



**Met Office**

# Portland Hourly Observations

For: LOCOG

Date: 8<sup>th</sup> January 2010

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## **Important Notes for Interpretation**

Hourly wind roses (Figures 1(a) – 4(a)) and hourly frequency analyses (Figures 1(b) to 4(b)) have been provided for the Olympic (28<sup>th</sup> July - 11<sup>th</sup> August) and the Paralympic Periods (31<sup>st</sup> August - 6<sup>th</sup> September) for Portland Synoptic Station and Portland Harbour Wall.

Due to the short period of record and the short length of the periods, these analyses are based on a very limited data. The limited data period must be taken into account when interpreting the information as conditions during the summers of 2007 and 2008 were not typical. During these summers there were several weather systems moving across the United Kingdom. These typically brought with them windier than normal conditions and generally wind directions from the south-westerly quadrant. During a more representative summer more settled weather would lead to calmer overall conditions.

## **Explanation of Wind Roses & Frequency Analyses**

For these wind roses and frequency analyses, all times are in British Summer Time (BST). An analysis has been provided for all hours from 11:00 BST to 17:00 BST.

Wind directions are at all times expressed in degrees from true north and represent the direction from which the wind is blowing. The wind frequency analysis gives percentages of occurrence of each wind direction and speed, with wind directions across the top in degrees and wind speeds in knots along the side. The total periods at the bottom of the diagram indicate the total percentage of the time that winds were monitored from each direction. Significant wind speed/direction combinations in the table are coloured, as the key at the bottom of the wind frequency analysis demonstrates.

The wind roses show the same information in a graphical format. This information is also in knots (represented by the different colours in the bar) and the percentage of time of wind from each direction is shown radiating outwards on the diagrams. Beneath each wind rose is listed the number of observations included in the analysis. It can be seen that for the Portland Harbour all station the number of records included in the analysis is as low as 25 on some days.

Figure 1(a): Hourly Wind Roses for Portland Synoptic Station for the Olympic Period (28<sup>th</sup> July -11<sup>th</sup> Aug).

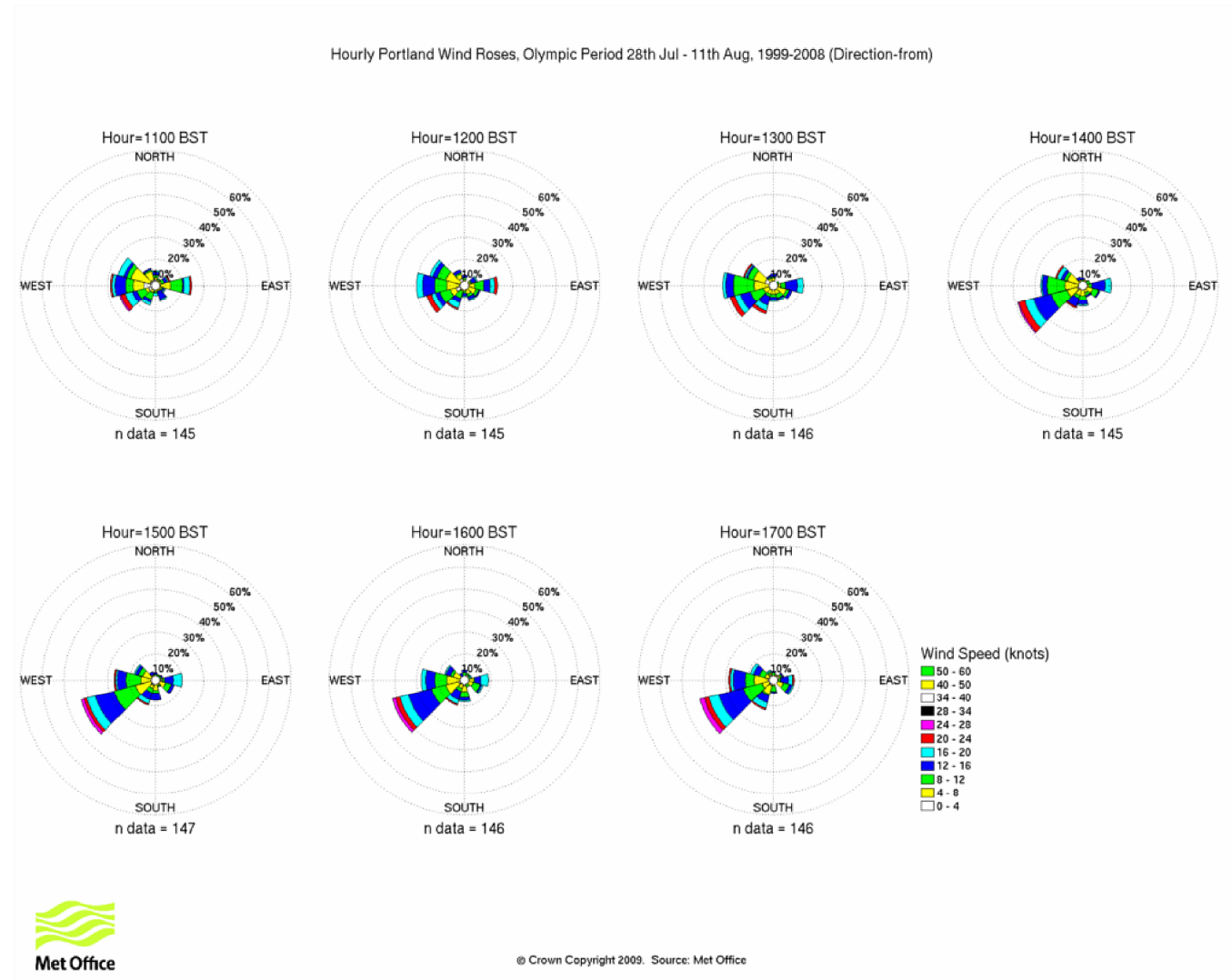
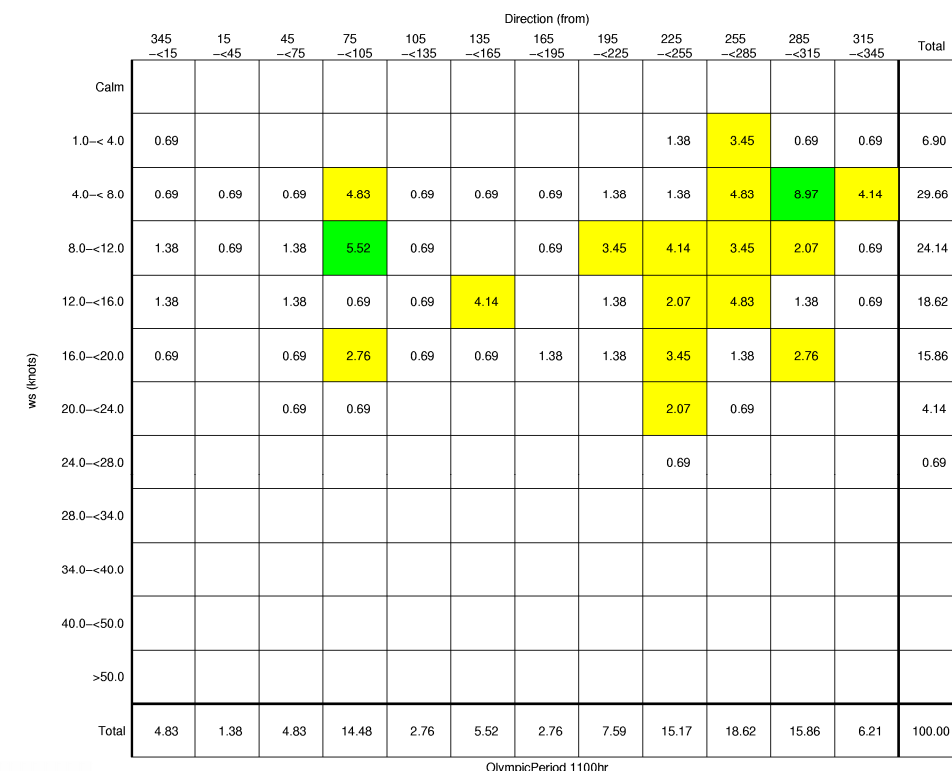
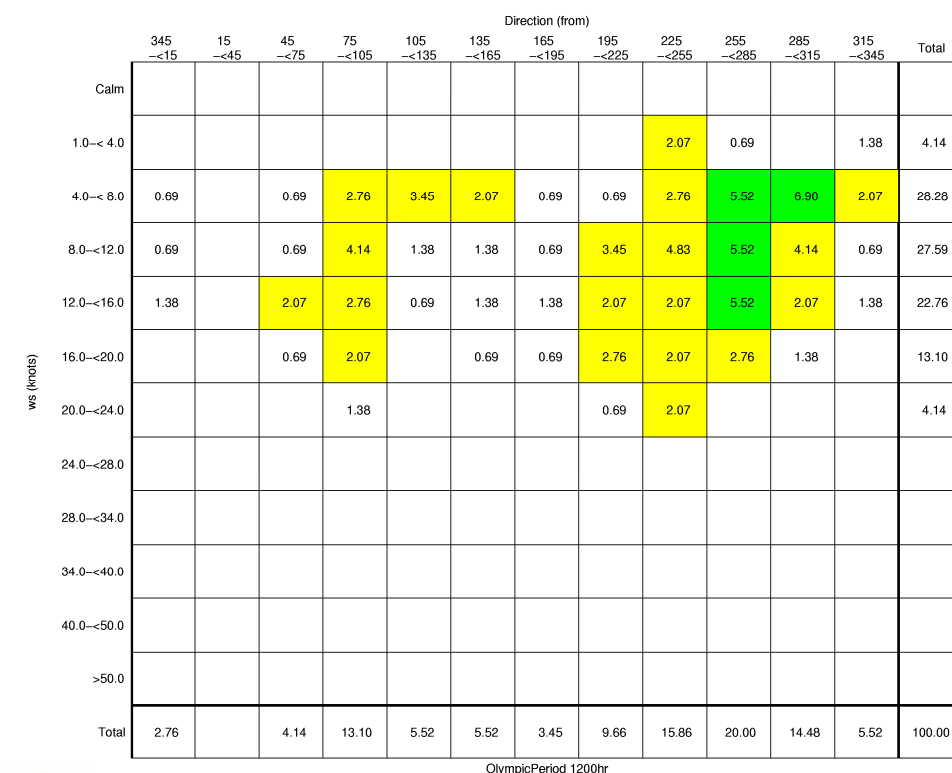


Figure 1(b): Hourly Wind Frequency Analyses for Portland Synoptic Station for the Olympic Period (28<sup>th</sup> July -11<sup>th</sup> Aug).



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0											2.05		2.05
	4.0-< 8.0	1.37			1.37	4.11	2.05	2.05	2.05	2.74	6.85	5.48	1.37	29.45
	8.0-<12.0	0.68		0.68	2.05	1.37	2.05	1.37	1.37	6.16	9.59	2.74	0.68	28.77
	12.0-<16.0	1.37			5.48	1.37	0.68	1.37	4.11	4.79	3.42	0.68	0.68	23.97
	16.0-<20.0				2.74		0.68	0.68	2.74	2.74	1.37	0.68		11.64
	20.0-<24.0							1.37	2.05			0.68		4.11
	24.0-<28.0													
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
	Total	3.42		0.68	11.64	6.85	5.48	5.48	11.64	18.49	21.23	12.33	2.74	100.00

OlympicPeriod 1300hr



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0									0.69				0.69
	4.0-< 8.0		0.69		0.69	2.76	1.38	2.76	2.76	4.83	6.21	5.52	0.69	28.28
	8.0-<12.0	0.69		1.38	1.38	2.76	1.38	2.07	1.38	7.59	8.28	1.38		28.28
	12.0-<16.0	0.69			6.21	0.69	0.69	2.07	4.14	8.28	2.07	1.38	1.38	27.59
	16.0-<20.0				2.76			0.69		4.14	0.69	2.07		10.34
	20.0-<24.0								0.69	2.76		0.69		4.14
	24.0-<28.0									0.69				0.69
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
	Total	1.38	0.69	1.38	11.03	6.21	3.45	7.59	8.97	28.97	17.24	11.03	2.07	100.00

OlympicPeriod 1400hr



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0				0.68				0.68					1.36
	4.0-< 8.0				0.68	2.72	0.68	2.72	1.36	7.46	4.76	4.08	0.68	25.17
	8.0-<12.0	0.68	0.68	0.68	0.68	2.72	0.68	1.36	2.04	10.20	6.80	2.04		28.57
	12.0-<16.0	0.68		0.68	4.08	1.36		3.40	3.40	8.84	4.08	1.36	1.36	29.25
	16.0-<20.0				4.08				2.04	4.08	0.68	0.68		11.56
	20.0-<24.0								0.68	1.36	0.68			2.72
	24.0-<28.0									1.36				1.36
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
	Total	1.36	0.68	1.36	10.20	6.80	1.36	7.48	10.20	33.33	17.01	8.16	2.04	100.00

OlympicPeriod 1500hr



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0		0.68					0.68		0.68				2.05
	4.0-< 8.0				2.05	2.05		2.74	2.05	6.16	6.16	3.42		24.66
	8.0-<12.0	1.37	0.68	0.68	0.68	3.42	1.37	2.74	1.37	6.85	5.48	1.37		26.03
	12.0-<16.0	1.37			2.74	0.68		1.37	4.11	10.96	4.11	2.05	1.37	28.77
	16.0-<20.0			0.68	3.42	0.68		0.68	2.05	4.11	2.05	0.68		14.38
	20.0-<24.0								0.68	2.05				2.74
	24.0-<28.0									1.37				1.37
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
	Total	2.74	1.37	1.37	8.90	6.85	1.37	8.22	10.27	32.19	17.81	7.53	1.37	100.00

OlympicPeriod 1600hr



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-<4.0			0.68					0.68		0.68		0.68	2.74
	4.0-<8.0		0.68	0.68		2.74		0.68	4.11	3.42	6.16	2.05	0.68	21.23
	8.0-<12.0	1.37		0.68	1.37	2.74		2.74	0.68	8.90	4.11	2.74	0.68	26.03
	12.0-<16.0	0.68		0.68	3.42	1.37		0.68	3.42	11.64	5.48	2.74		30.14
	16.0-<20.0				2.05	0.68			2.74	4.79	1.37	1.37	0.68	13.70
	20.0-<24.0				0.68				0.68	2.05	0.68			4.11
	24.0-<28.0									2.05				2.05
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total		2.05	0.68	2.74	7.53	7.53		4.11	12.33	32.88	18.49	8.90	2.74	100.00

OlympicPeriod 1700hr



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Figure 2(a): Hourly Wind Roses for Portland Harbour Wall for the Olympic Period (28<sup>th</sup> July -11<sup>th</sup> Aug).

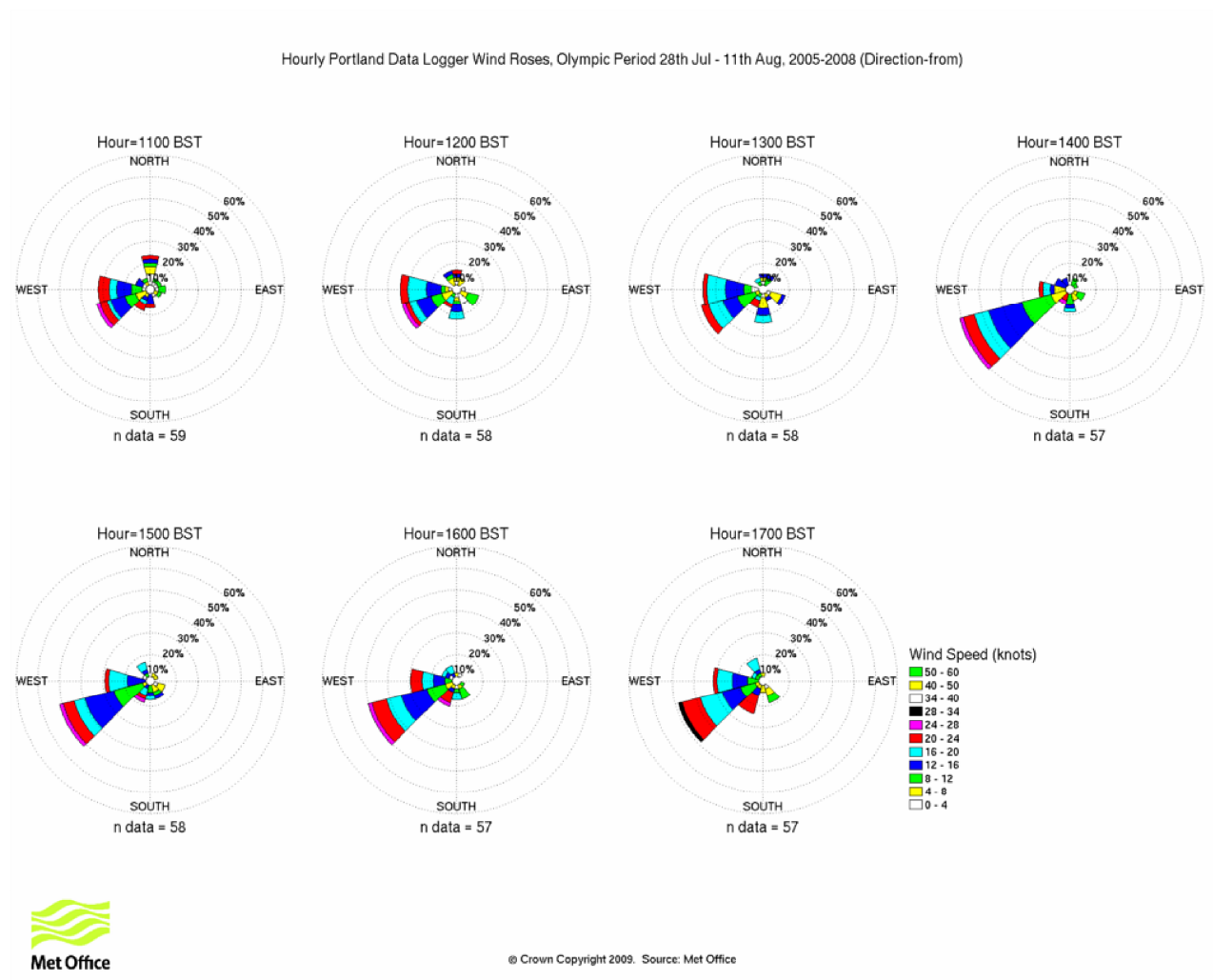
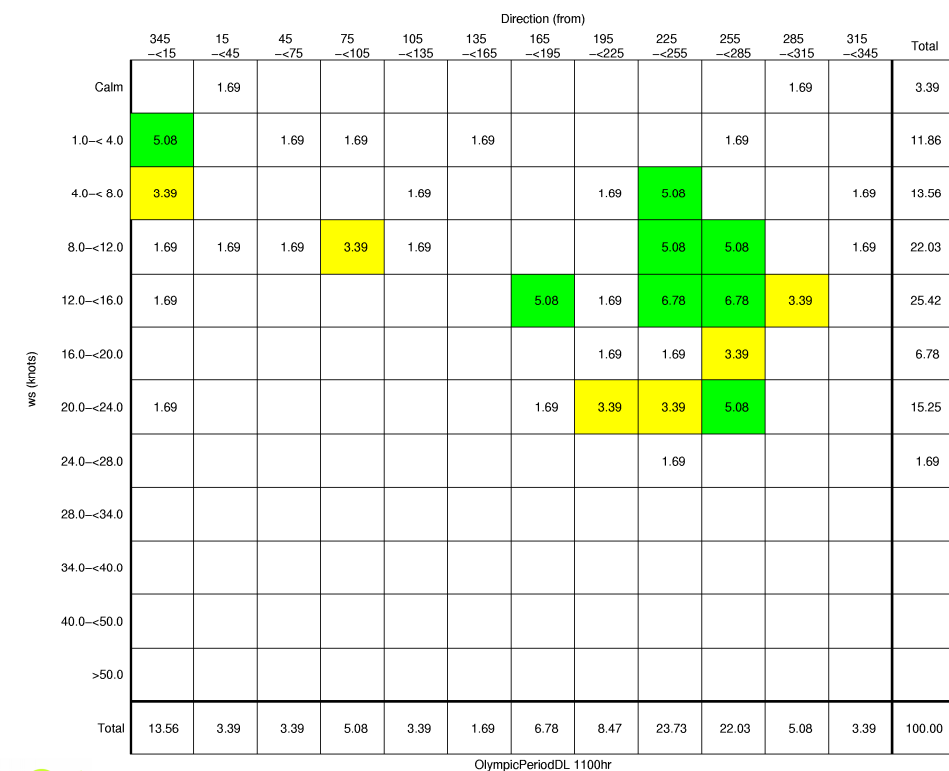
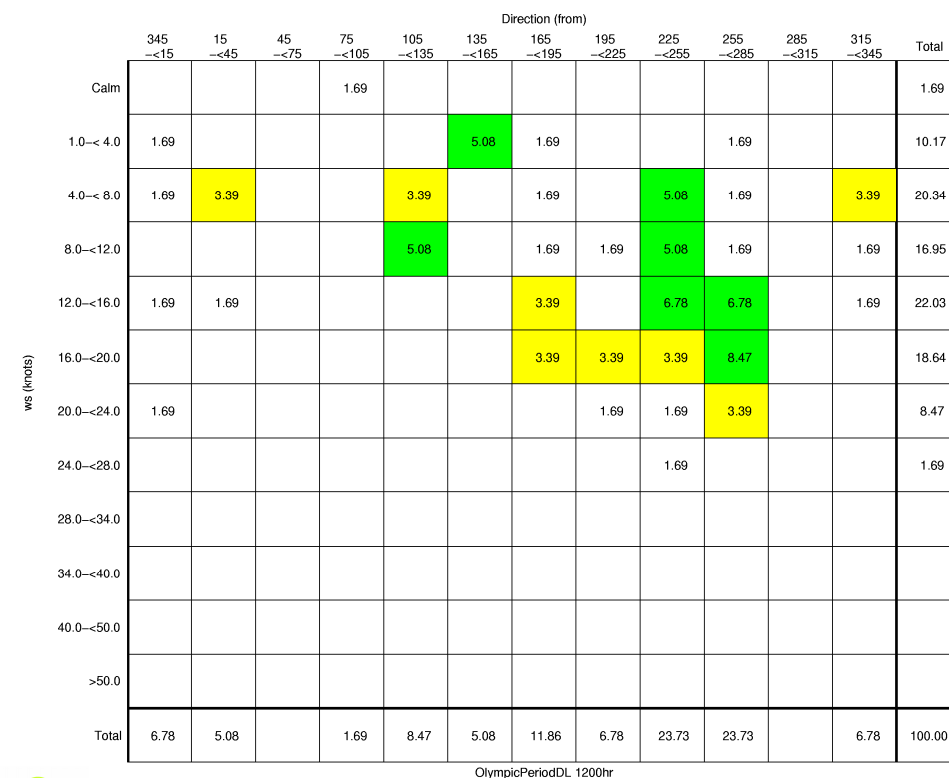


Figure 2(b): Hourly Wind Frequency Analyses for Portland Harbour Wall for the Olympic Period (28<sup>th</sup> July -11<sup>th</sup> Aug).



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0	1.75				1.75		1.75			3.51			8.77
	4.0-< 8.0	1.75				5.26	1.75	5.26		1.75				15.79
	8.0-<12.0		3.51						1.75	8.77	3.51		1.75	19.30
	12.0-<16.0	1.75				1.75	1.75	3.51		7.02	8.77			24.56
	16.0-<20.0							3.51	1.75	7.02	8.77		1.75	22.81
	20.0-<24.0								3.51	3.51	1.75			8.77
	24.0-<28.0													
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total		5.26	3.51			8.77	3.51	14.04	7.02	28.07	26.32		3.51	100.00

OlympicPeriodDL 1300hr

OlympicPeriodDL 1300hr



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		Direction (from)											Total	
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0													
	4.0-< 8.0					3.45	3.45			6.90	5.17			18.97
	8.0-<12.0		3.45	1.72		3.45		5.17		13.79				27.59
	12.0-<16.0							1.72		15.52	1.72	5.17	3.45	27.59
	16.0-<20.0							1.72		6.90	3.45			12.07
	20.0-<24.0								3.45	5.17	1.72			10.34
	24.0-<28.0								1.72	1.72				3.45
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total			3.45	1.72		6.90	3.45	8.62	5.17	50.00	12.07	5.17	3.45	100.00

OlympicPeriodDL 1400hr

OlympicPeriodDL 1400hr



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	Direction (from)												Total
	345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
Calm													
1.0-< 4.0					1.72						1.72		3.45
4.0-< 8.0		1.72	1.72		1.72	3.45			1.72				10.34
8.0-<12.0						1.72	3.45		13.79			1.72	20.69
12.0-<16.0						1.72	1.72	1.72	13.79	10.34		1.72	31.03
16.0-<20.0							1.72	3.45	5.17	8.62		3.45	22.41
20.0-<24.0								1.72	5.17	1.72			8.62
24.0-<28.0								1.72	1.72				3.45
28.0-<34.0													
34.0-<40.0													
40.0-<50.0													
>50.0													
Total		1.72	1.72		3.45	6.90	6.90	8.62	41.38	20.69	1.72	6.90	100.00

OlympicPeriodDL 1500hr



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	Direction (from)												Total
	345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
Calm													
1.0-< 4.0		1.75					1.75				1.75		5.26
4.0-< 8.0	1.75					1.75		1.75	3.51				8.77
8.0-<12.0					1.75	5.26	1.75		8.77	3.51	1.75		22.81
12.0-<16.0								1.75	12.28	3.51	1.75	1.75	21.05
16.0-<20.0							3.51		7.02	5.26	1.75	3.51	21.05
20.0-<24.0								5.26	7.02	5.26			17.54
24.0-<28.0								1.75	1.75				3.51
28.0-<34.0													
34.0-<40.0													
40.0-<50.0													
>50.0													
Total	1.75	1.75			1.75	7.02	7.02	10.53	40.35	17.54	7.02	5.26	100.00

OlympicPeriodDL 1600hr



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	Direction (from)												Total
	345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
Calm													
1.0-<4.0						1.79							1.79
4.0-<8.0	1.79					3.57	3.57	1.79	1.79				12.50
8.0-<12.0						3.57			7.14	5.36		1.79	17.86
12.0-<16.0								3.57	8.93	7.14		1.79	21.43
16.0-<20.0									10.71	7.14	1.79	5.36	25.00
20.0-<24.0								8.93	8.93	1.79			19.64
24.0-<28.0													
28.0-<34.0									1.79				1.79
34.0-<40.0													
40.0-<50.0													
>50.0													
Total	1.79					8.93	3.57	14.29	39.29	21.43	1.79	8.93	100.00

OlympicPeriodDL 1700hr

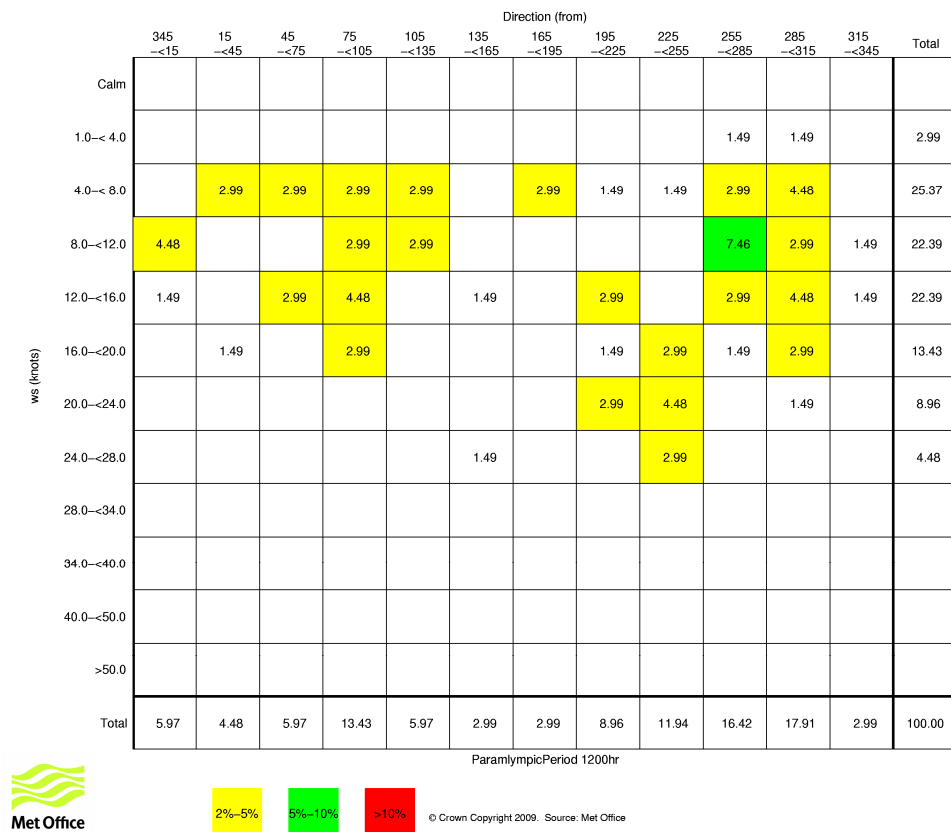


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Figure 3(a): Hourly Wind Roses for Portland Synoptic Station for the Paralympic Period (31<sup>st</sup> Aug -6<sup>th</sup> September).



Figure 3(b): Hourly Wind Frequency Analyses for Portland Synoptic Station for the Paralympic Period (31<sup>st</sup> Aug -6<sup>th</sup> September).



		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0													
	4.0-< 8.0		2.94	1.47		5.88			2.94	4.41	1.47	5.88	1.47	26.47
	8.0-<12.0	1.47			2.94	2.94	2.94		1.47	1.47	4.41		2.94	20.59
	12.0-<16.0				5.88		1.47		2.94	2.94	5.88	4.41	2.94	26.47
	16.0-<20.0		1.47		4.41					4.41	1.47	2.94		14.71
	20.0-<24.0						1.47		4.41		1.47			7.35
	24.0-<28.0									4.41				4.41
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total	1.47	4.41	1.47	13.24	8.82	5.88			11.76	17.65	14.71	13.24	7.35	100.00

ParamlympicPeriod 1300hr



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		Direction (from)											Total	
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0					1.47		1.47						2.94
	4.0-< 8.0				1.47	1.47	4.41	2.94		1.47	4.41	4.41	1.47	22.06
	8.0-<12.0			1.47	4.41	1.47	1.47			4.41	5.88	2.94	1.47	23.53
	12.0-<16.0			1.47	4.41			1.47		7.35	4.41	2.94	2.94	25.00
	16.0-<20.0				4.41				2.94	2.94	2.94	2.94		16.18
	20.0-<24.0						1.47		1.47	2.94				5.88
	24.0-<28.0									4.41				4.41
	28.0-<34.0													
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total			2.94	14.71	4.41	7.35	5.88	4.41	23.53	17.65	13.24	5.88	100.00	

ParamlympicPeriod 1400hr



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	Direction (from)												Total
	345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
Calm													
1.0-< 4.0					1.45								1.45
4.0-< 8.0				1.45	1.45	1.45	4.35	2.90	1.45	4.35		2.90	20.29
8.0-<12.0			1.45	2.90	4.35	1.45	1.45		10.14	4.35	2.90		28.99
12.0-<16.0			1.45	4.35					5.80		4.35	2.90	18.84
16.0-<20.0				4.35			1.45	1.45	2.90	4.35	1.45		15.94
20.0-<24.0								1.45	5.80		1.45		8.70
24.0-<28.0								1.45	4.35				5.80
28.0-<34.0													
34.0-<40.0													
40.0-<50.0													
>50.0													
Total			2.90	13.04	7.25	2.90	7.25	7.25	30.43	13.04	10.14	5.80	100.00

ParamlympicPeriod 1500hr



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	Direction (from)												Total
	345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
Calm													
1.0-< 4.0										1.45			1.45
4.0-< 8.0					4.35			4.35	2.90	2.90	1.45	2.90	18.84
8.0-<12.0				4.35	5.80	1.45	1.45	1.45	7.25	5.80	1.45		28.99
12.0-<16.0			1.45	2.90	1.45				5.80	2.90	4.35	1.45	20.29
16.0-<20.0				2.90		1.45			2.90	2.90	4.35		14.49
20.0-<24.0							1.45		10.14				11.59
24.0-<28.0									1.45				1.45
28.0-<34.0								1.45	1.45				2.90
34.0-<40.0													
40.0-<50.0													
>50.0													
Total			1.45	10.14	11.59	2.90	1.45	8.70	31.88	15.94	11.59	4.35	100.00

ParamlympicPeriod 1600hr



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		Direction (from)												Total
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0							1.49						1.49
	4.0-< 8.0				1.49	2.99		2.99		4.48	4.48	2.99	1.49	20.90
	8.0-<12.0				2.99	8.96				5.97	2.99	2.99	1.49	25.37
	12.0-<16.0				2.99				1.49	7.46	4.48	1.49	1.49	19.40
	16.0-<20.0	1.49			2.99		1.49			5.97	2.99	2.99		17.91
	20.0-<24.0								1.49	5.97				7.46
	24.0-<28.0									4.48				4.48
	28.0-<34.0								1.49	1.49				2.99
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total		1.49			10.45	11.94	1.49	4.48	4.48	35.82	14.93	10.45	4.48	100.00

ParamlympicPeriod 1700hr



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Figure 4(a): Hourly Wind Roses for Portland Harbour Wall for the Paralympic Period (31<sup>st</sup> Aug-6<sup>th</sup> September).

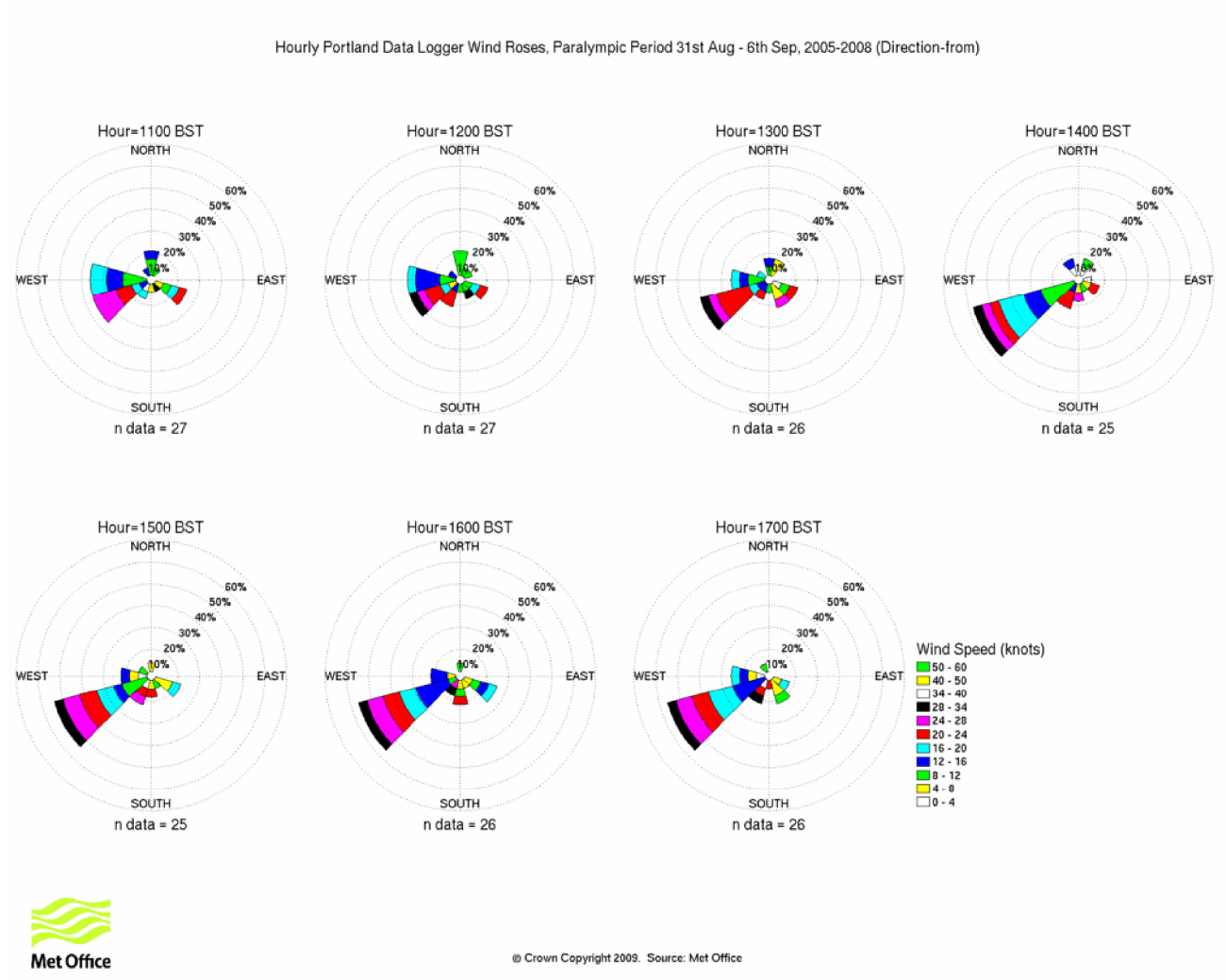


Figure 4(b): Hourly Wind Frequency Analyses for Portland Harbour Wall for the Paralympic Period (31<sup>st</sup> Aug-6<sup>th</sup> September).



		Direction (from)											Total	
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0					4.00								4.00
	4.0-< 8.0		8.00				8.00							16.00
	8.0-<12.0	4.00				4.00		4.00			8.00			20.00
	12.0-<16.0	4.00							4.00	4.00	4.00			16.00
	16.0-<20.0									4.00	4.00			8.00
	20.0-<24.0					4.00			4.00	16.00				24.00
	24.0-<28.0						4.00			4.00				8.00
	28.0-<34.0									4.00				4.00
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total		8.00	8.00			12.00	12.00	4.00	8.00	32.00	16.00			100.00

ParamlympicPeriodDL 1300hr



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		Direction (from)											Total	
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0		4.00		4.00								4.00	12.00
	4.0-< 8.0					4.00		4.00						8.00
	8.0-<12.0		4.00				4.00			16.00				24.00
	12.0-<16.0								4.00	8.00			4.00	16.00
	16.0-<20.0									12.00				12.00
	20.0-<24.0					4.00			8.00	4.00				16.00
	24.0-<28.0							4.00		4.00				8.00
	28.0-<34.0									4.00				4.00
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total			8.00		4.00	8.00	4.00	8.00	12.00	48.00			8.00	100.00

ParamlympicPeriodDL 1400hr



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		Direction (from)											Total	
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0								4.00		4.00			8.00
	4.0-< 8.0	4.00				8.00		4.00			4.00			20.00
	8.0-<12.0						4.00			12.00		4.00		20.00
	12.0-<16.0									4.00	4.00			8.00
	16.0-<20.0					4.00				8.00				12.00
	20.0-<24.0							4.00	4.00	8.00				16.00
	24.0-<28.0								4.00	8.00				12.00
	28.0-<34.0									4.00				4.00
	34.0-<40.0													
	40.0-<50.0													
>50.0														
Total		4.00				12.00	4.00	8.00	12.00	44.00	12.00	4.00		100.00

ParamlympicPeriodDL 1500hr

ParamlypicPeriodDL 1500hr



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		Direction (from)											Total	
		345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)	Calm													
	1.0-< 4.0													
	4.0-< 8.0					3.85	3.85	3.85			3.85			15.38
	8.0-<12.0	3.85				3.85		3.85		3.85				15.38
	12.0-<16.0					3.85				15.38	7.69			26.92
	16.0-<20.0					3.85				7.69				11.54
	20.0-<24.0							3.85		7.69				11.54
	24.0-<28.0								3.85	7.69				11.54
	28.0-<34.0								3.85	3.85				7.69
	34.0-<40.0													
	40.0-<50.0													
	>50.0													
Total		3.85				15.38	3.85	11.54	7.69	46.15	11.54			100.00

ParamlypicPeriodDL 1600hr



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	Direction (from)												Total
	345 -<15	15 -<45	45 -<75	75 -<105	105 -<135	135 -<165	165 -<195	195 -<225	225 -<255	255 -<285	285 -<315	315 -<345	
ws (knots)													
Calm													
1.0-<4.0								3.85		3.85			7.69
4.0-<8.0					3.85	7.69				3.85			15.38
8.0-<12.0						3.85						3.85	7.69
12.0-<16.0									15.38	3.85			19.23
16.0-<20.0					3.85				11.54	3.85			19.23
20.0-<24.0							3.85	3.85	7.69				15.38
24.0-<28.0									7.69				7.69
28.0-<34.0								3.85	3.85				7.69
34.0-<40.0													
40.0-<50.0													
>50.0													
Total					7.69	11.54	3.85	11.54	46.15	15.38		3.85	100.00

ParamlypicPeriodDL 1700hr



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