

TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY
COASTAL AND MARINE ENGINEERING RESEARCH INSTITUTE

הטכניון - מכון טכניוני ישראל
מכון הנדסת הנמלים
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מכון הישראלי לחקר הנדסת ימית בע"מ

WAVE MEASUREMENTS DURING THE STORM OF DECEMBER 10-11/1980.

P.N. 75/80

DECEMBER 1980

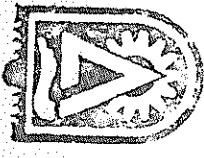
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המכון הישראלי לחקר הנוקיה ימות בע"מ

WAVE MEASUREMENTS DURING THE STORM OF DECEMBER 10-11/1980

P.N. 75/80

BY

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DECEMBER 1980



Wave data were measured offshore Ashdod during the storm of December 10-11/1980.

In the following lines the conditions of the measurements and the computer processing results are summarized.

1. The Israel Coastal and Marine Engineering Research Institute in conjunction with the Coast Survey Group of the Israel Ports Authority perform for the I.E.C. wave measurements offshore Ashdod since 1979 by means of a Datawell waverider buoy.
2. The waverider buoy is located at a water depth of 20 m at the approximate location of 31°51'20"N and 34°38'30"E. The data are recorded at three hours intervals for durations of 20 minutes.
3. The data are recorded simultaneously on paper and on a magnetic tape.
4. The magnetic tapes are processed at CAMERI by statistical computer programs.
5. Wave directions were observed visually from a high place on the shore at Ashdod at about 2 Km distance offshore. They were observed every day by experienced personnel using compass and binoculars, but only at 08:00, 11:00, 14:00 hours local time.
6. The results of the data recorded during the period 08.12.80 to 12.12.80 are presented in table 1 and in dwg no. 1. They show that the maximum significant wave height measured during this period was 5.88 m in 20 m water depth at Ashdod (at 02:00 hour L.T. on 11.12.80).
7. The equivalent significant wave height in deep water at Ashdod (shore line orientation 24°AZ) was about 6.25 m which, according to the Gumbel distribution of extreme deep water wave conditions at Ashdod (dwg. 2) is characteristic to a storm with an average return period of about 6 years.

Table 1. Processing results of the wave data recorded at Ashdod.

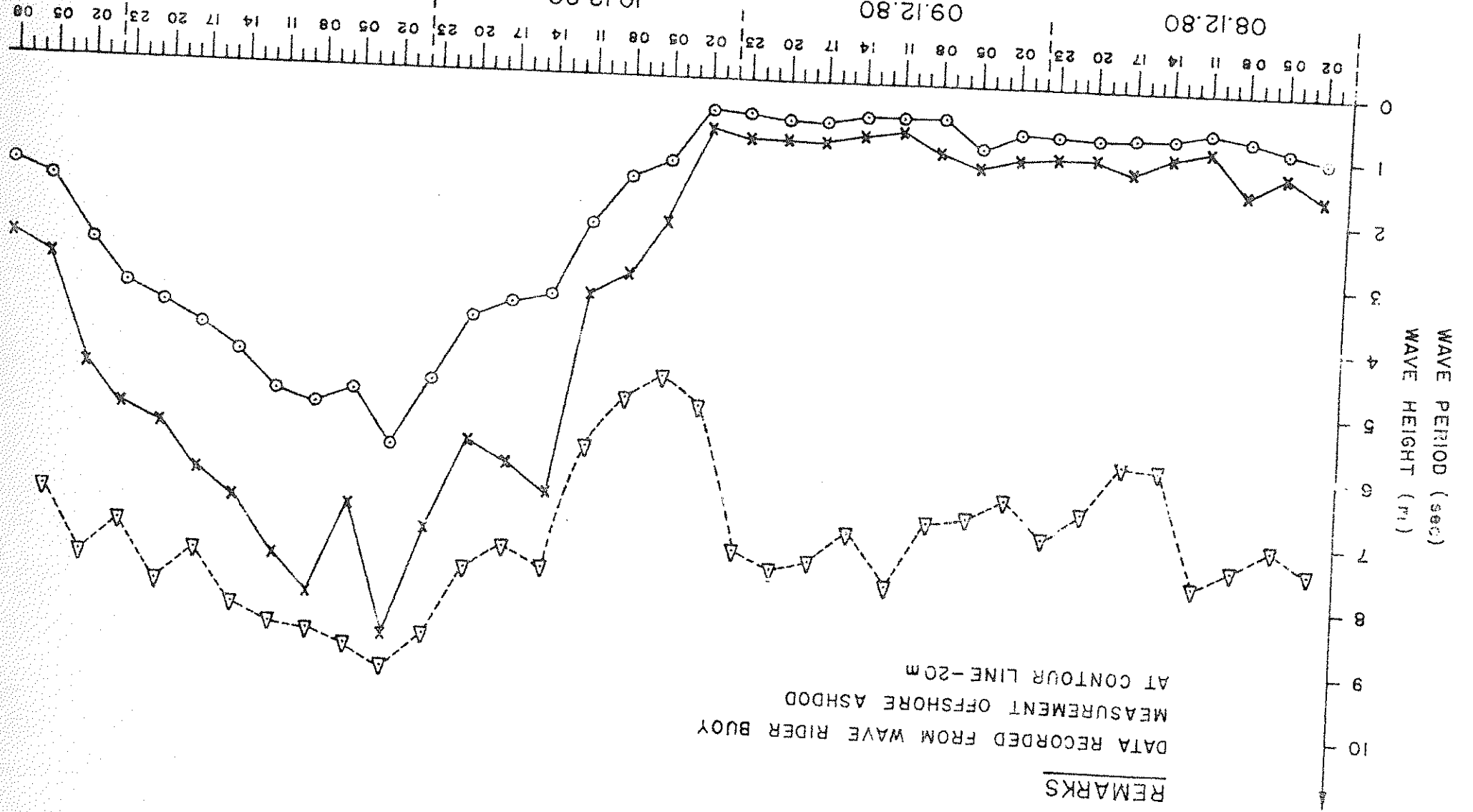
Date	Hour local time	H_{max} (m)	$H_{m,0}$ (m)	\bar{H}_z (m)	\bar{T}_z (sec)	Wave Direction (deg Azimuth)
08.12.80	02	1.66	1.04	0.71	7.41	
	05	1.30	0.92	0.62	7.09	
	08	1.59	0.76	0.53	7.41	295
	11	0.96	0.68	0.47	7.69	295
	14	1.06	0.76	0.50	5.92	295
	17	1.24	0.76	0.52	5.89	
	20	1.10	0.80	0.51	6.63	
09.11.80	23	1.08	0.76	0.52	7.01	
	02	1.15	0.76	0.54	6.46	
	05	1.23	1.00	0.59	6.74	
	08	1.08	0.52	0.39	6.86	295
	11	0.77	0.52	0.41	7.87	295
	14	0.80	0.52	0.41	7.04	295
	17	0.96	0.68	0.50	7.52	
10.12.80	20	0.96	0.64	0.47	7.63	
	23	0.91	0.56	0.42	7.41	
	02	0.80	0.52	0.39	5.18	
	05	2.30	1.36	0.92	4.76	
	08	3.10	1.60	1.03	5.08	280
	11	3.40	2.32	1.53	5.88	280
	14	6.60	3.48	2.15	7.75	280
11.12.80	17	6.16	3.60	2.22	7.41	
	20	5.80	3.88	2.50	7.81	
	23	7.20	4.88	3.12	8.85	
	02	8.90	5.88	3.69	9.35	
	05	6.90	5.08	3.16	9.01	235
	08	8.25	5.23	3.32	8.85	285
	11	7.70	5.12	3.23	8.77	290
12.12.80	14	6.80	4.56	2.30	8.47	
	17	6.40	4.12	2.59	7.69	
	20	5.70	3.80	2.41	8.20	
	23	5.10	3.52	2.20	7.26	
	02	4.80	2.90	1.80	7.74	
	05	3.10	1.88	1.18	6.75	290
	08	2.30	1.70	1.05	7.76	290
11	2.95	1.76	1.20	8.23	290	
14	2.80	1.68	1.14	6.80		

WAVE DIRECTION (deg)
 - 295
 - 295
 - 295

TIME
 08.12.80 09.12.80 10.12.80 11.12.80 12.12.80

- 280
 - 280
 - 280

- 290
 - 285
 - 285




LEGEND

- △--△ AVERAGE WAVE PERIOD (zero up crossing) (T_z)
- ×--× MAXIMUM MEASURED WAVE HEIGHT (H_{max})
- SIGNIFICANT WAVE HEIGHT (H_{m,0})

REMARKS

DATA RECORDED FROM WAVE RIDER BUOY
 MEASUREMENT OFFSHORE ASHDOD
 AT CONTOUR LINE - 20m

 COASTAL AND MARINE ENGINEERING RESEARCH INSTITUTE	ISRAEL ELECTRIC CORPORATION LTD.	
	HADERA OFFSHORE COAL UNLOADING TERMINAL	
DESIGNED BY:	DATE: 22.12.80	STORM DEVELOPMENT AND DECAY AT ASHDOD DRAWING No.
DRAWN BY: DANIELA		
CHECKED BY: D.S. ROSEN	SCALE:	
		08.12.80 - 12.12.80
		1

DEEP WATER SIGNIFICANT WAVE HEIGHT H_s [m]

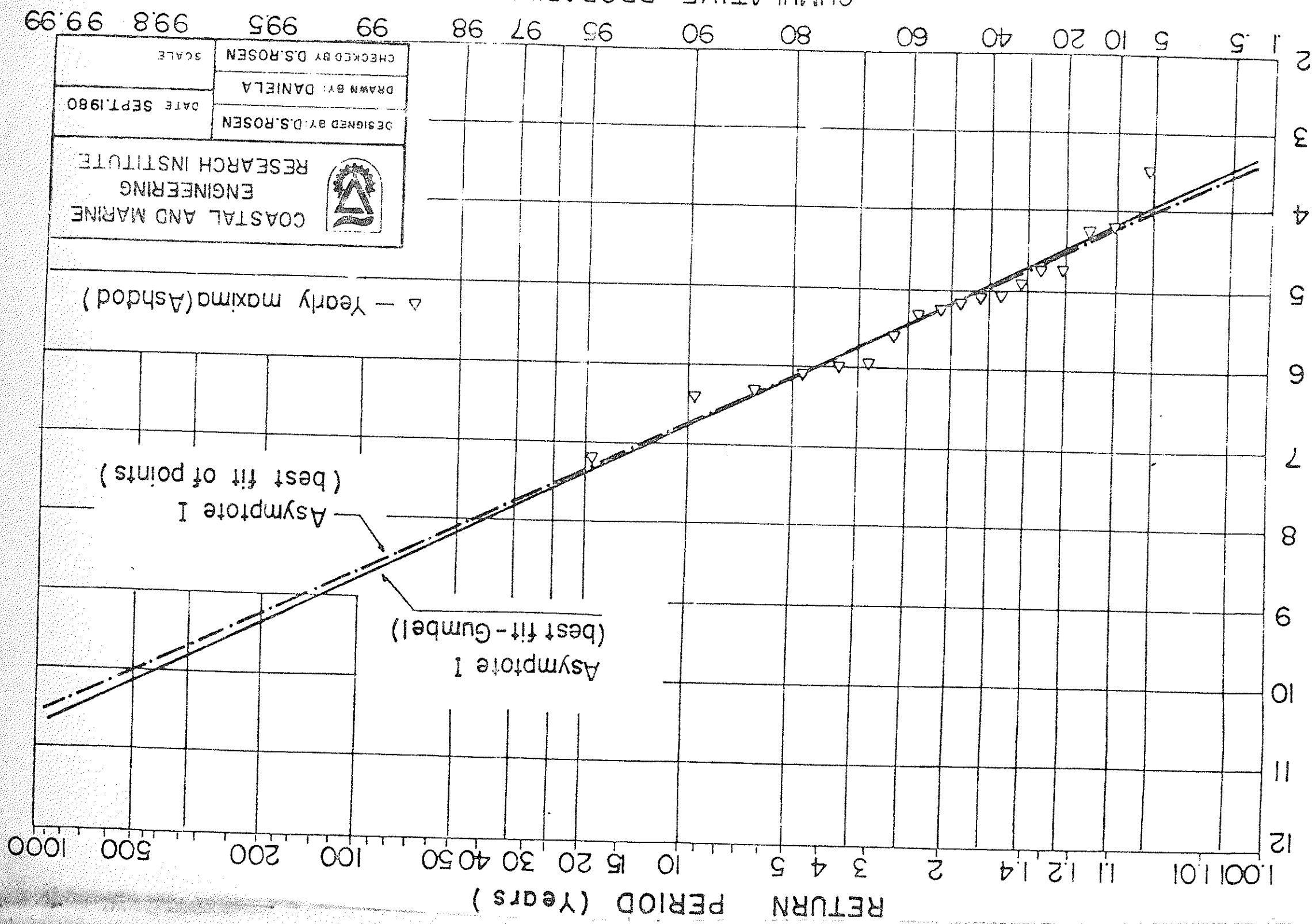



Fig. 2 Asymptote I - distribution of extreme deep water significant wave heights

 <p>COASTAL AND MARINE ENGINEERING RESEARCH INSTITUTE</p>	DESIGNED BY: D.S.ROSEN
	DRAWN BY: DANIELA
DATE SEPT.1980	CHECKED BY: D.S.ROSEN
SCALE	

△ - Yearly maxima (Ashdod)

Asymptote I
(best fit of points)

Asymptote I
(best fit - Gumbel)

CUMULATIVE PROBABILITY (%)

99.99 99.9 99.8 99.5 99 98 97 95 90 80 60 40 20 10 5 1.5 1

RETURN PERIOD (Years)