

HYDRAULICS RESEARCH DIVISION

Technical Note

DATE:

June 16, 1977

.

REPORT NO. 77-7

TITLE:

"Wave and Wind Observations in Support of Yacht Testing".

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REASON FOR REPORT:

To provide a summary of wave spectra and surface winds from measurements made at the W.A.V.E.S. Tower as background information in the analysis of yacht testing conducted by C&C Yachts, Oakville, Ontario.

CORRESPONDENCE FILE NO: 1370-1

On Monday 30th May, 1977 C & C Yachts of Oakville, Ontario made several test runs in the western end of Lake Ontario, just off Bronte harbour. Their yacht was instrumented with strain gauges and recording equipment to measure the strains produced in hull and rigging while sailing under known conditions of wind and wave. Knowing that C C I W operates an observational platform off Van Wagner's beach (some 13 KM to the south), C & C Yachts asked us to provide wave spectra and surface winds during their testing. They sailed from 1730 GMT to 2330 GMT. One of us (D. B.) monitored the W. A. V. E. S. tower from the Van Wagner's beach shore station from 1545 GMT to 2130 GMT during which time data was gathered from all sensors 5 times a second, allowing a detailed look at the wave and wind field. These data are summarized here. After 2130 GMT the system was returned to its normal mode of recording averages once per minute. These data include the significant wave height and period computed every 20 minutes and are available upon request.

TABLE 1. Summary of wind data from the W. A. V. E. S. tower (LAT 43⁰ 16'13"N LONG 79⁰ 45'34"W) off Van Wagner's beach, Burlington, Ontario, on May 30, 1977. Each value represents a true 15 minute average centred on the time shown.

T IME GMT	WIND SPEED AT 11 METRES (METRES PER SECOND)	WIND_SPEED AT 1.5 METRES (METRES PER SECOND)	WINDDIRECTION AT11 METRES (DEGREES TRUE)
1554	3.85	3.58	046
1619	3.48	3.22	043
1637	3.13	2.95	061
1654	2.98	2.74	066
1715	3.23	3.03	064
1735	3.04	2.85	058
1751	3.05	2.90	037
1810	2.77	2.60	037
1827	2.67	2.57	032
1844	2.34	2.20	038
1935	1.82	1.69	028
1954	2.75	2.63	036
2013	2.73	2.53	042
2030	1.92	1.76	042
2048	2.38	2.23	036
2108	1.92	1.77	037
2125	1.99	1.87	047

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FIGURES 1, 2 and 3

The frequency spectra of surface elevation from observations on the W.A.V.E.S. tower (LAT 43° 16' 13"N; LONG 79° 45' 34"W) off Van Wagner's beach, Burlington, Ontario. Each spectrum was computed from 15 minutes of data centred on the time shown. The significant height shown is simply 4 X (the root - mean - square surface elevation).





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FIGURE 2

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FIGURE 3

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