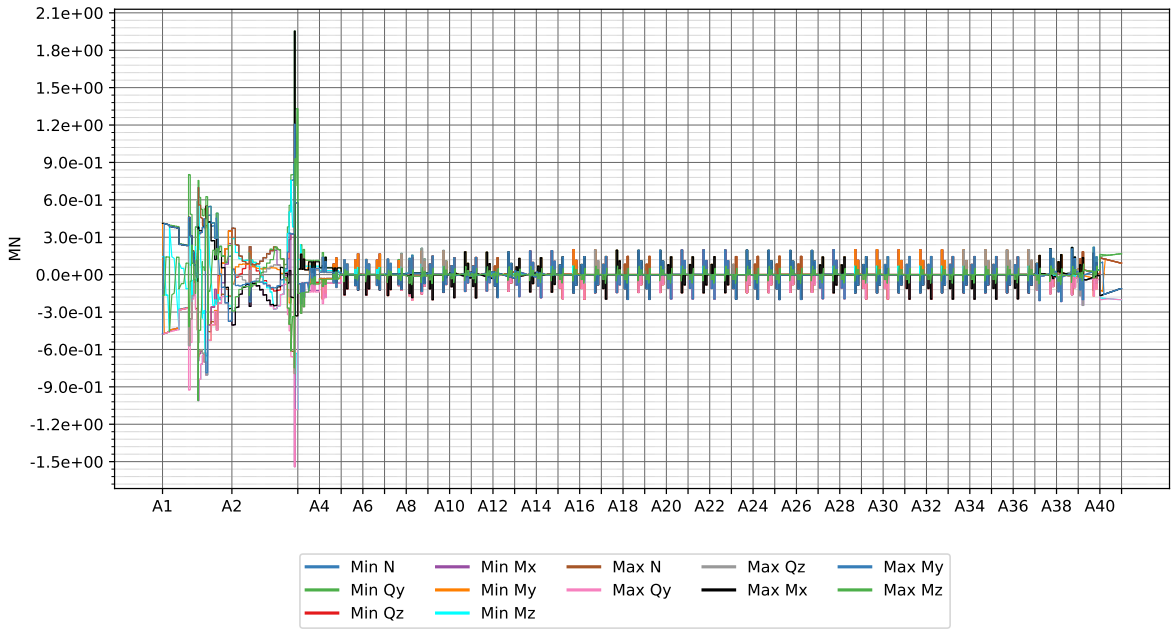


8.5 Vertical shear force

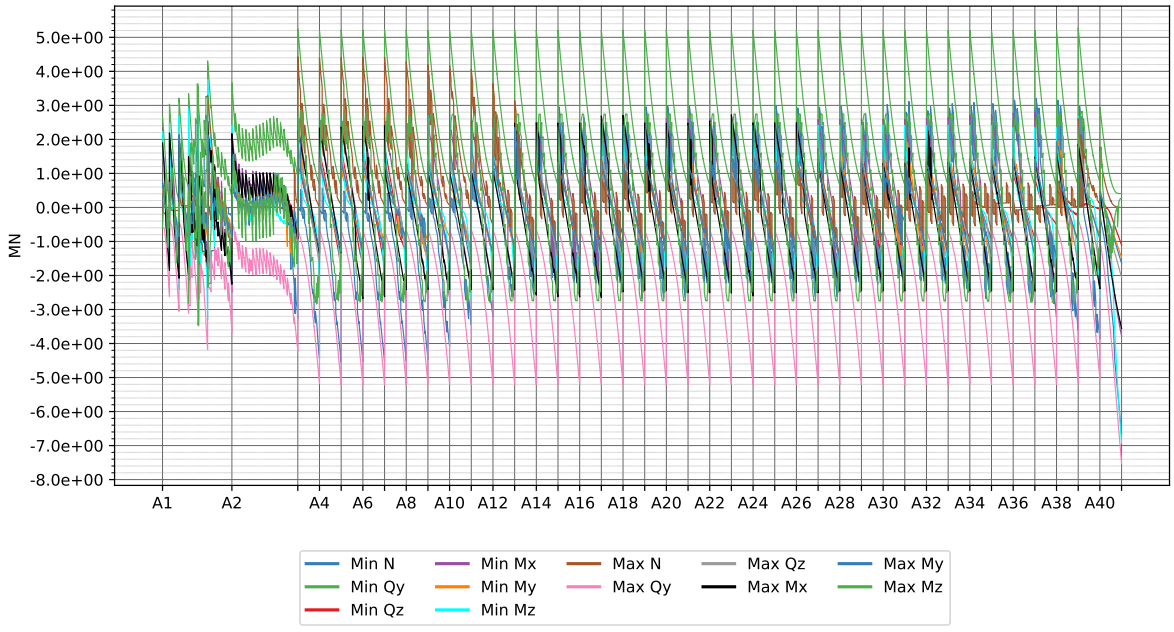
8.5.1 Permanent



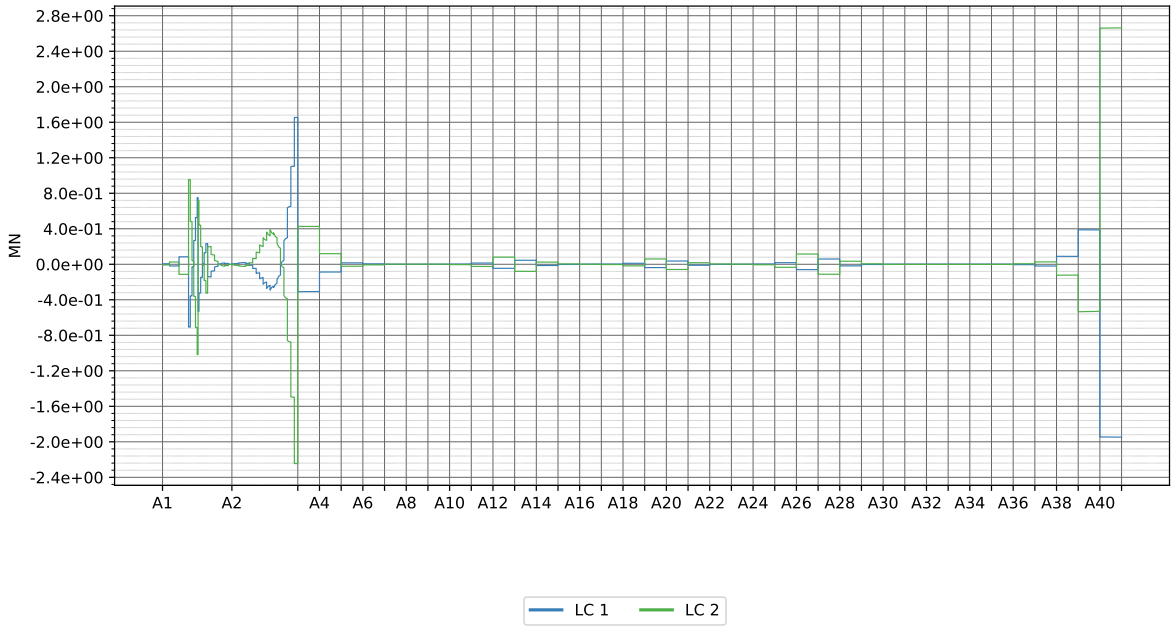
8.5.2 Temperature



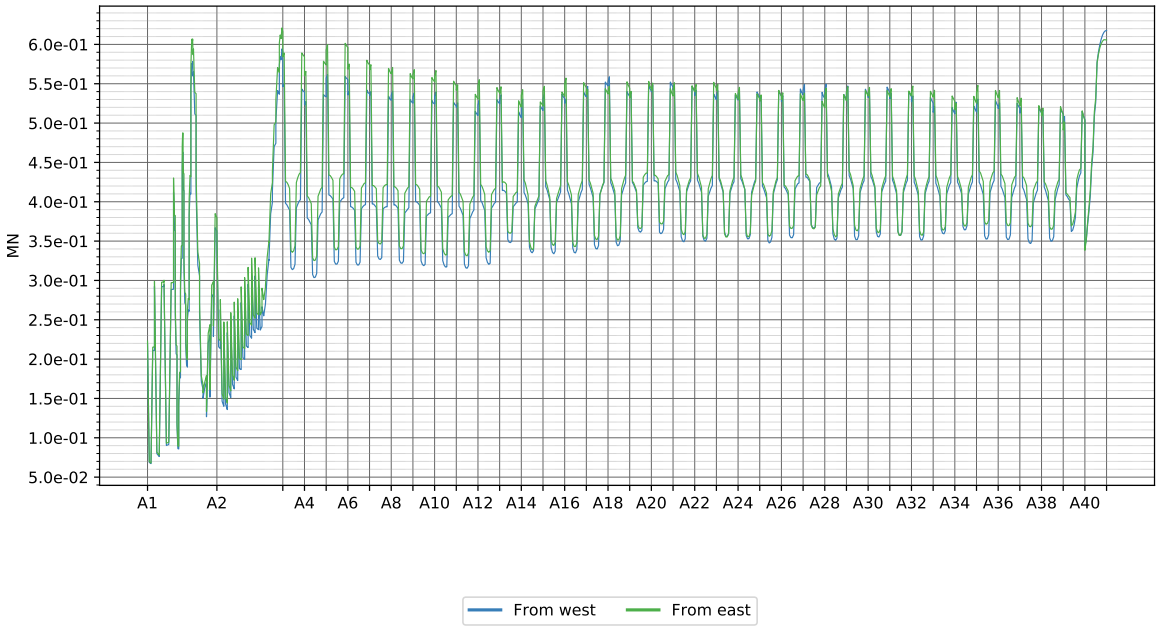
8.5.3 Traffic



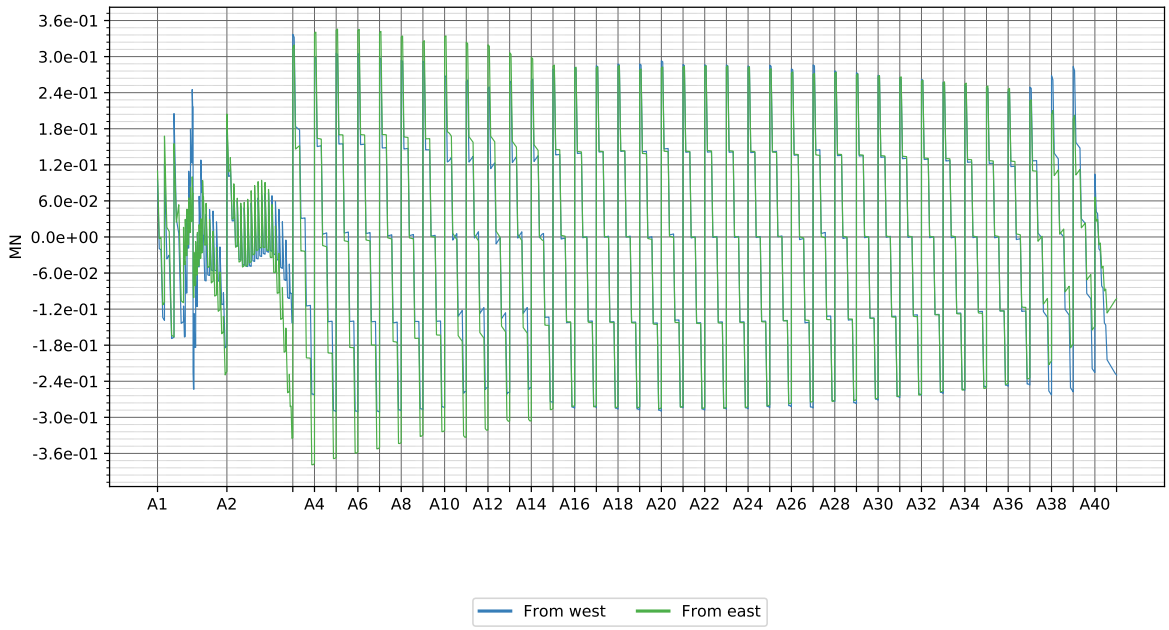
8.5.4 Tide



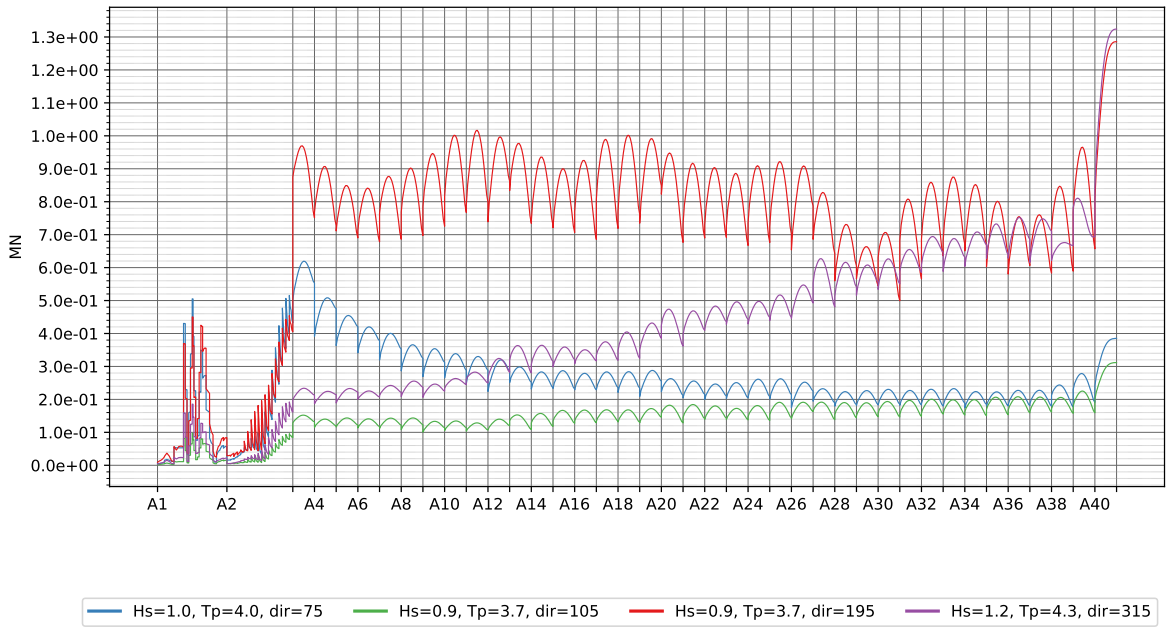
8.5.5 Dynamic wind 1 y



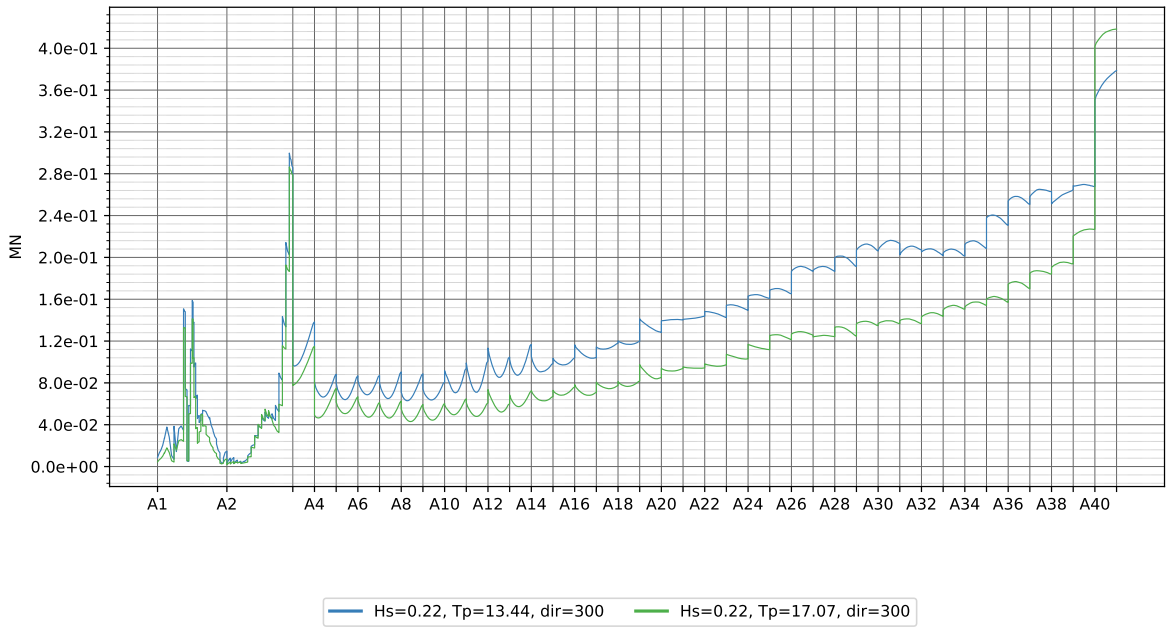
8.5.6 Static wind 1y



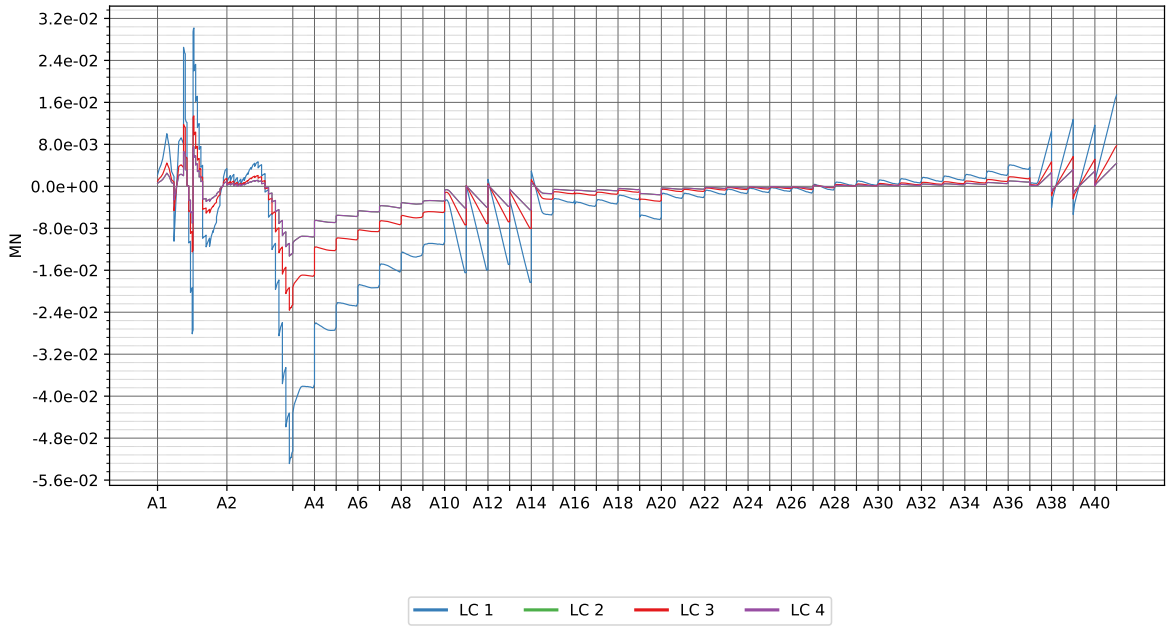
8.5.7 Wave 1 y



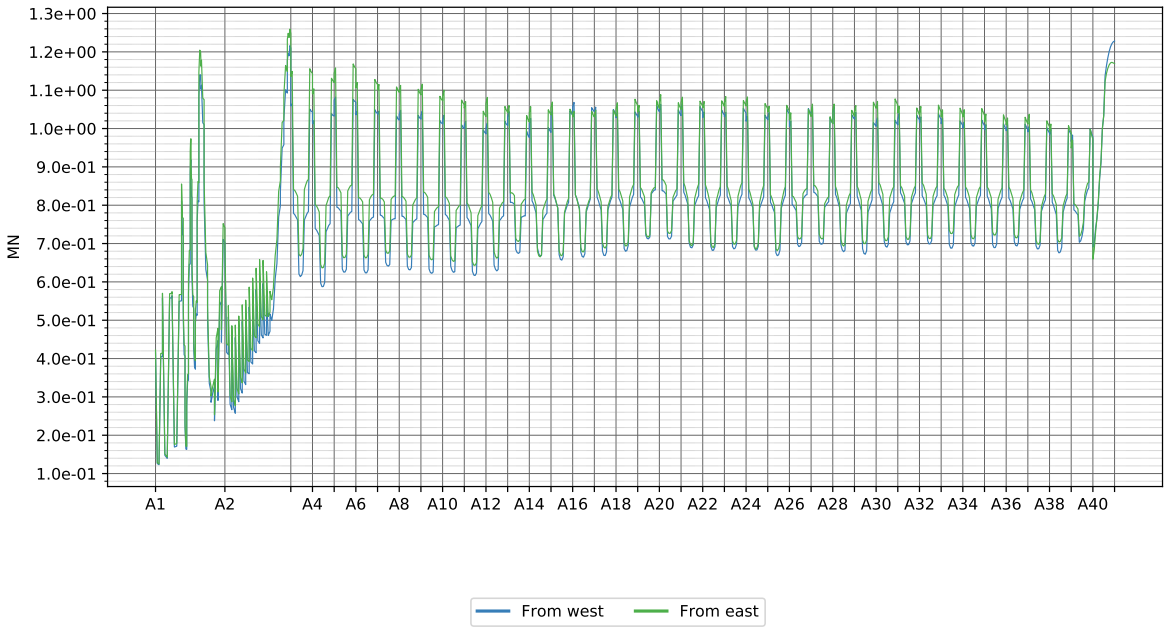
8.5.8 Swell 1 y



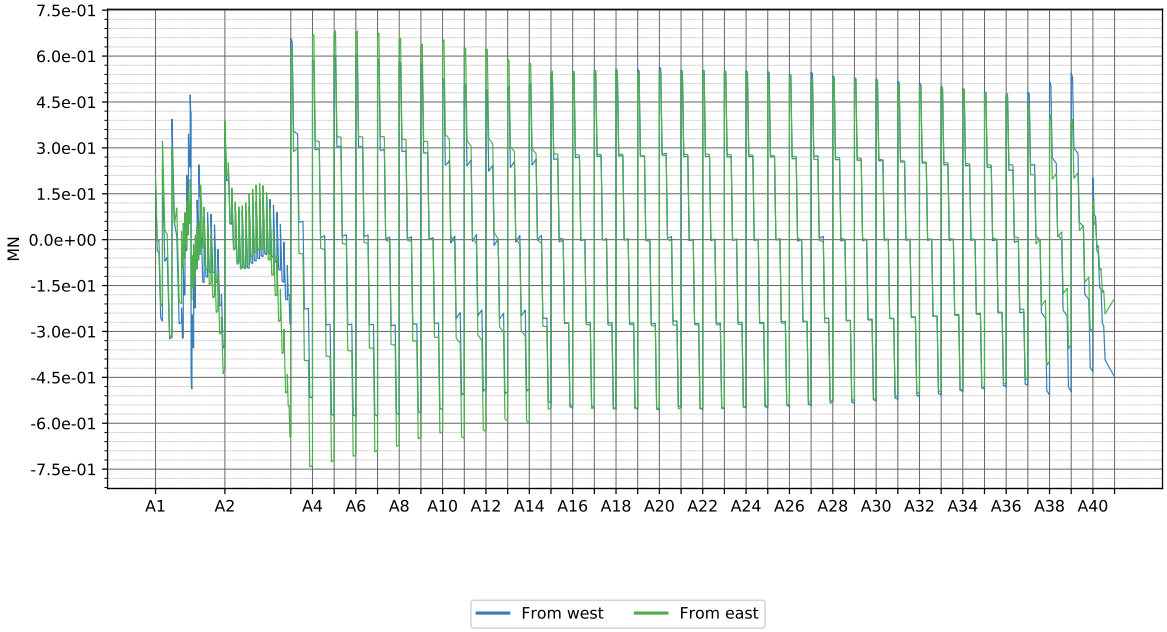
8.5.9 Current



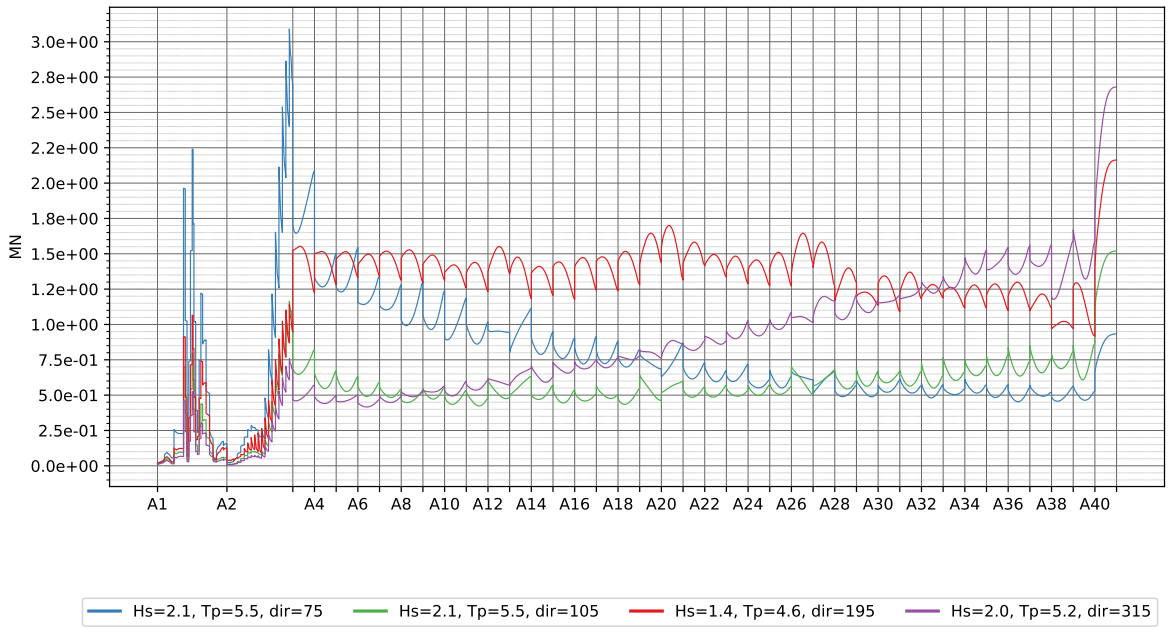
8.5.10 Dynamic wind 100 y



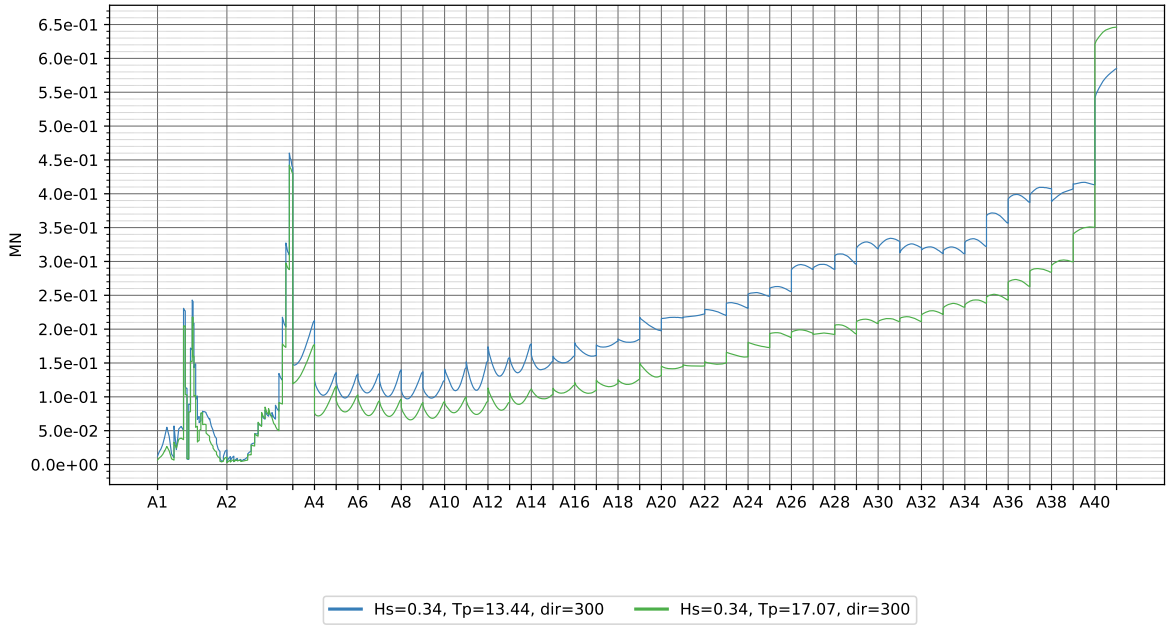
8.5.11 Static wind 100 y



8.5.12 Wave 100 y

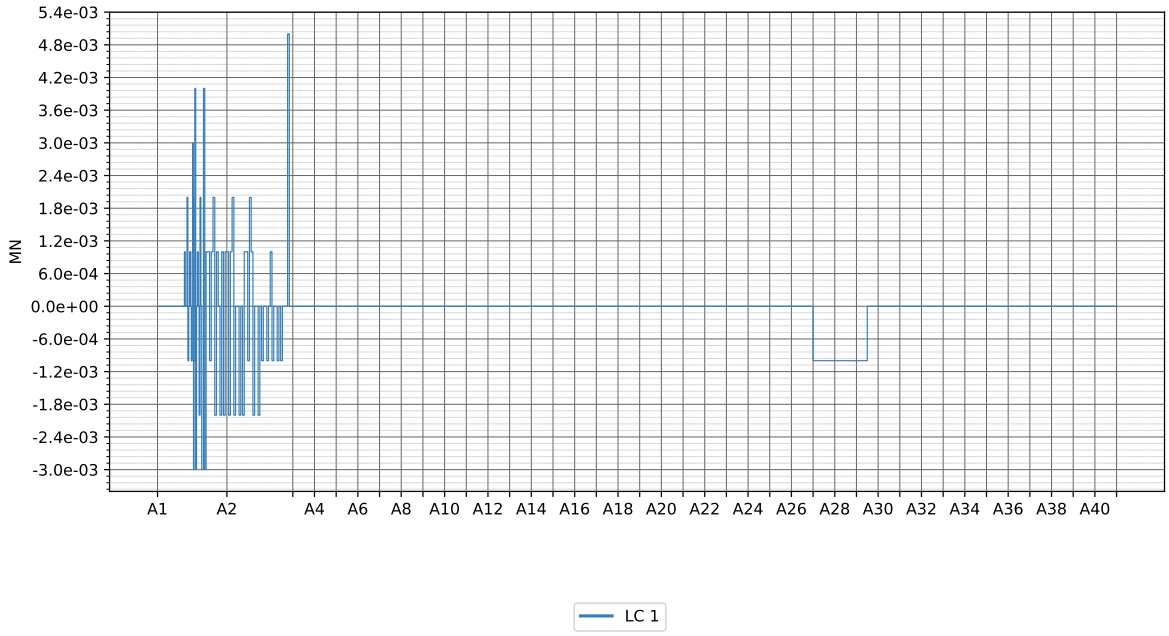


8.5.13 Swell 100 y

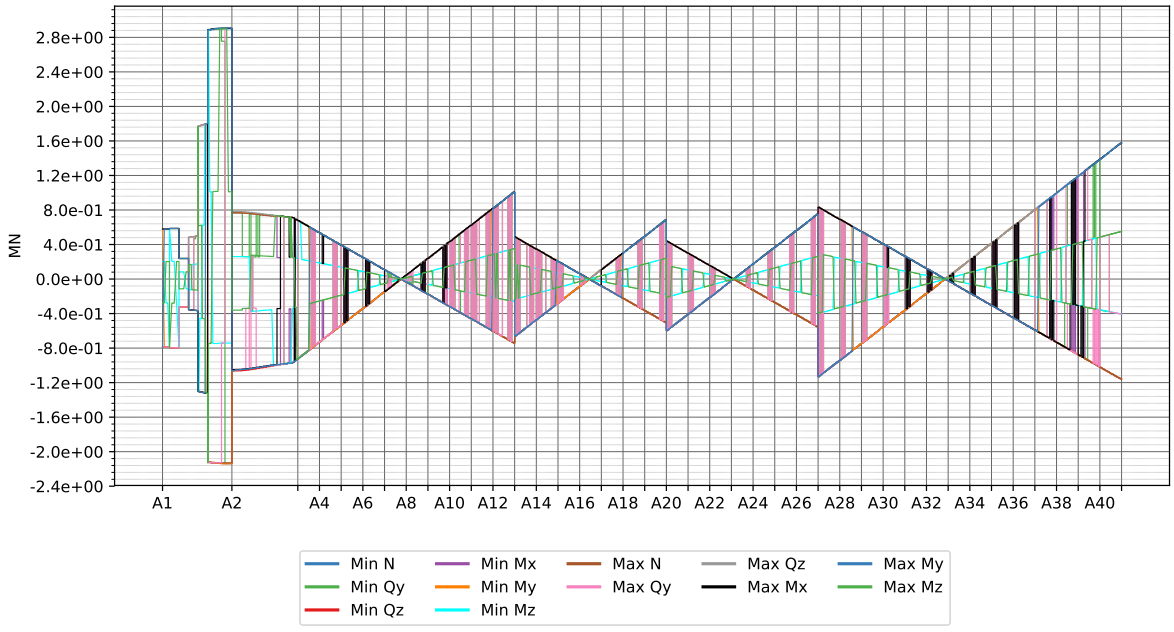


8.6 Transverse shear force

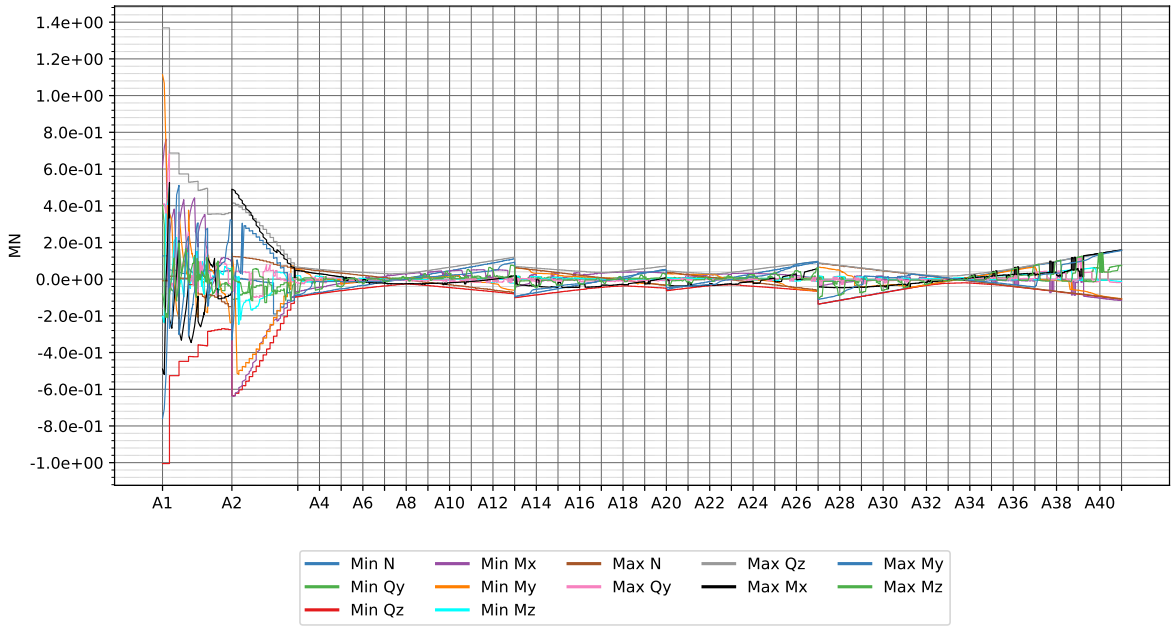
8.6.1 Permanent



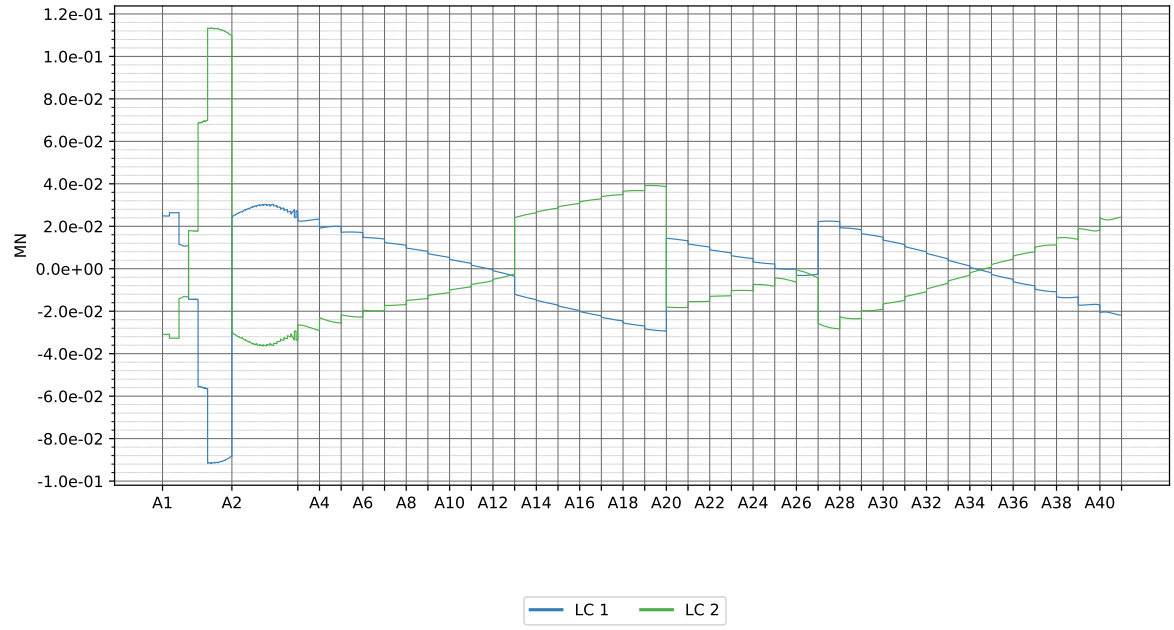
8.6.2 Temperature



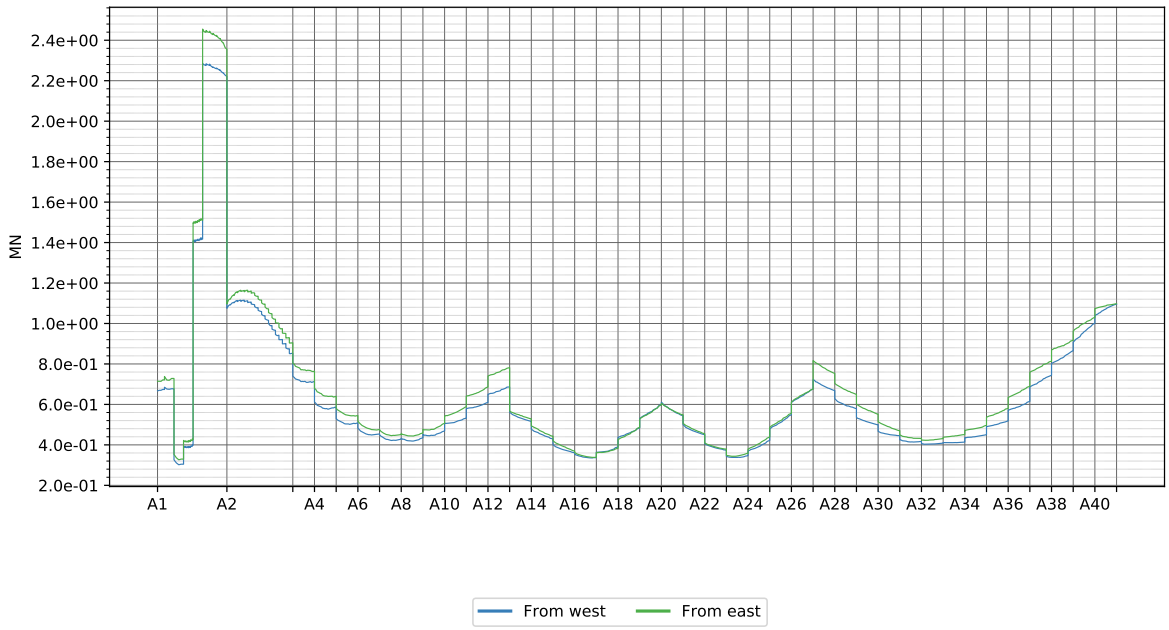
8.6.3 Traffic



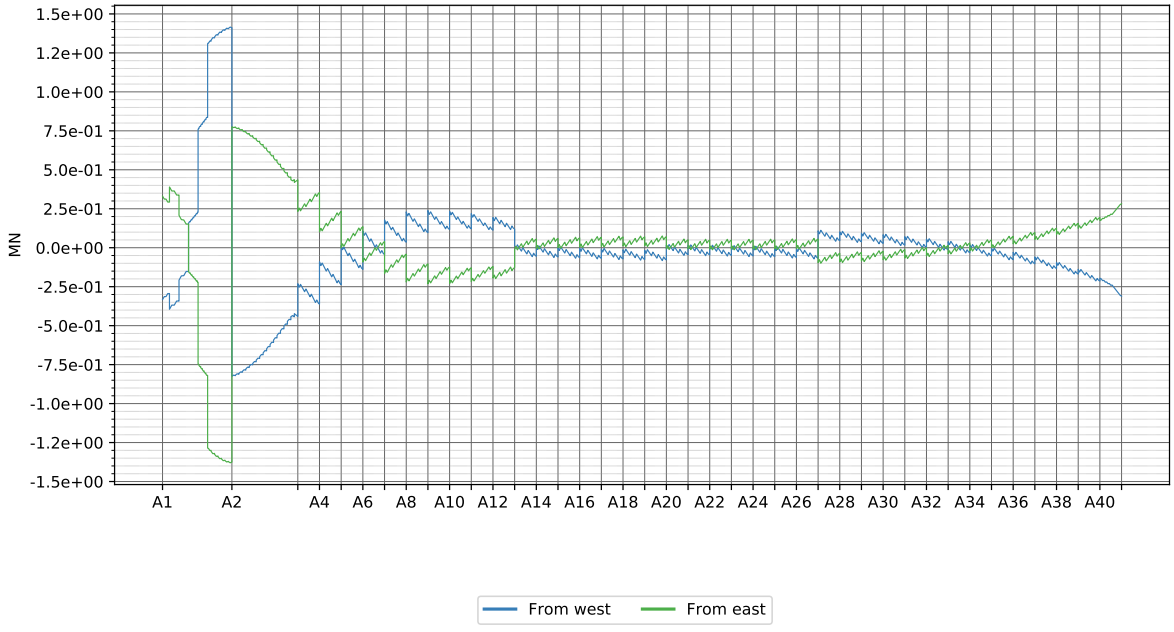
8.6.4 Tide



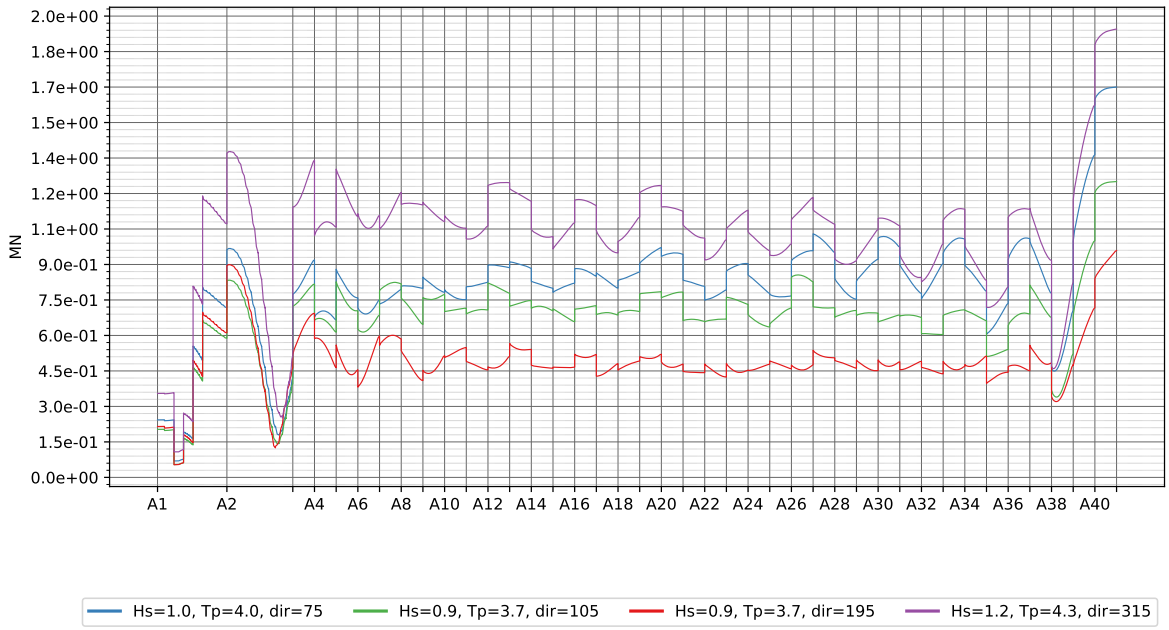
8.6.5 Dynamic wind 1 y



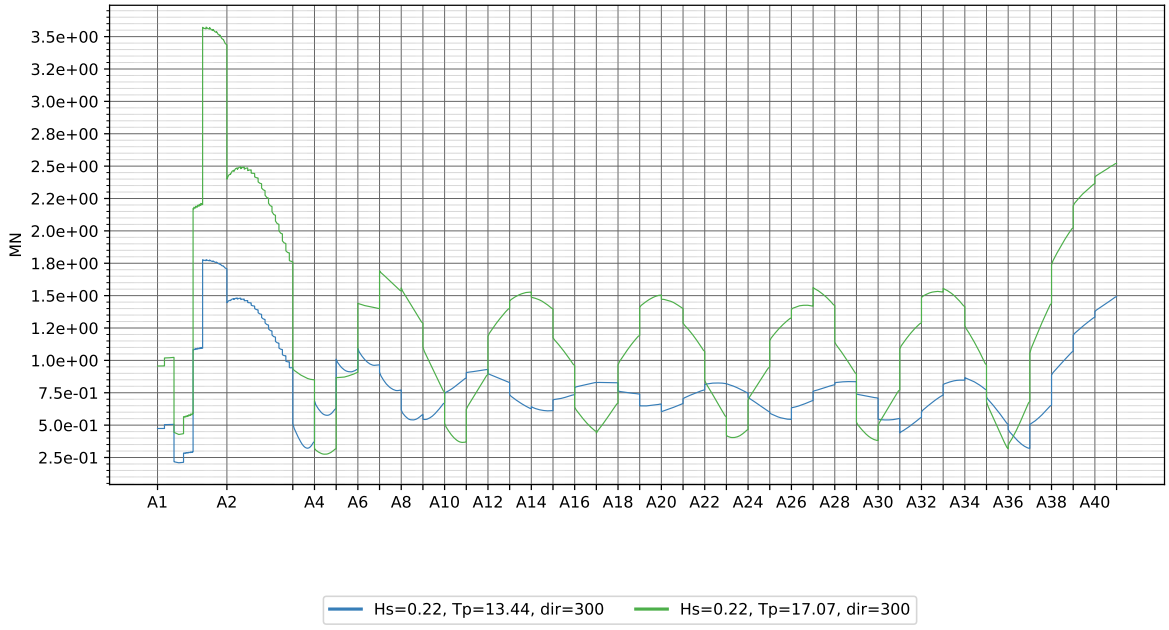
8.6.6 Static wind 1y



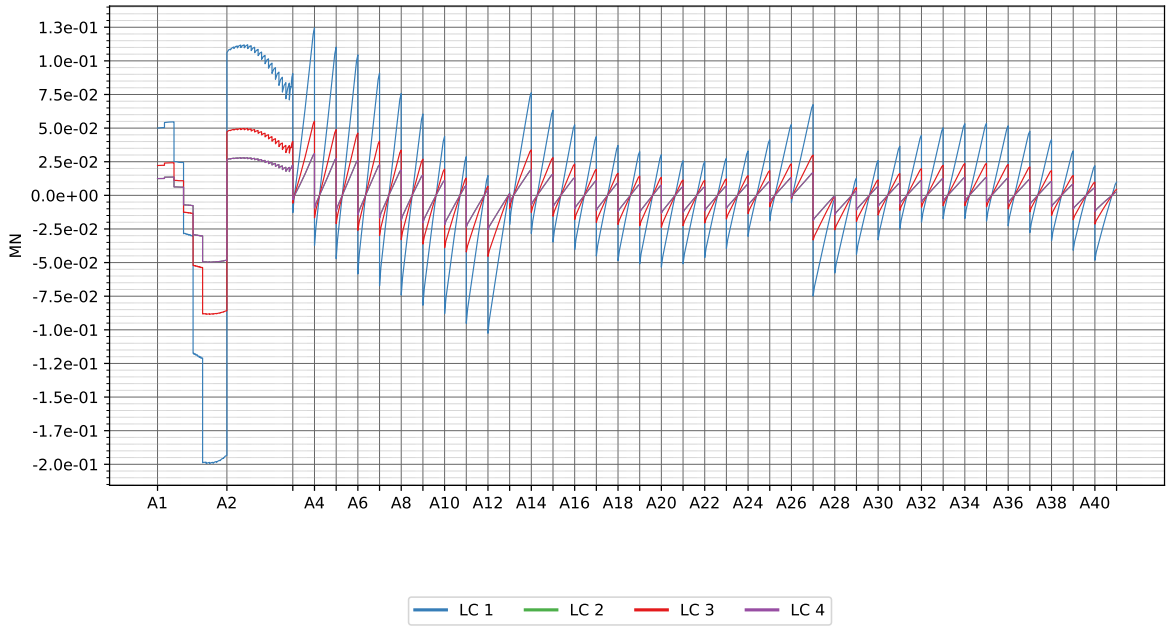
8.6.7 Wave 1 y



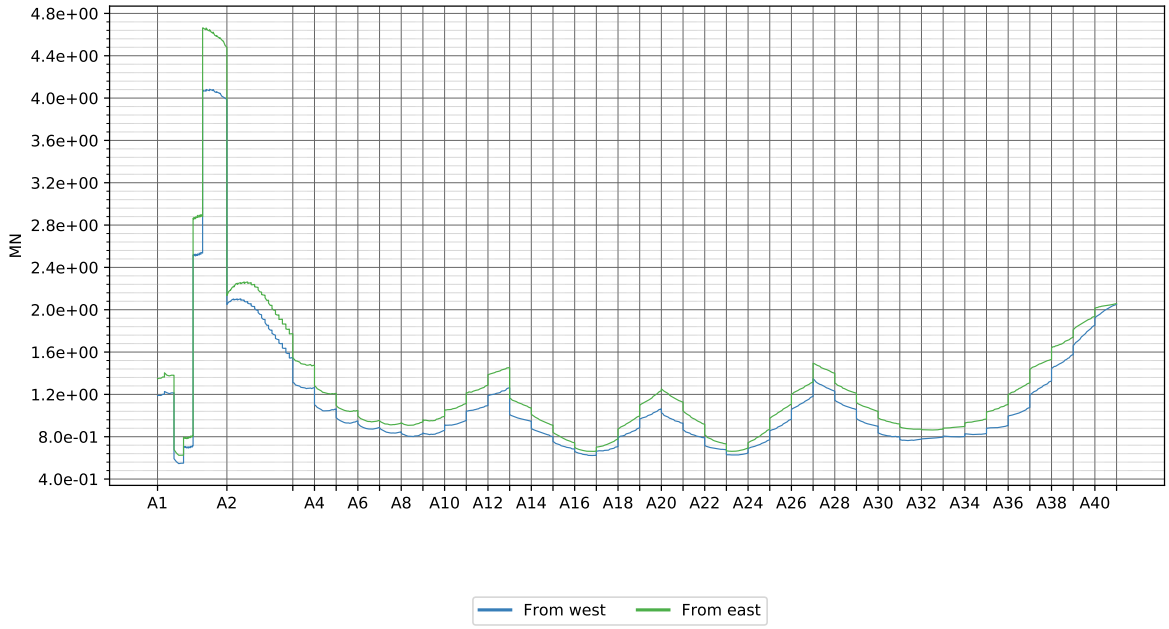
8.6.8 Swell 1 y



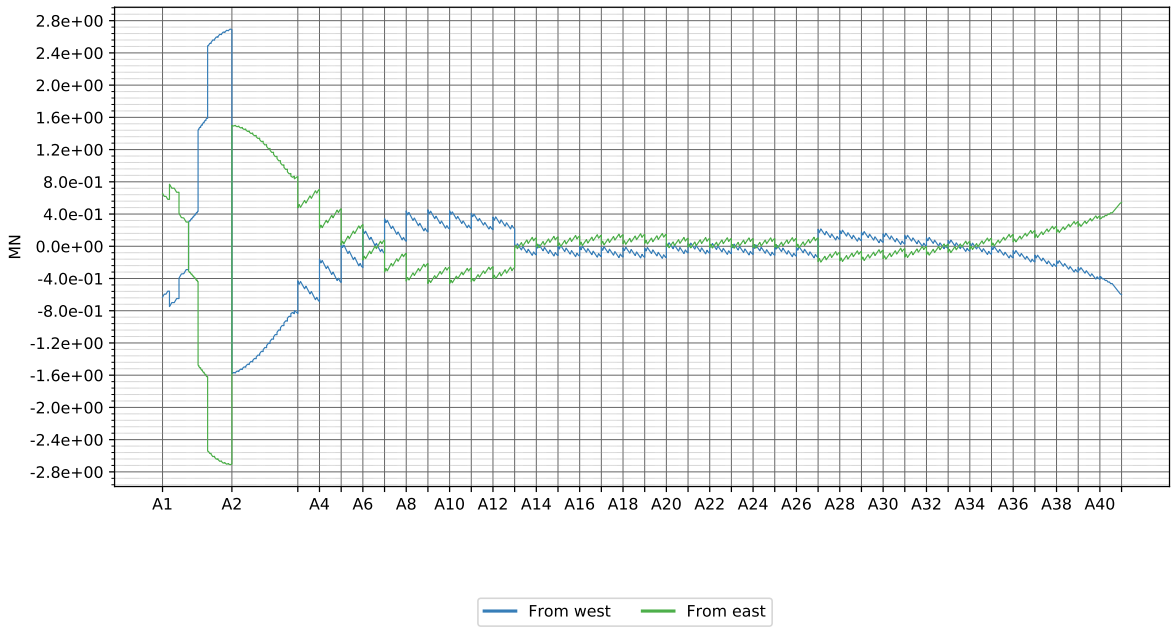
8.6.9 Current



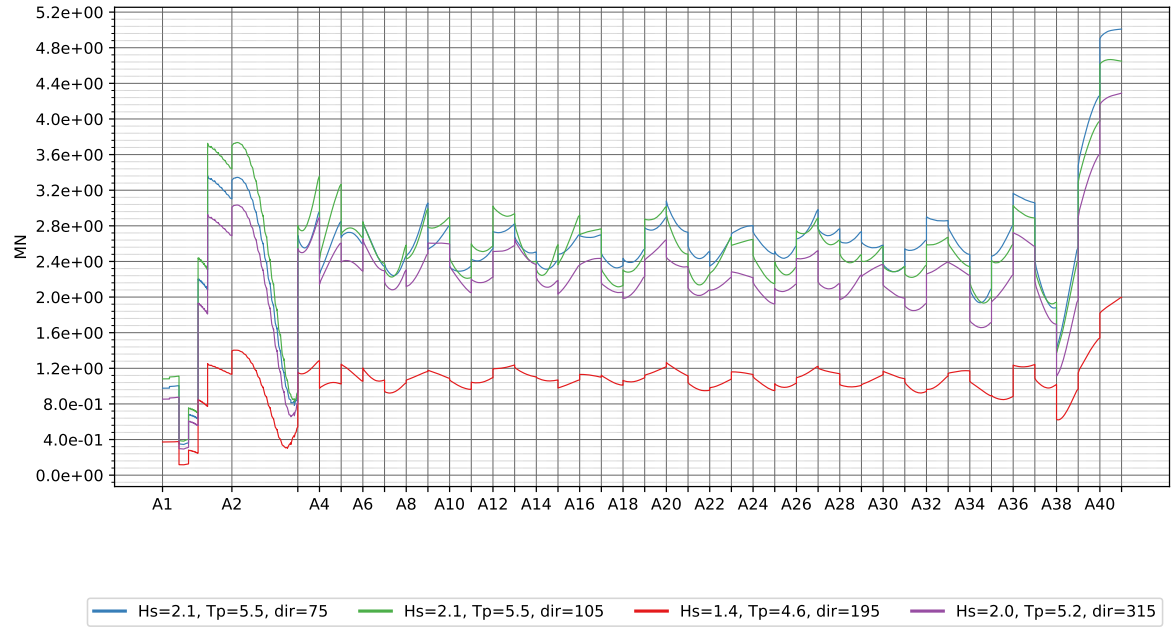
8.6.10 Dynamic wind 100 y



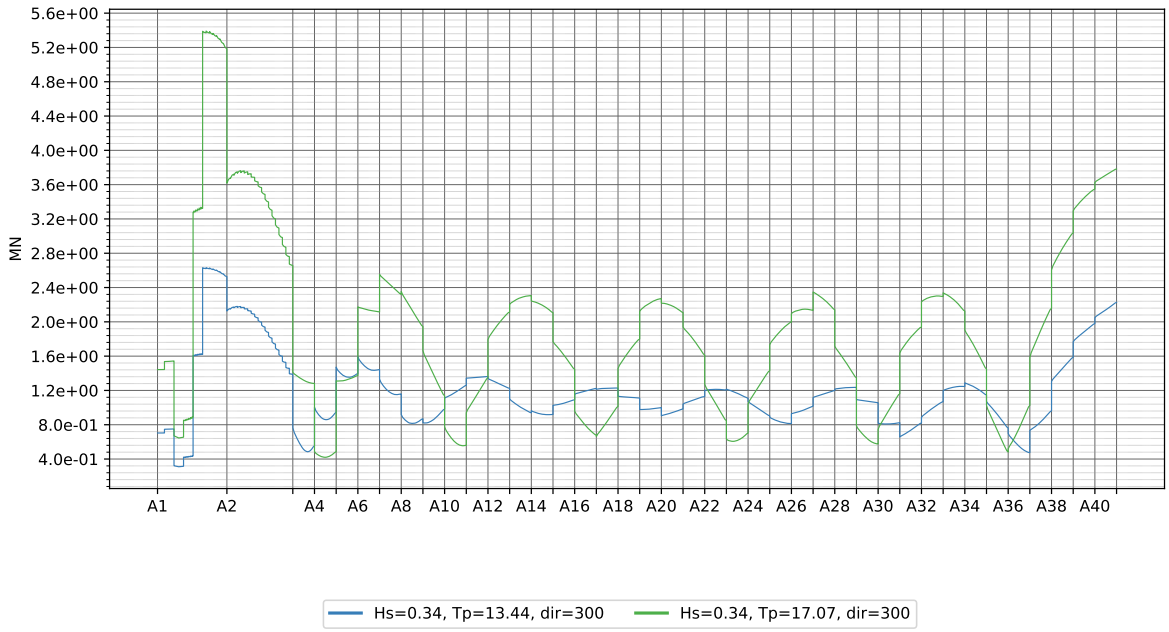
8.6.11 Static wind 100 y



8.6.12 Wave 100 y



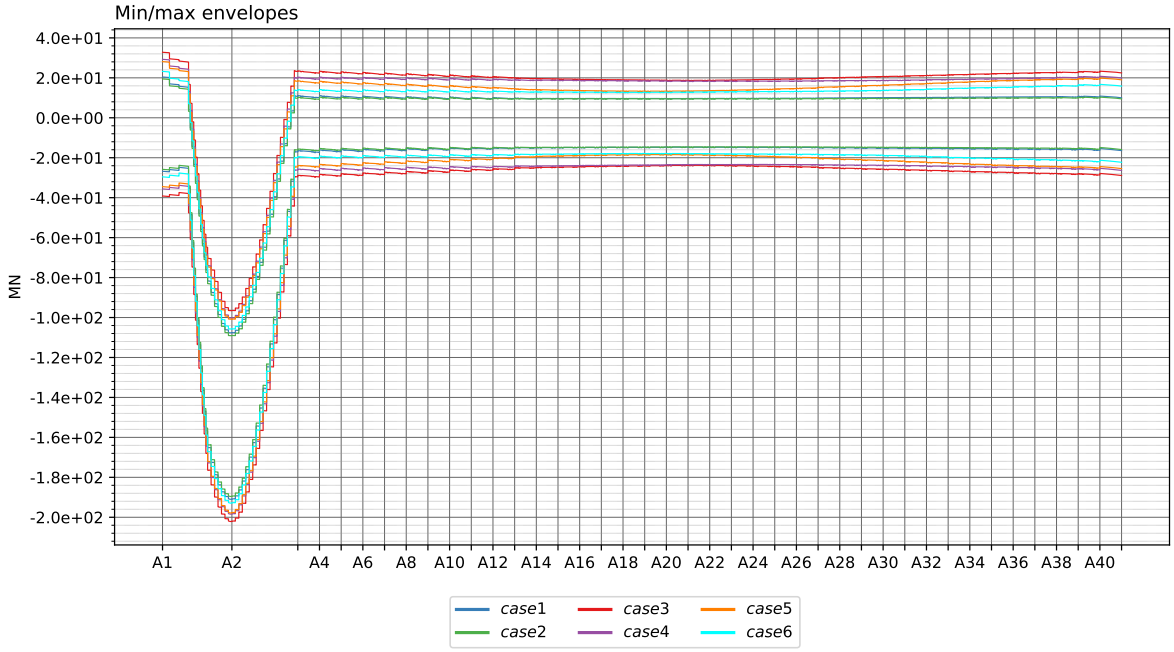
8.6.13 Swell 100 y



9 Combined results (incl. load factors)

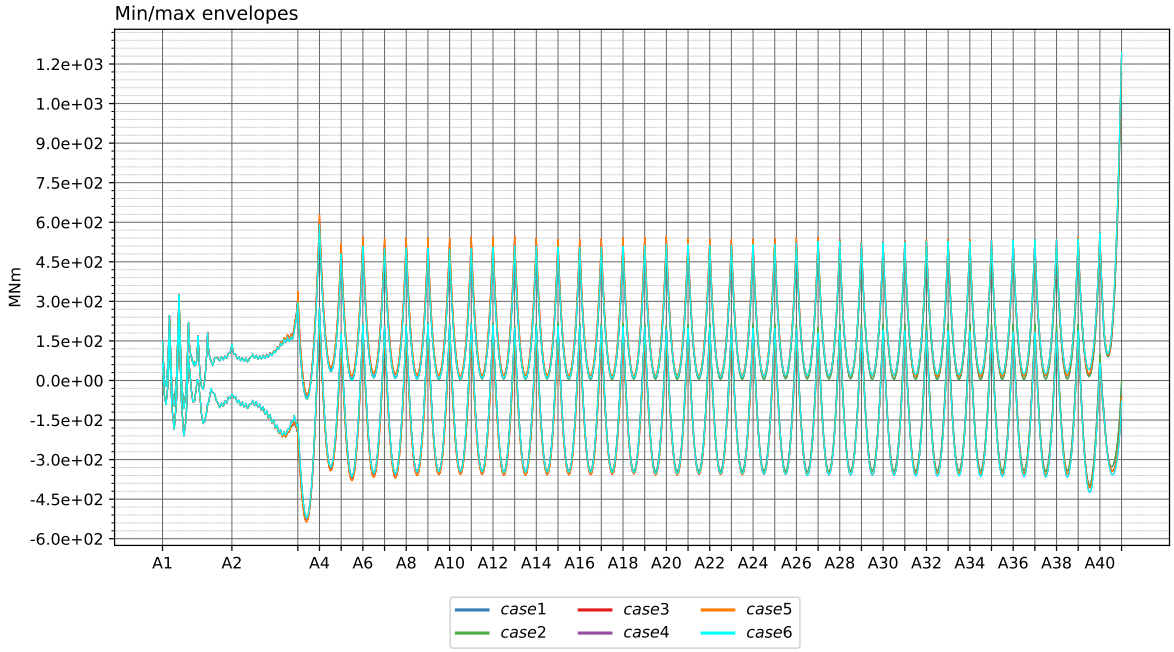
9.1 ULS2

9.1.1 Axial force

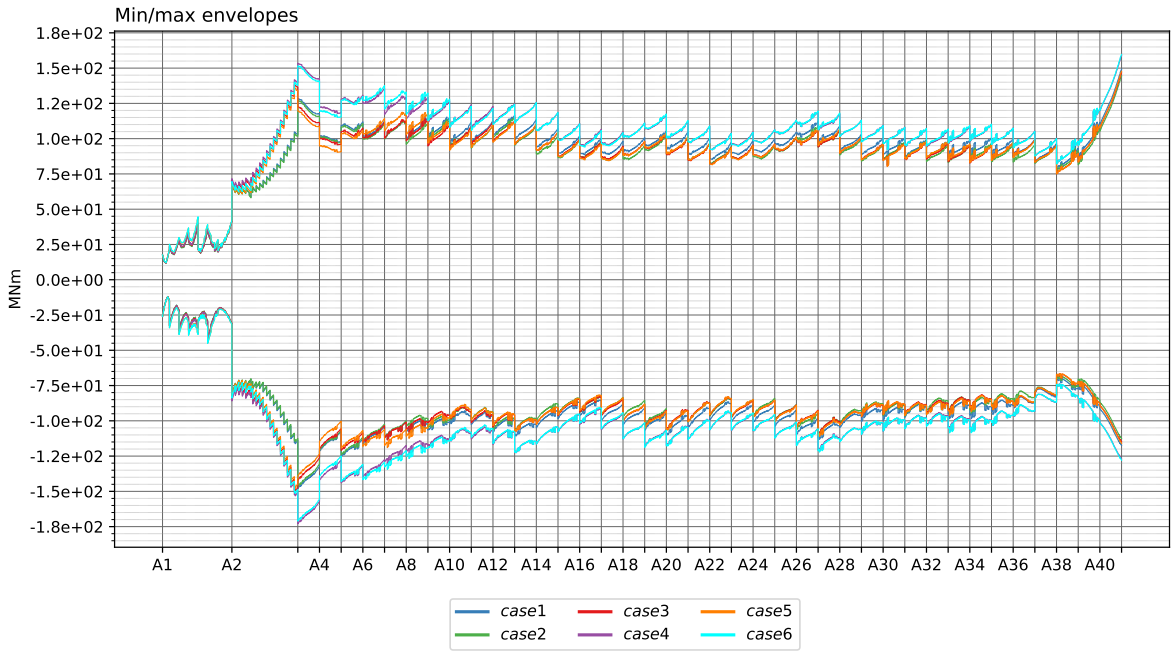


9.1.2 Bending moment about strong axis

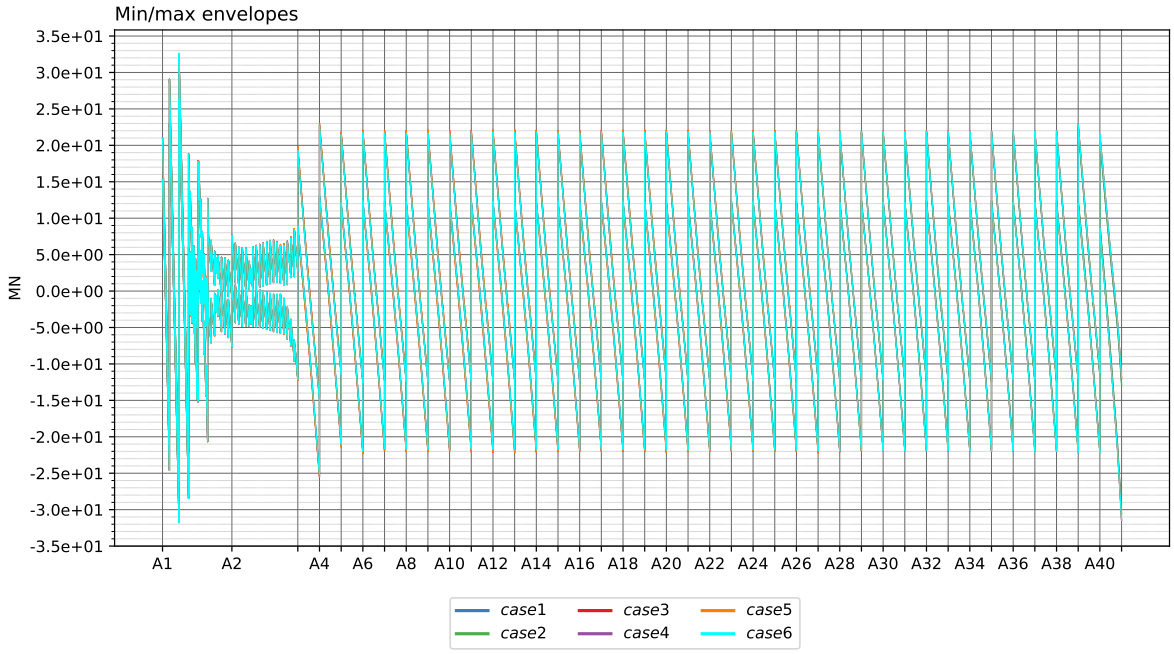
9.1.3 Bending moment about weak axis



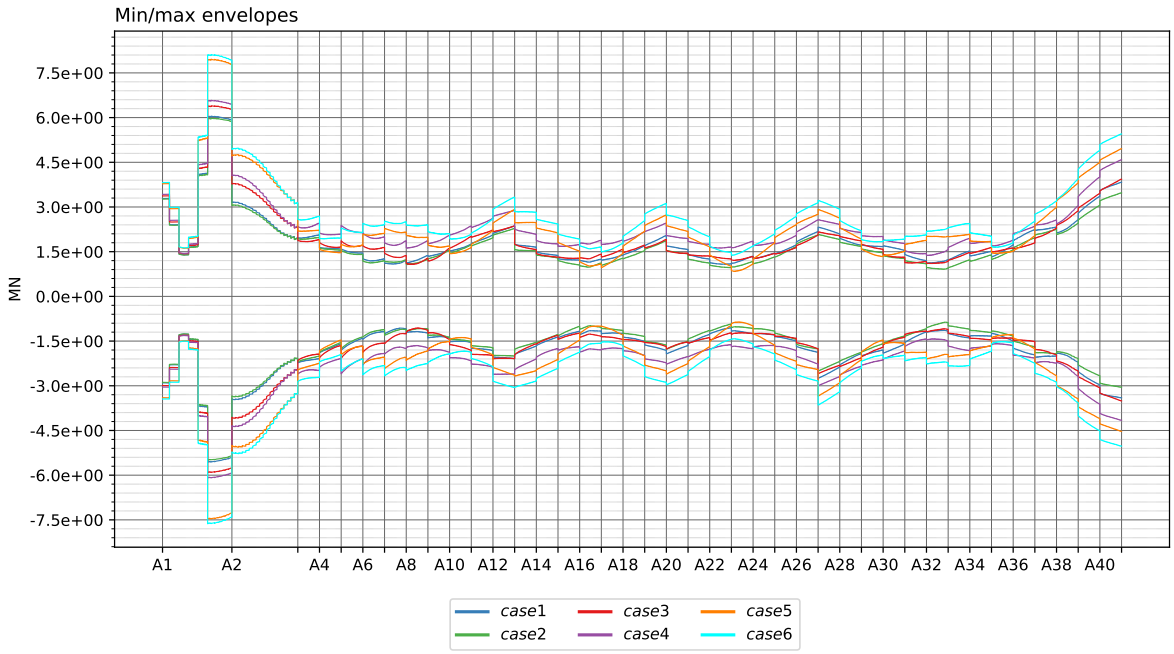
9.1.4 Torsional moment



9.1.5 Vertical shear force

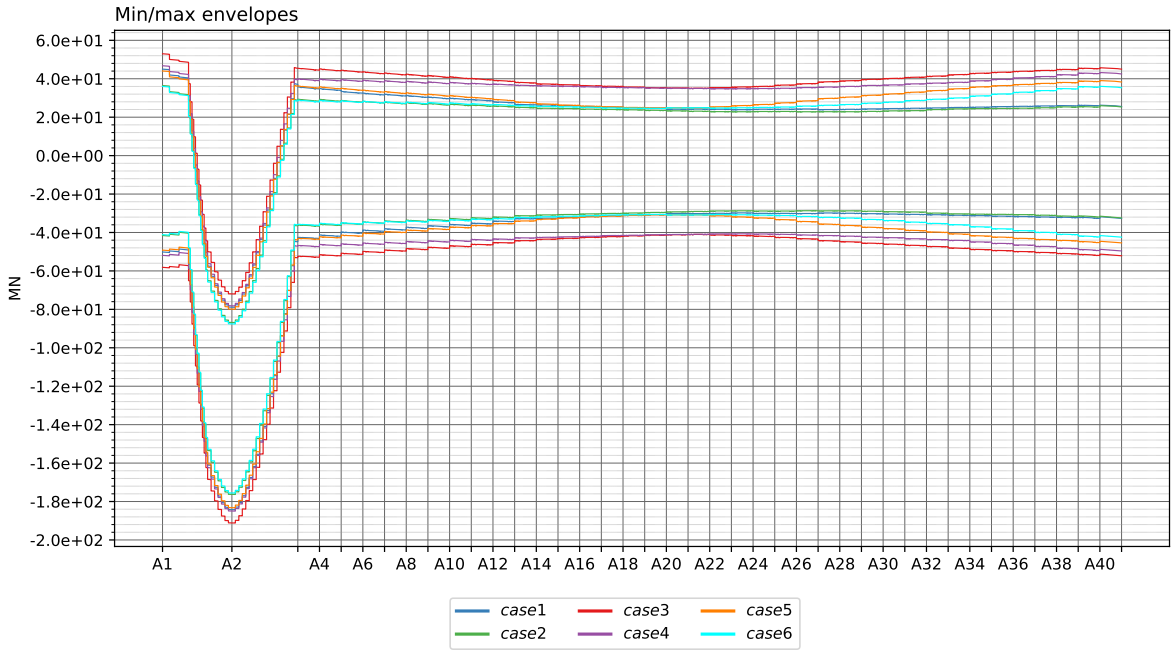


9.1.6 Transverse shear force

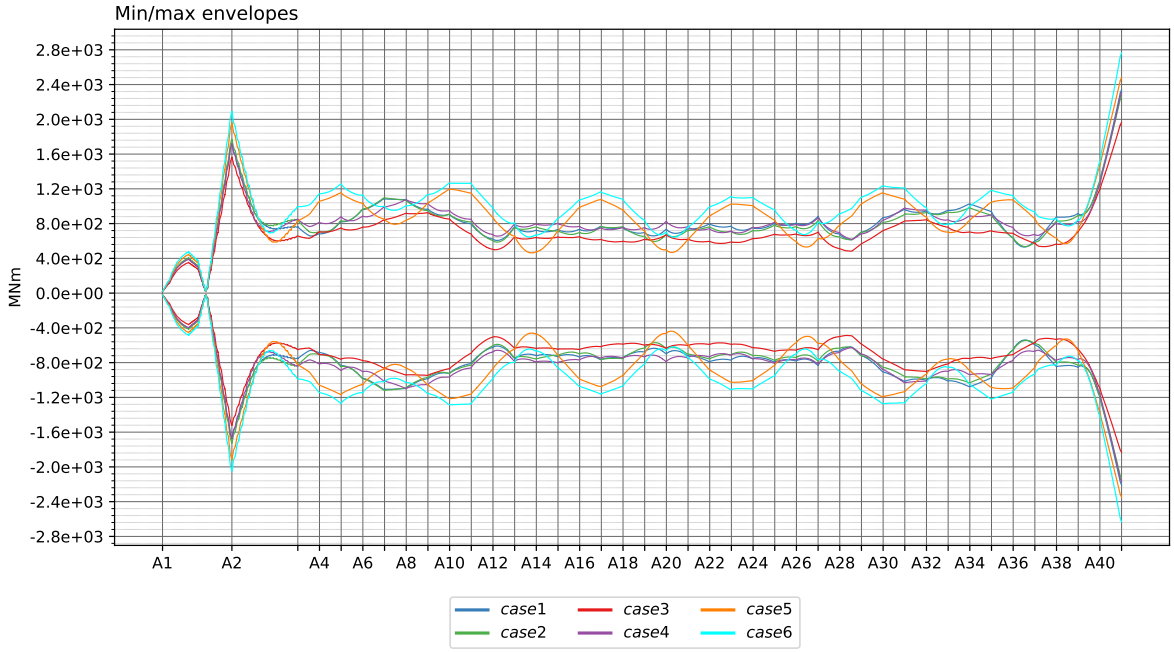


9.2 ULS3

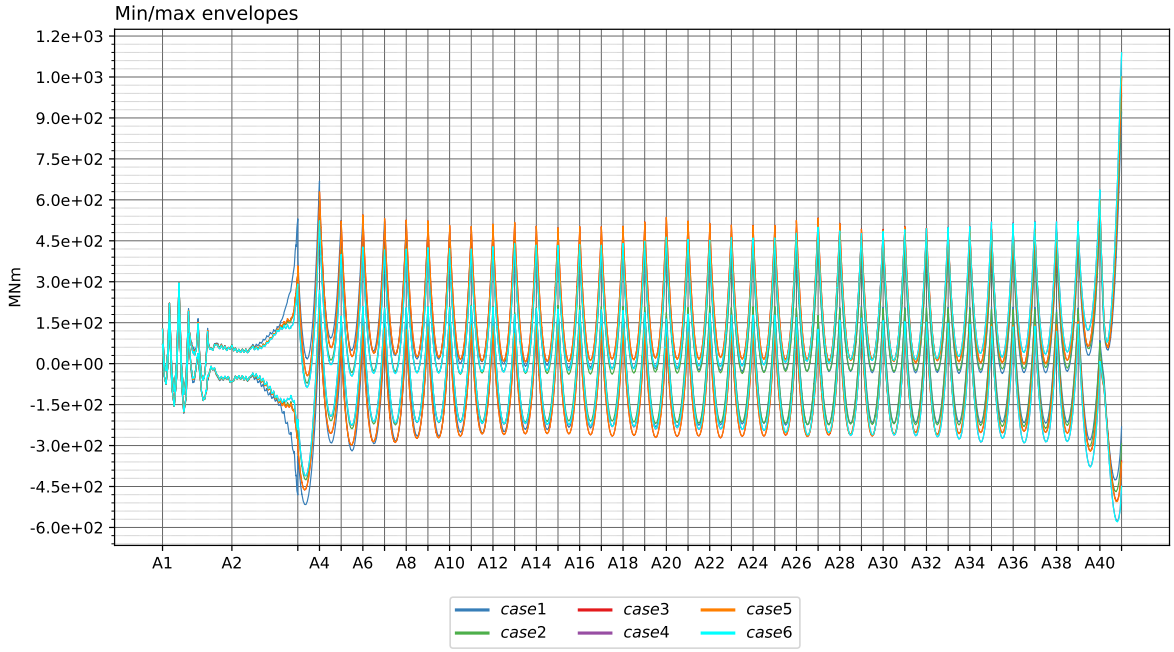
9.2.1 Axial force



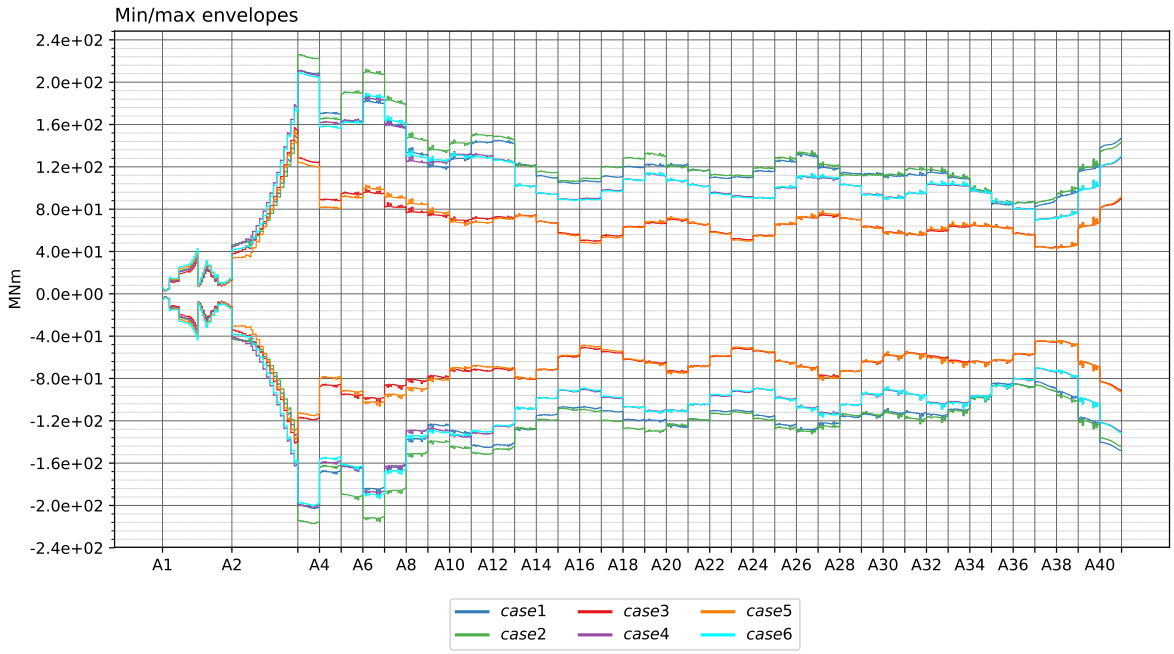
9.2.2 Bending moment about strong axis



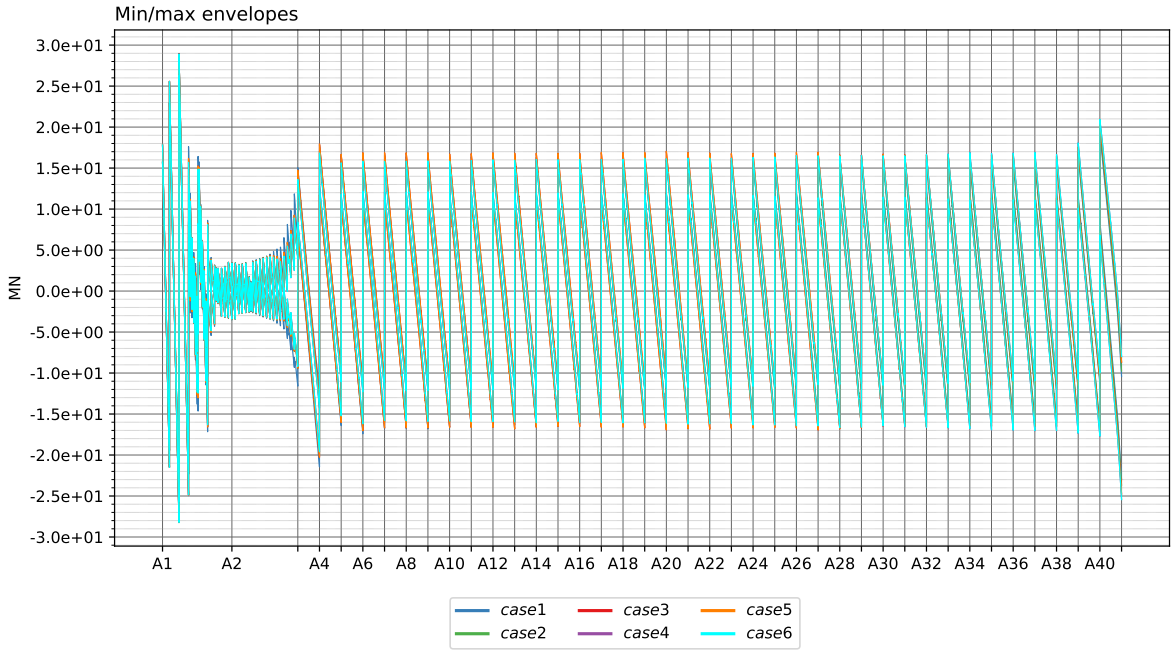
9.2.3 Bending moment about weak axis



9.2.4 Torsional moment



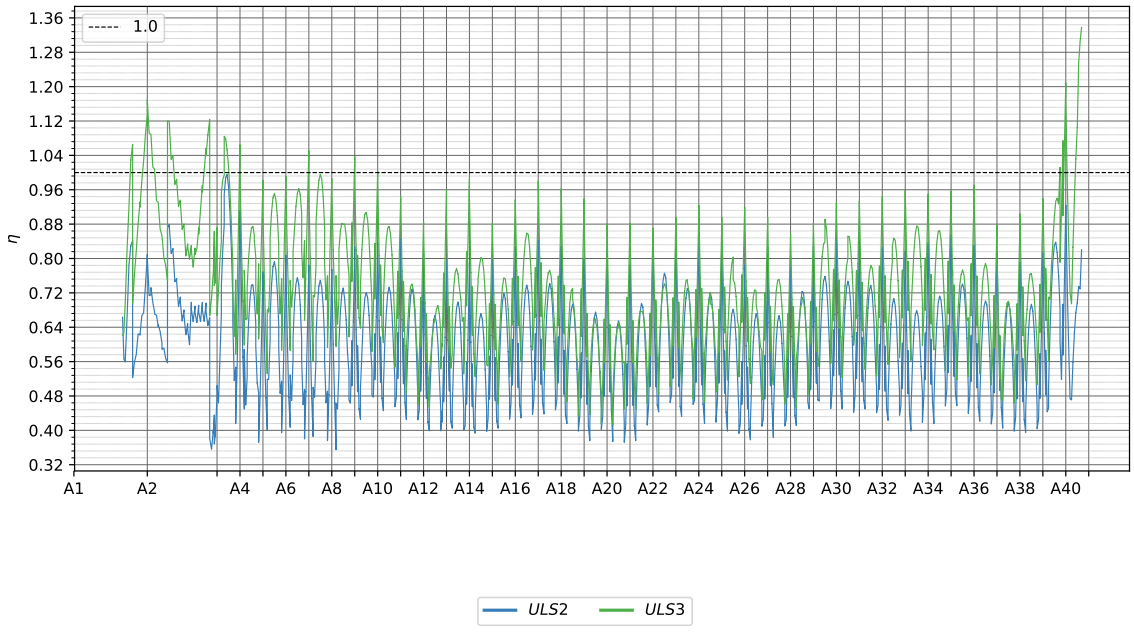
9.2.5 Vertical shear force



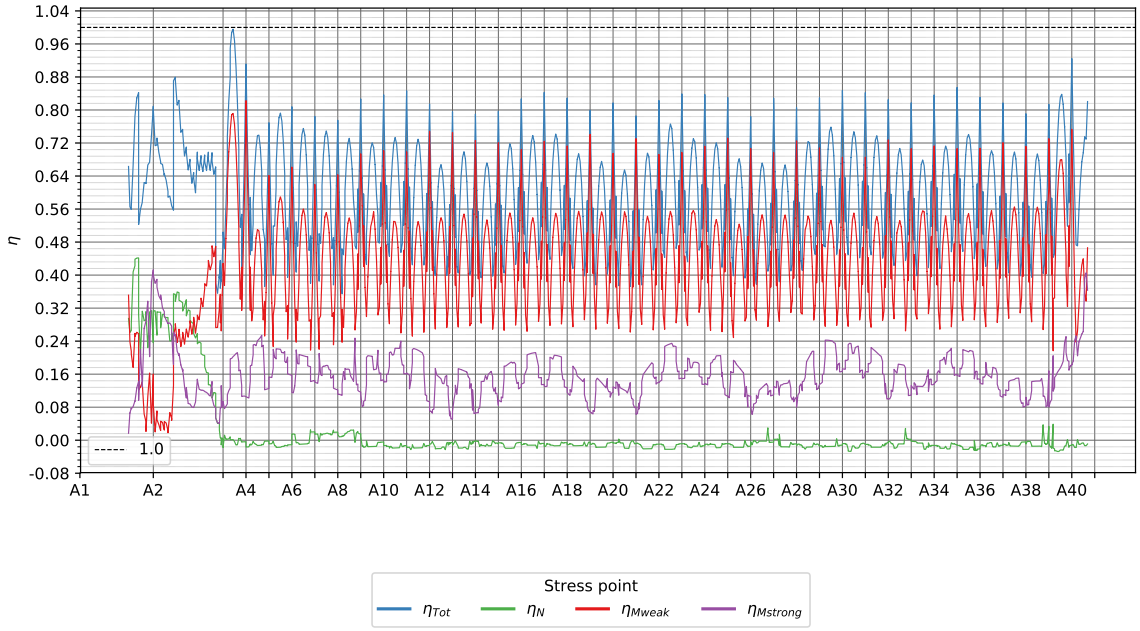
9.2.6 Transverse shear force

10 Capacity check - Method 1

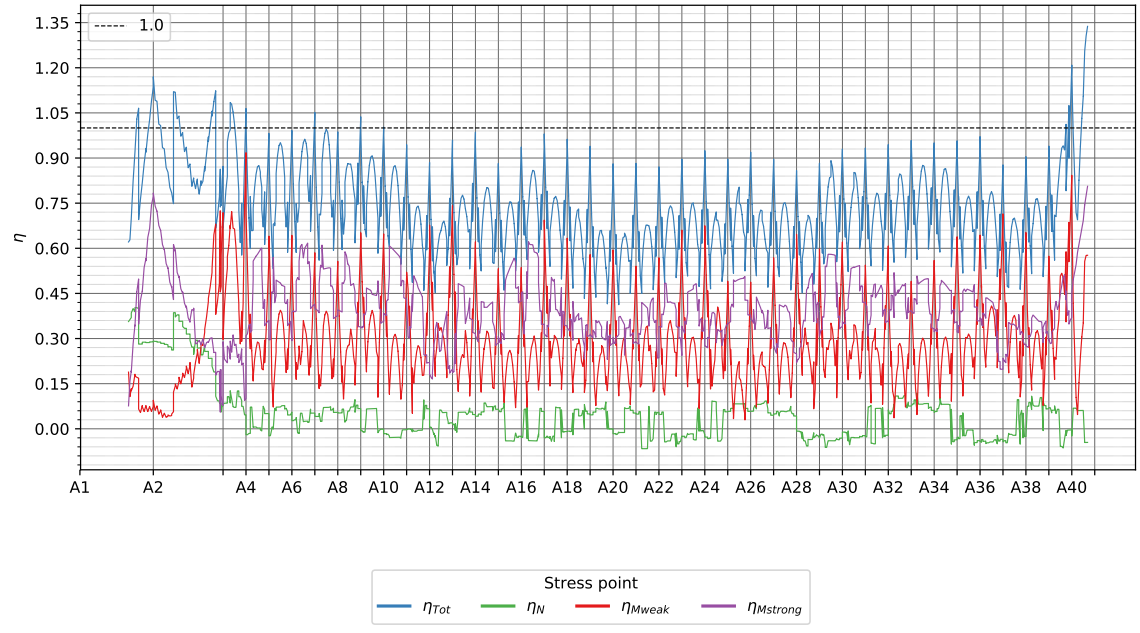
10.1 Total utilization



10.2 Utilization breakdown ULS2

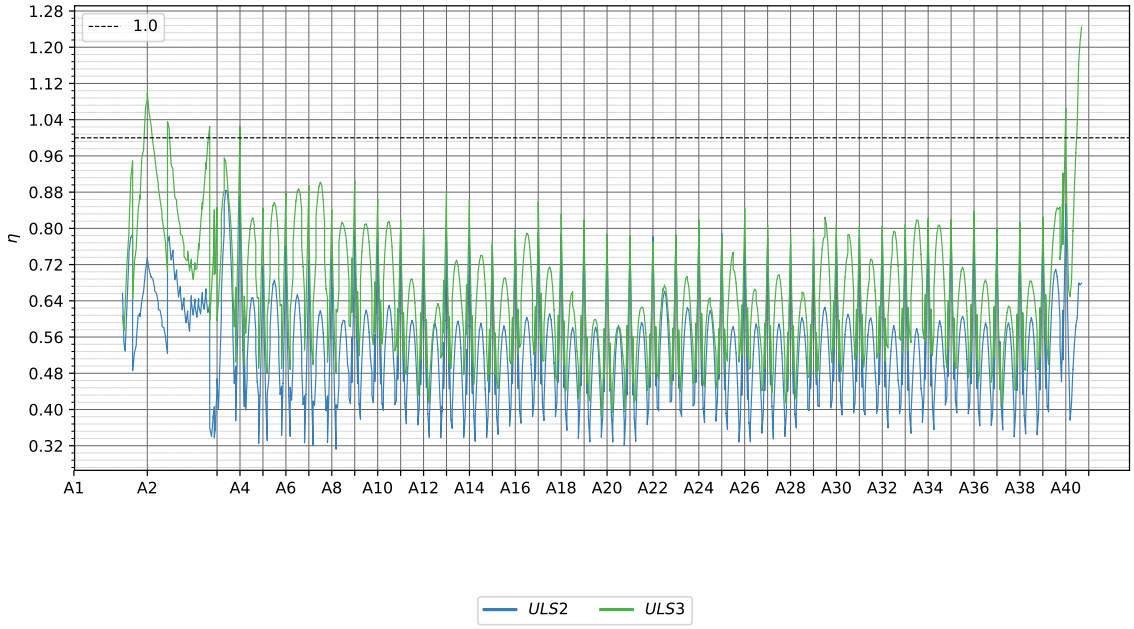


10.3 Utilization breakdown ULS3

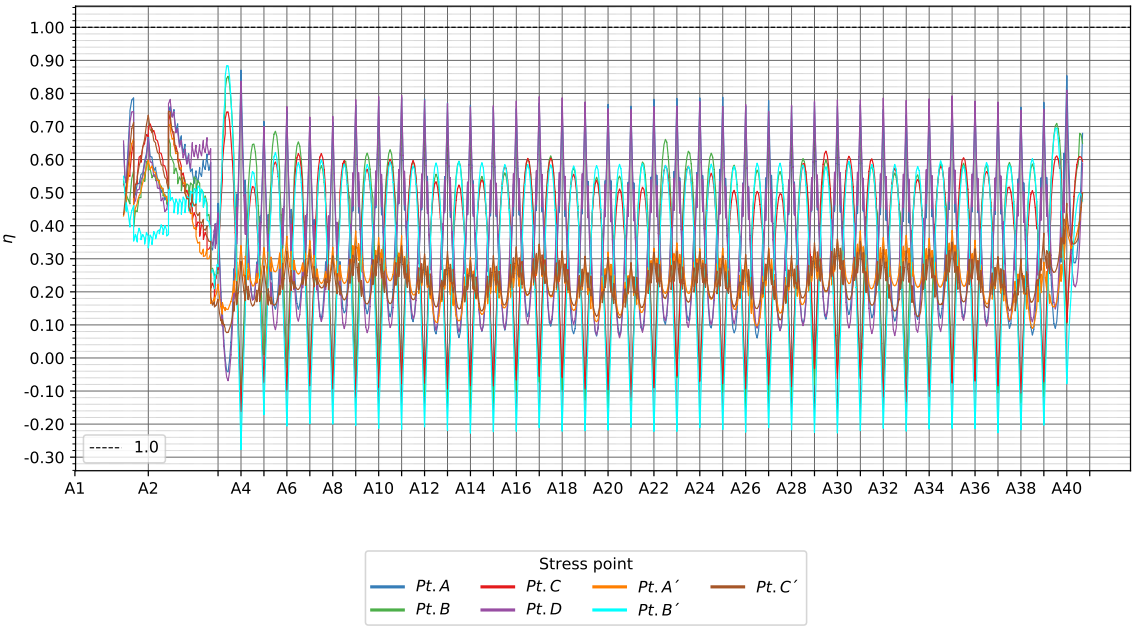


11 Capacity check - Method 2

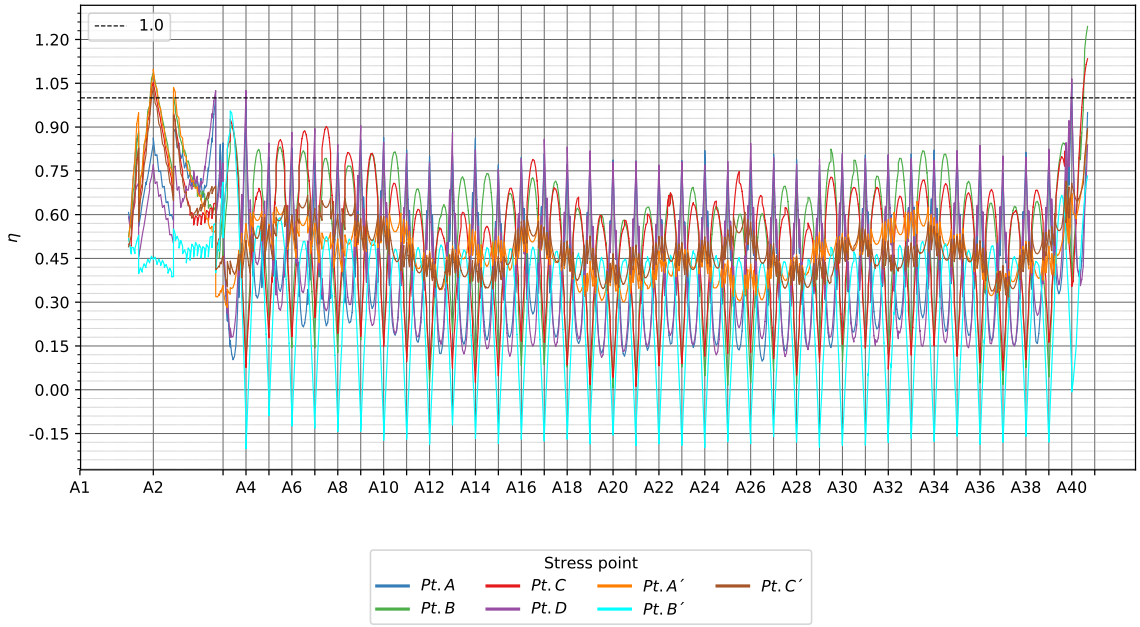
11.1 Total utilization - Envelope



11.2 Total utilization at points ULS2

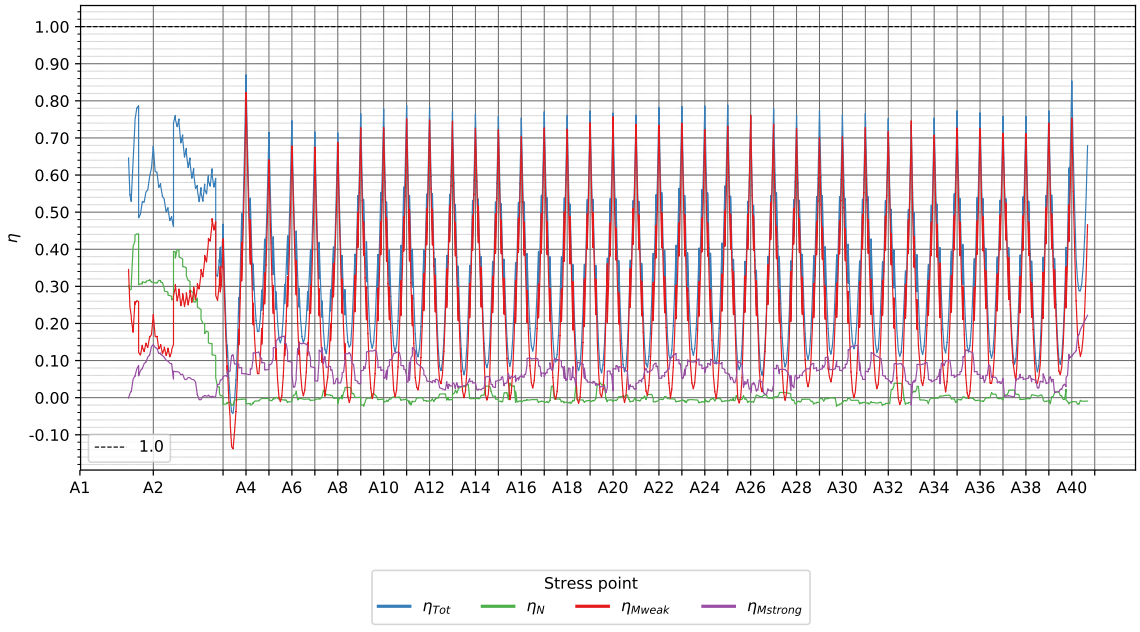


11.3 Total utilization at points ULS3

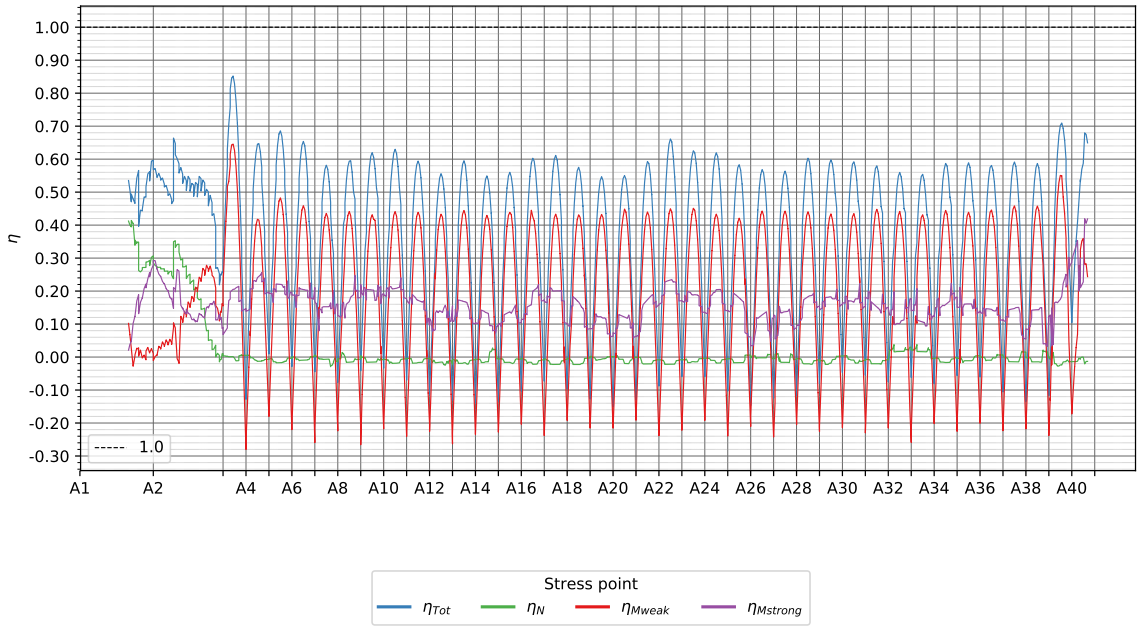


11.4 Utilization breakdown ULS2

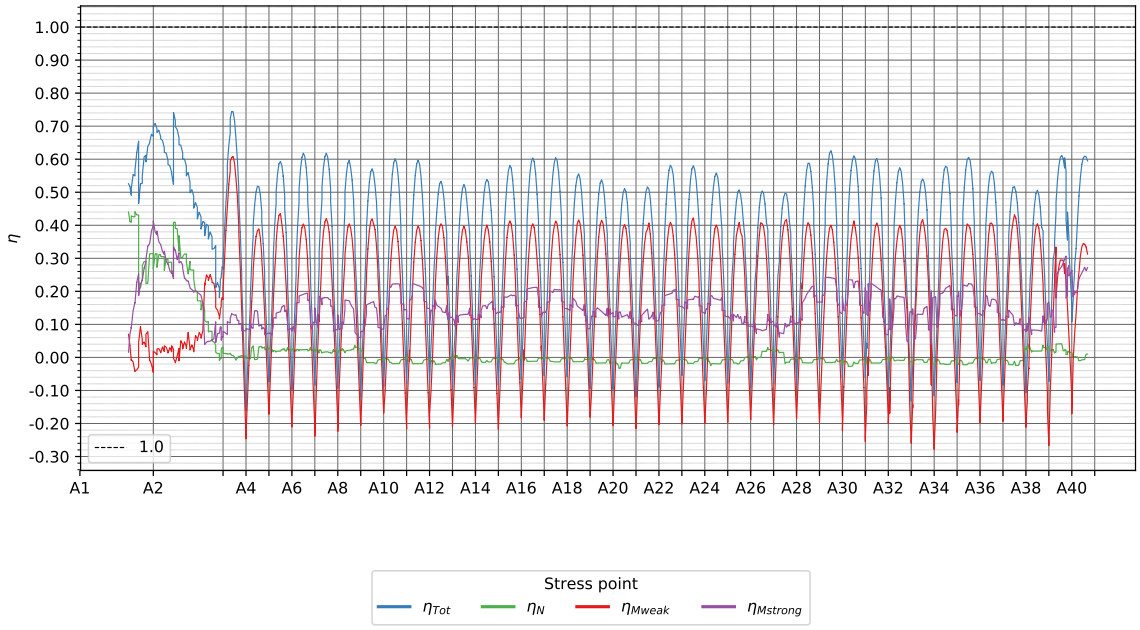
11.4.1 Pt. A



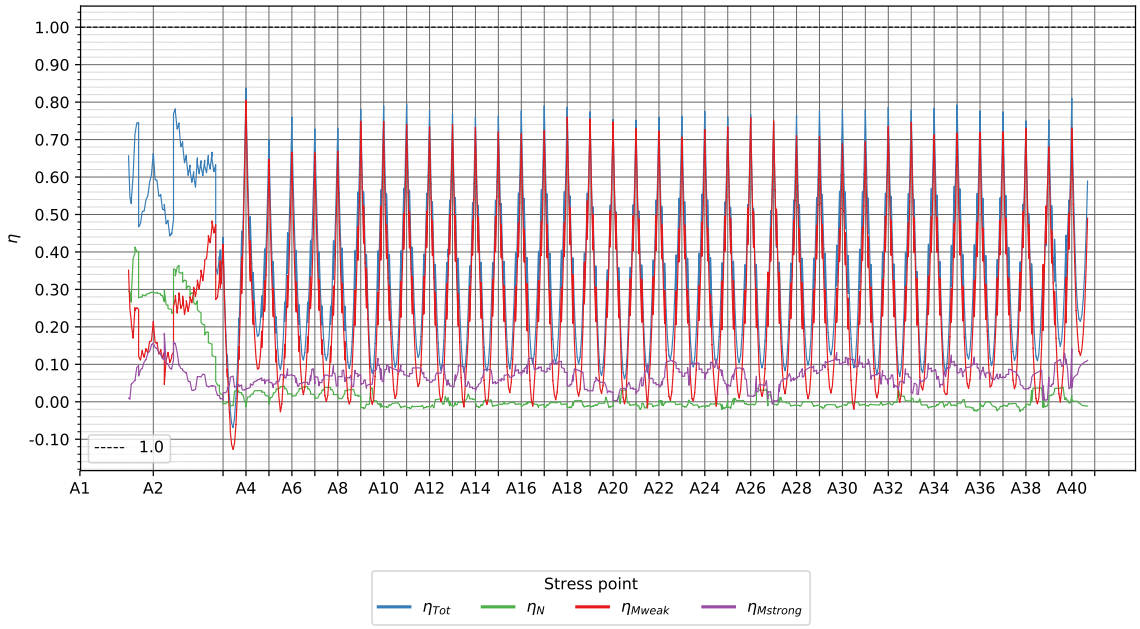
11.4.2 Pt. B



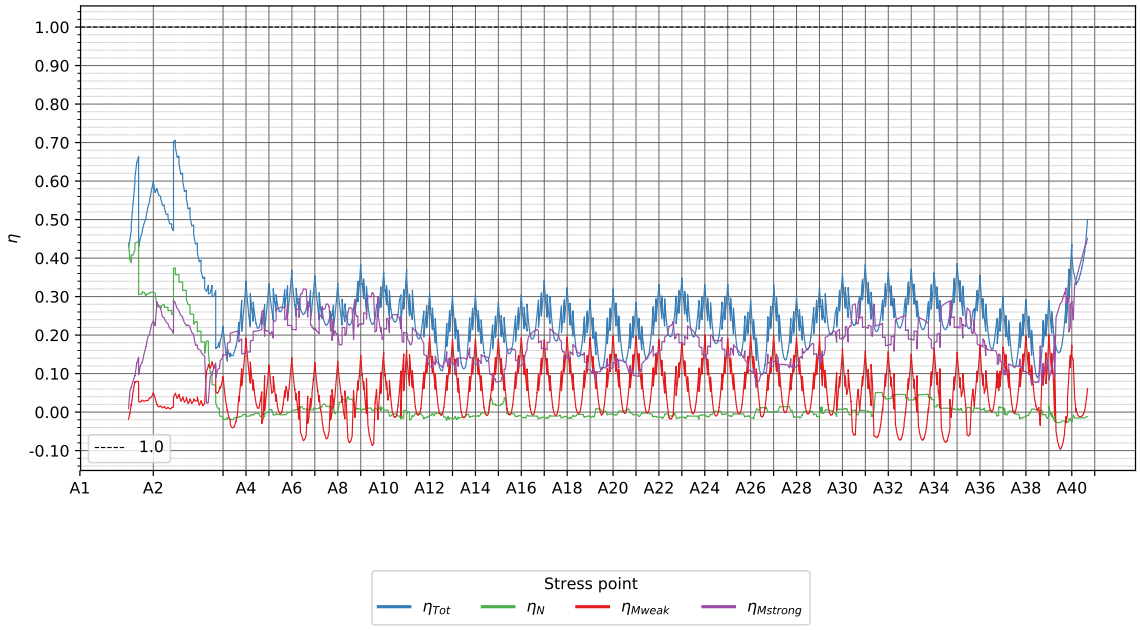
11.4.3 Pt. C



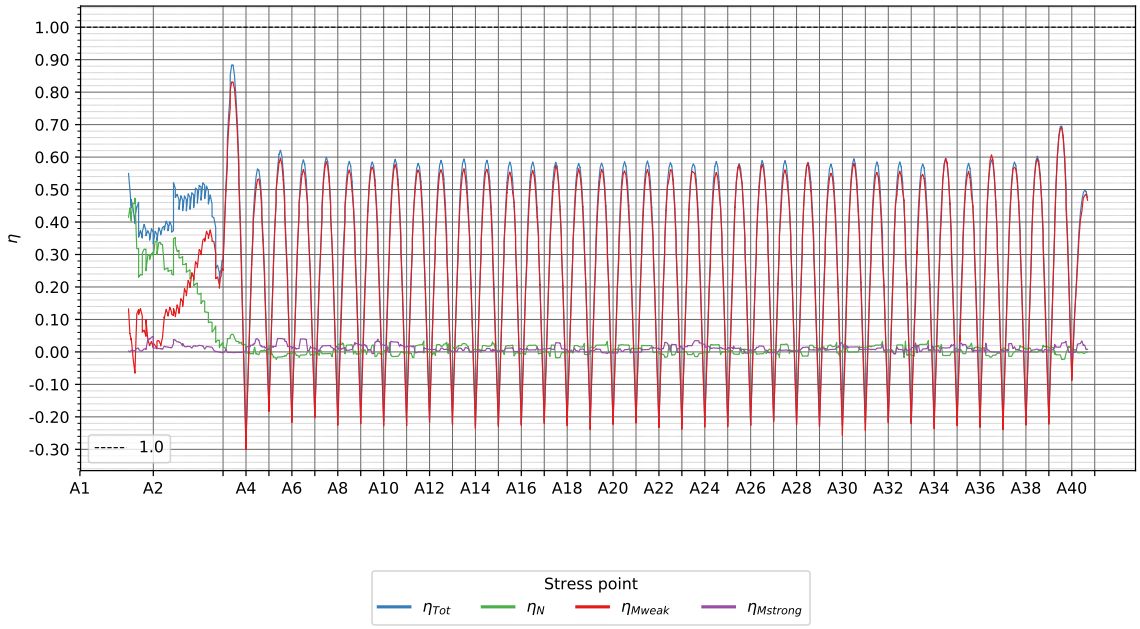
11.4.4 Pt. D



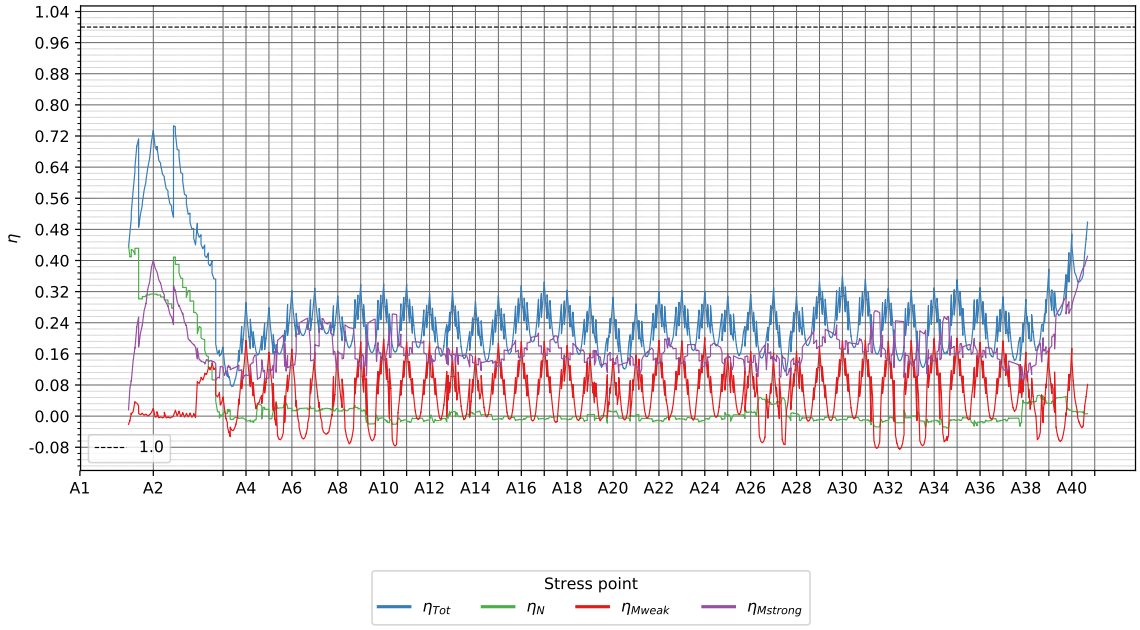
11.4.5 Pt. A´



11.4.6 Pt. B´

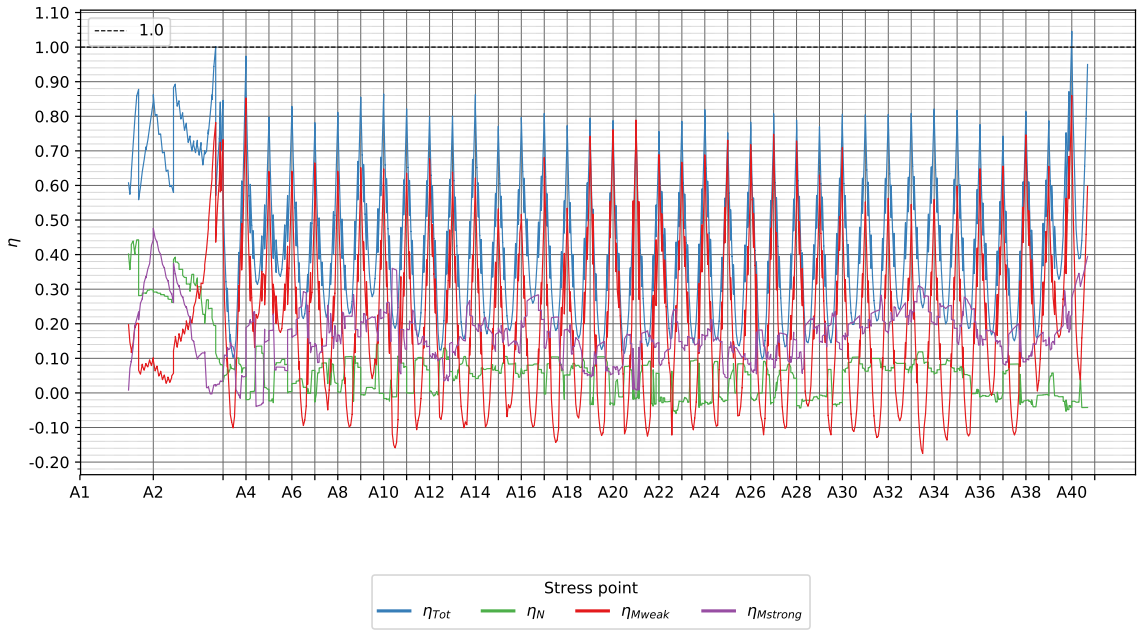


11.4.7 Pt. C´

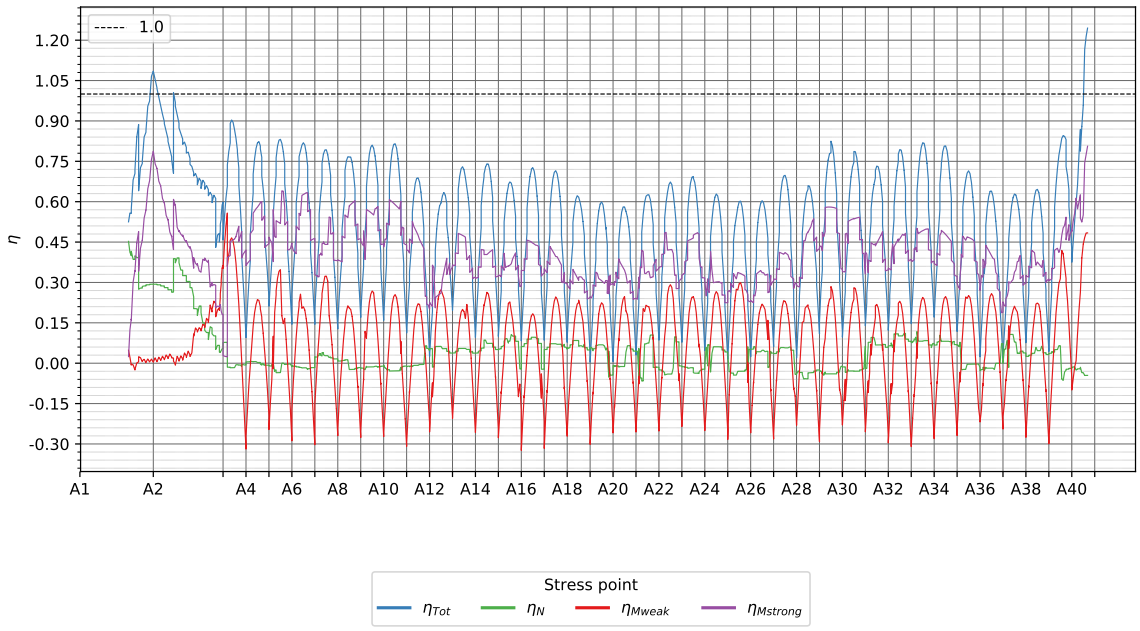


11.5 Utilization breakdown ULS3

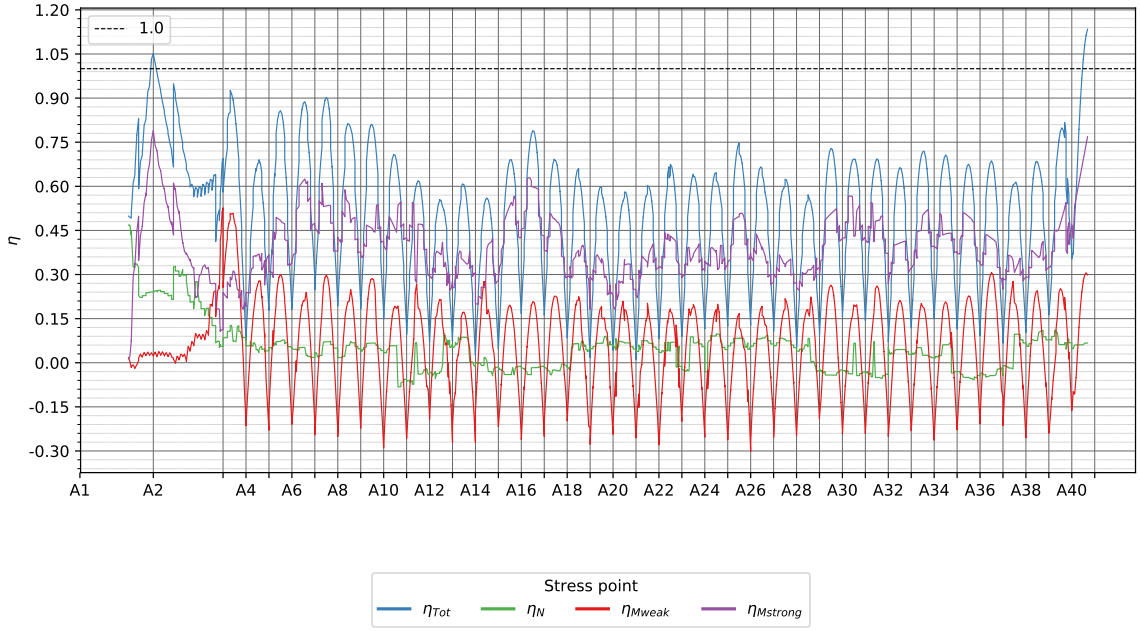
11.5.1 Pt. A



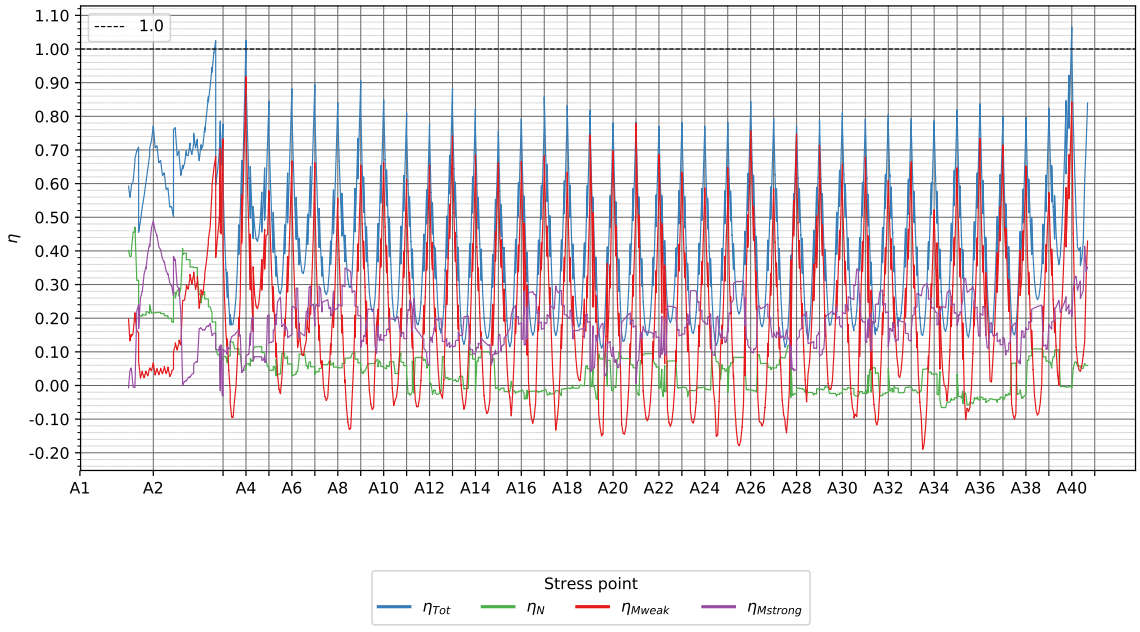
11.5.2 Pt. B



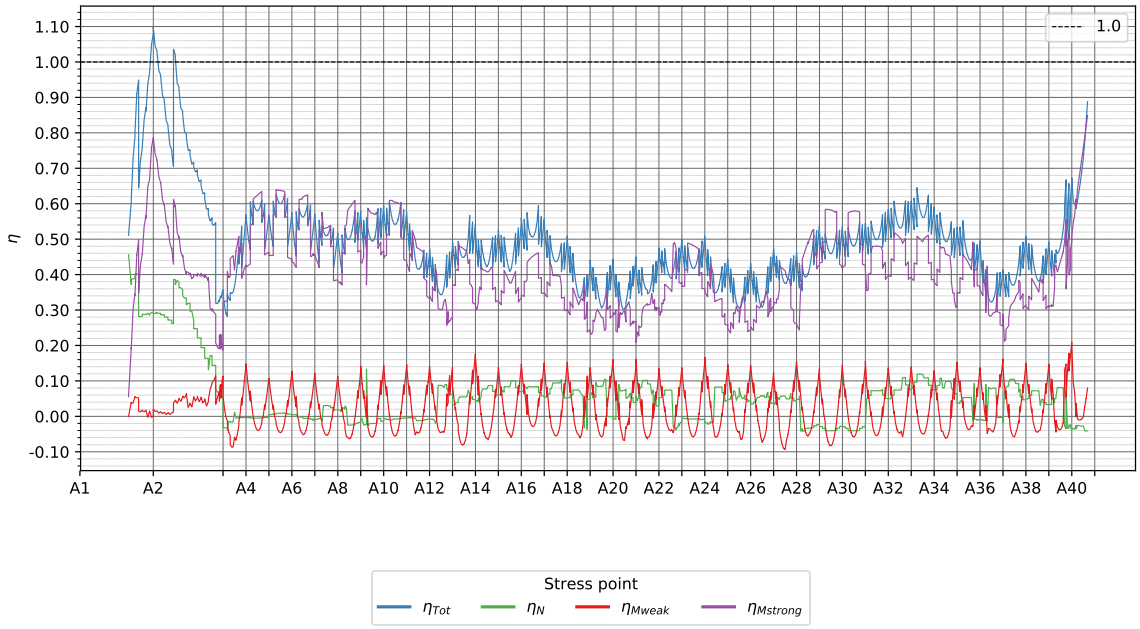
11.5.3 Pt. C



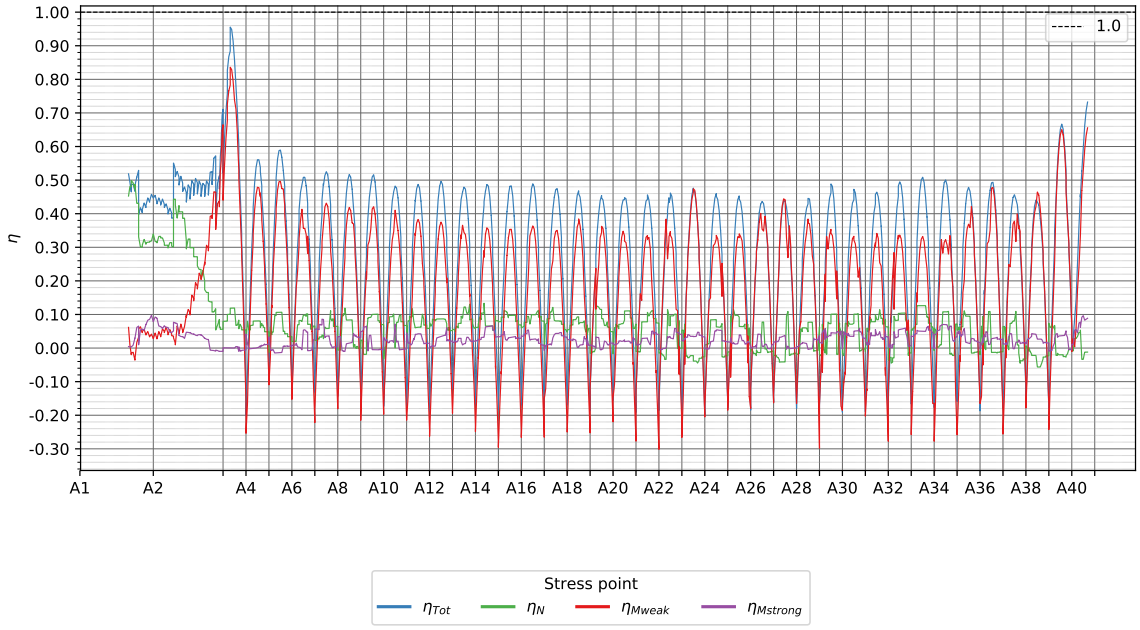
11.5.4 Pt. D



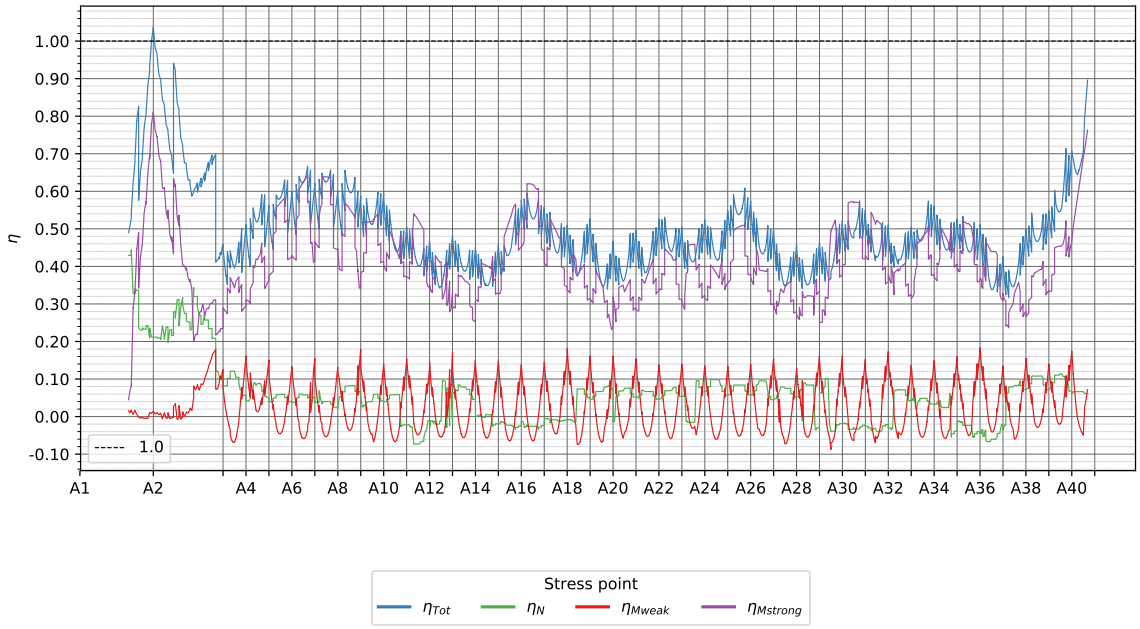
11.5.5 Pt. A´



11.5.6 Pt. B´

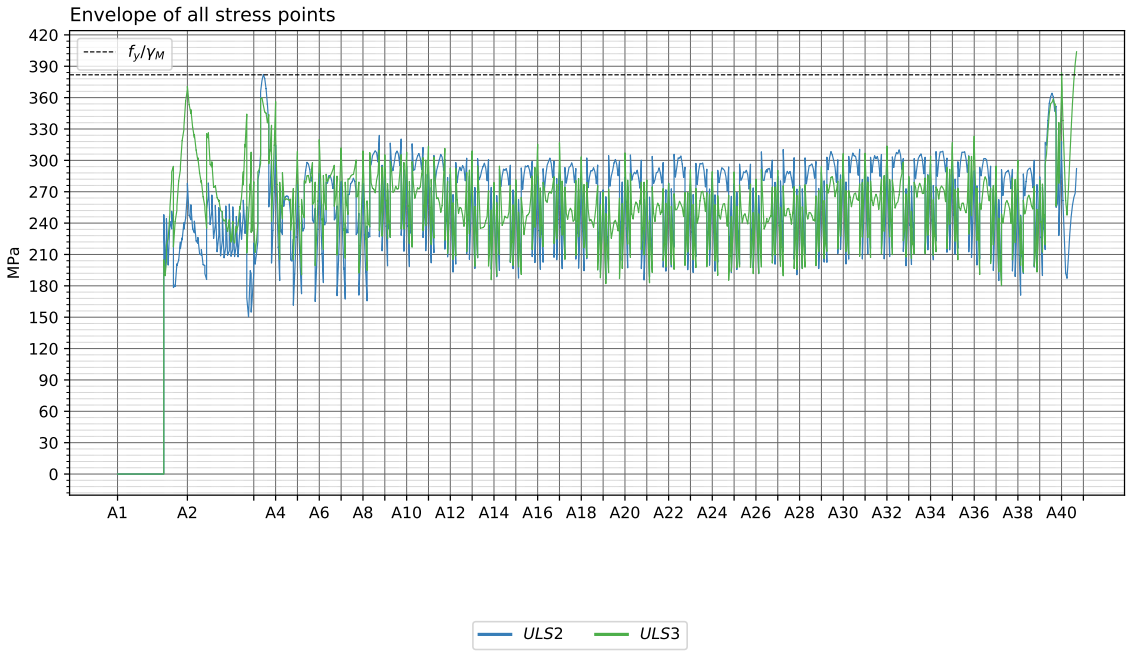


11.5.7 Pt. C´

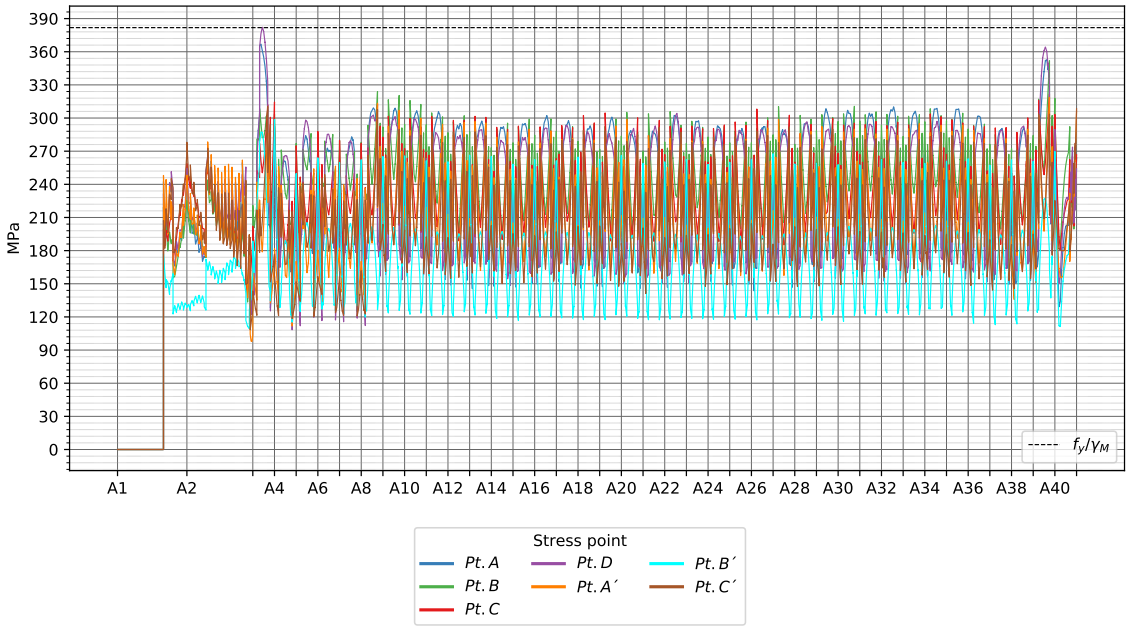


12 Von Mises Summary

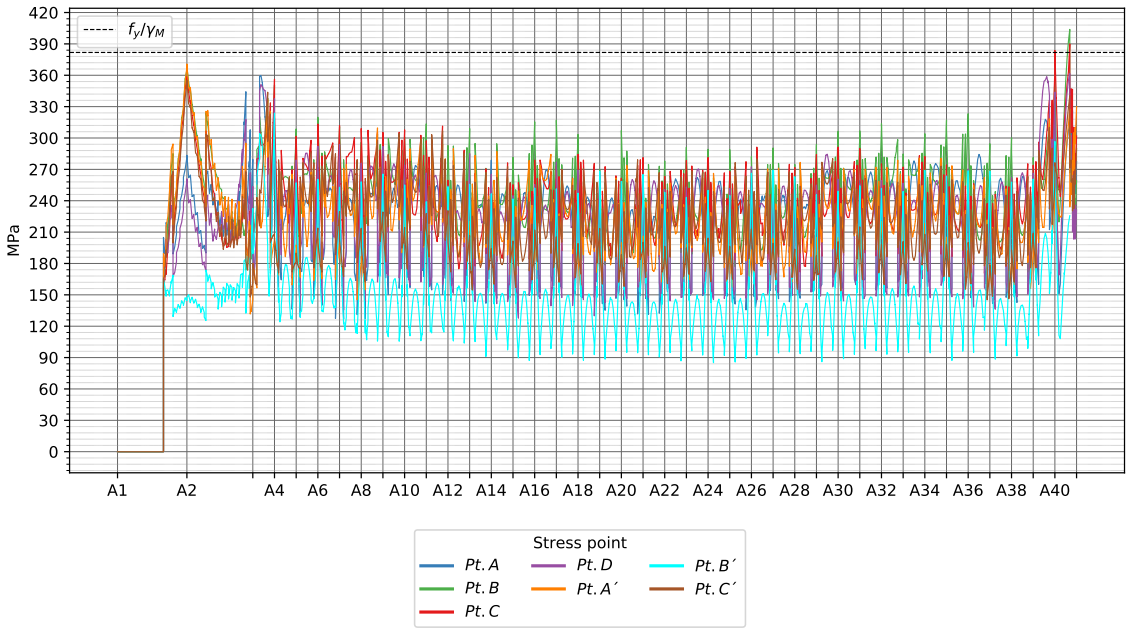
12.1 Total stress summary



12.2 Total stress ULS2

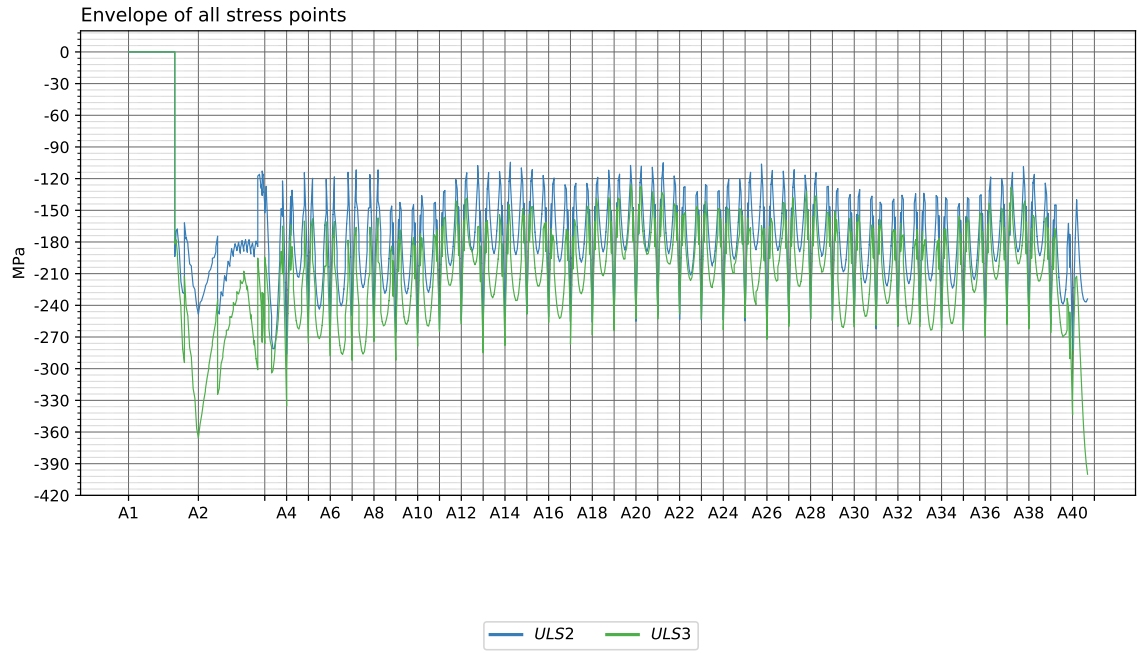


12.3 Total stress ULS3

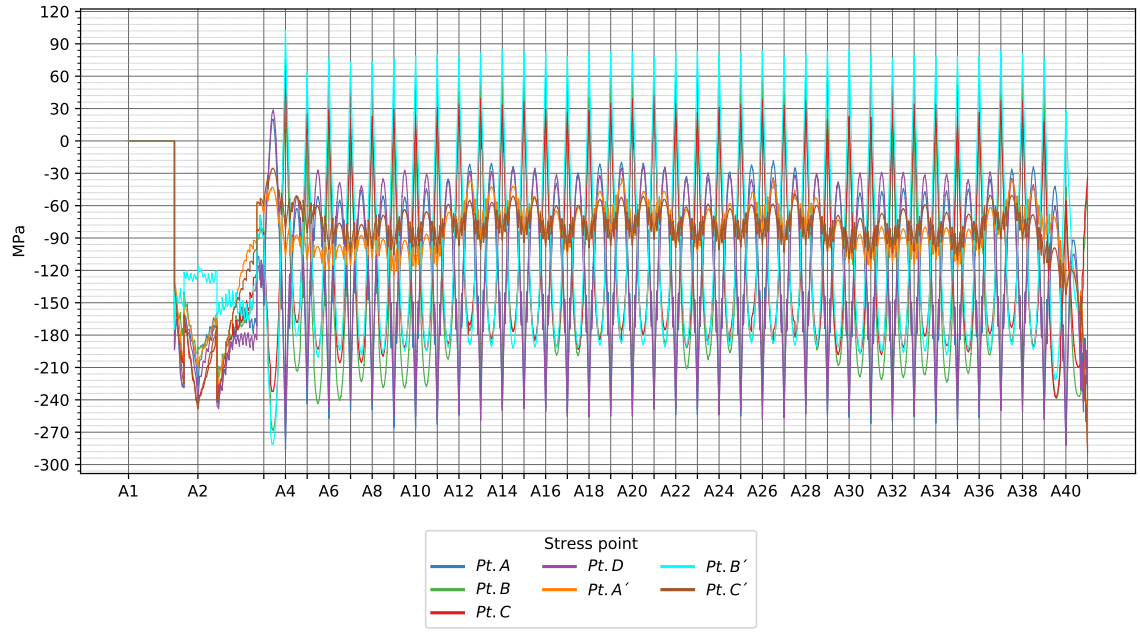


13 Min. Normal stresses

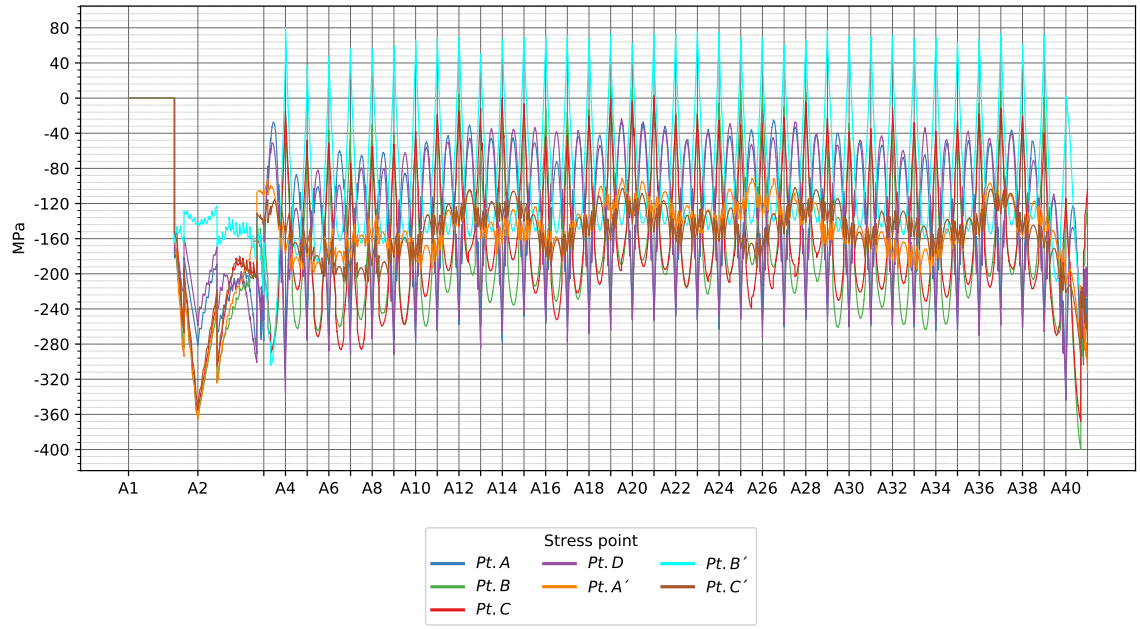
13.1 Total stress summary



13.2 Total stress ULS2

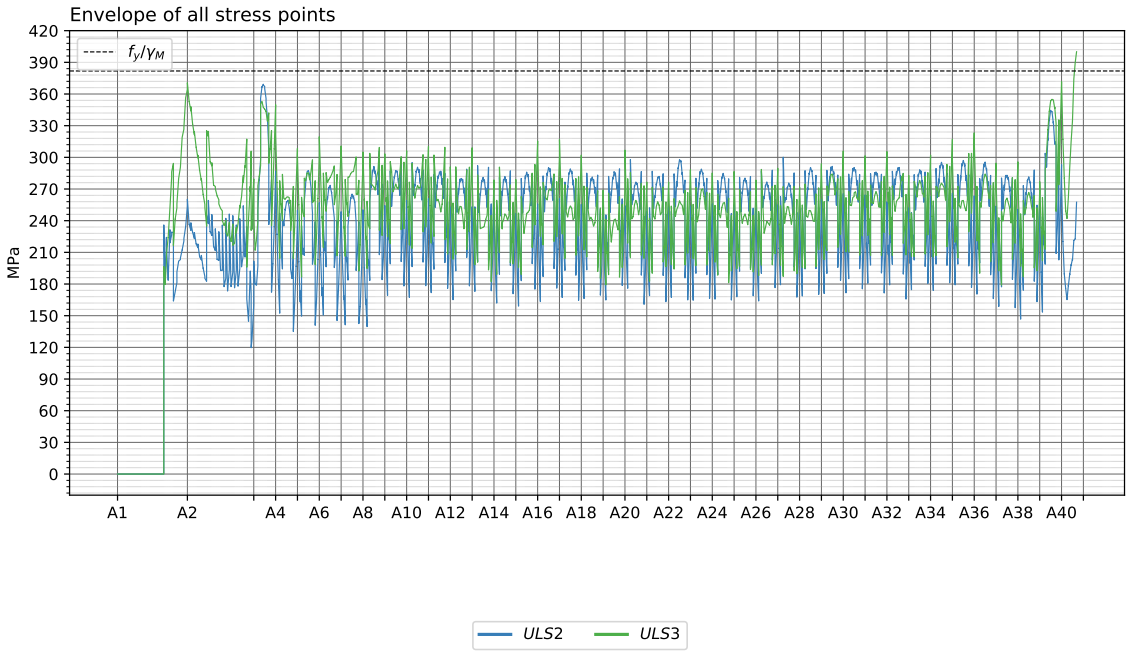


13.3 Total stress ULS3

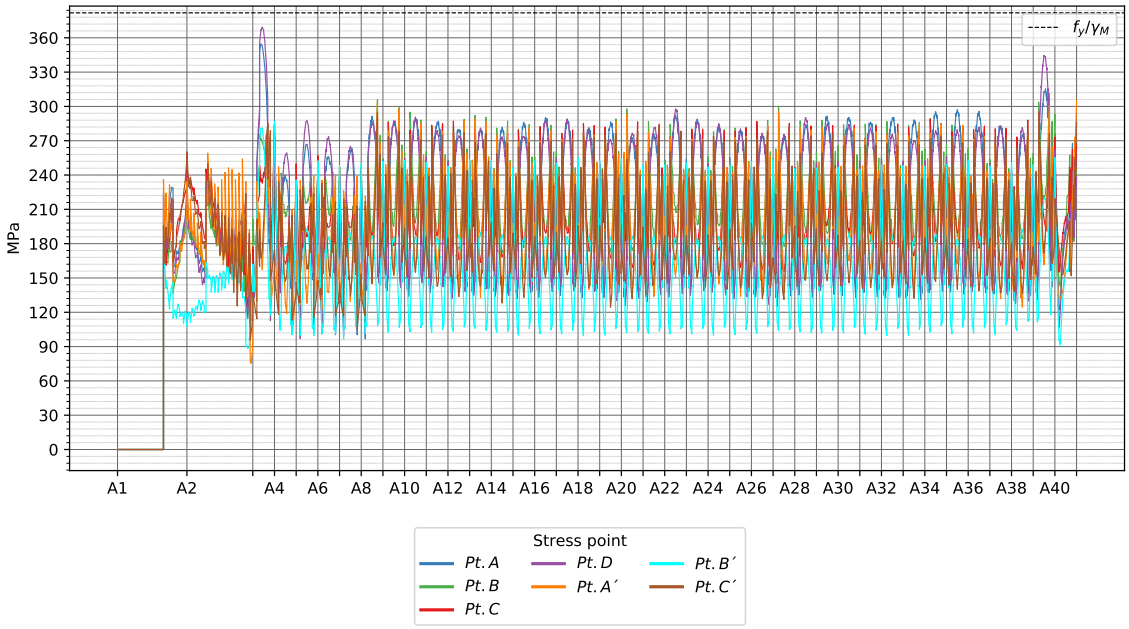


14 Von Mises Summary - Alt.

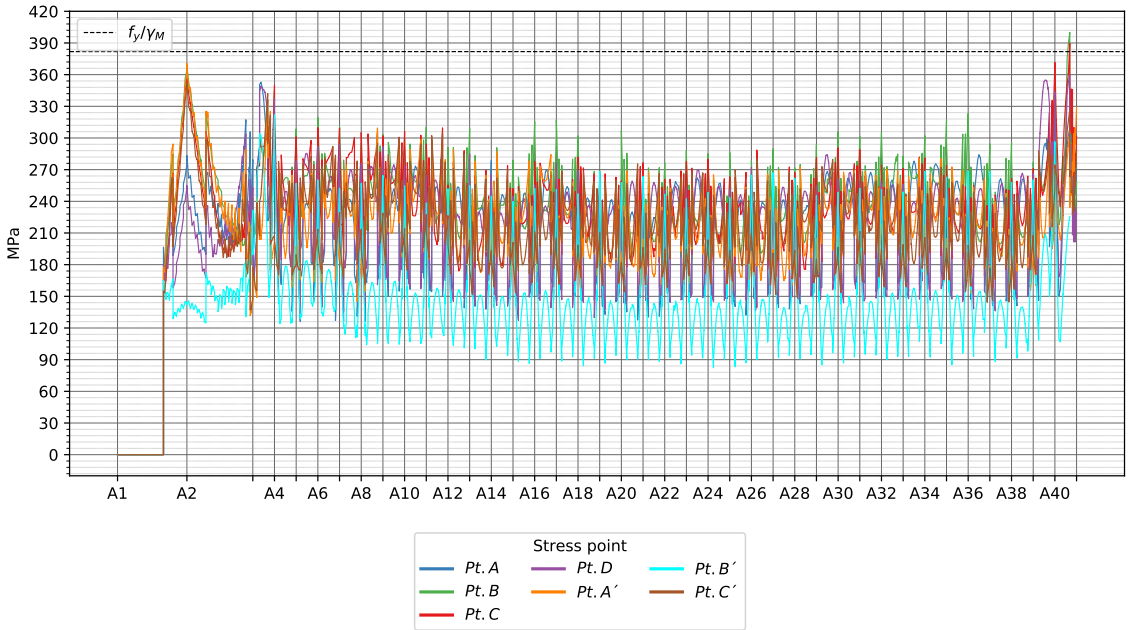
14.1 Total stress summary



14.2 Total stress ULS2

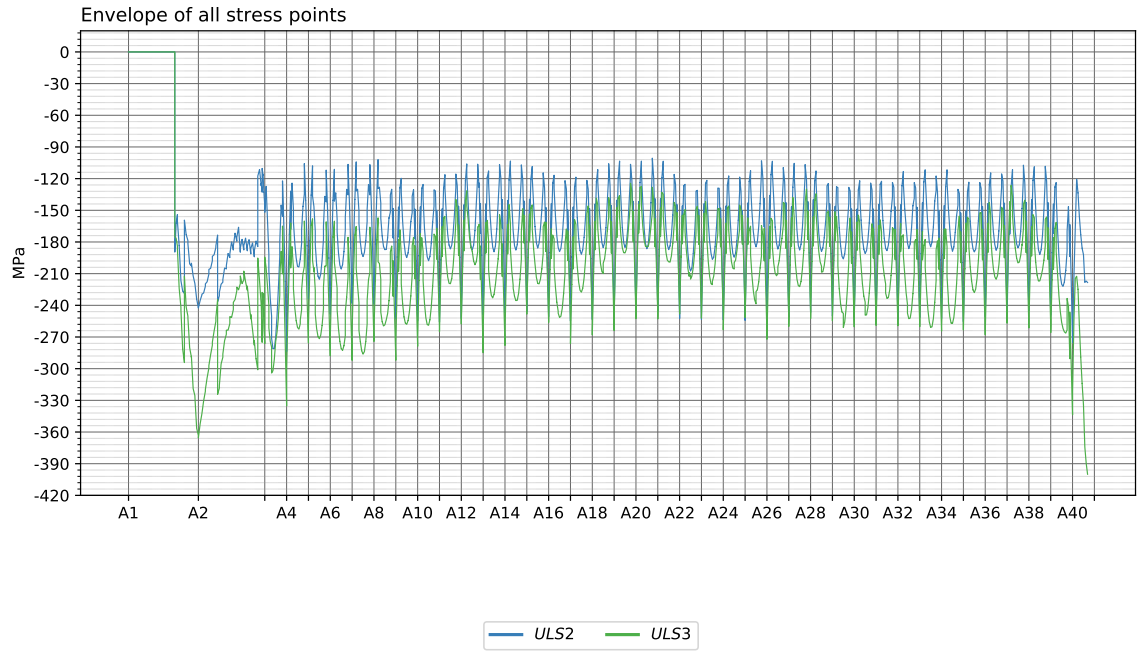


14.3 Total stress ULS3

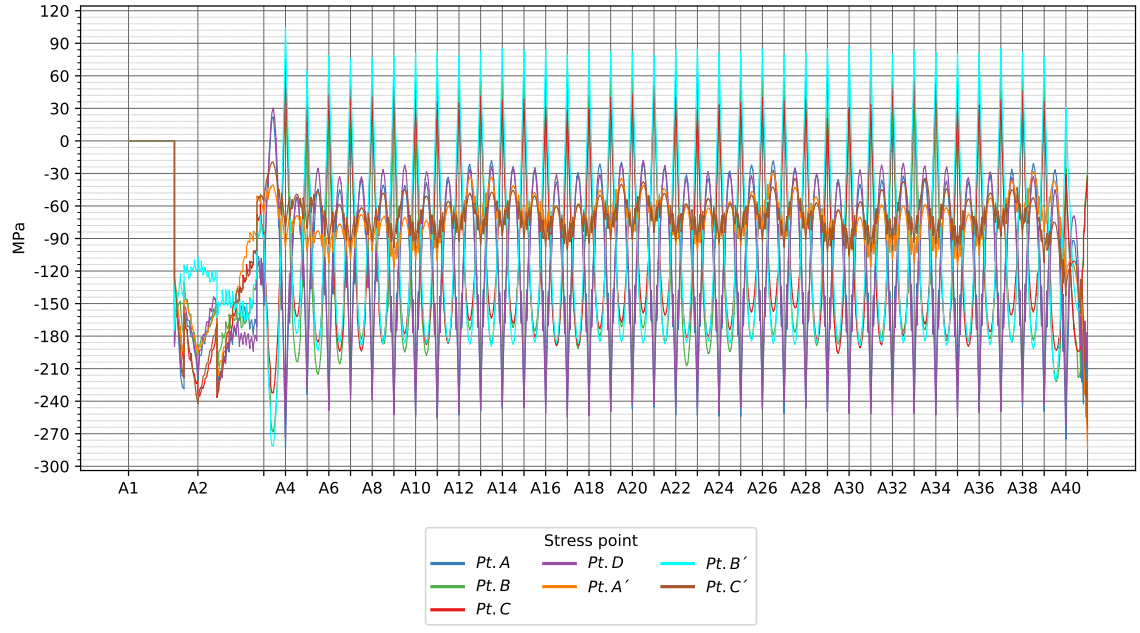


15 Min. Normal stresses Alt.

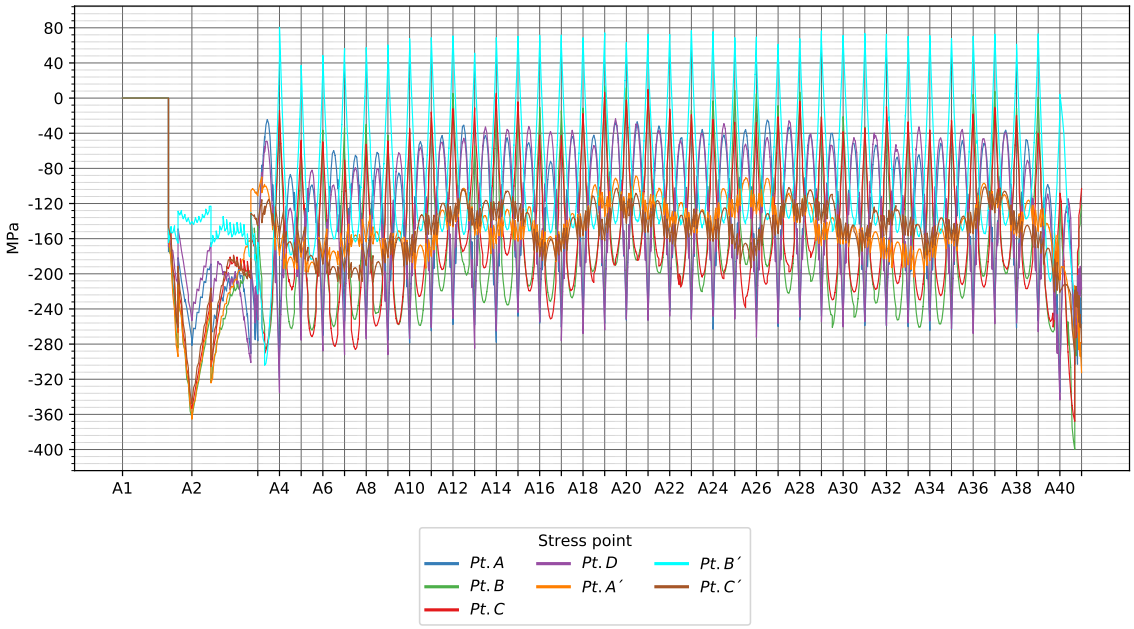
15.1 Total stress summary



15.2 Total stress ULS2



15.3 Total stress ULS3



Concept development, floating bridge E39 Bjørnafjorden

Appendix G – Enclosure 3

Load combinations factorized method

K12_07_PROD_load_combinations_factor

August 2, 2019

Contents

1 Load groups

1.1 Permanent

run case	Description
1	LC 1

1.2 Temperature

run case	Description
1	Min N
2	Min Qy
3	Min Qz
4	Min Mx
5	Min My
6	Min Mz
7	Max N
8	Max Qy
9	Max Qz
10	Max Mx
11	Max My
12	Max Mz

1.3 Traffic

run case	Description
1	Min N
2	Min Qy
3	Min Qz
4	Min Mx
5	Min My
6	Min Mz
7	Max N
8	Max Qy
9	Max Qz
10	Max Mx
11	Max My
12	Max Mz

1.4 Tide

run case	Description
1	LC 1
2	LC 2

1.5 Dynamic wind 1 y

run case	Description
1	From west
2	From east

1.6 Static wind 1y

run case	Description
1	From west
2	From east

1.7 Wave 1 y

run case	Description
1	Hs=1.0, Tp=4.0, dir=75
2	Hs=0.9, Tp=3.7, dir=105
3	Hs=0.9, Tp=3.7, dir=195
4	Hs=1.2, Tp=4.3, dir=315

1.8 Swell 1 y

run case	Description
1	Hs=0.22, Tp=13.44, dir=300
2	Hs=0.22, Tp=17.07, dir=300

1.9 Current

run case	Description
1	LC 1
2	LC 2
3	LC 3
4	LC 4

1.10 Dynamic wind 100 y

run case	Description
1	From west
2	From east

1.11 Static wind 100 y

run case	Description
1	From west
2	From east

1.12 Wave 100 y

run case	Description
1	Hs=2.1, Tp=5.5, dir=75
2	Hs=2.1, Tp=5.5, dir=105
3	Hs=1.4, Tp=4.6, dir=195
4	Hs=2.0, Tp=5.2, dir=315

1.13 Swell 100 y

run case	Description
1	Hs=0.34, Tp=13.44, dir=300
2	Hs=0.34, Tp=17.07, dir=300

2 Load combinations

2.1 ULS2

2.1.1 Load group info

load group	load_factor	return_period	system	restype	use_envelope
Permanent	1.20	N/A	rmbridge	static	N/A
Temperature	0.84	N/A	rmbridge	static	True
Traffic	1.35	N/A	rmbridge	static	True
Tide	1.12	100	orcaflex	static	True
Dynamic wind 1 y	1.12	1	orcaflex	timeseries	False
Static wind 1y	1.12	1	numpy	static	False
Wave 1 y	1.12	1	orcaflex	timeseries	False
Swell 1 y	1.12	1	orcaflex	timeseries	False
Current	1.12	100	orcaflex	static	True

2.1.2 Combination info

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Permanent	1	1	1	1	1	1
Temperature	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Traffic	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Tide	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Dynamic wind 1 y	2	2	1	1	1	1
Static wind 1y	2	2	1	1	1	1
Wave 1 y	1	2	3	4	3	4
Swell 1 y			1	1	2	2
Current	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope

2.1.3 Combination factors - Dynamic loads

Dom. load group	load group	
Dynamic wind 1 y	Permanent	1.0
	Temperature	1.0
	Traffic	1.0
	Tide	1.0
	Dynamic wind 1 y	1.0
	Static wind 1y	1.0
	Wave 1 y	0.6
	Swell 1 y	0.6
	Current	1.0
Wave 1 y	Permanent	1.0
	Temperature	1.0
	Traffic	1.0
	Tide	1.0
	Dynamic wind 1 y	0.6
	Static wind 1y	1.0
	Wave 1 y	1.0
	Swell 1 y	0.6
	Current	1.0
Swell 1 y	Permanent	1.0
	Temperature	1.0
	Traffic	1.0
	Tide	1.0
	Dynamic wind 1 y	0.6
	Static wind 1y	1.0
	Wave 1 y	0.6
	Swell 1 y	1.0
	Current	1.0

2.1.4 Combination factors - Section forces

Dom. force comp.	load group	N	M_strong	M_weak	T	V_vert	V_hor
M_strong	Permanent	1.0	1.0	1.0	1.0	1.0	1.0
	Temperature	1.0	1.0	1.0	1.0	1.0	1.0
	Traffic	1.0	1.0	1.0	1.0	1.0	1.0
	Tide	1.0	1.0	1.0	1.0	1.0	1.0
	Dynamic wind 1 y	0.4	1.0	0.4	0.4	0.4	0.4
	Static wind 1y	1.0	1.0	1.0	1.0	1.0	1.0
	Wave 1 y	0.4	1.0	0.4	0.4	0.4	0.4
	Swell 1 y	0.4	1.0	0.4	0.4	0.4	0.4
	Current	1.0	1.0	1.0	1.0	1.0	1.0
M_weak	Permanent	1.0	1.0	1.0	1.0	1.0	1.0
	Temperature	1.0	1.0	1.0	1.0	1.0	1.0
	Traffic	1.0	1.0	1.0	1.0	1.0	1.0
	Tide	1.0	1.0	1.0	1.0	1.0	1.0
	Dynamic wind 1 y	0.4	0.4	1.0	0.4	0.4	0.4
	Static wind 1y	1.0	1.0	1.0	1.0	1.0	1.0
	Wave 1 y	0.4	0.4	1.0	0.4	0.4	0.4
	Swell 1 y	0.4	0.4	1.0	0.4	0.4	0.4
	Current	1.0	1.0	1.0	1.0	1.0	1.0
T	Permanent	1.0	1.0	1.0	1.0	1.0	1.0
	Temperature	1.0	1.0	1.0	1.0	1.0	1.0
	Traffic	1.0	1.0	1.0	1.0	1.0	1.0
	Tide	1.0	1.0	1.0	1.0	1.0	1.0
	Dynamic wind 1 y	0.4	0.4	0.4	1.0	0.4	0.4
	Static wind 1y	1.0	1.0	1.0	1.0	1.0	1.0
	Wave 1 y	0.4	0.4	0.4	1.0	0.4	0.4
	Swell 1 y	0.4	0.4	0.4	1.0	0.4	0.4
	Current	1.0	1.0	1.0	1.0	1.0	1.0

2.2 ULS3

2.2.1 Load group info

load group	load_factor	return_period	system	restype	use_envelope
Permanent	1.20	N/A	rmbridge	static	N/A
Temperature	0.84	N/A	rmbridge	static	True
Tide	1.60	100	orcaflex	static	True
Dynamic wind 100 y	1.60	100	orcaflex	timeseries	False
Static wind 100 y	1.60	100	numpy	static	False
Wave 100 y	1.60	100	orcaflex	timeseries	False
Swell 100 y	1.60	100	orcaflex	timeseries	False
Current	1.60	100	orcaflex	static	True

2.2.2 Combination info

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Permanent	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Temperature	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Tide	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope
Dynamic wind 100 y	2	2	1	1	1	1
Static wind 100 y	2	2	1	1	1	1
Wave 100 y	1	2	3	4	3	4
Swell 100 y			1	1	2	2
Current	Envelope	Envelope	Envelope	Envelope	Envelope	Envelope

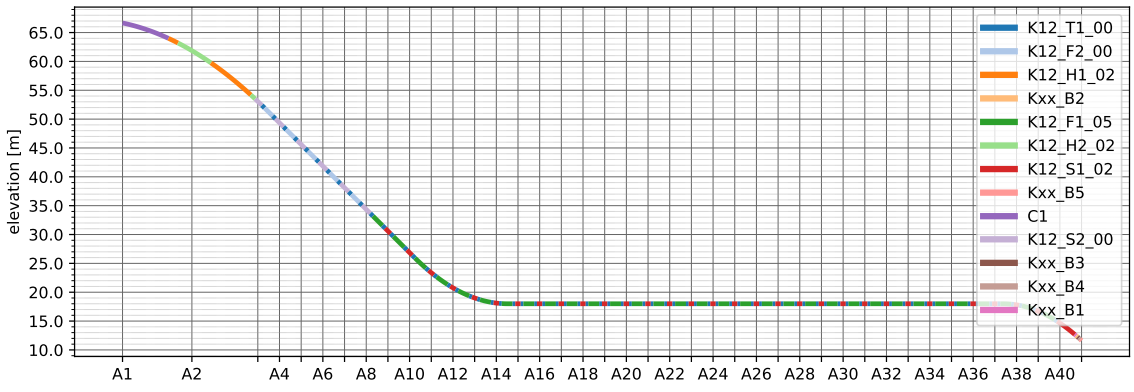
2.2.3 Combination factors - Dynamic loads

Dom. load group	load group	
Dynamic wind 100 y	Permanent	1.0
	Temperature	1.0
	Tide	1.0
	Dynamic wind 100 y	1.0
	Static wind 100 y	1.0
	Wave 100 y	0.6
	Swell 100 y	0.6
	Current	1.0
Wave 100 y	Permanent	1.0
	Temperature	1.0
	Tide	1.0
	Dynamic wind 100 y	0.6
	Static wind 100 y	1.0
	Wave 100 y	1.0
	Swell 100 y	0.6
	Current	1.0
Swell 100 y	Permanent	1.0
	Temperature	1.0
	Tide	1.0
	Dynamic wind 100 y	0.6
	Static wind 100 y	1.0
	Wave 100 y	0.6
	Swell 100 y	1.0
	Current	1.0

2.2.4 Combination factors - Section forces

Dom. force comp.	load group	N	M_strong	M_weak	T	V_vert	V_hor
M_strong	Permanent	1.0	1.0	1.0	1.0	1.0	1.0
	Temperature	1.0	1.0	1.0	1.0	1.0	1.0
	Tide	1.0	1.0	1.0	1.0	1.0	1.0
	Dynamic wind 100 y	0.4	1.0	0.4	0.4	0.4	0.4
	Static wind 100 y	1.0	1.0	1.0	1.0	1.0	1.0
	Wave 100 y	0.4	1.0	0.4	0.4	0.4	0.4
	Swell 100 y	0.4	1.0	0.4	0.4	0.4	0.4
	Current	1.0	1.0	1.0	1.0	1.0	1.0
M_weak	Permanent	1.0	1.0	1.0	1.0	1.0	1.0
	Temperature	1.0	1.0	1.0	1.0	1.0	1.0
	Tide	1.0	1.0	1.0	1.0	1.0	1.0
	Dynamic wind 100 y	0.4	0.4	1.0	0.4	0.4	0.4
	Static wind 100 y	1.0	1.0	1.0	1.0	1.0	1.0
	Wave 100 y	0.4	0.4	1.0	0.4	0.4	0.4
	Swell 100 y	0.4	0.4	1.0	0.4	0.4	0.4
	Current	1.0	1.0	1.0	1.0	1.0	1.0
T	Permanent	1.0	1.0	1.0	1.0	1.0	1.0
	Temperature	1.0	1.0	1.0	1.0	1.0	1.0
	Tide	1.0	1.0	1.0	1.0	1.0	1.0
	Dynamic wind 100 y	0.4	0.4	0.4	1.0	0.4	0.4
	Static wind 100 y	1.0	1.0	1.0	1.0	1.0	1.0
	Wave 100 y	0.4	0.4	0.4	1.0	0.4	0.4
	Swell 100 y	0.4	0.4	0.4	1.0	0.4	0.4
	Current	1.0	1.0	1.0	1.0	1.0	1.0

3 Section types



4 Stress point description

Stress point	Description
Pt. A	Lower flange west
Pt. B	Upper flange west
Pt. C	Upper flange east
Pt. D	Lower flange east
Pt. A´	Knuckle west
Pt. B´	Upper flange mid
Pt. C´	Knuckle east

5 Stress coefficients - ULS

Section type	Stress point	A	W_strong	W_weak	W_torsion	A_vert	
C1	Pt. A	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. B	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. C	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. D	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. A´	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. B´	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
	Pt. C´	1000000.0000	1000000.000000	1000000.000000	1000000.000000	1000000.000000	100000
K12_F1_05	Pt. A	1.2699	10.608467	-1.408093	2.252976	-0.122399	
	Pt. B	1.2699	6.275785	2.442868	2.252976	-0.083333	-
	Pt. C	1.2699	-6.260940	2.663681	2.252976	0.084034	-
	Pt. D	1.2699	-10.566118	-1.408093	2.252976	0.121655	
	Pt. A´	1.2699	6.275785	-4.198973	2.252976	-0.086207	
	Pt. B´	1.2699	46.182116	1.936649	3.003968	-0.813008	-
	Pt. C´	1.2699	-6.260940	-4.198973	2.252976	0.087719	
K12_F2_00	Pt. A	1.3310	11.224881	-1.557238	2.628472	-0.142045	
	Pt. B	1.3310	6.638782	2.463707	2.628472	-0.098039	-
	Pt. C	1.3310	-6.621120	2.672783	2.628472	0.097330	-
	Pt. D	1.3310	-11.174482	-1.557238	2.628472	0.141243	
	Pt. A´	1.3310	6.638782	-5.001431	2.628472	-0.100503	
	Pt. B´	1.3310	48.906659	1.976258	3.003968	-0.826446	-
	Pt. C´	1.3310	-6.621120	-5.001431	2.628472	0.101523	
K12_H1_02	Pt. A	1.2970	11.234910	-1.236506	1.930800	-0.102354	
	Pt. B	1.2970	6.634875	2.309572	2.574400	-0.093979	-
	Pt. C	1.2970	-6.610869	2.569574	1.930800	0.095663	-
	Pt. D	1.2970	-11.148176	-1.236506	1.930800	0.102145	
	Pt. A´	1.2970	6.634875	-5.097787	1.930800	-0.067227	
	Pt. B´	1.2970	49.219901	1.731784	2.574400	-0.699301	-
	Pt. C´	1.2970	-6.610869	-5.097787	1.930800	0.077519	
K12_H2_02	Pt. A	1.7969	15.469710	-1.928723	3.218000	-0.170940	
	Pt. B	1.7969	9.134266	2.872534	3.218000	-0.134138	-
	Pt. C	1.7969	-9.097883	3.148356	3.218000	0.133869	-
	Pt. D	1.7969	-15.365641	-1.928723	3.218000	0.170358	
	Pt. A´	1.7969	9.134266	-11.129969	3.218000	-0.107701	
	Pt. B´	1.7969	67.657707	2.228720	3.218000	-0.884956	-
	Pt. C´	1.7969	-9.097883	-11.129969	3.218000	0.109469	

Continued on n

Section type	Stress point	A	W_strong	W_weak	W_torsion	A_vert
K12_S1_02	Pt. A	1.7790	13.827655	-2.247520	3.759600	-1.926782
	Pt. B	1.7790	8.178989	2.739420	2.631720	-0.312500
	Pt. C	1.7790	-8.159645	2.936487	2.631720	0.390625
	Pt. D	1.7790	-13.772455	-2.247520	3.759600	1.814882
	Pt. A´	1.7790	8.178989	-9.765086	2.631720	-0.259740
	Pt. B´	1.7790	60.196292	2.260978	3.007680	-0.884956
	Pt. C´	1.7790	-8.159645	-9.765086	2.631720	0.268817
K12_S2_00	Pt. A	1.8829	15.265004	-2.396543	4.135560	-1.633987
	Pt. B	1.8829	9.023776	2.764809	3.007680	-0.306513
	Pt. C	1.8829	-8.998449	2.957340	3.007680	0.318725
	Pt. D	1.8829	-15.192667	-2.396543	4.135560	1.589825
	Pt. A´	1.8829	9.023776	-11.414044	3.759600	-0.342466
	Pt. B´	1.8829	66.537411	2.293917	3.007680	-0.892857
	Pt. C´	1.8829	-8.998449	-11.414044	3.759600	0.351000
K12_T1_00	Pt. A	1.5210	12.346024	-1.871555	3.007840	-0.289855
	Pt. B	1.5210	7.302985	2.627541	2.631860	-0.144092
	Pt. C	1.5210	-7.286791	2.833805	2.631860	0.146843
	Pt. D	1.5210	-12.299813	-1.871555	3.007840	0.287356
	Pt. A´	1.5210	7.302985	-6.757167	2.631860	-0.136293
	Pt. B´	1.5210	53.723706	2.137067	3.007840	-0.877193
	Pt. C´	1.5210	-7.286791	-6.757167	2.631860	0.139110
Kxx_B1	Pt. A	2.0900	17.100000	-2.760000	4.870000	0.320000
	Pt. B	2.0900	11.900000	3.390000	4.870000	0.320000
	Pt. C	2.0900	-11.900000	3.390000	4.870000	0.320000
	Pt. D	2.0900	-17.100000	-2.760000	4.870000	0.320000
	Pt. A´	2.0900	11.900000	-6.410000	4.870000	0.320000
	Pt. B´	2.0900	1000000.000000	2.760000	4.870000	0.320000
	Pt. C´	2.0900	-11.900000	-6.410000	4.870000	0.320000
Kxx_B2	Pt. A	2.2800	18.900000	-3.160000	5.500000	0.320000
	Pt. B	2.2800	14.800000	3.680000	5.500000	0.320000
	Pt. C	2.2800	-14.800000	3.680000	5.500000	0.320000
	Pt. D	2.2800	-18.900000	-3.160000	5.500000	0.320000
	Pt. A´	2.2800	14.800000	-5.040000	5.500000	0.320000
	Pt. B´	2.2800	1000000.000000	2.950000	5.500000	0.320000
	Pt. C´	2.2800	-14.800000	-5.040000	5.500000	0.320000
Kxx_B3	Pt. A	2.8000	24.400000	-4.240000	9.200000	0.400000
	Pt. B	2.8000	19.400000	4.570000	9.200000	0.400000
	Pt. C	2.8000	-19.400000	4.570000	9.200000	0.400000
	Pt. D	2.8000	-24.400000	-4.240000	9.200000	0.400000
	Pt. A´	2.8000	19.400000	-4.240000	9.200000	0.400000
	Pt. B´	2.8000	1000000.000000	3.690000	9.200000	0.400000
	Pt. C´	2.8000	-19.400000	-4.240000	9.200000	0.400000
Kxx_B4	Pt. A	3.3400	28.200000	-5.240000	9.900000	0.480000
	Pt. B	3.3400	24.800000	5.590000	9.900000	0.480000
	Pt. C	3.3400	-24.800000	5.590000	9.900000	0.480000
	Pt. D	3.3400	-28.200000	-5.240000	9.900000	0.480000
	Pt. A´	3.3400	24.800000	-4.510000	9.900000	0.480000
	Pt. B´	3.3400	1000000.000000	4.550000	9.900000	0.480000
	Pt. C´	3.3400	-24.800000	-4.510000	9.900000	0.480000
Kxx_B5	Pt. A	3.4800	35.600000	-5.580000	10.400000	0.480000
	Pt. B	3.4800	25.700000	5.930000	10.400000	0.480000

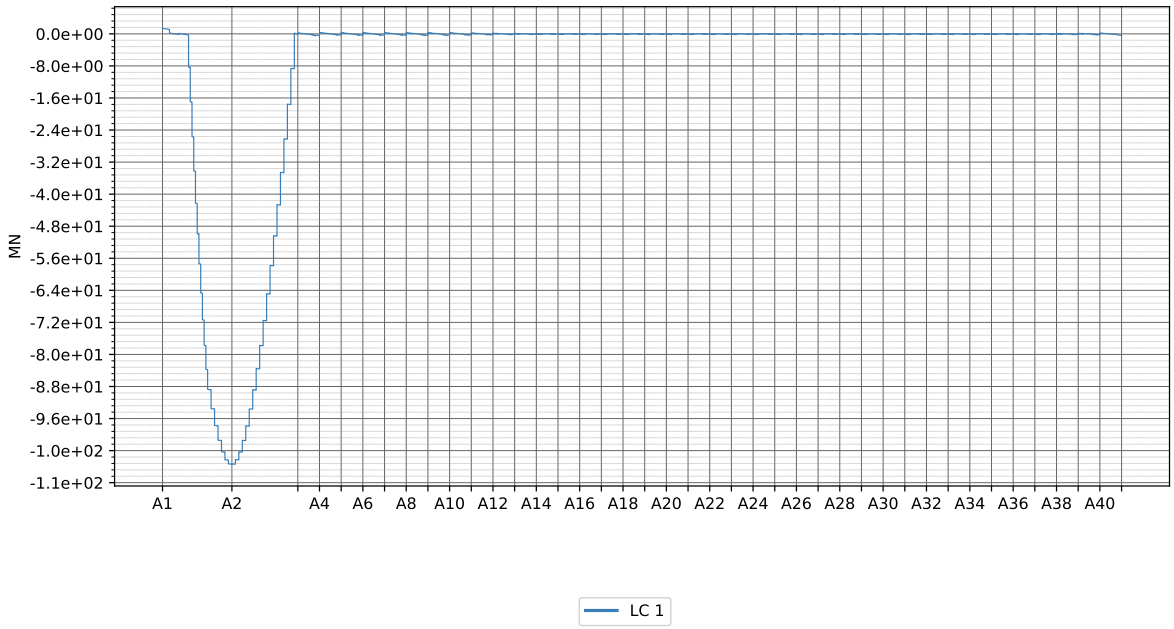
Continued on n

Section type	Stress point	A	W_strong	W_weak	W_torsion	A_vert
	Pt. C	3.4800	-25.700000	5.930000	10.400000	0.480000
	Pt. D	3.4800	-35.600000	-5.980000	10.400000	0.480000
	Pt. A´	3.4800	25.700000	-4.800000	10.400000	0.480000
	Pt. B´	3.4800	1000000.000000	4.820000	10.400000	0.480000
	Pt. C´	3.4800	-25.700000	-4.820000	10.400000	0.480000

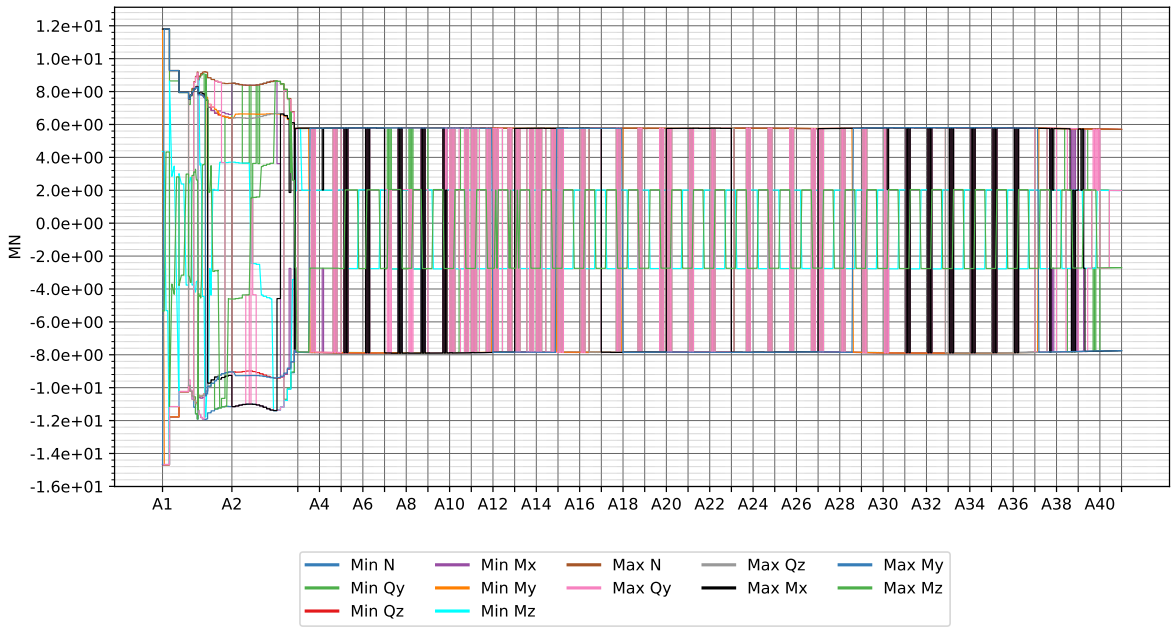
6 Results per load group (characteristic values)

6.1 Axial force

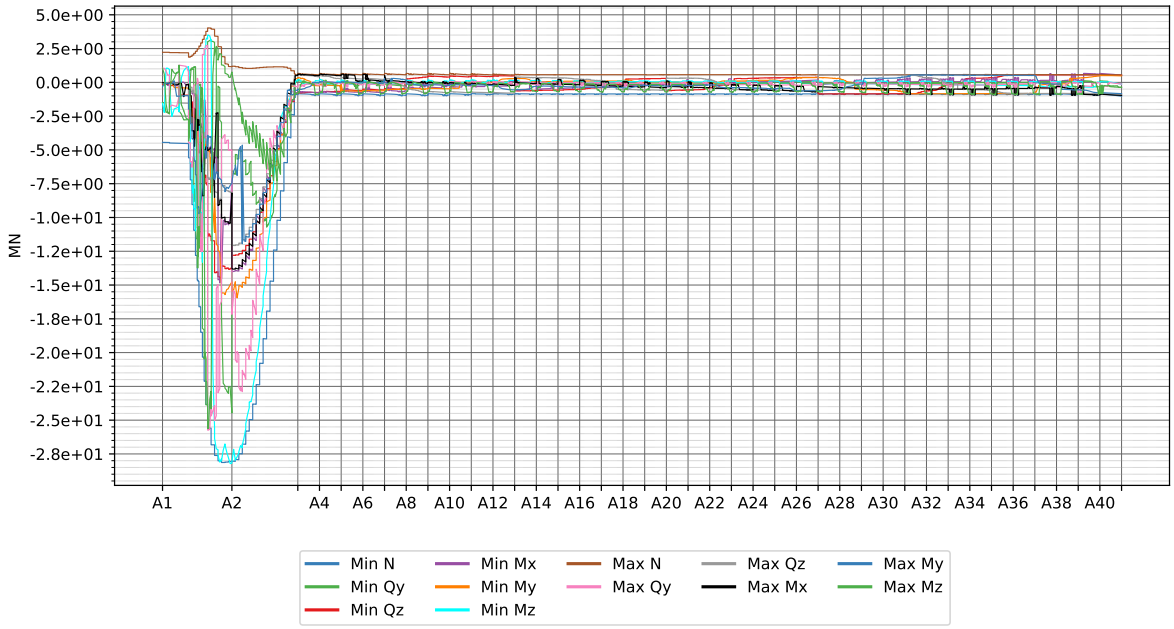
6.1.1 Permanent



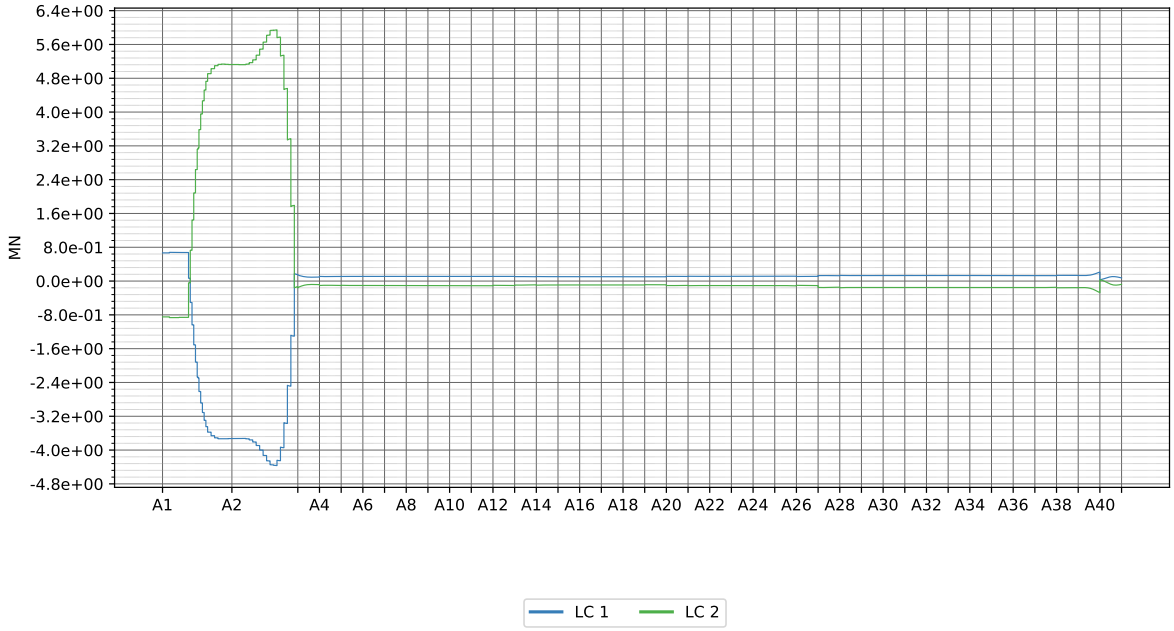
6.1.2 Temperature



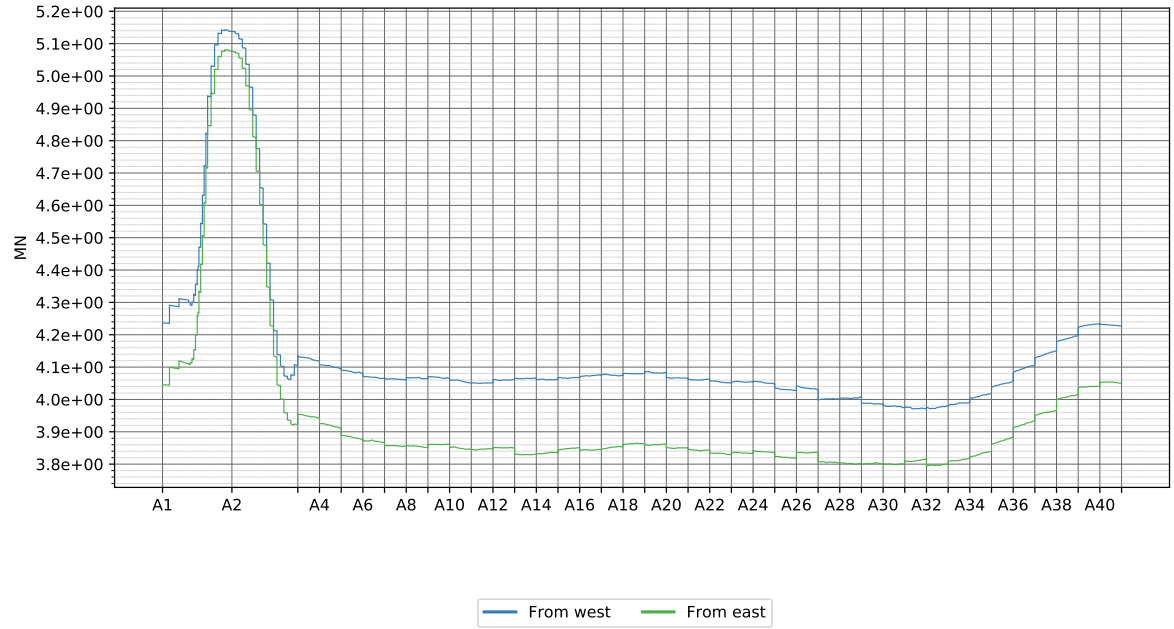
6.1.3 Traffic



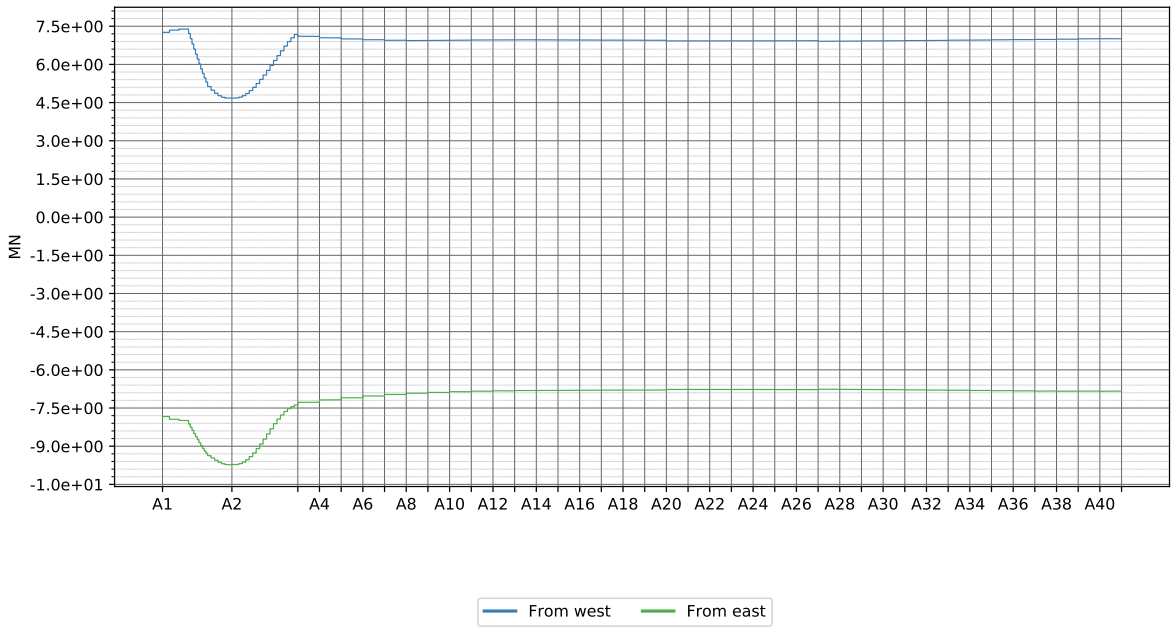
6.1.4 Tide



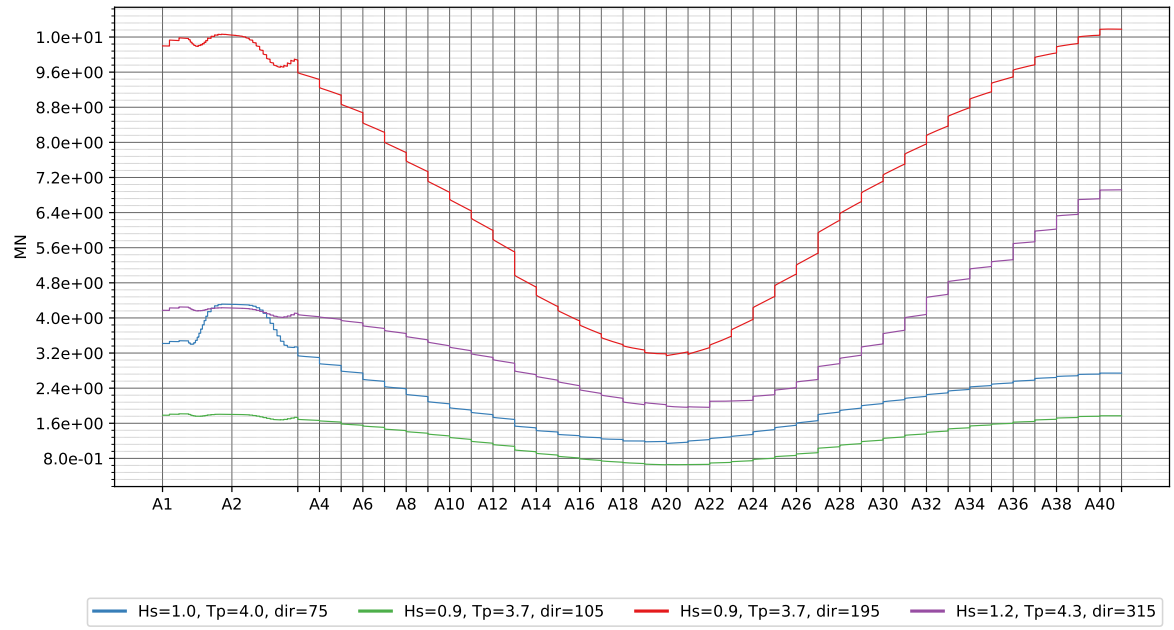
6.1.5 Dynamic wind 1 y



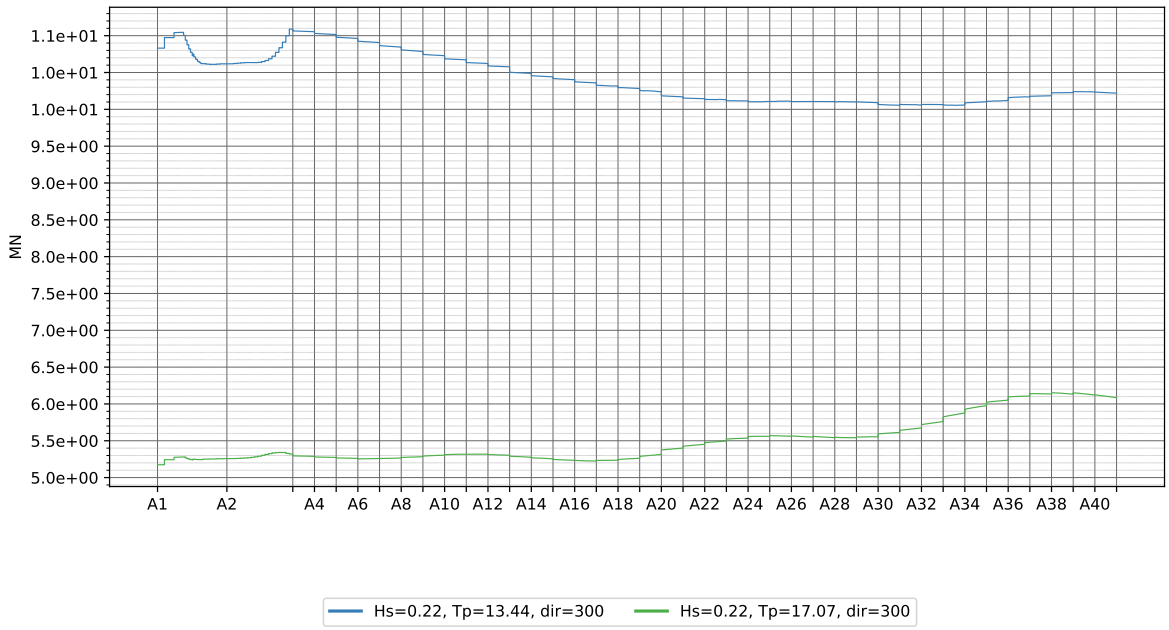
6.1.6 Static wind 1y



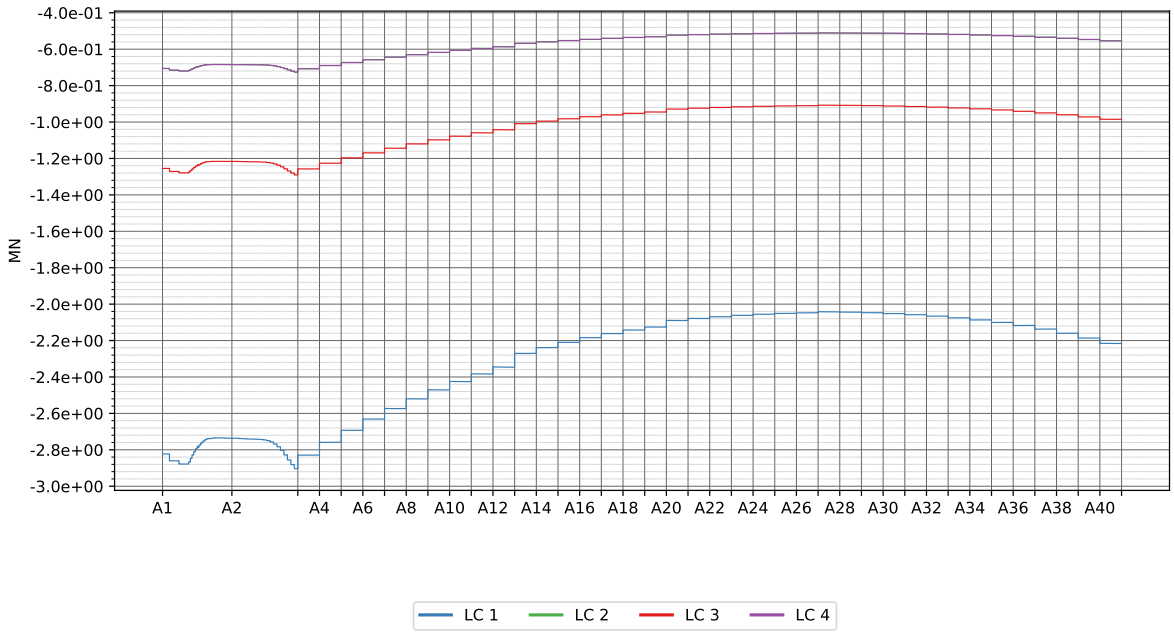
6.1.7 Wave 1 y



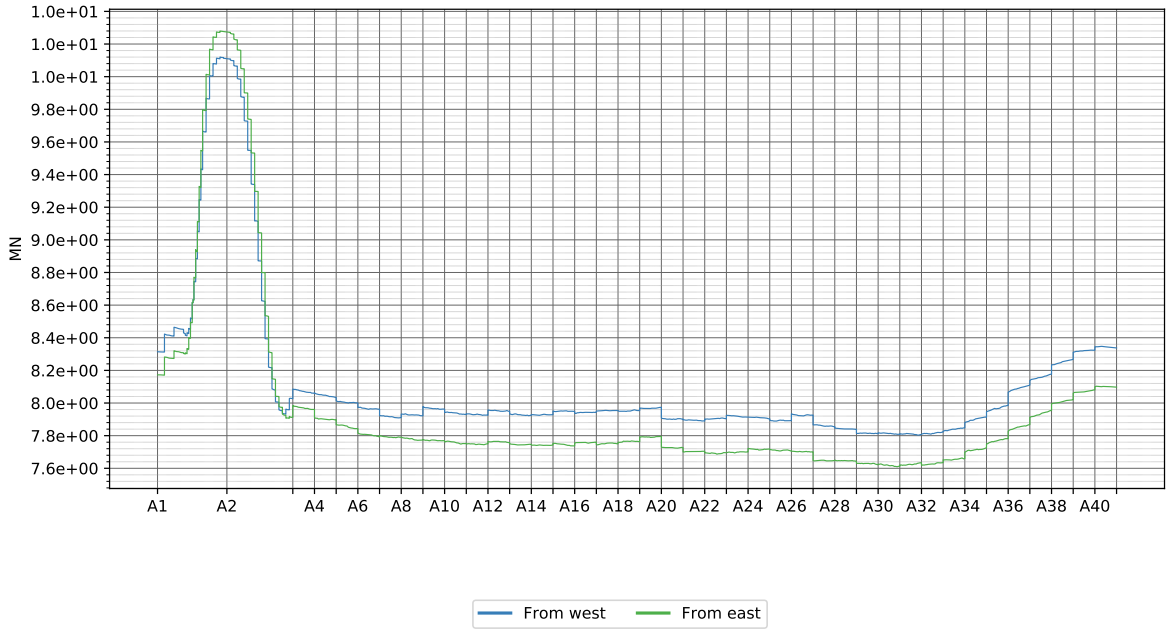
6.1.8 Swell 1 y



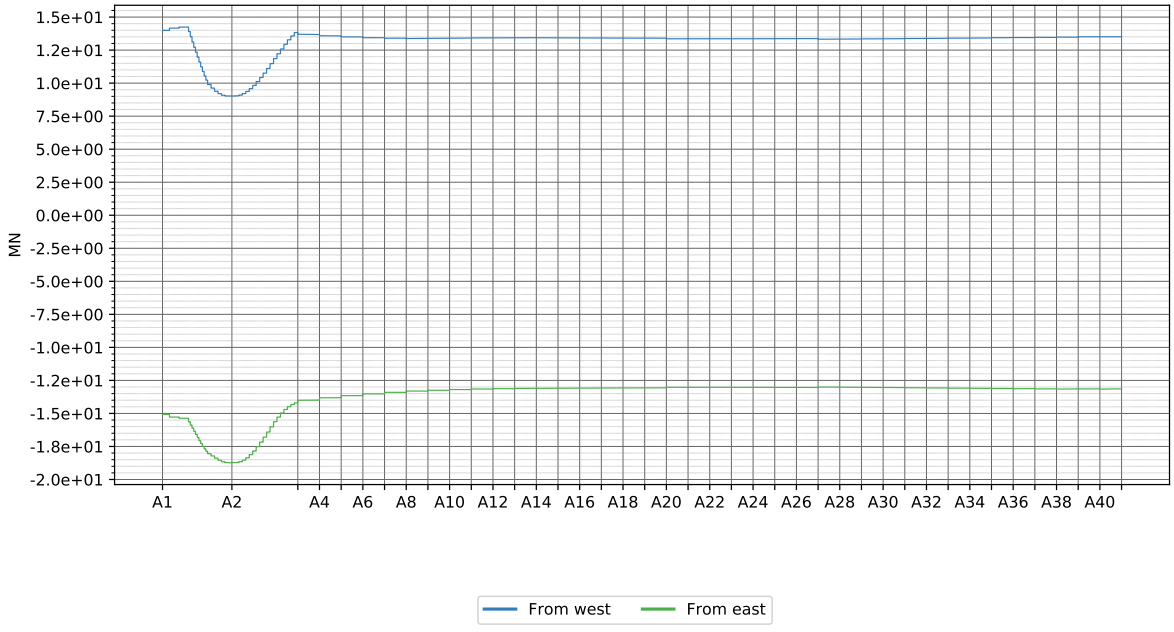
6.1.9 Current



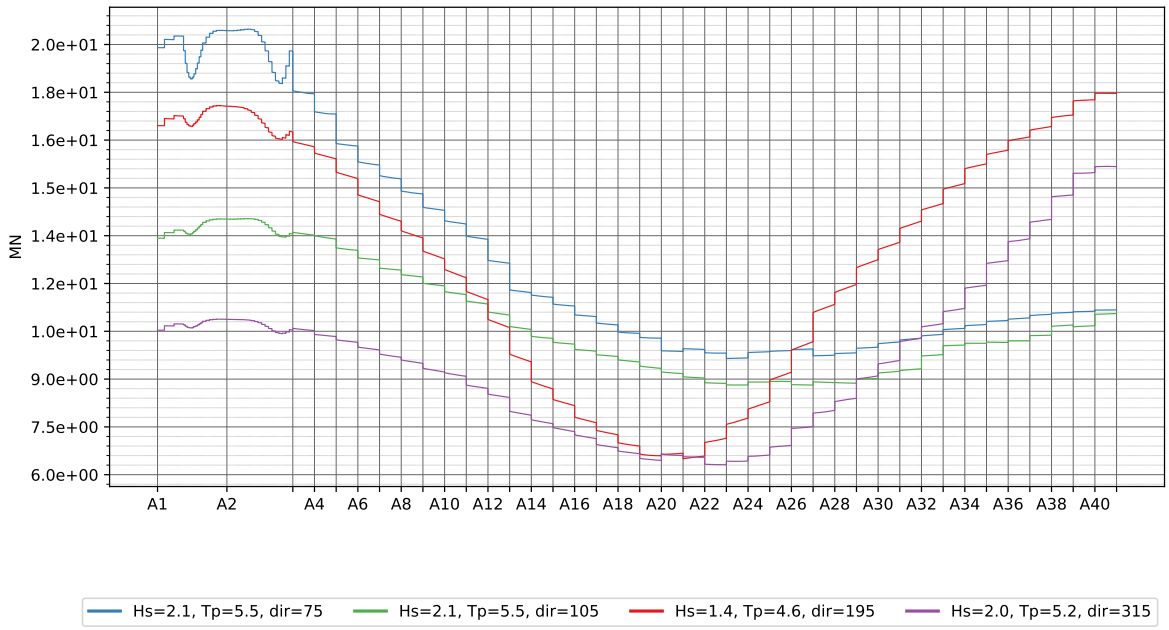
6.1.10 Dynamic wind 100 y



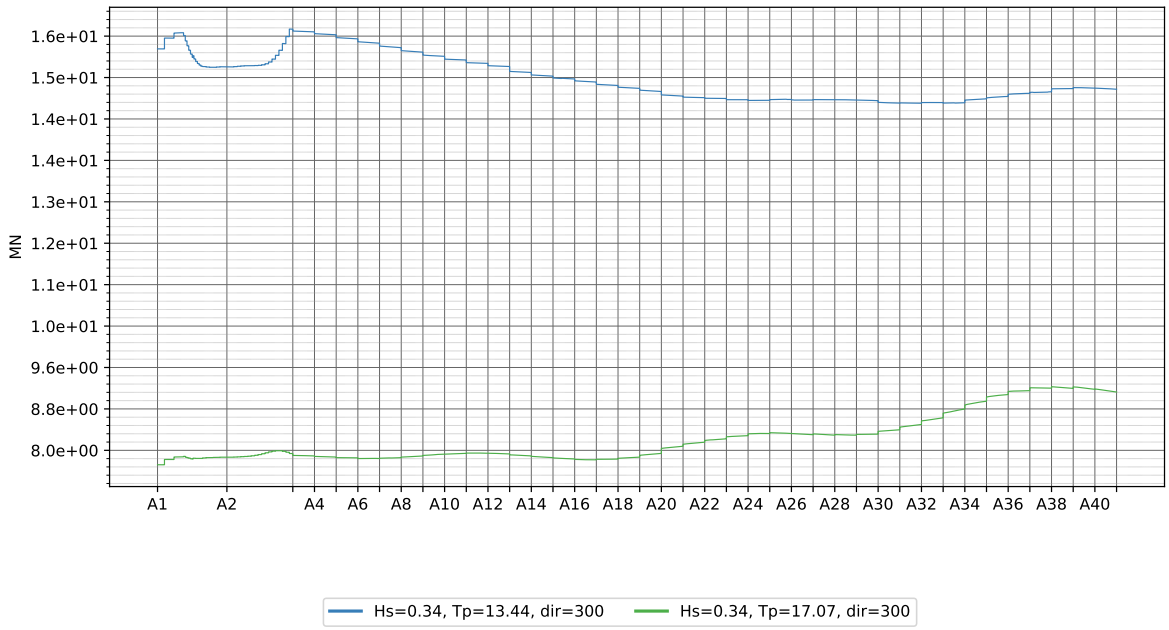
6.1.11 Static wind 100 y



6.1.12 Wave 100 y

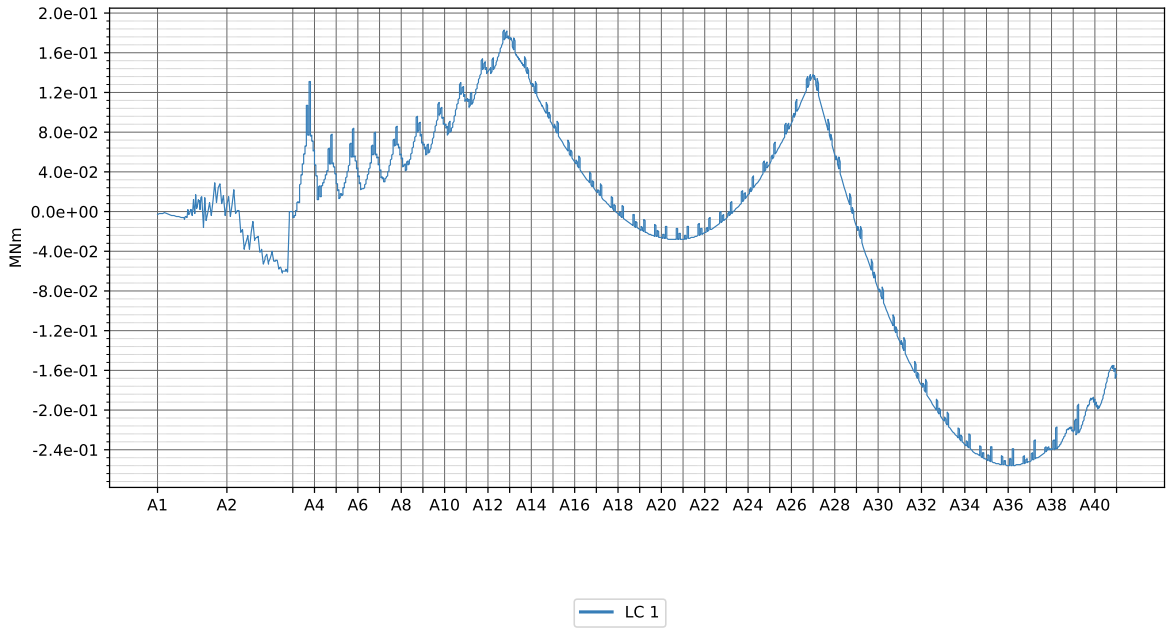


6.1.13 Swell 100 y

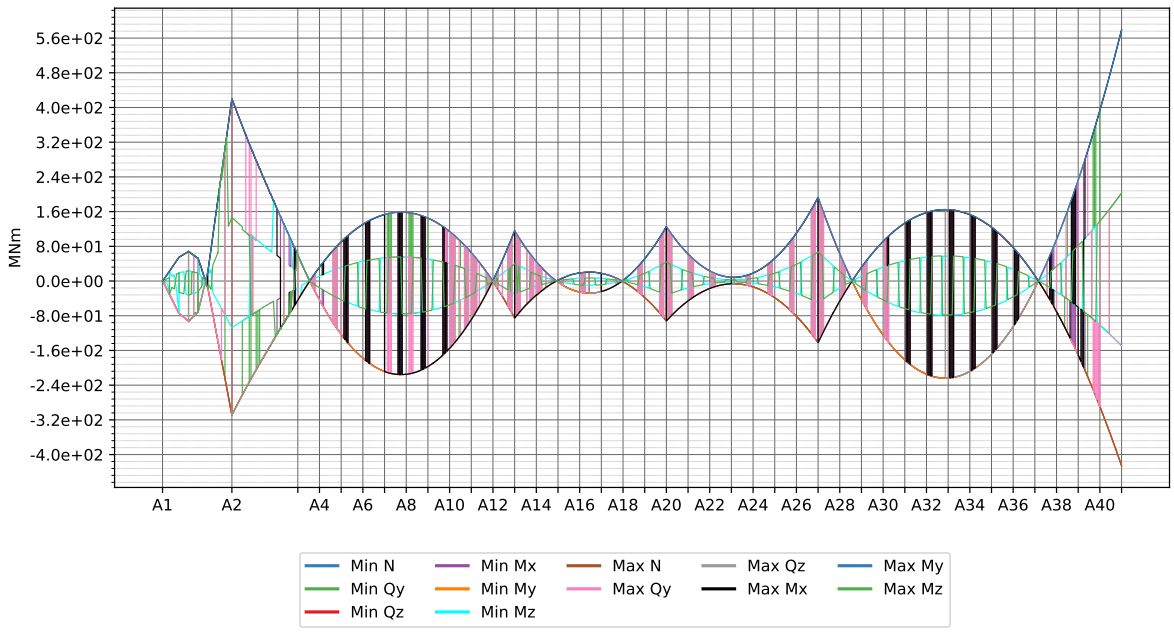


6.2 Bending moment about strong axis

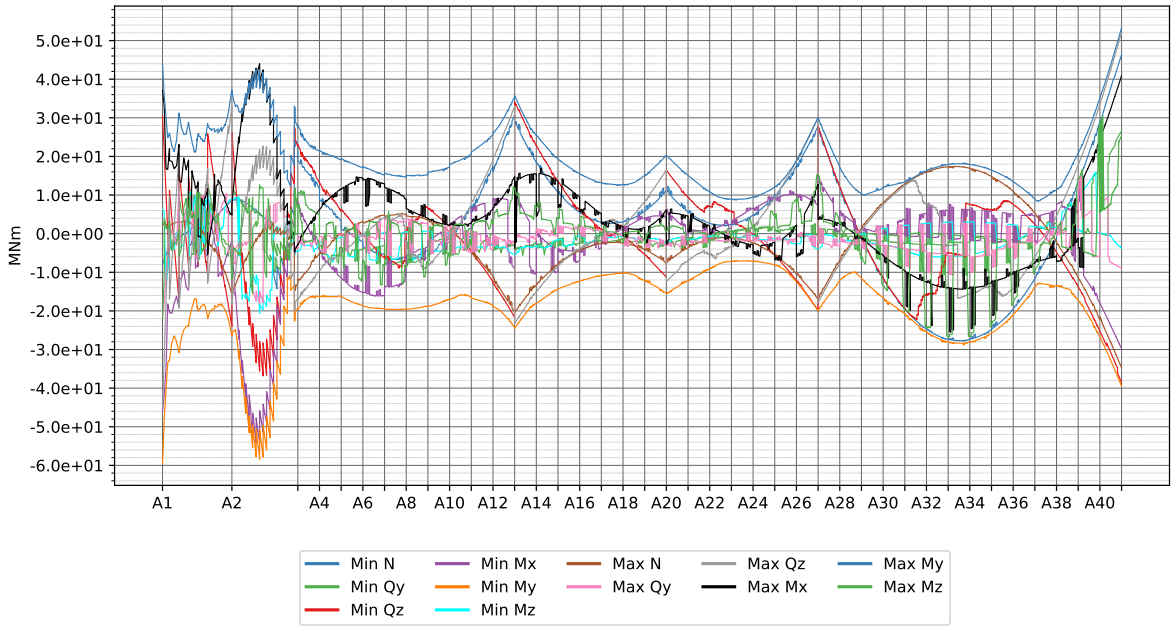
6.2.1 Permanent



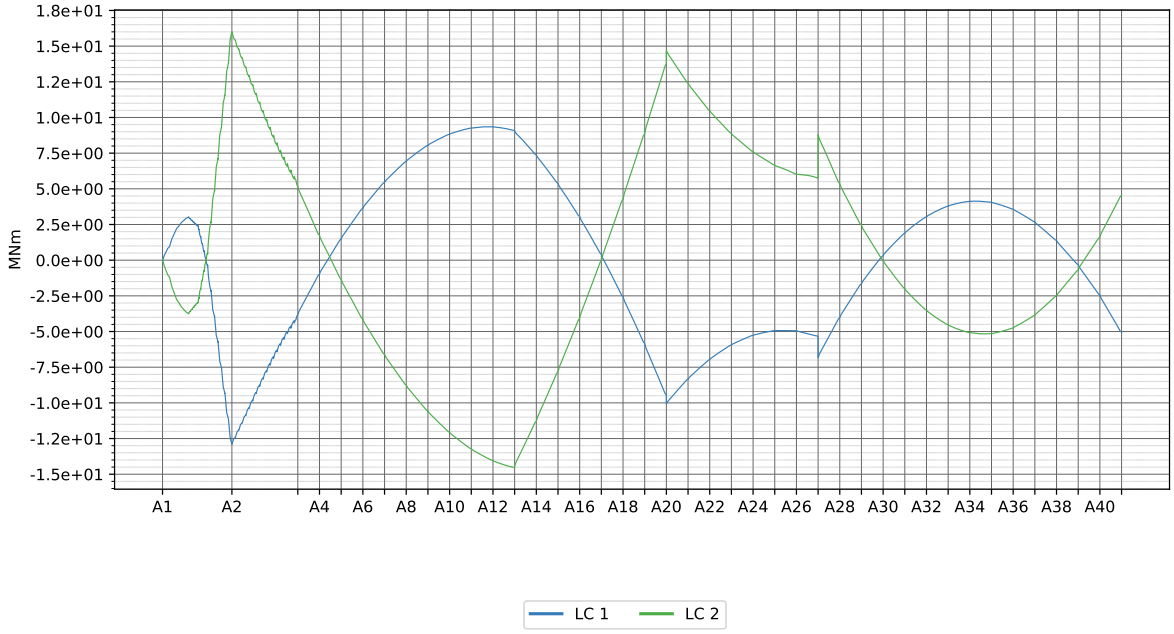
6.2.2 Temperature



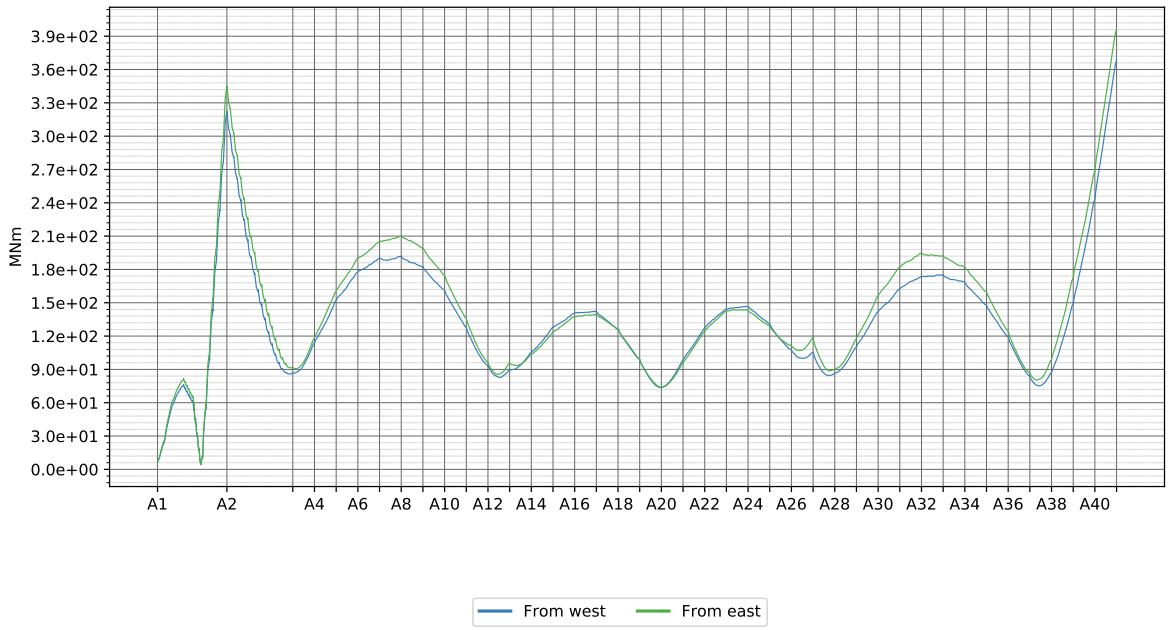
6.2.3 Traffic



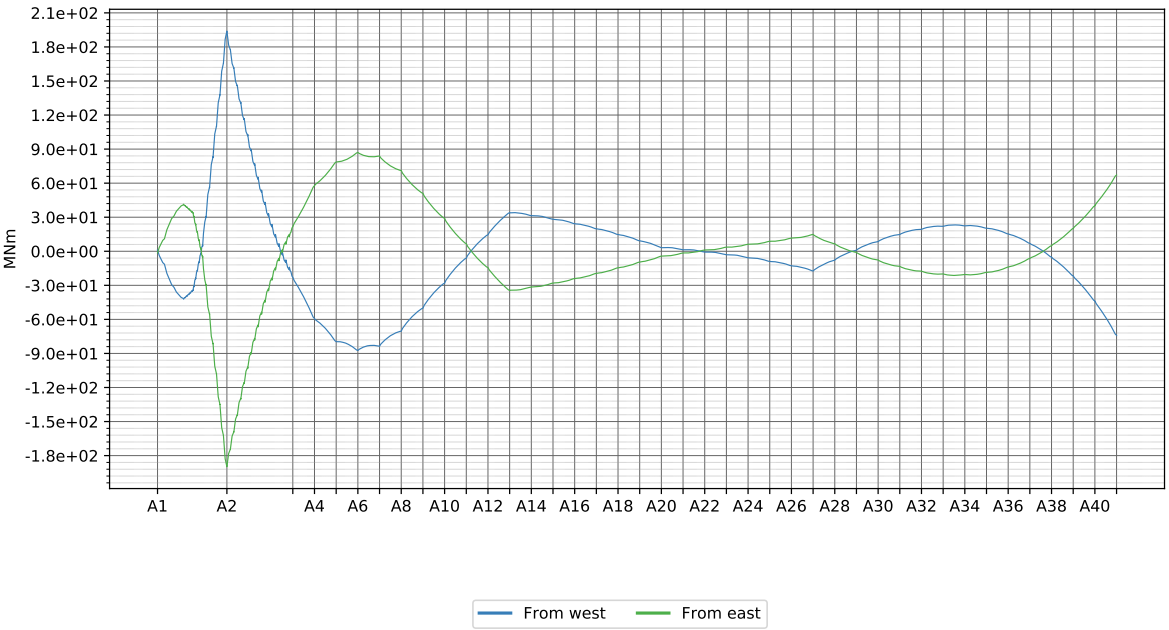
6.2.4 Tide



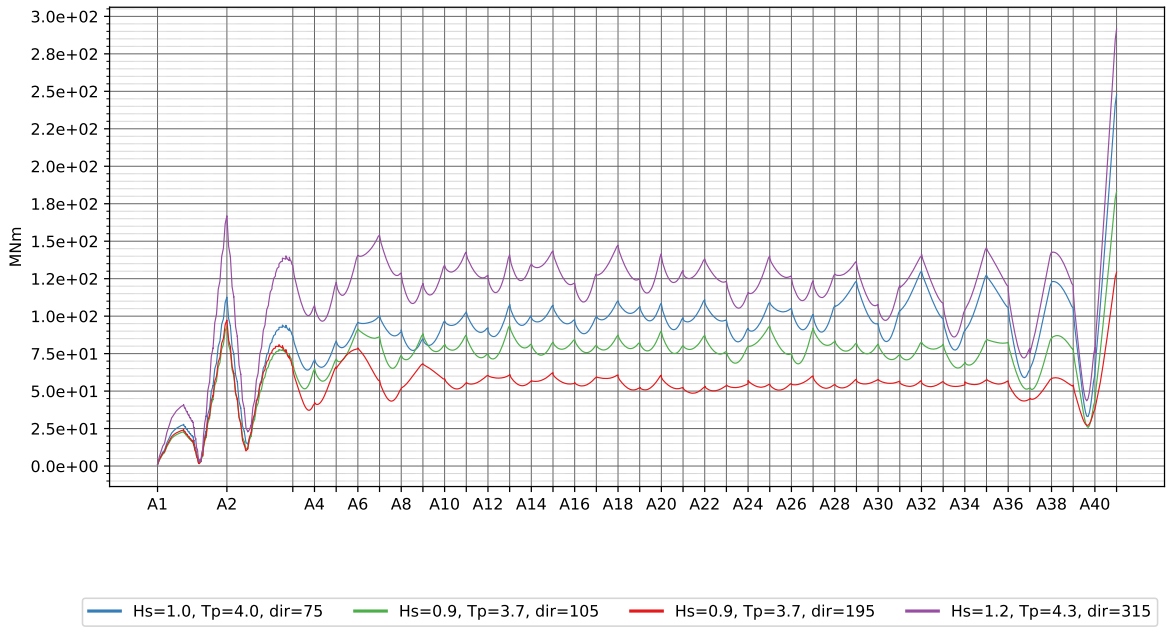
6.2.5 Dynamic wind 1 y



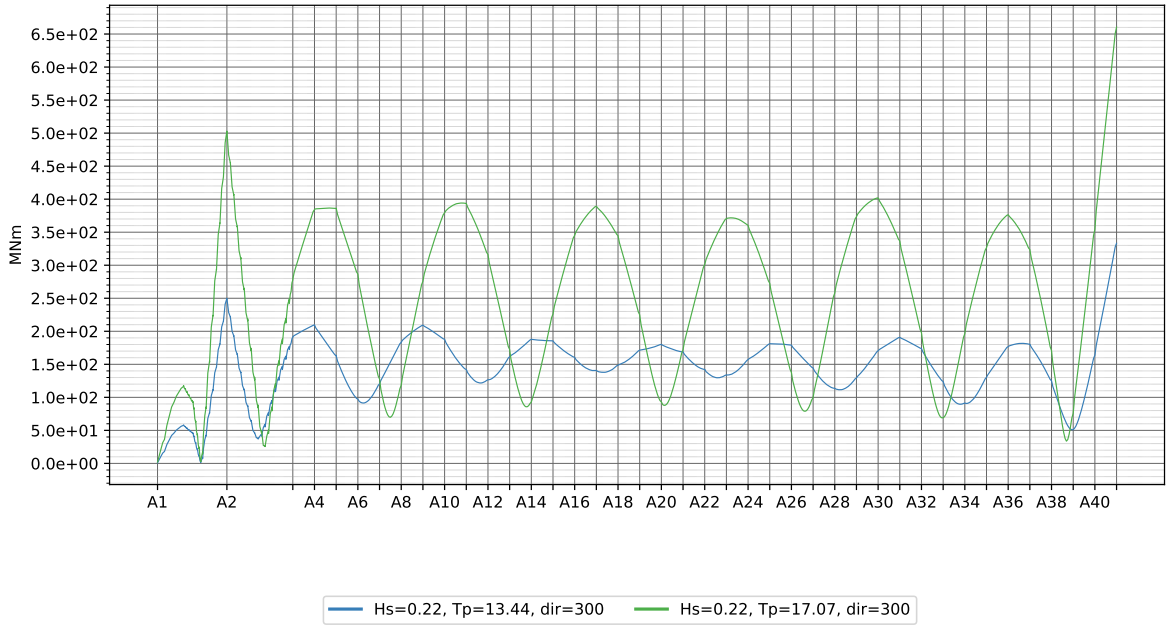
6.2.6 Static wind 1y



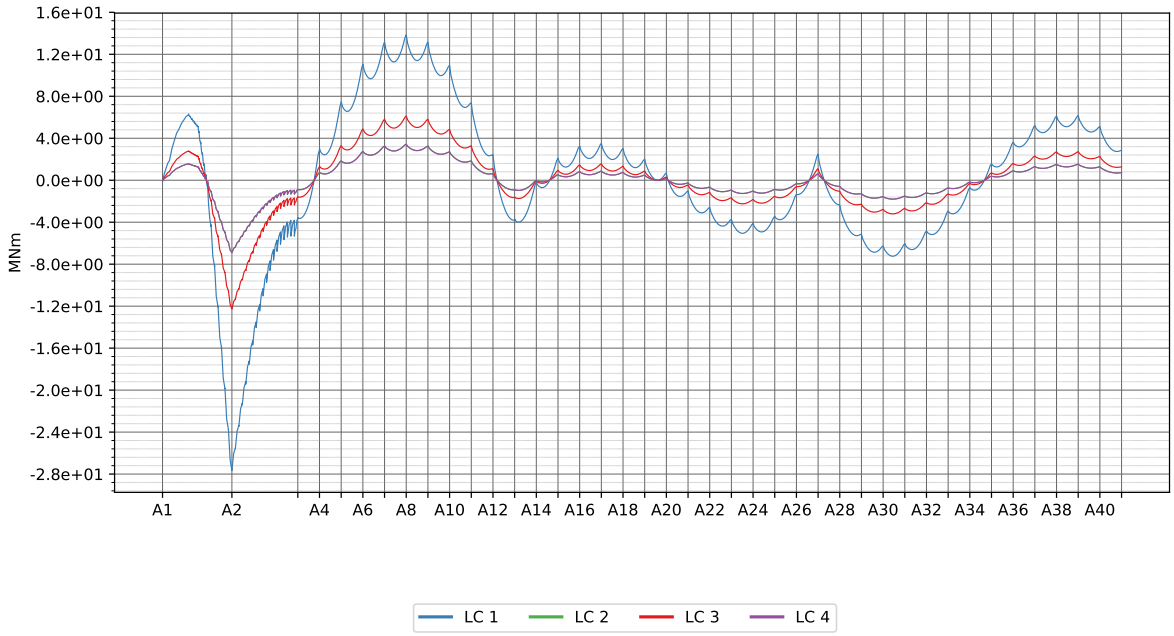
6.2.7 Wave 1 y



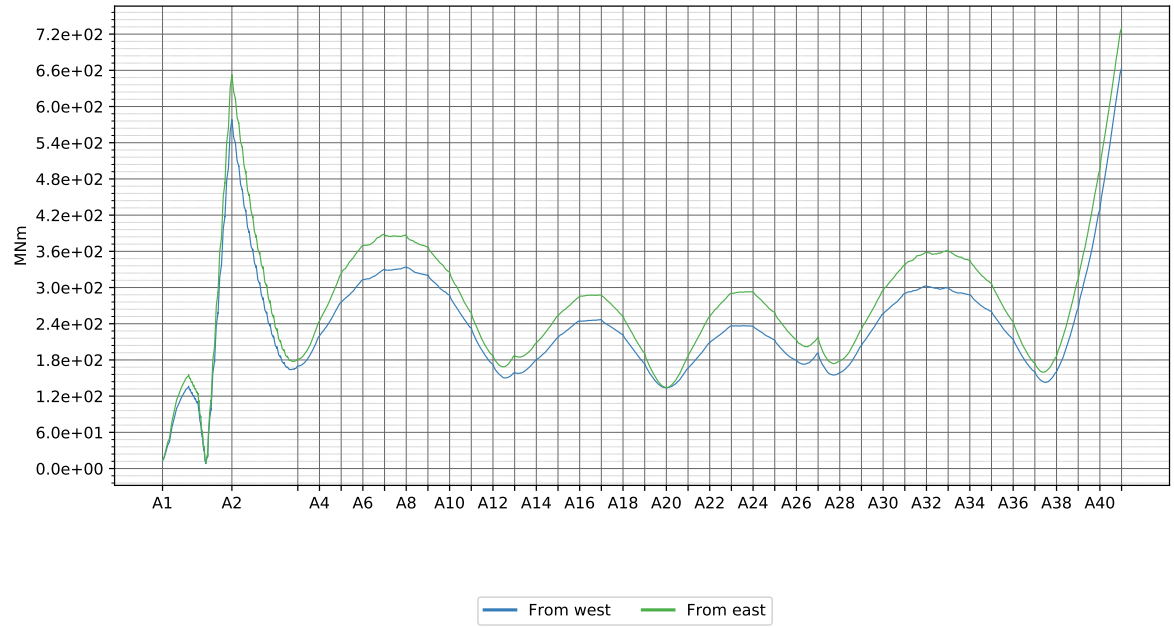
6.2.8 Swell 1 y



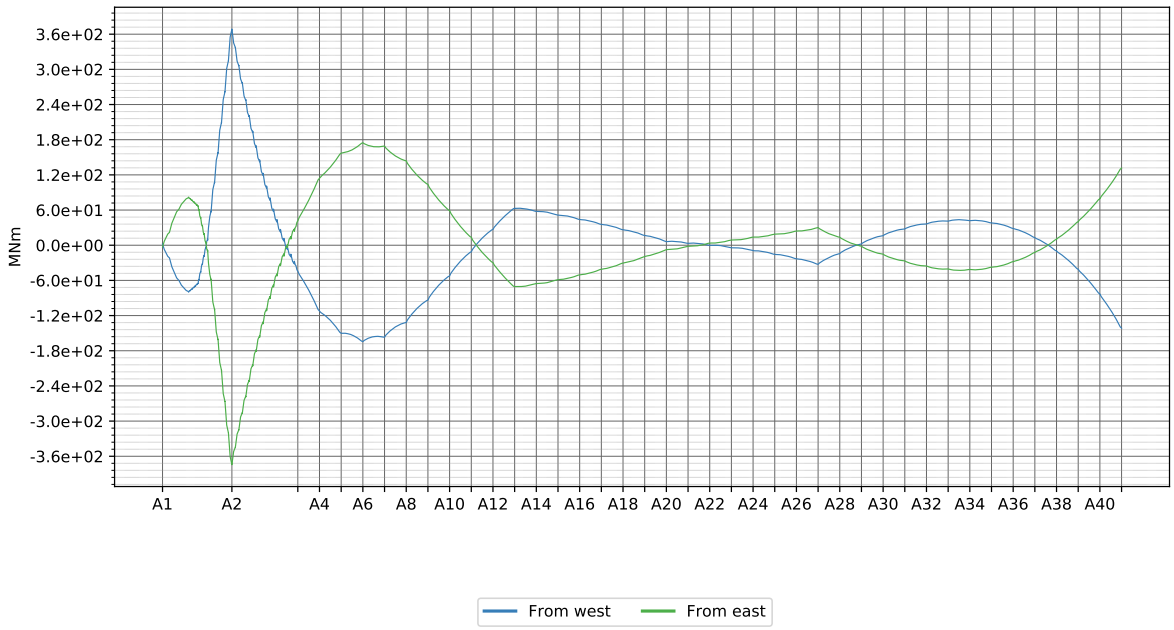
6.2.9 Current



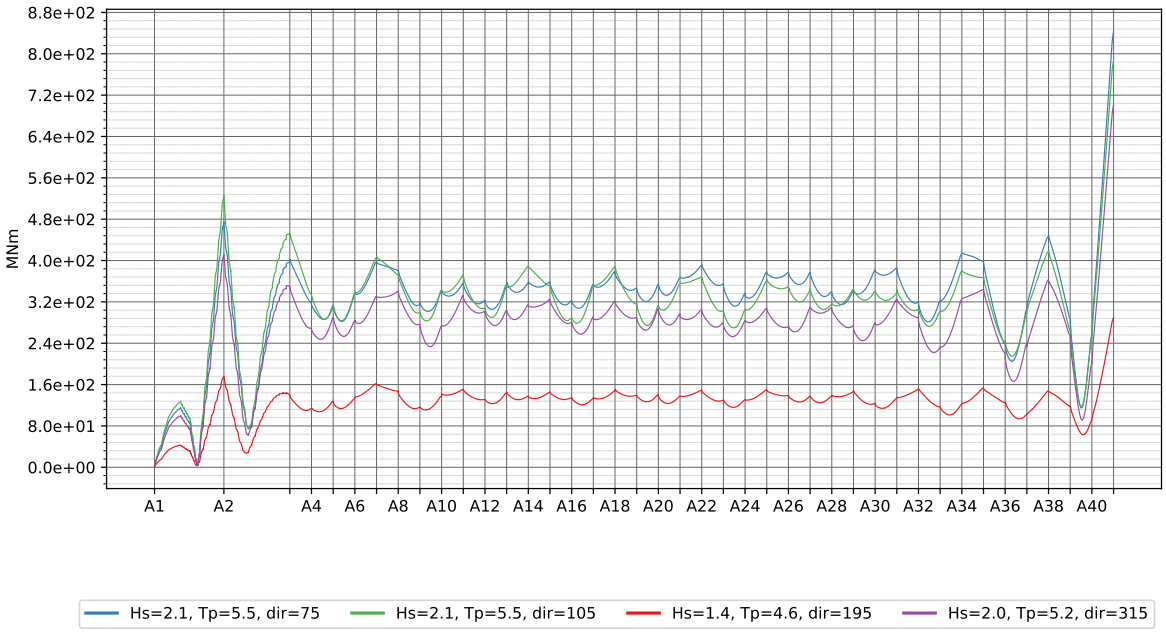
6.2.10 Dynamic wind 100 y



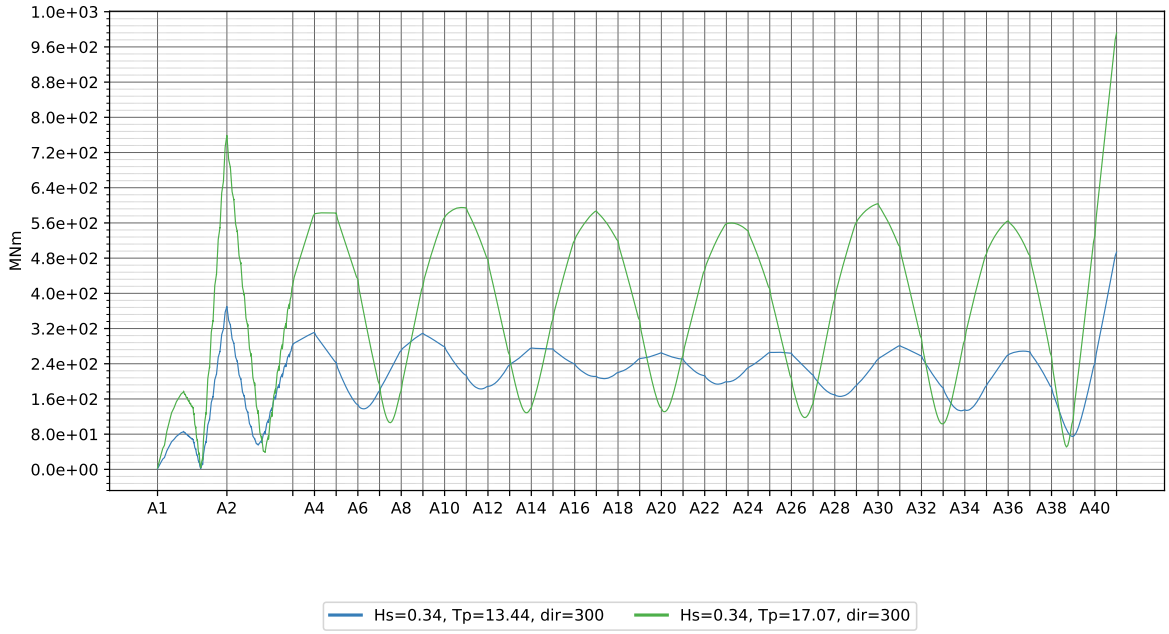
6.2.11 Static wind 100 y



6.2.12 Wave 100 y

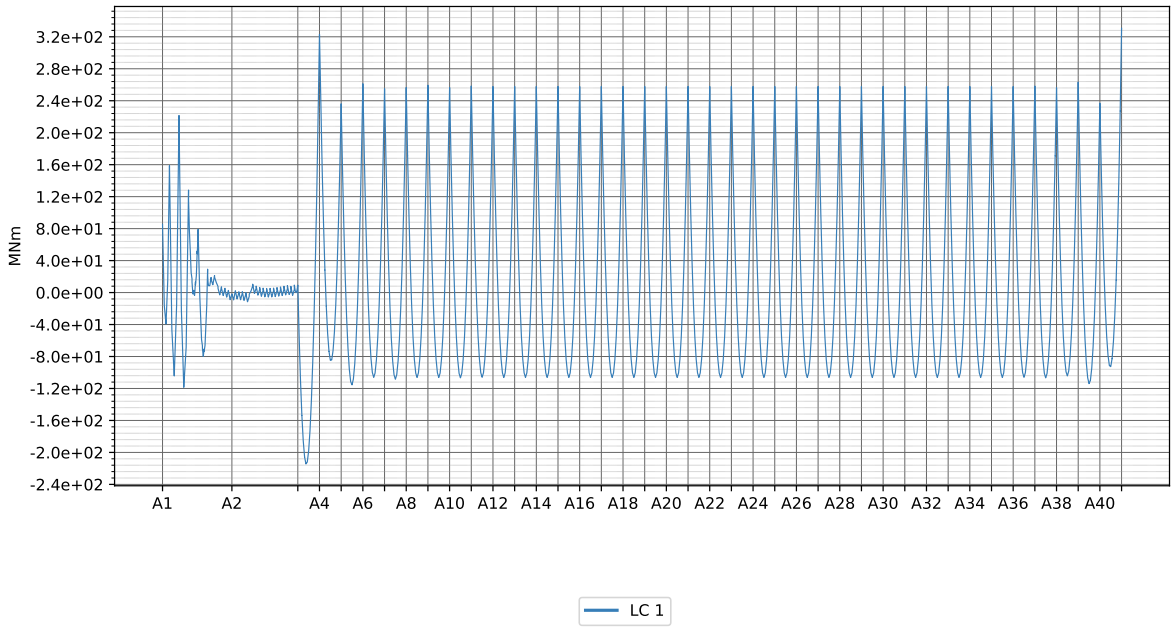


6.2.13 Swell 100 y

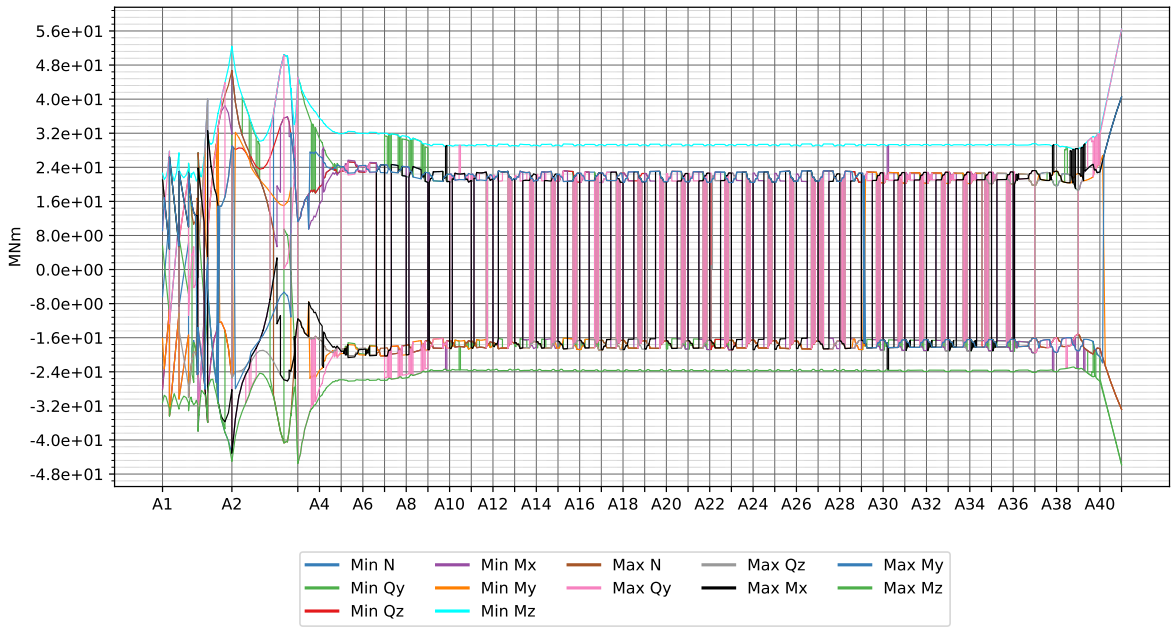


6.3 Bending moment about weak axis

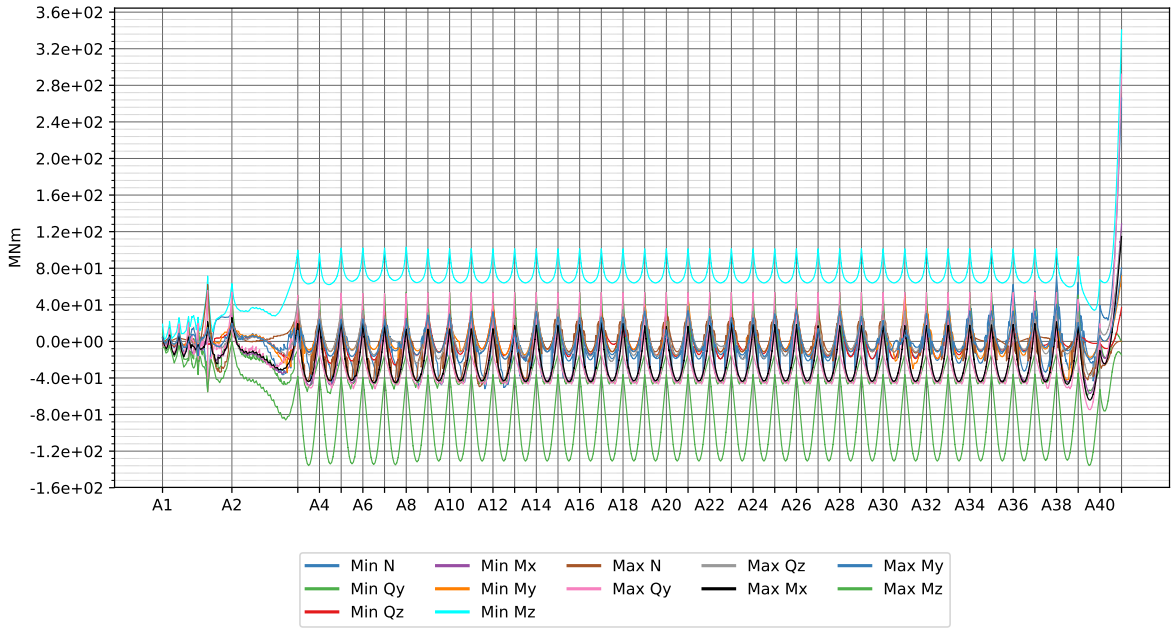
6.3.1 Permanent



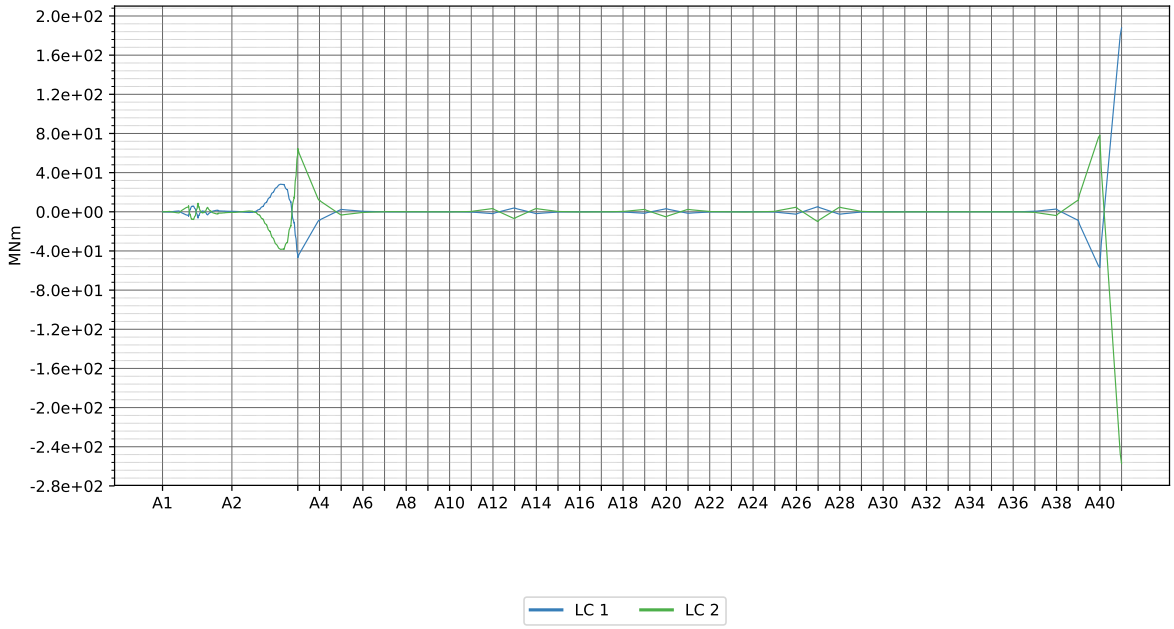
6.3.2 Temperature



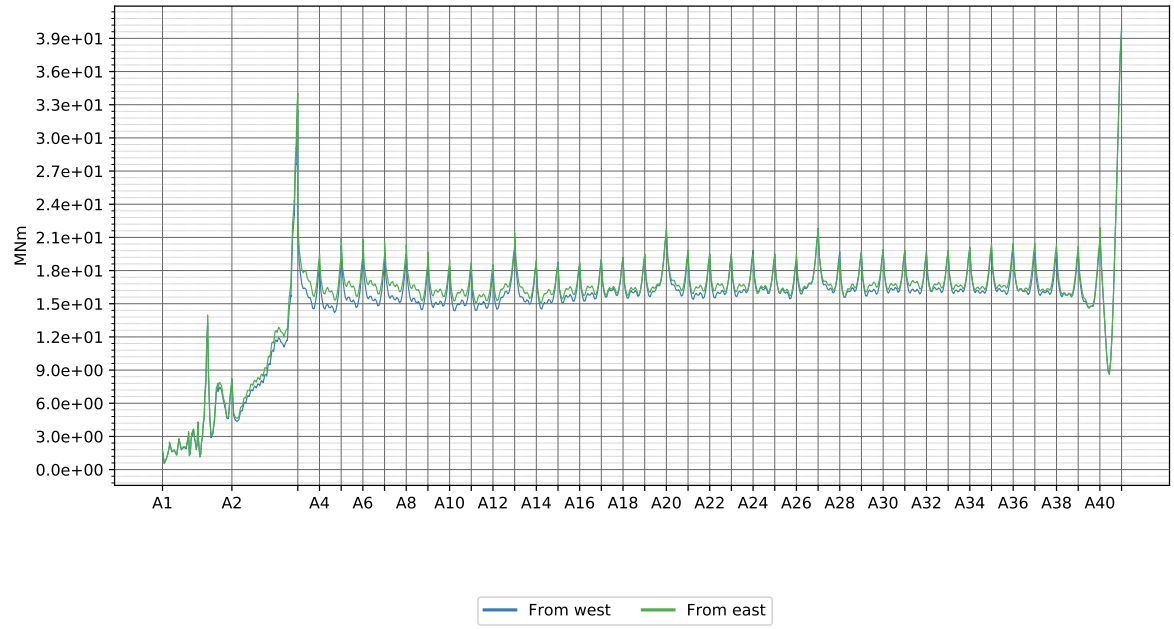
6.3.3 Traffic



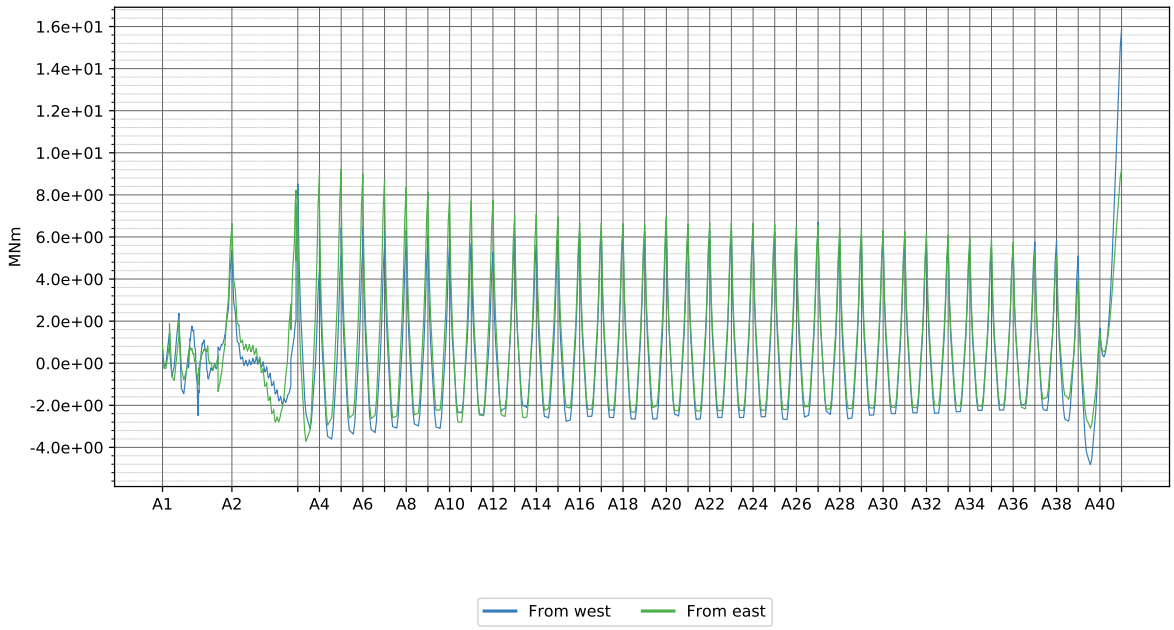
6.3.4 Tide



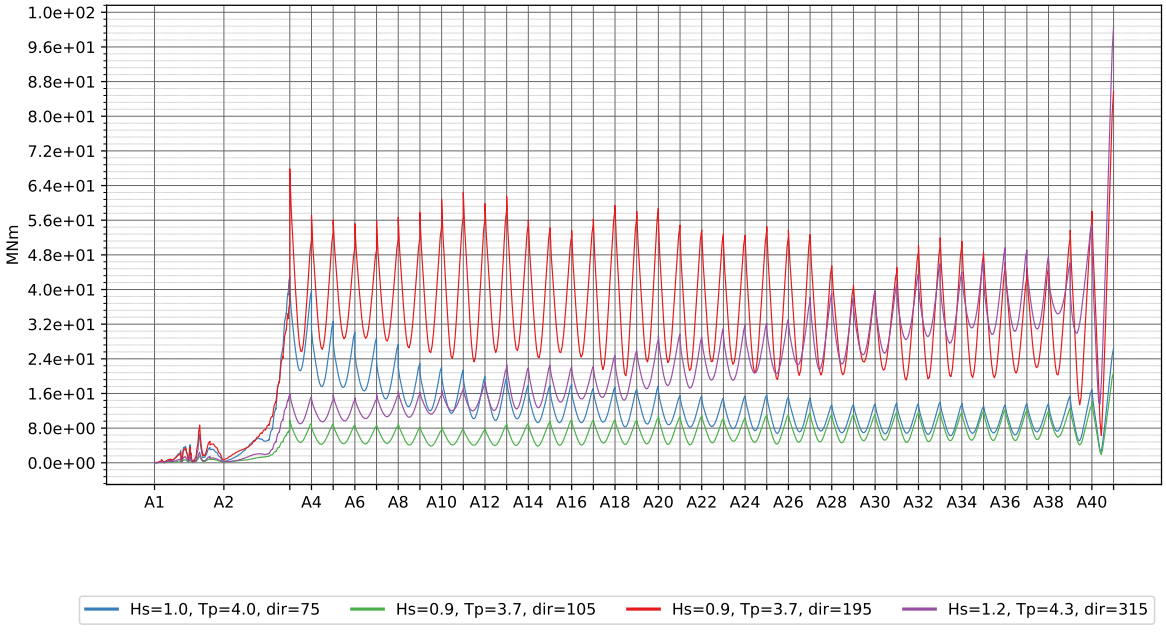
6.3.5 Dynamic wind 1 y



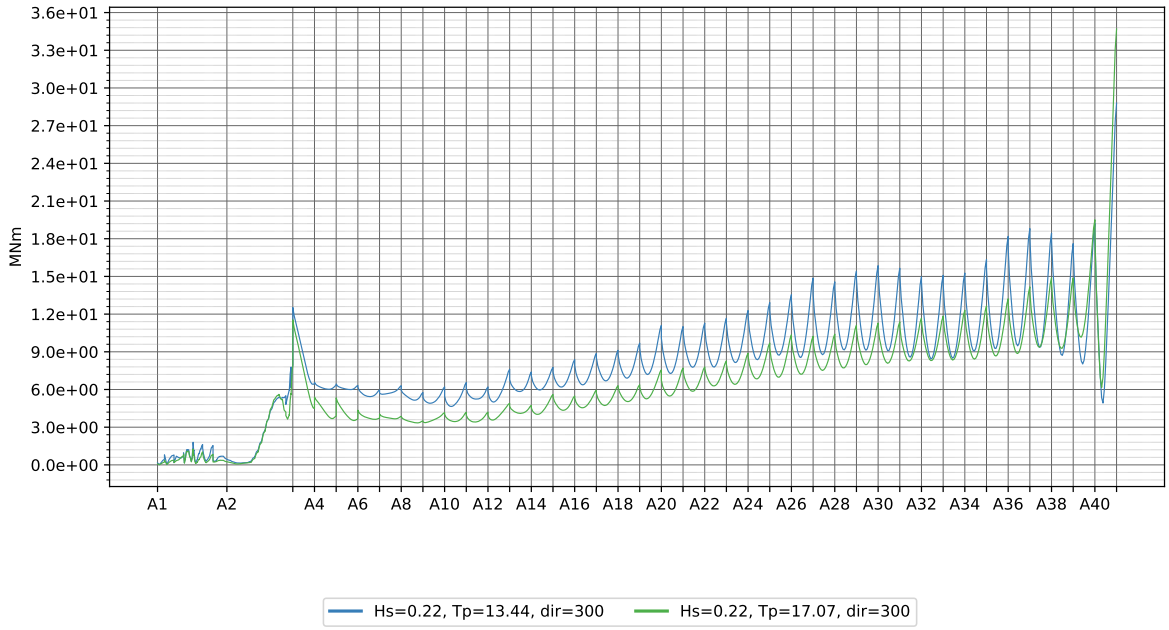
6.3.6 Static wind 1y



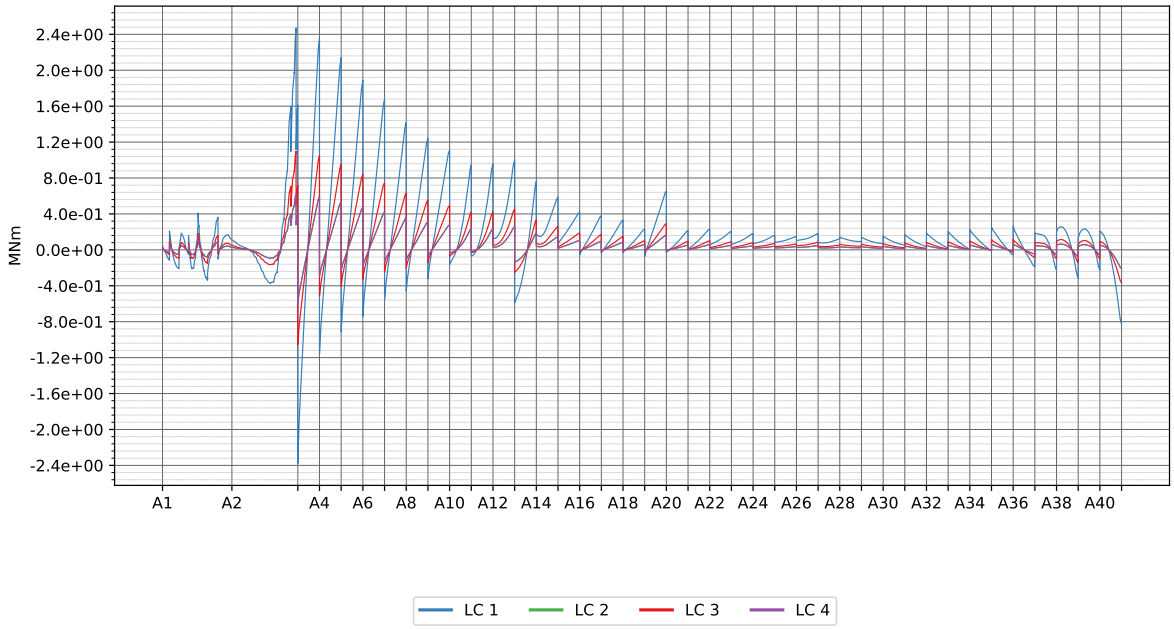
6.3.7 Wave 1 y



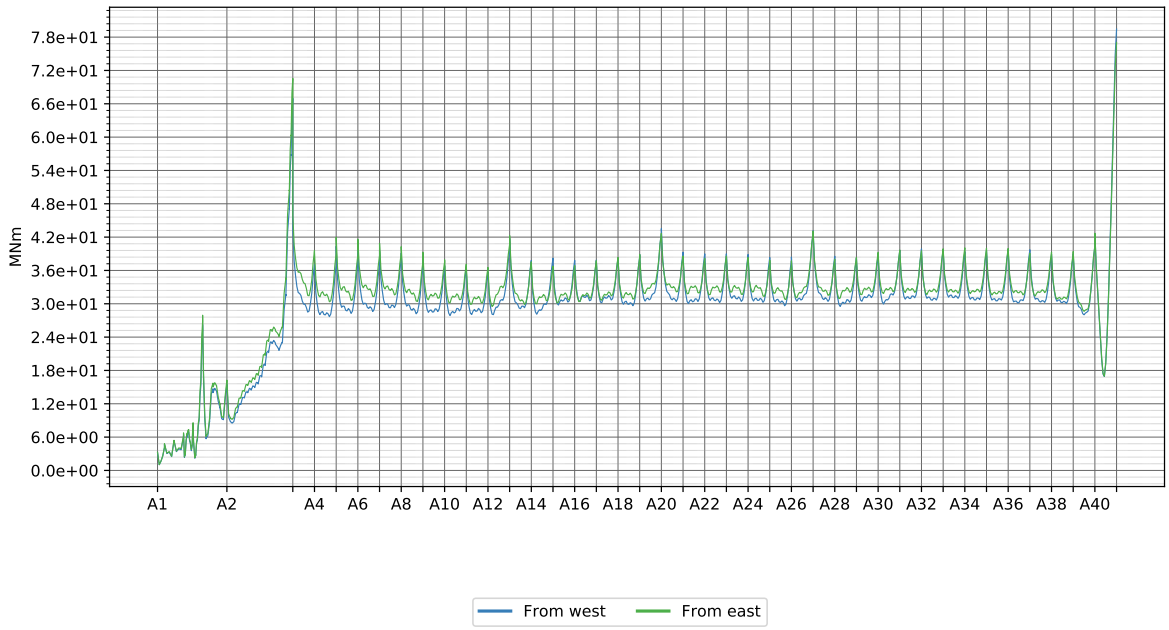
6.3.8 Swell 1 y



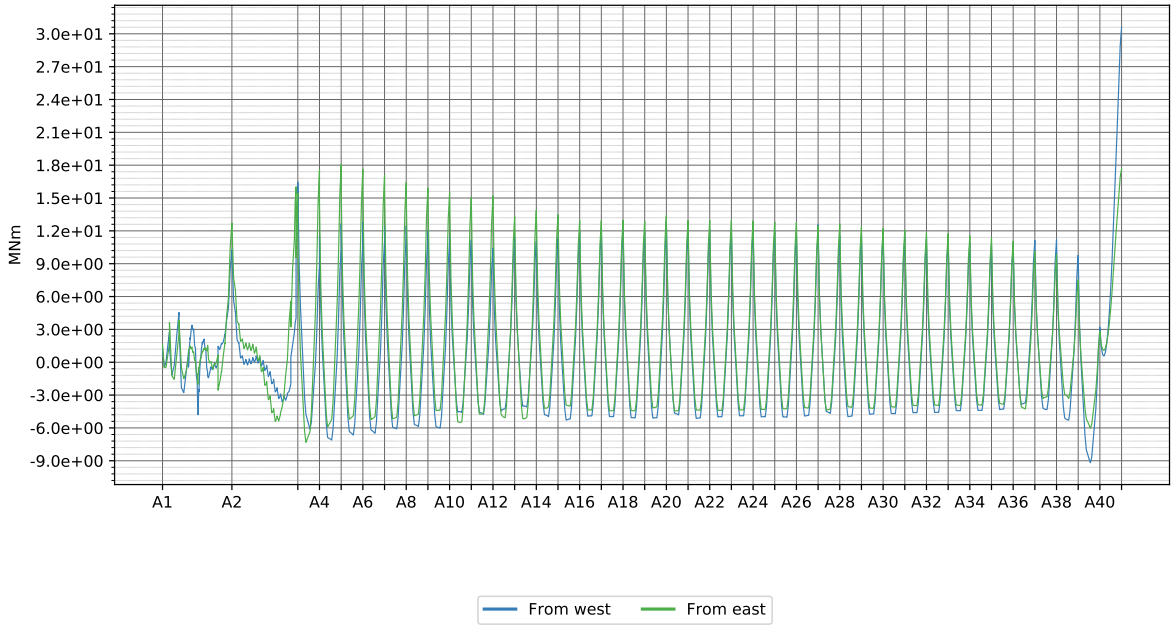
6.3.9 Current



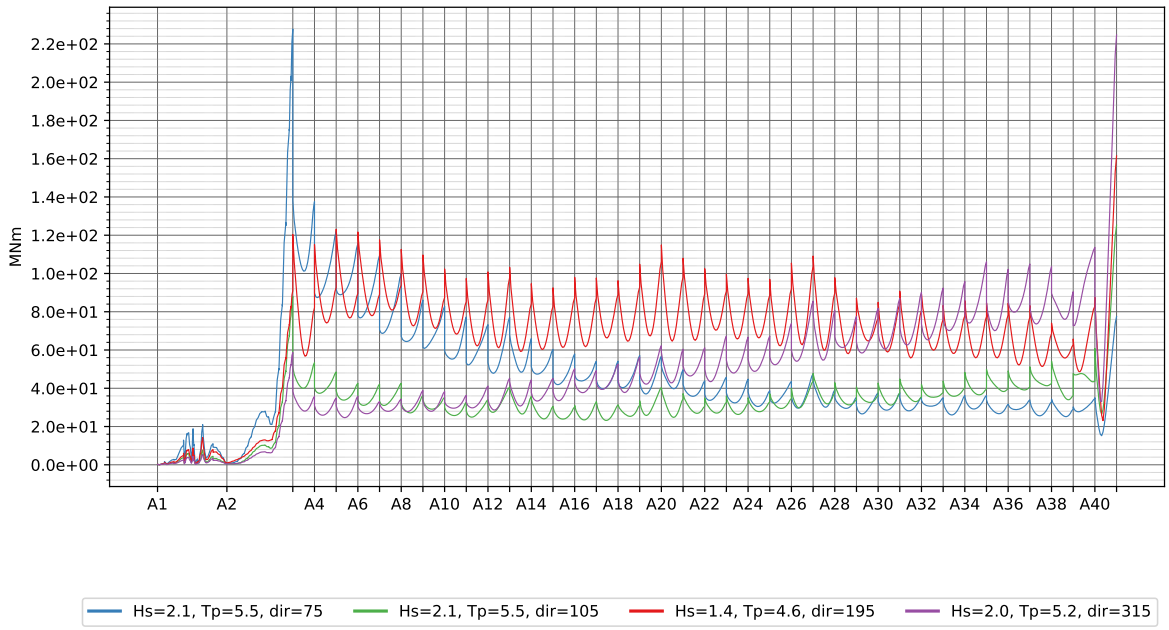
6.3.10 Dynamic wind 100 y



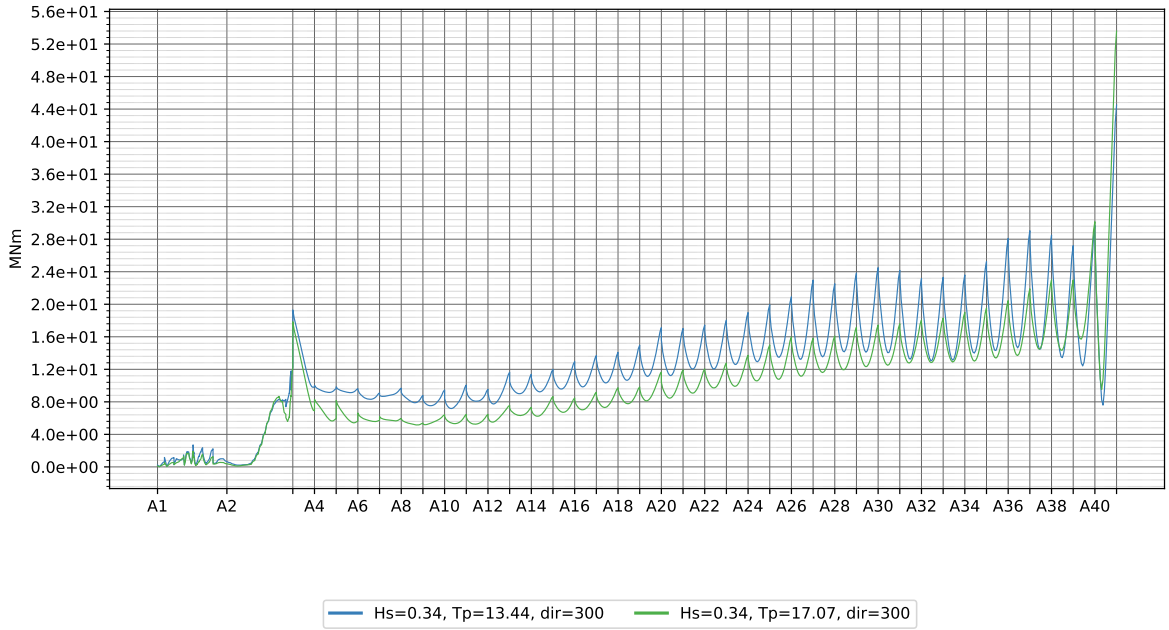
6.3.11 Static wind 100 y



6.3.12 Wave 100 y

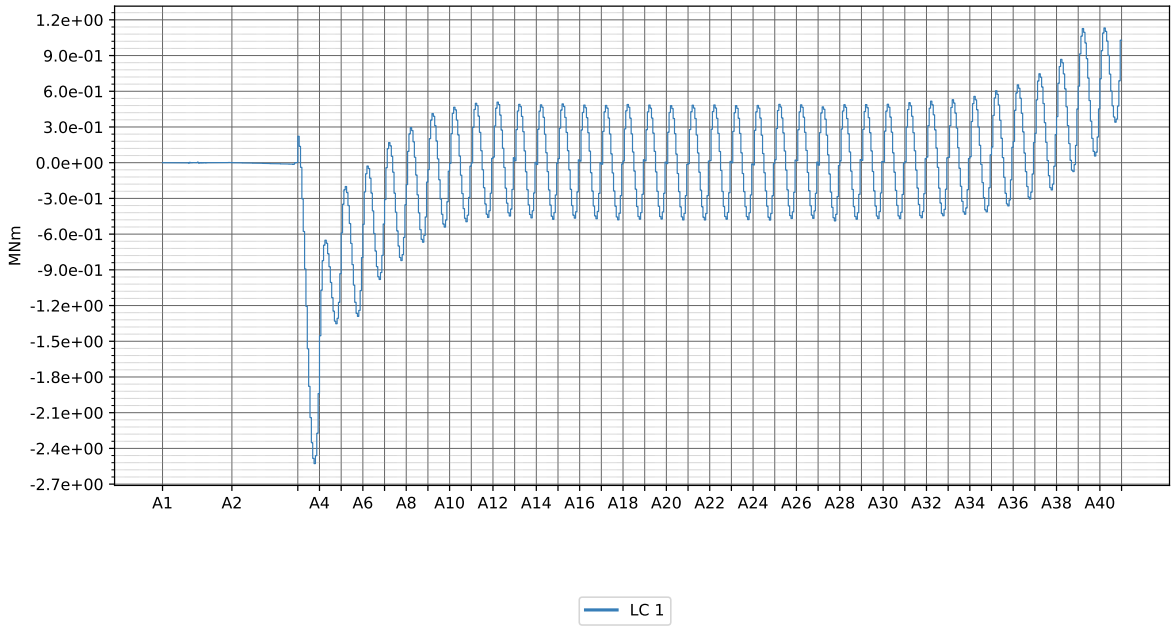


6.3.13 Swell 100 y

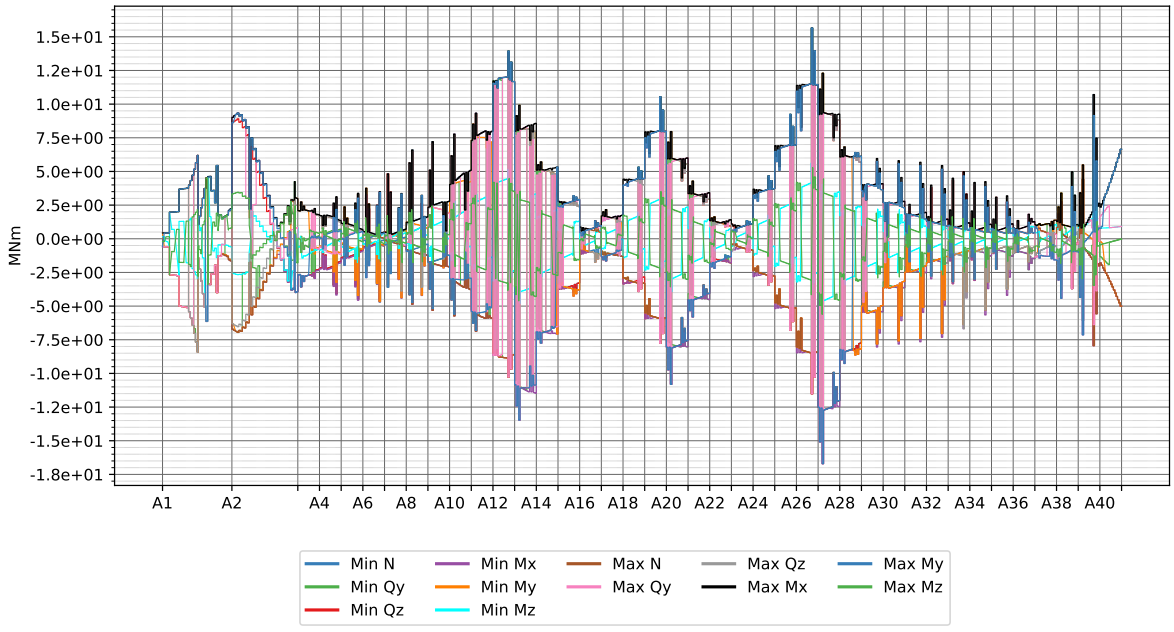


6.4 Torsional moment

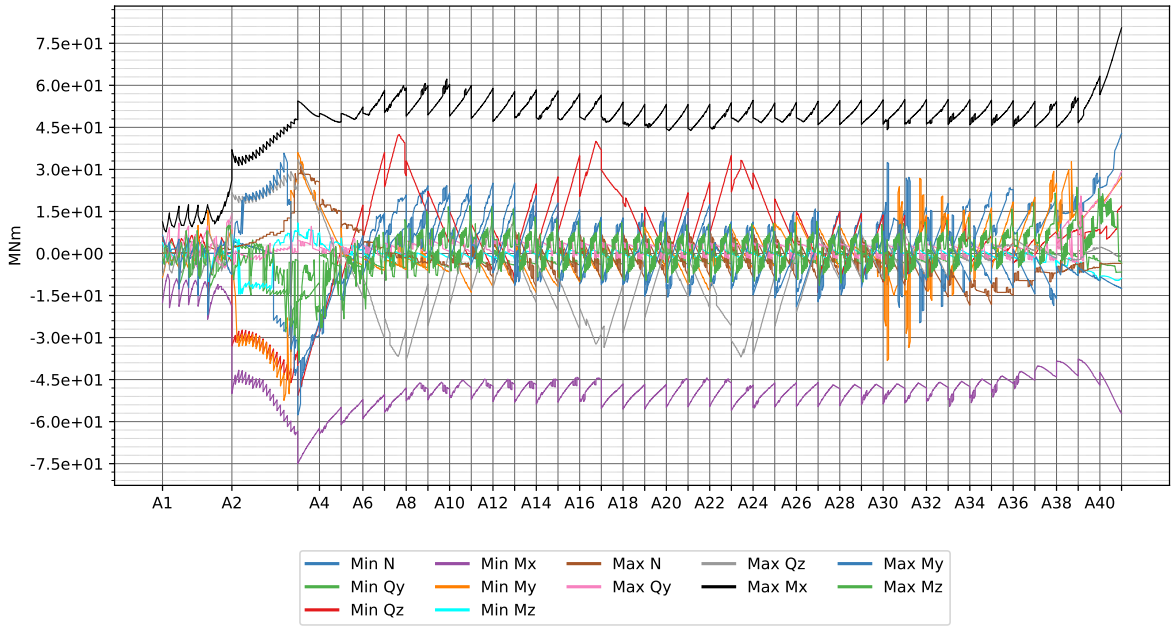
6.4.1 Permanent



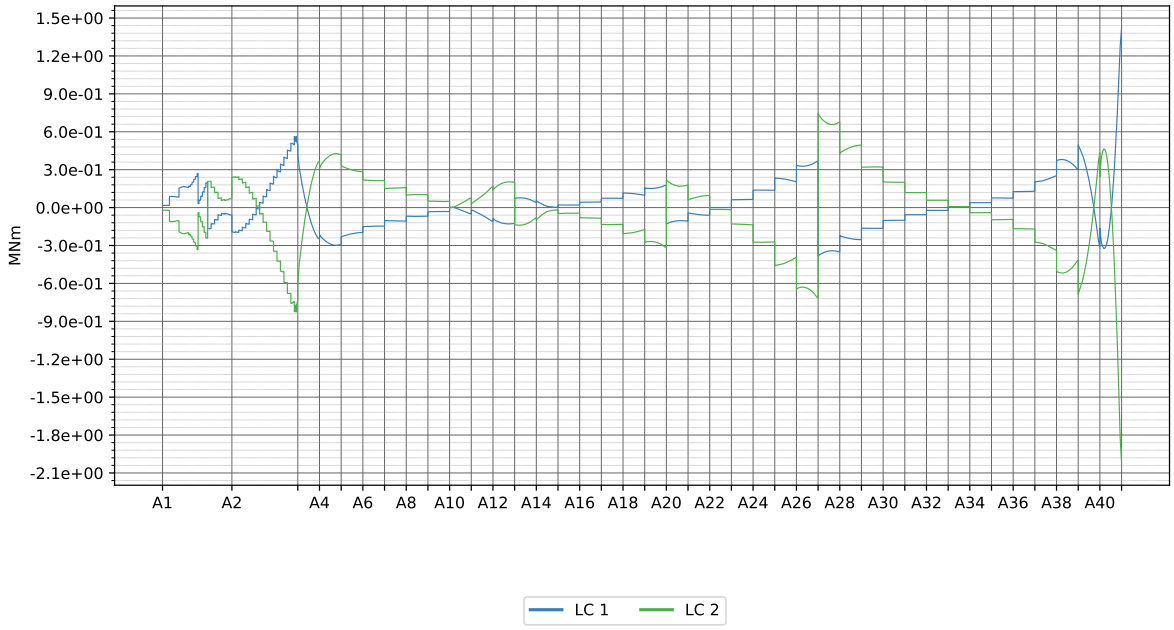
6.4.2 Temperature



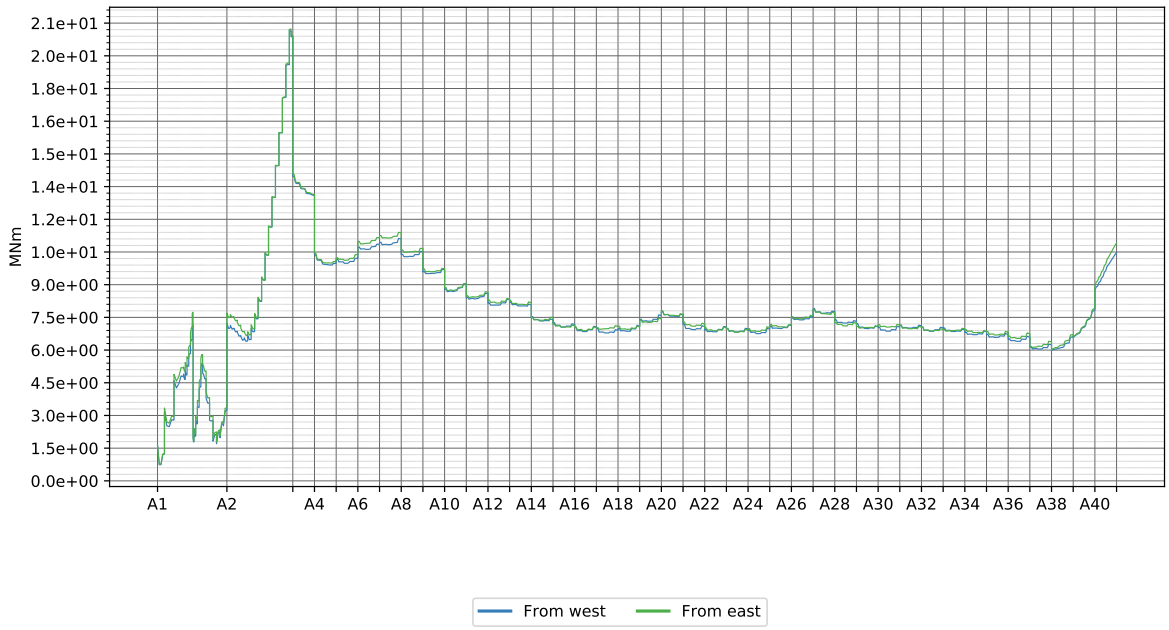
6.4.3 Traffic



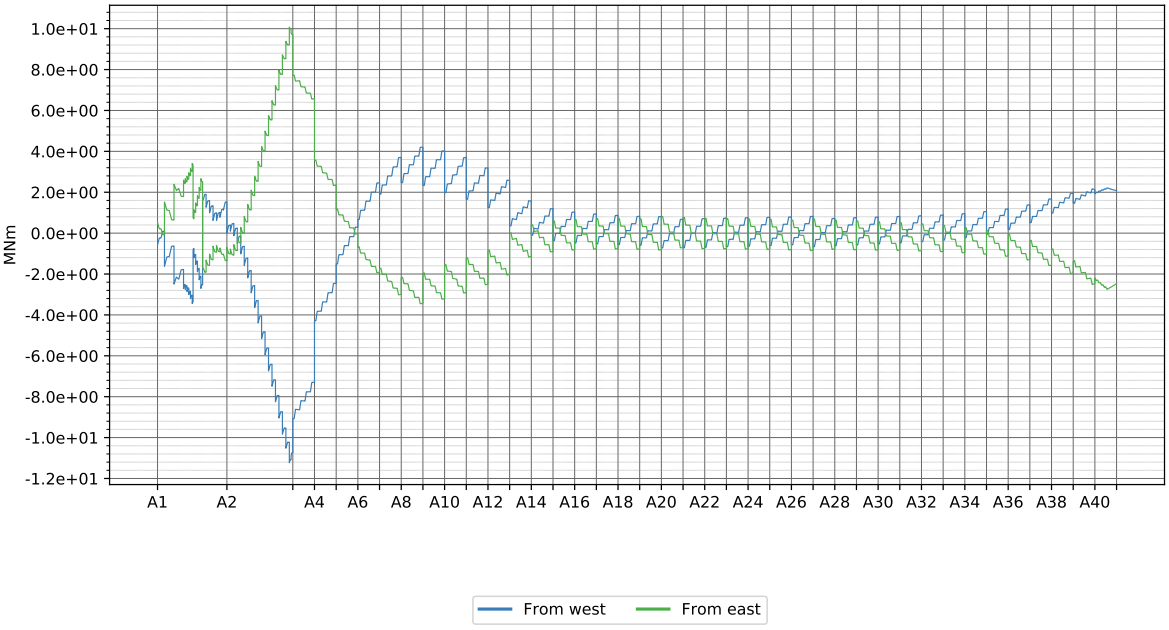
6.4.4 Tide



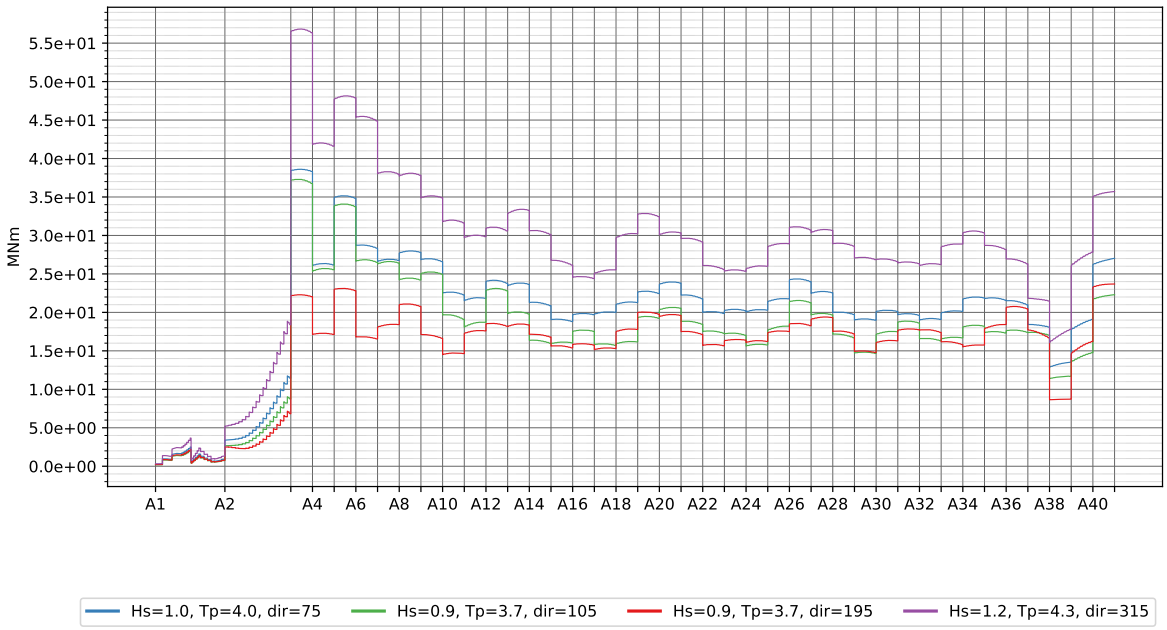
6.4.5 Dynamic wind 1 y



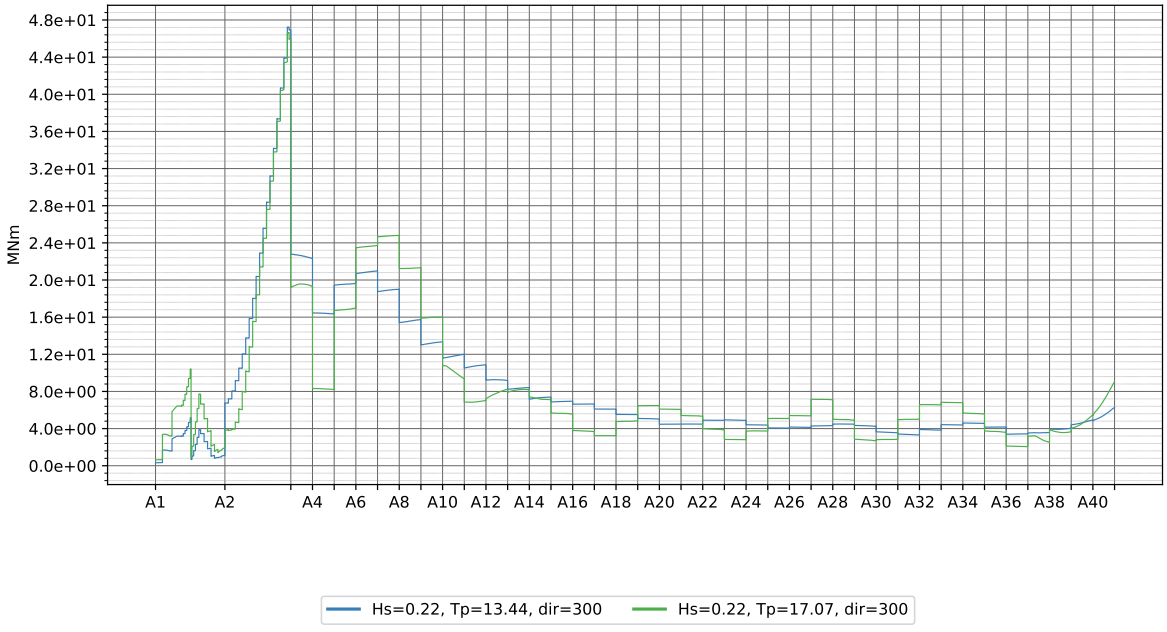
6.4.6 Static wind 1y



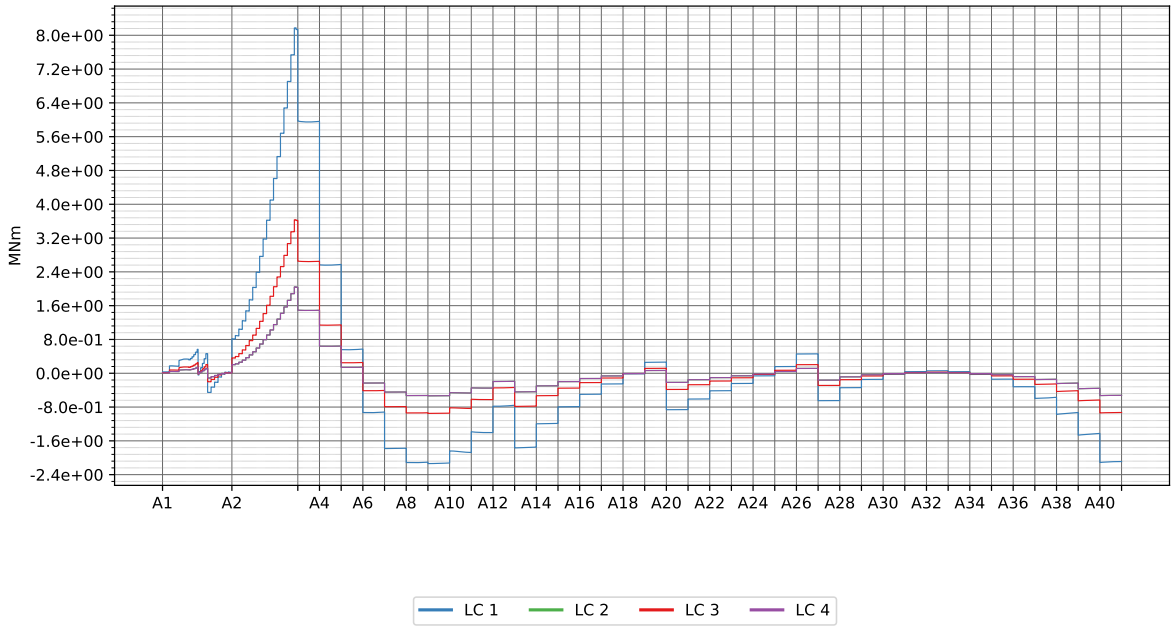
6.4.7 Wave 1 y



6.4.8 Swell 1 y



6.4.9 Current



6.4.10 Dynamic wind 100 y