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INTERNAL DOCUMENT 139

I.O.S.

WAVES OFF THE NORTH EAST
SCOTTISH COAST AND THE ISLES OF SCILLY

Some results of relevance to the
Wave Energy Programme

R GLEASON

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INSTITUTE OF OCEANOGRAPHIC SCIENCES
RESEARCH COUNCIL

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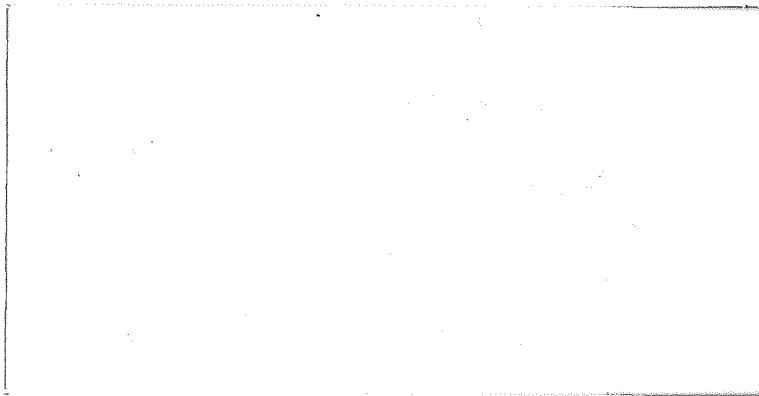
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August 1981

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Institute of Oceanographic Sciences
Crossway
Taunton
Somerset

1. INTRODUCTION

This document contains the results of the analyses of wave data collected from waverider buoys deployed at two sites off the UK coast. The two sites are referred to as the Isles of Scilly for the buoy deployed at $49^{\circ} 51' 48''\text{N } 06^{\circ} 41' 00''\text{W}$ in 100 m of water and Kinnairds Head for the buoy deployed off the NE Scottish coast at $57^{\circ} 55' 48''\text{N } 01^{\circ} 54' 06''\text{W}$ in approximately 88 m of water.

Although both sites were commissioned in October 1979, the first reliable data were not obtained until February 1980. The data reported on here cover the period up until the end of April 1981.

The series from Kinnairds Head is very fragmented due mainly to frequent loss of buoys caused by the intense shipping and fishing activity in the area. Data for December 1980 were not collected at this site.

Monthly average wave power values have been calculated for the available data from both sites and are presented in tables 1 and 2.

The diagrams which constitute the main body of this report are arranged in two sections corresponding to each of the locations.

2. WAVES AT THE ISLES OF SCILLY BUOY

Table 1 shows monthly average power values for the period February 1980 - April 1981.

Diagrams included under this heading are:

Fig 1.1	Scatter plot of H_s and T_e	February 1980 - April 1981
Fig 1.2 - 1.5	Time series plots of power	February 1980 - April 1981
Fig 1.6 - 1.9	Time series plots of H_s .	February 1980 - April 1981
Fig 1.10 - 1.	Time series plots of T_e .	February 1980 - April 1981

3. WAVES AT KINNAIRDS HEAD BUOY

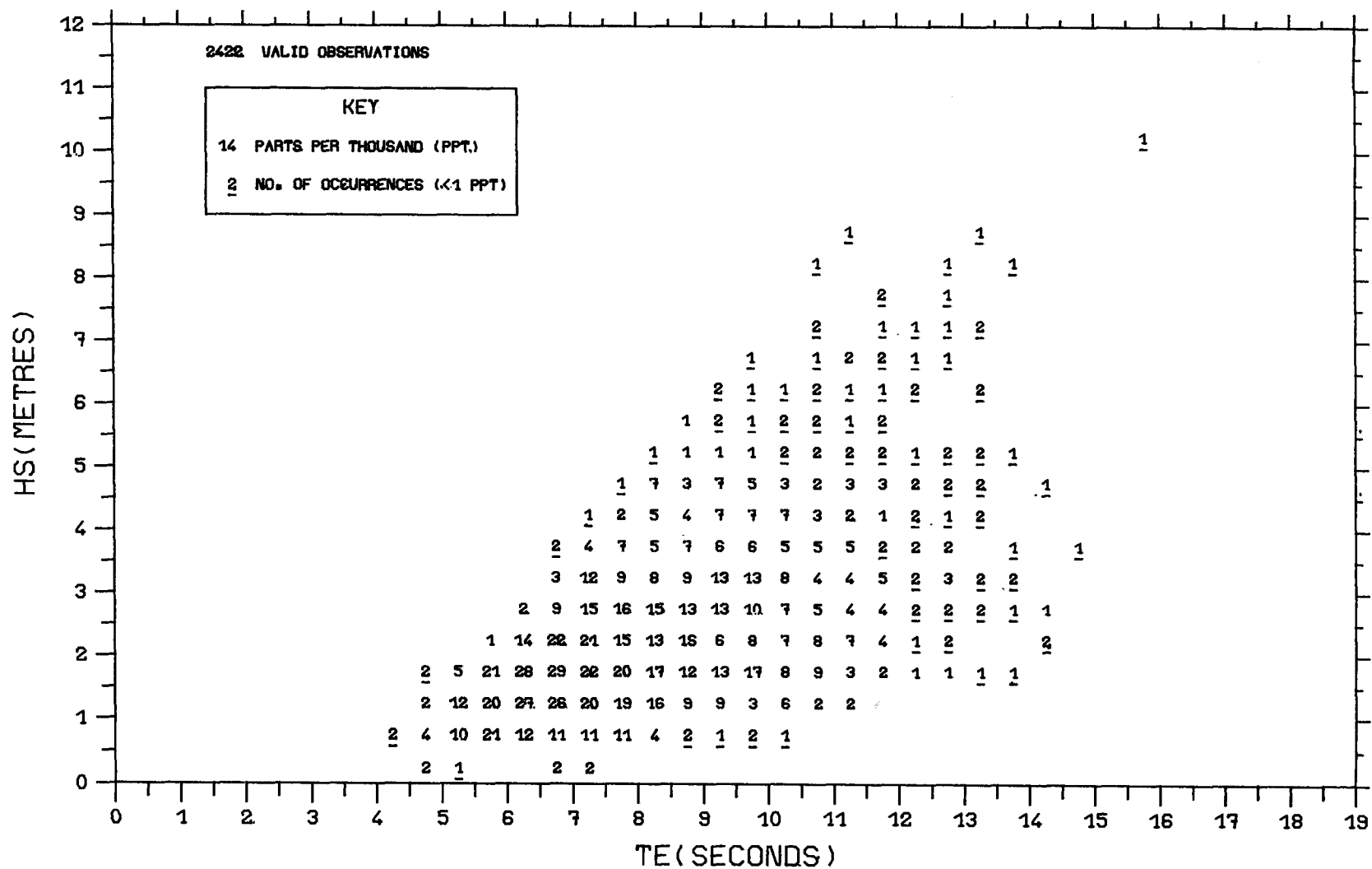
Table 2 shows the monthly average power values for the period February 1980 - April 1981.

Diagram under this heading include:

Fig 2.1	Scatter plot of H_s and T_e	February 1980 - April 1981
Fig 2.2 - 2.5	Time series plots of power	February 1980 - April 1981
Fig 2.6 - 2.9	Time series plots of H_s	February 1980 - April 1981
Fig 2.10 - 2.13	Time series plots of T_e	February 1980 - April 1981

TABLE 1 ISLES OF SCILLY MONTHLY AVERAGE POWER VALUES

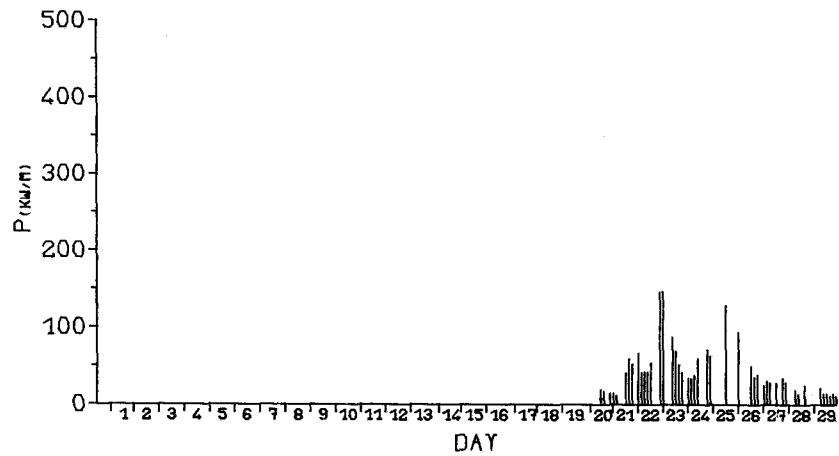
Year	Month	Average Power kw/m	Standard- Deviation	Number of Observations
1980	January	-	-	-
	February	39.2	34.1	50
	March	61.2	105.1	138
	April	9.1	7.7	104
	May	7.4	7.0	213
	June	9.7	10.3	169
	July	16.5	12.1	88
	August	12.8	11.3	231
	September	35.1	40.2	145
	October	46.2	48.4	211
	November	46.3	45.8	232
	December	75.7	86.2	236
1981	January	29.7	22.7	146
	February	43.4	35.5	125
	March	61.4	53.3	117
	April	21.3	32.5	218



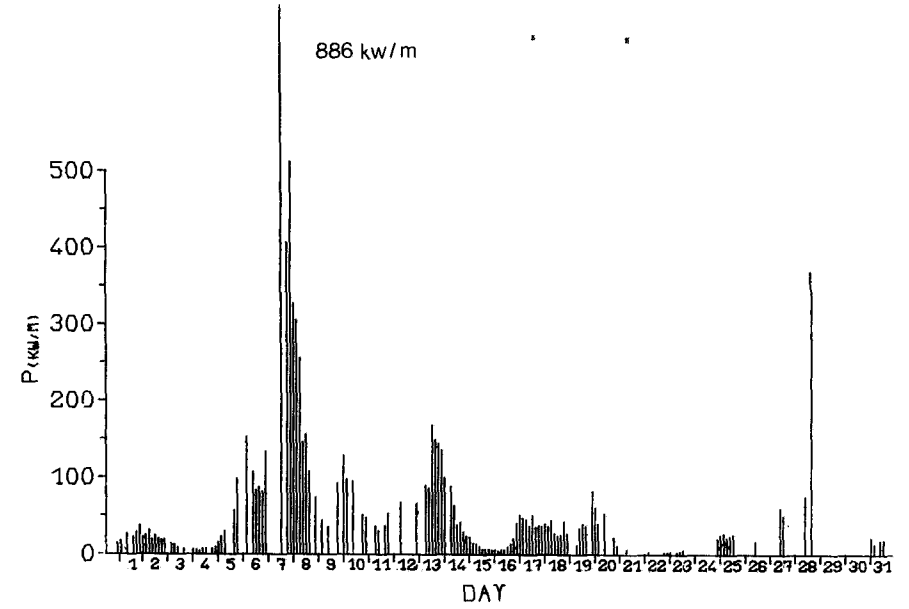
SCATTER PLOT OF HS AND TE

ISLES OF SCILLY WAVERIDER, FEBRUARY 1980-APRIL, 1981

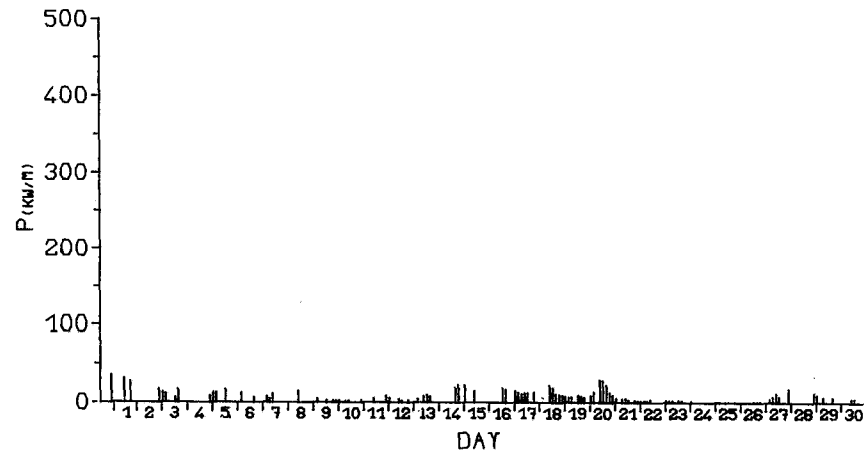
Fig. 1.1



FEB 1980



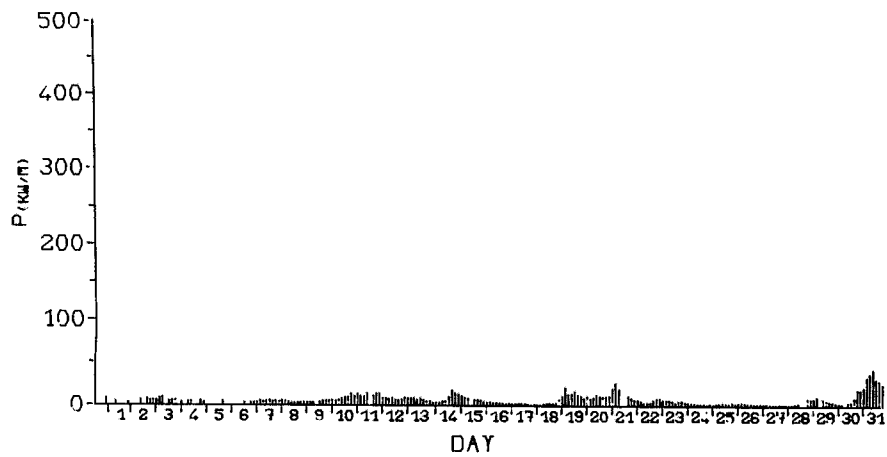
MAR 1980



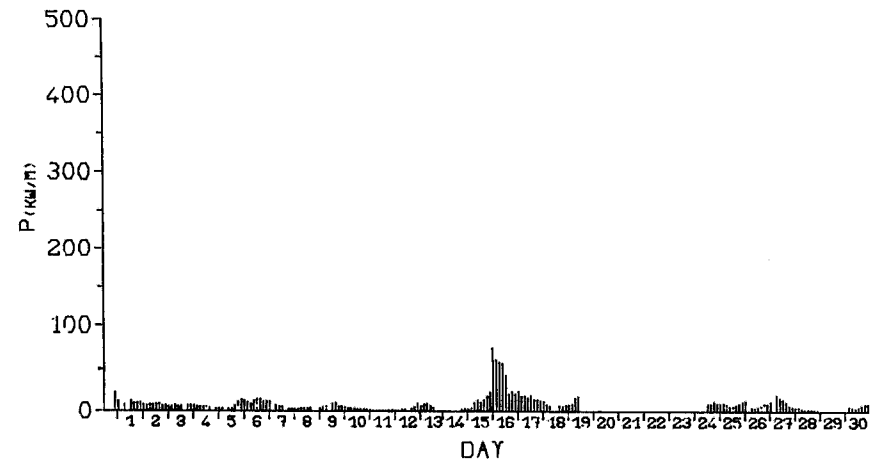
APR 1980

TIME SERIES OF POWER
ISLES OF SCILLY WAVERIDER

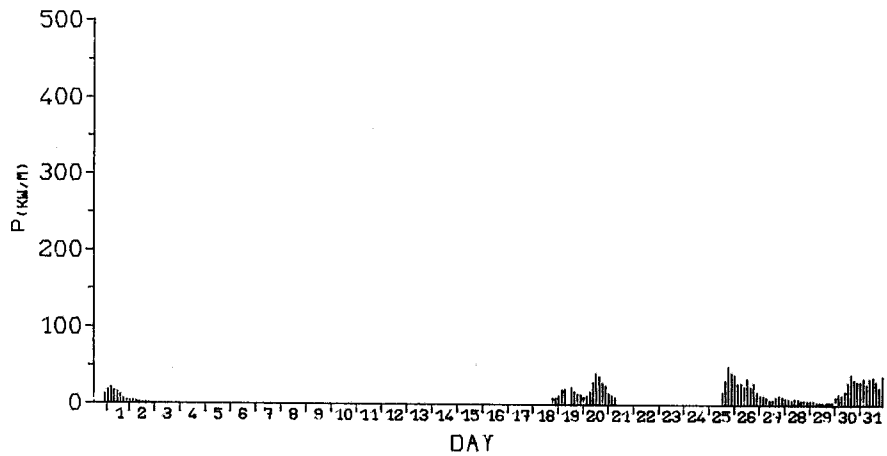
Fig. 1.2



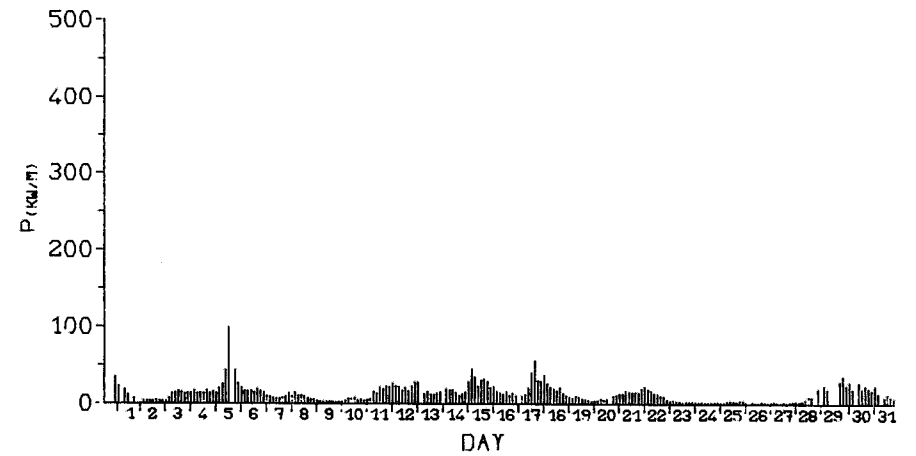
MAY 1980



JUN 1980



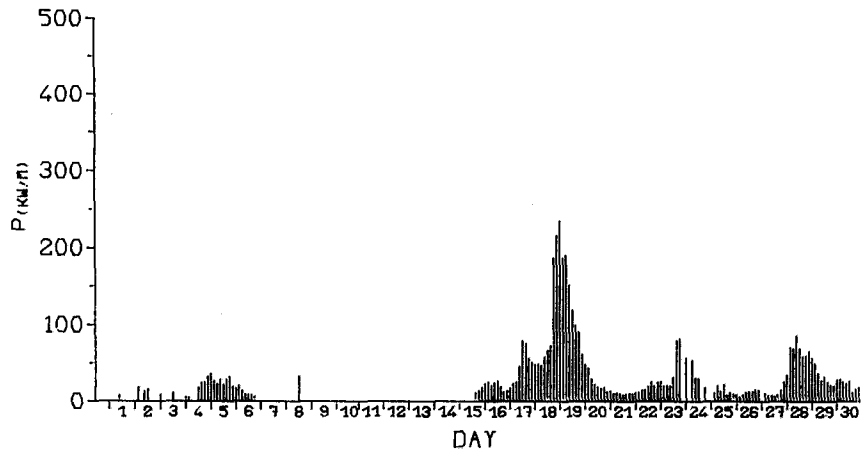
JUL 1980



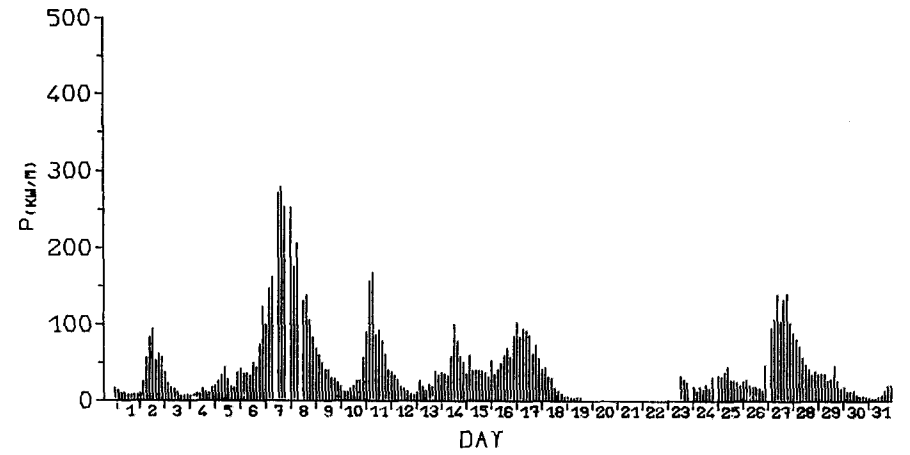
AUG 1980

TIME SERIES OF POWER
ISLES OF SCILLY WAVERIDER

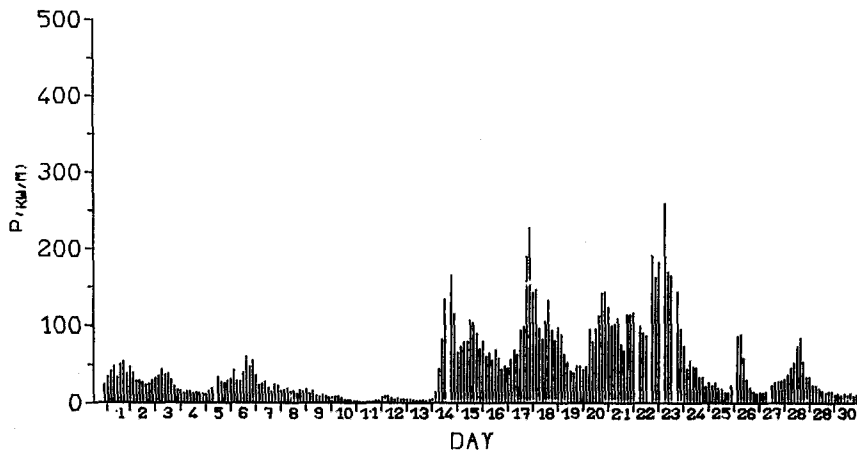
Fig. 1.3



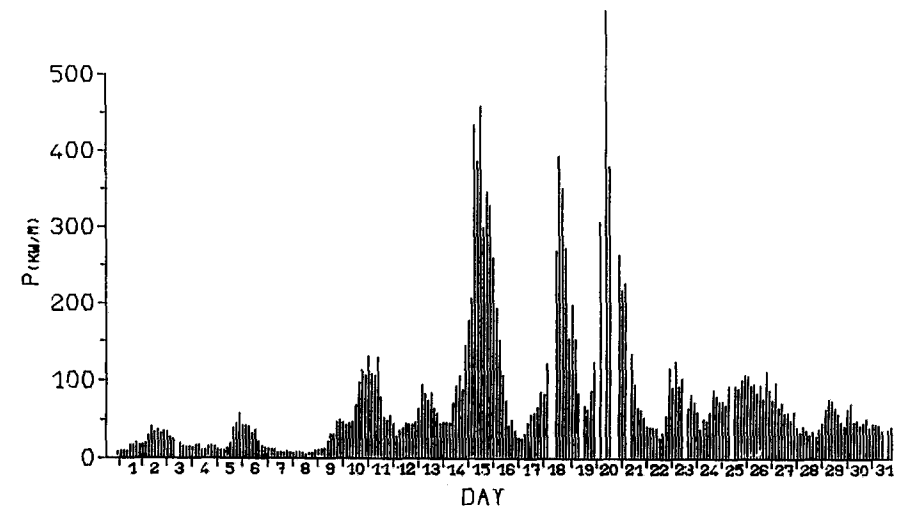
SEP 1980



OCT 1980



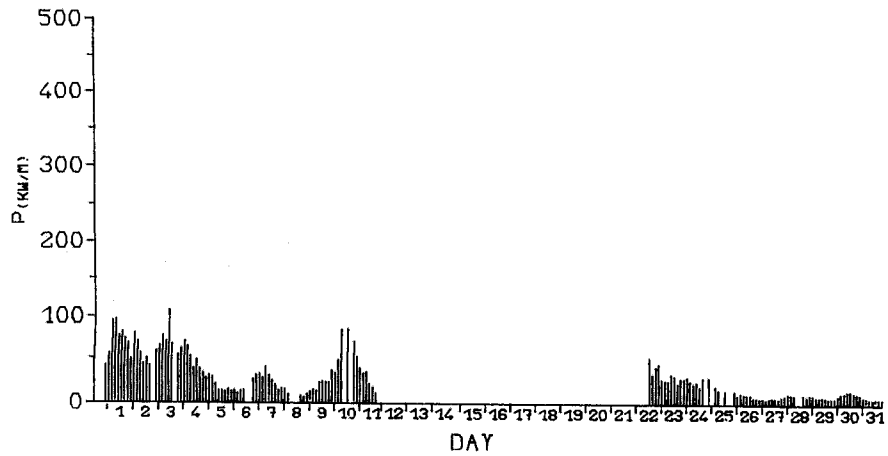
NOV 1980



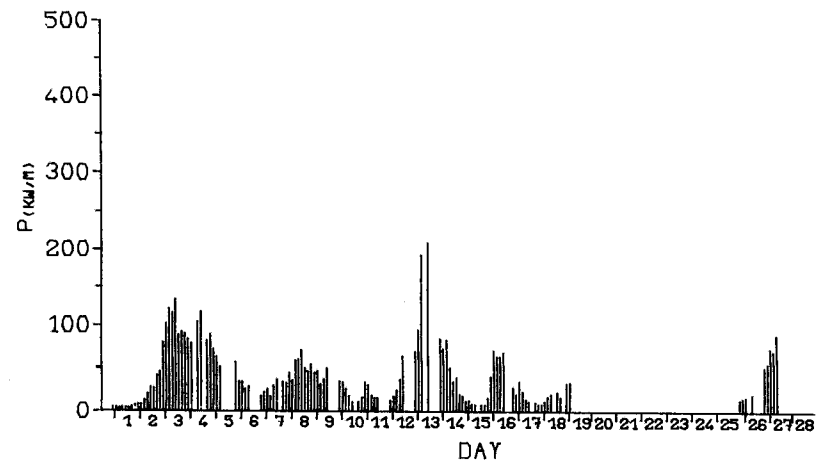
DEC 1980

TIME SERIES OF POWER
ISLES OF SCILLY WAVERIDER

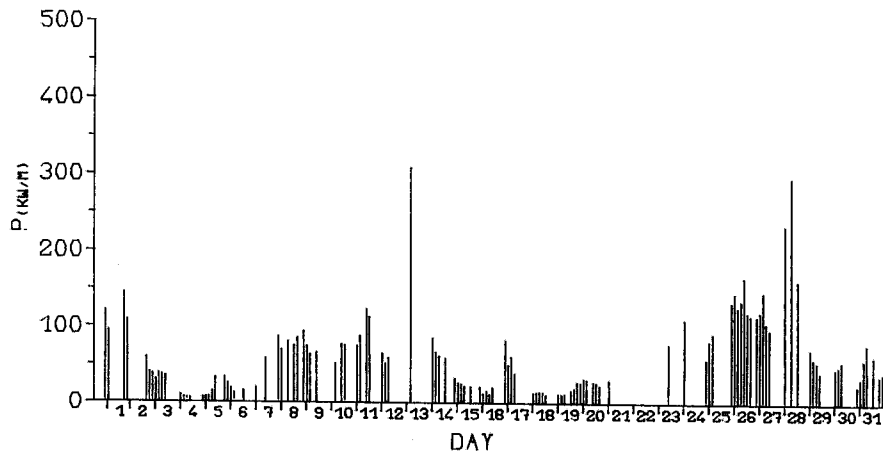
Fig 14



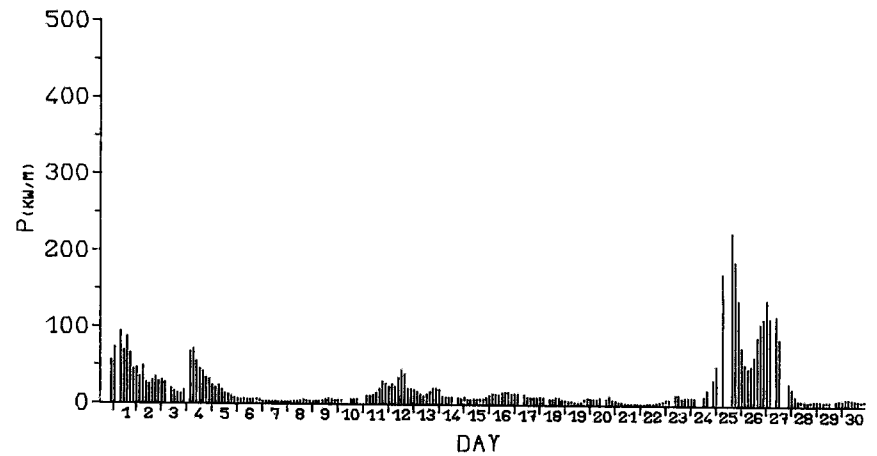
JAN 1981



FEB 1981



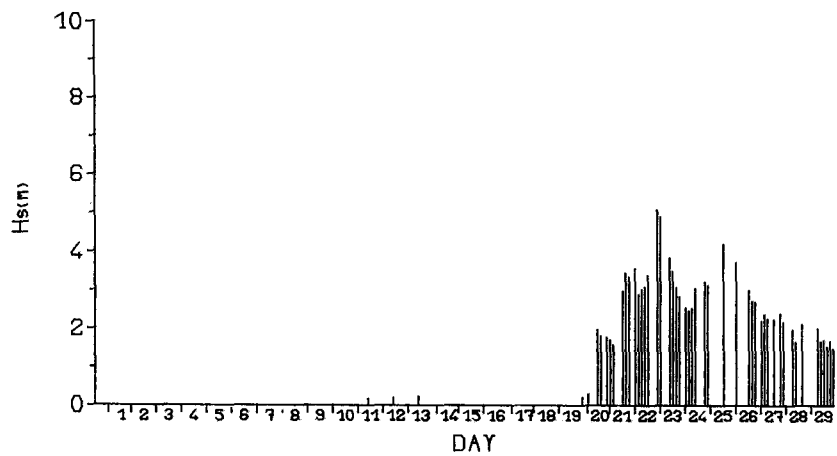
MAR 1981



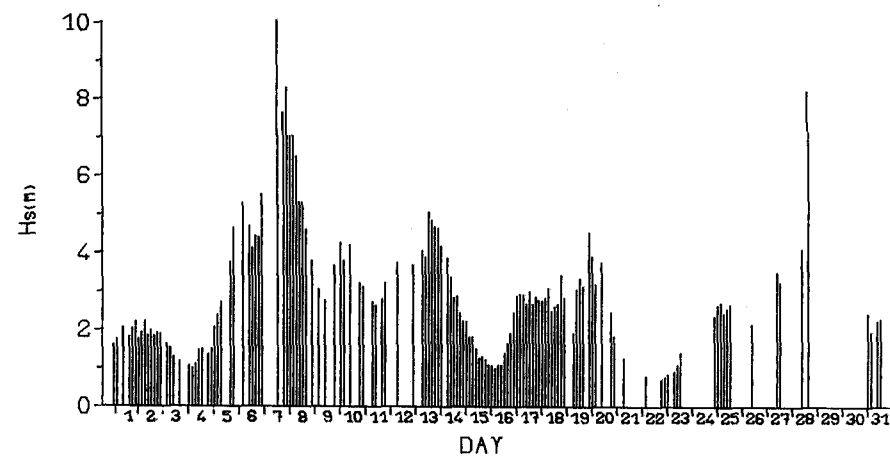
APR 1981

TIME SERIES OF POWER
ISLES OF SCILLY WAVERIDER

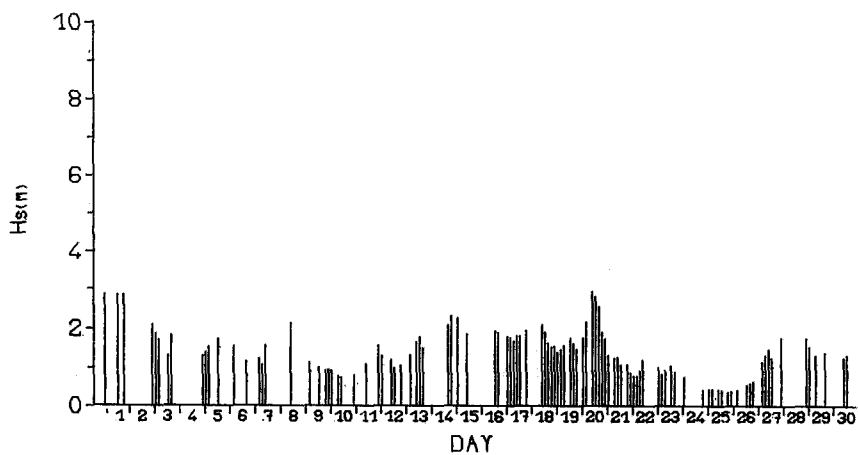
Fig. 1.5



FEB 1980

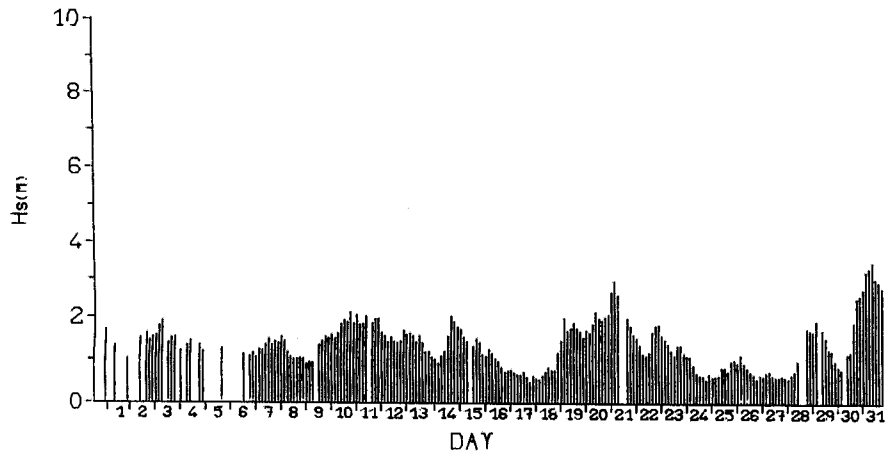


MAR 1980

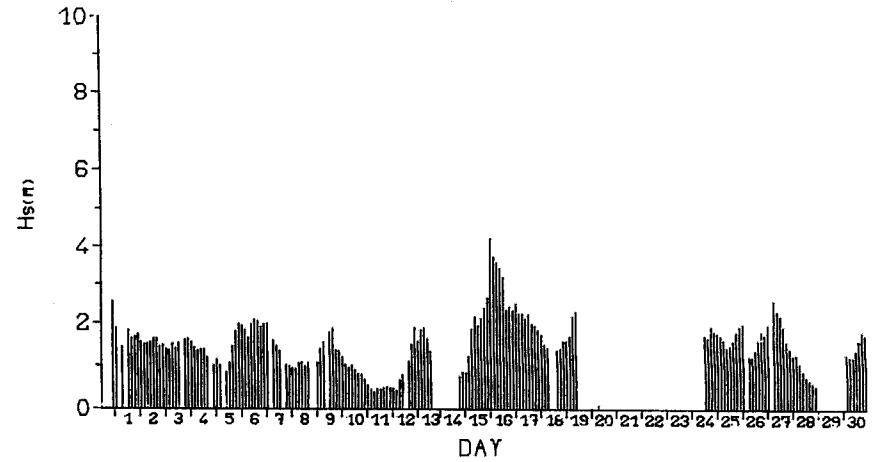


APR 1980

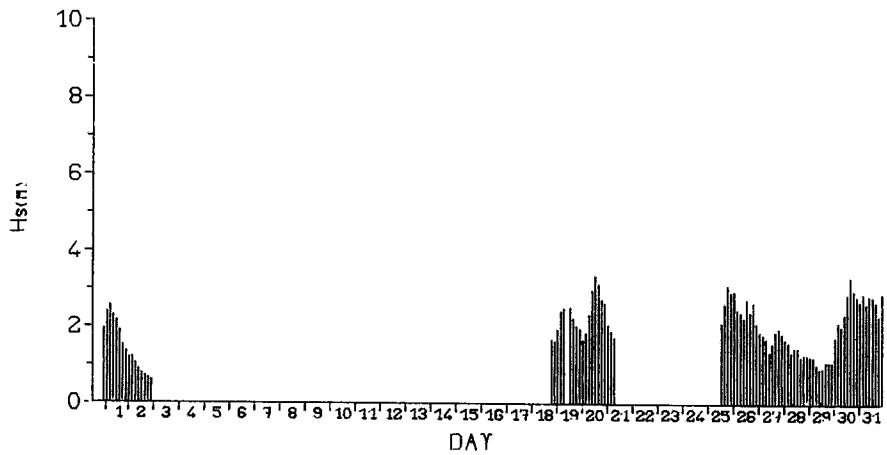
TIME SERIES OF H_s
ISLES OF SCILLY WAVERIDER



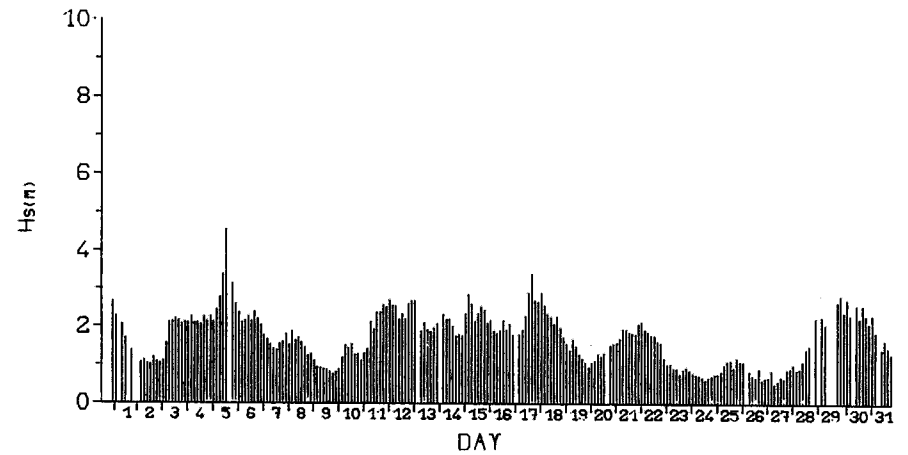
MAY 1980



JUN 1980



JUL 1980



AUG 1980

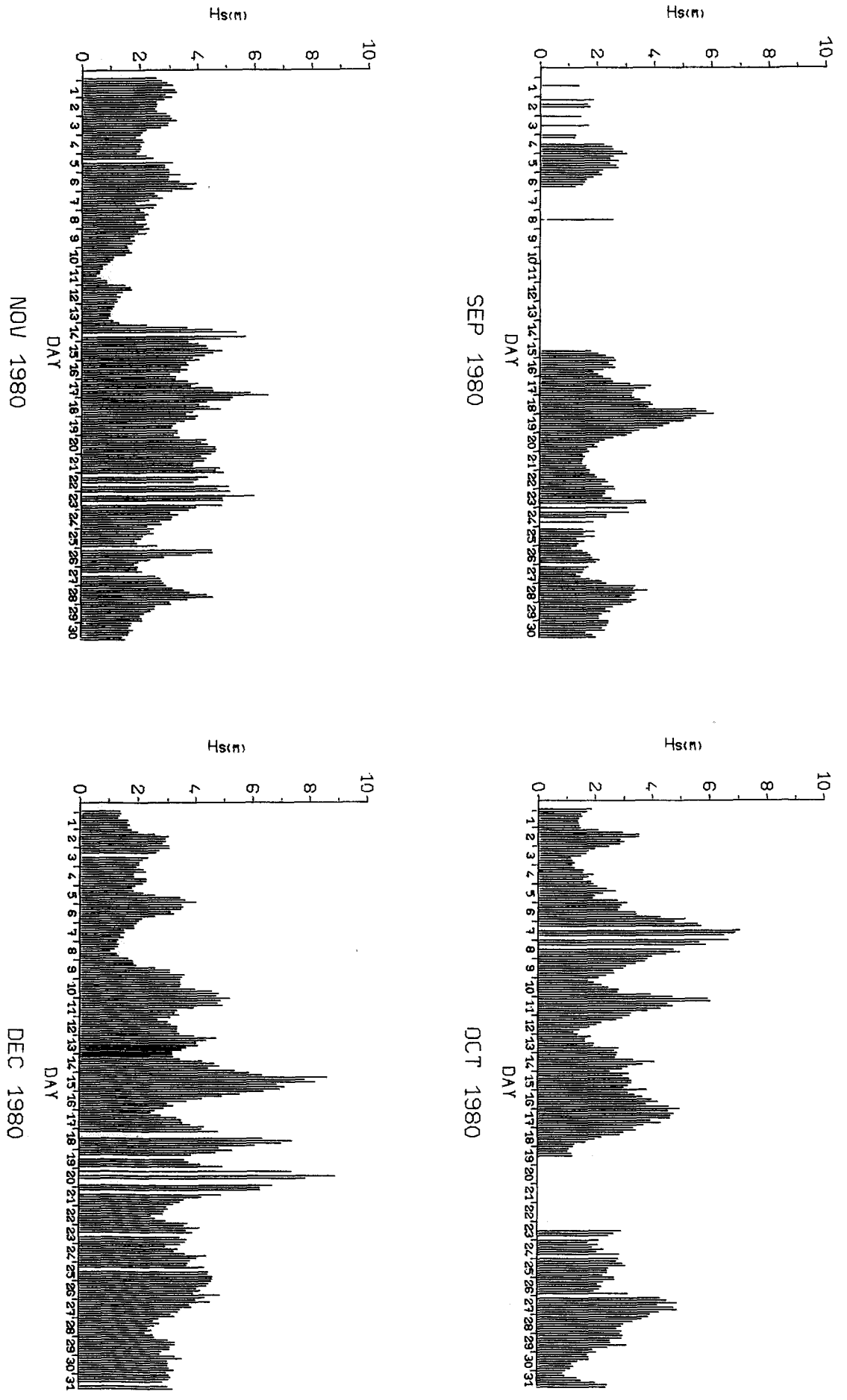
TIME SERIES OF H_s
ISLES OF SCILLY WAVERIDER

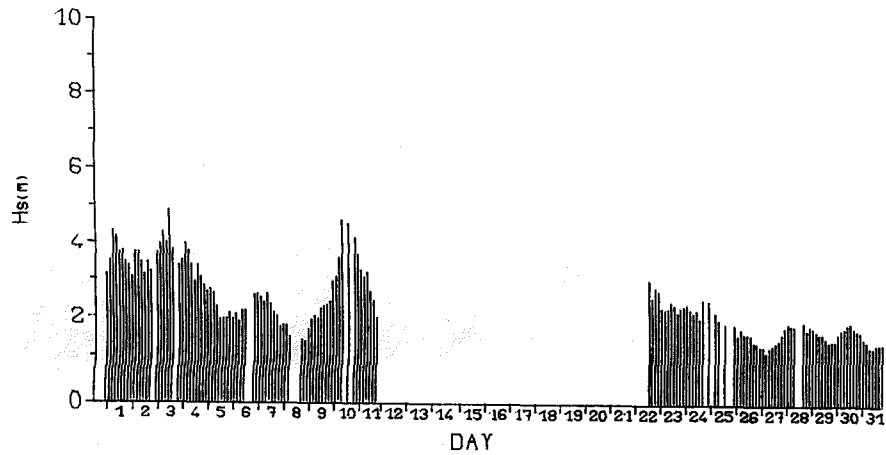
Fig. 1.7

ISLES OF SCILLY WAVERIDER

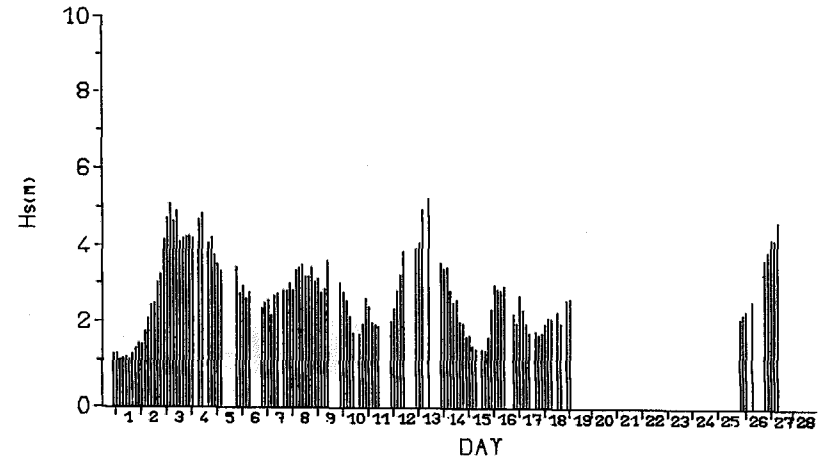
TIME SERIES OF Hs

Fig. 1.8

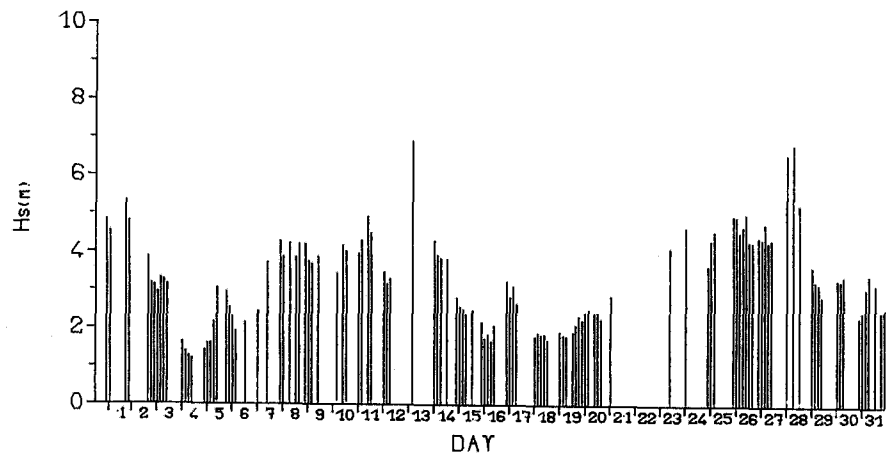




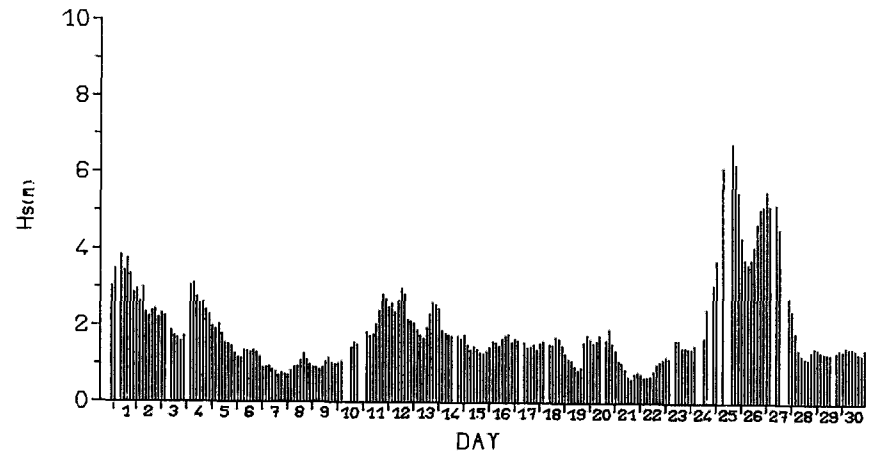
JAN 1981



FEB 1981



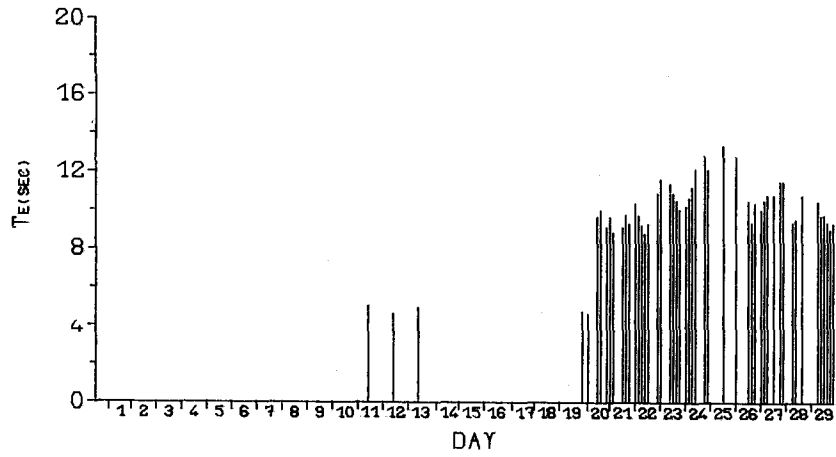
MAR 1981



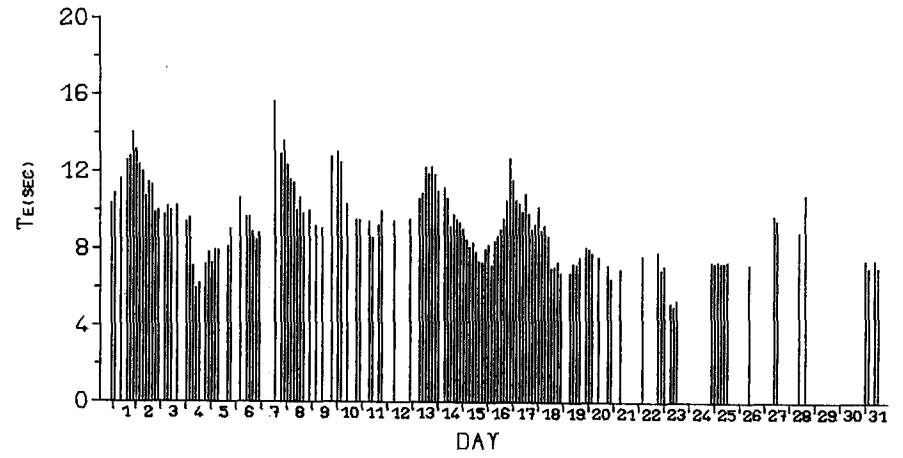
APR 1981

TIME SERIES OF H_s
ISLES OF SCILLY WAVERIDER

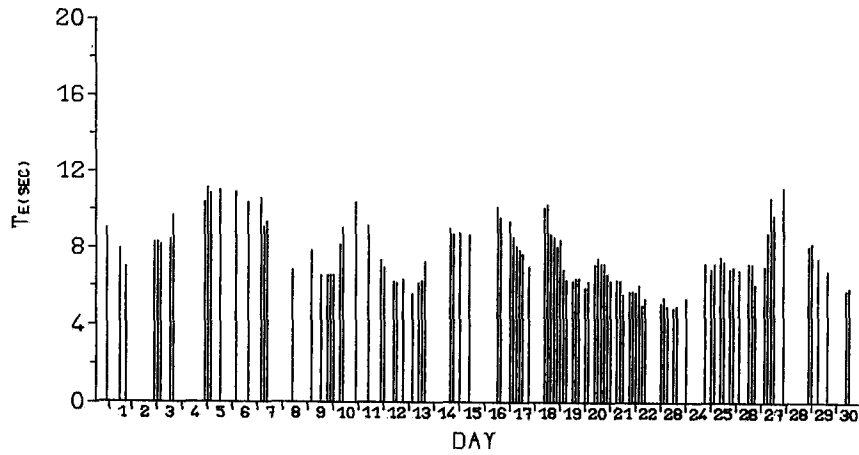
Fig. 1.9



FEB 1980



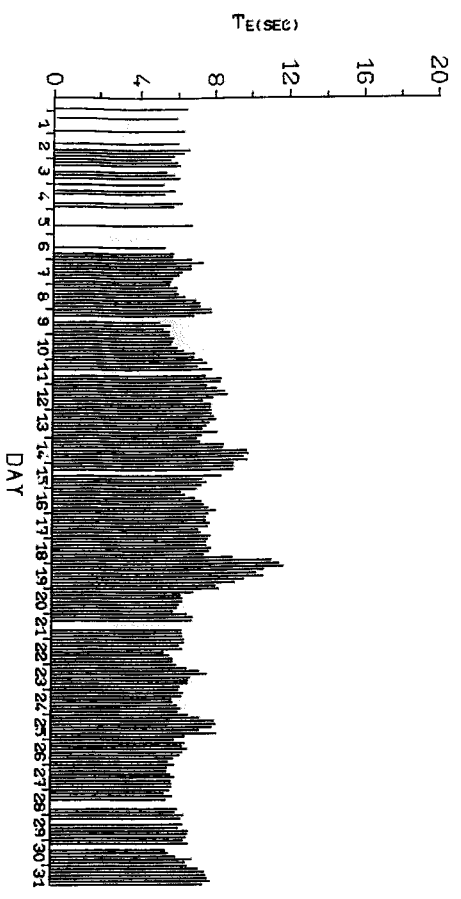
MAR 1980



APR 1980

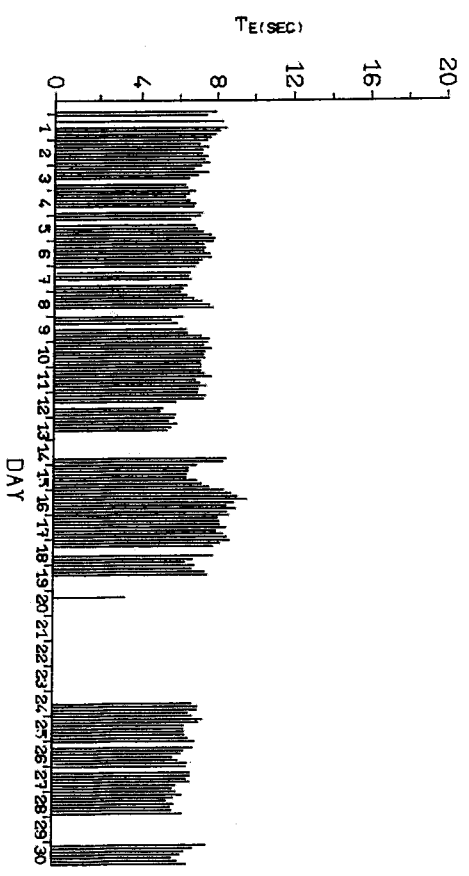
TIME SERIES OF T_E
ISLES OF SCILLY WAVERIDER

Fig 1 10



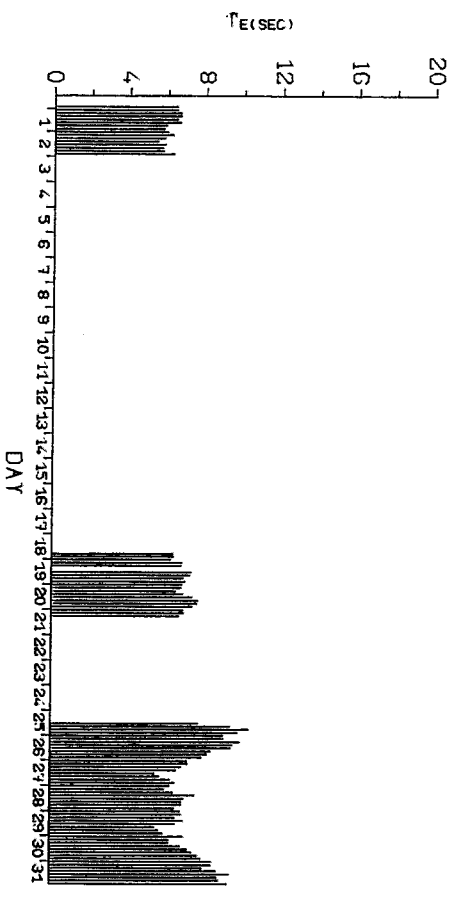
MAY 1980

DAY



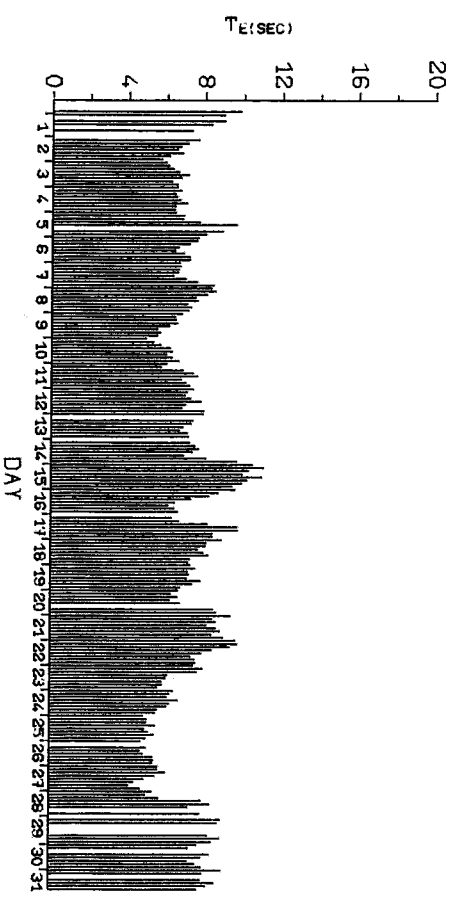
JUN 1980

DAY



JUL 1980

DAY

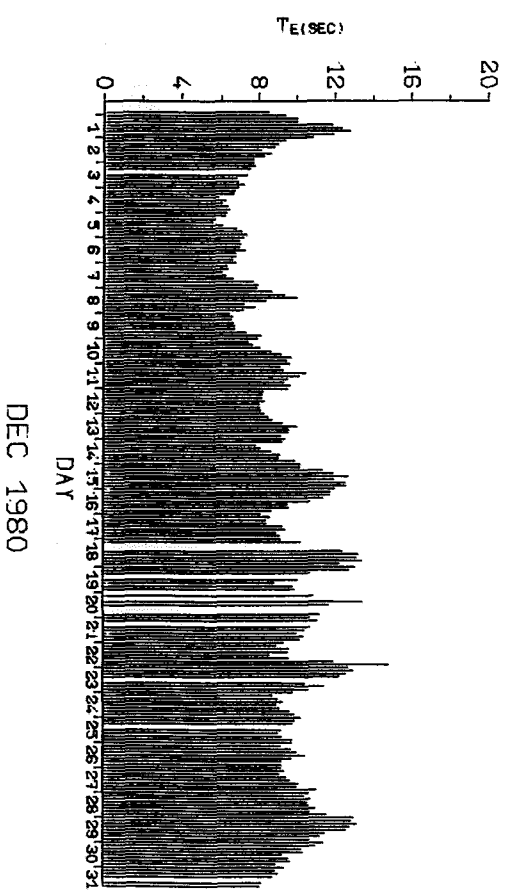
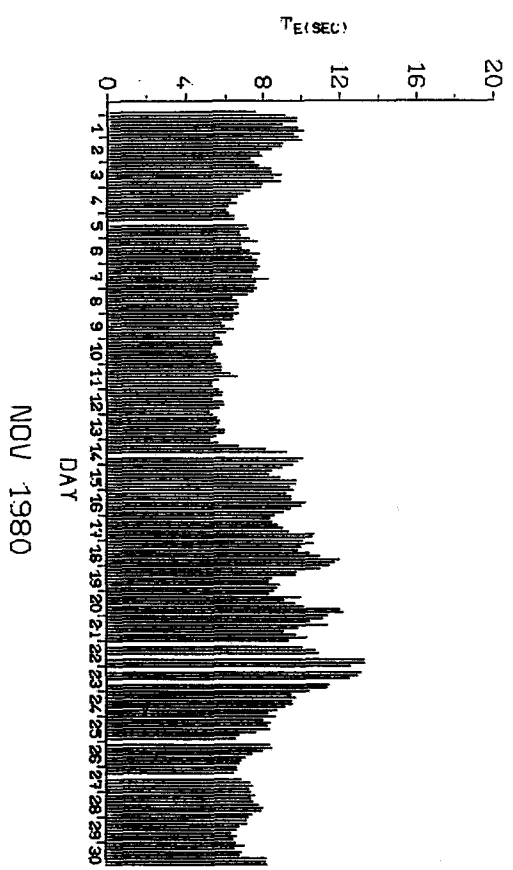
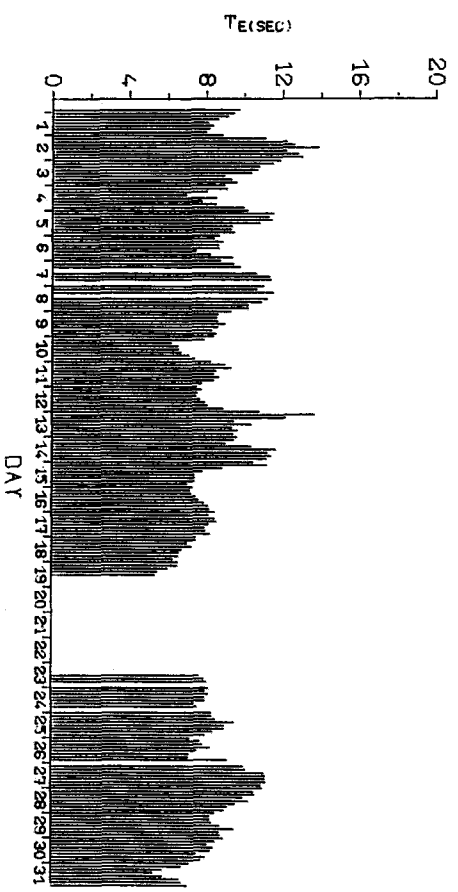
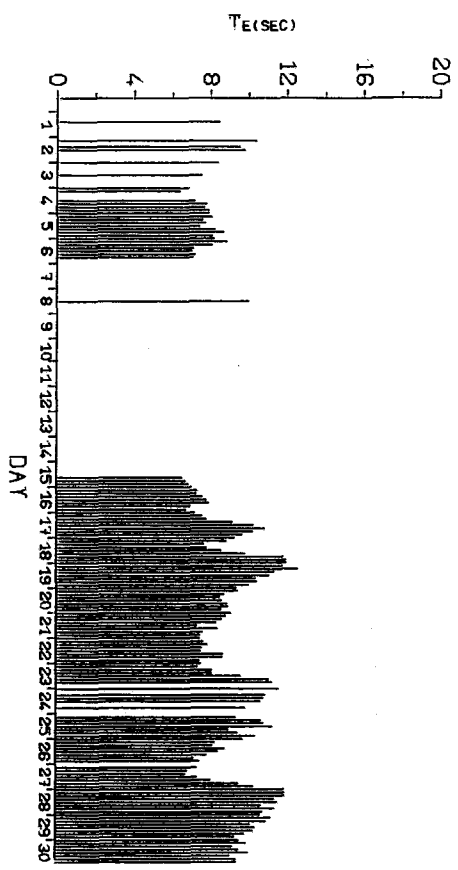


AUG 1980

DAY

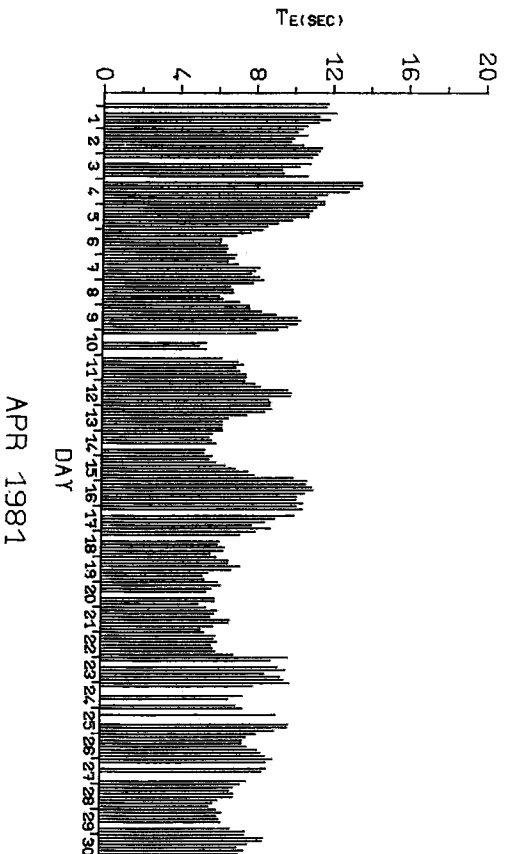
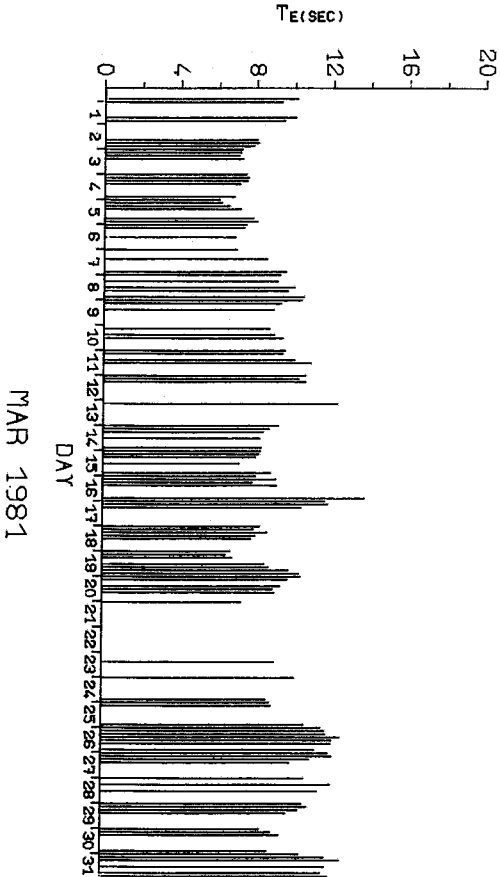
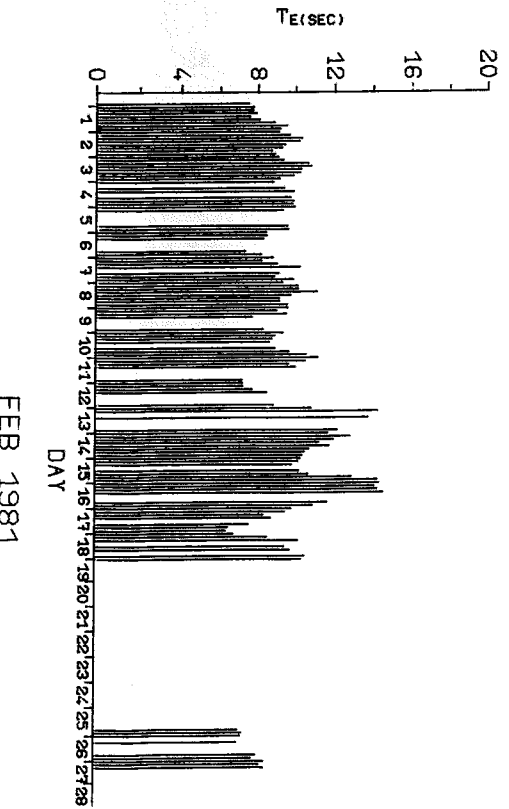
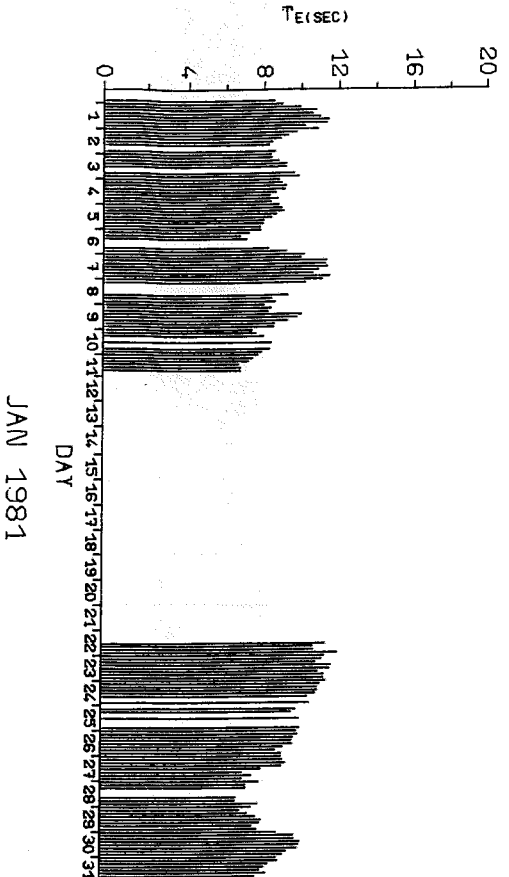
TIME SERIES OF T_e
ISLES OF SCILLY WAVERIDER

Fig. 1.11



TIME SERIES OF TE
ISLES OF SCILLY WAVERIDER

Fig. 1.12



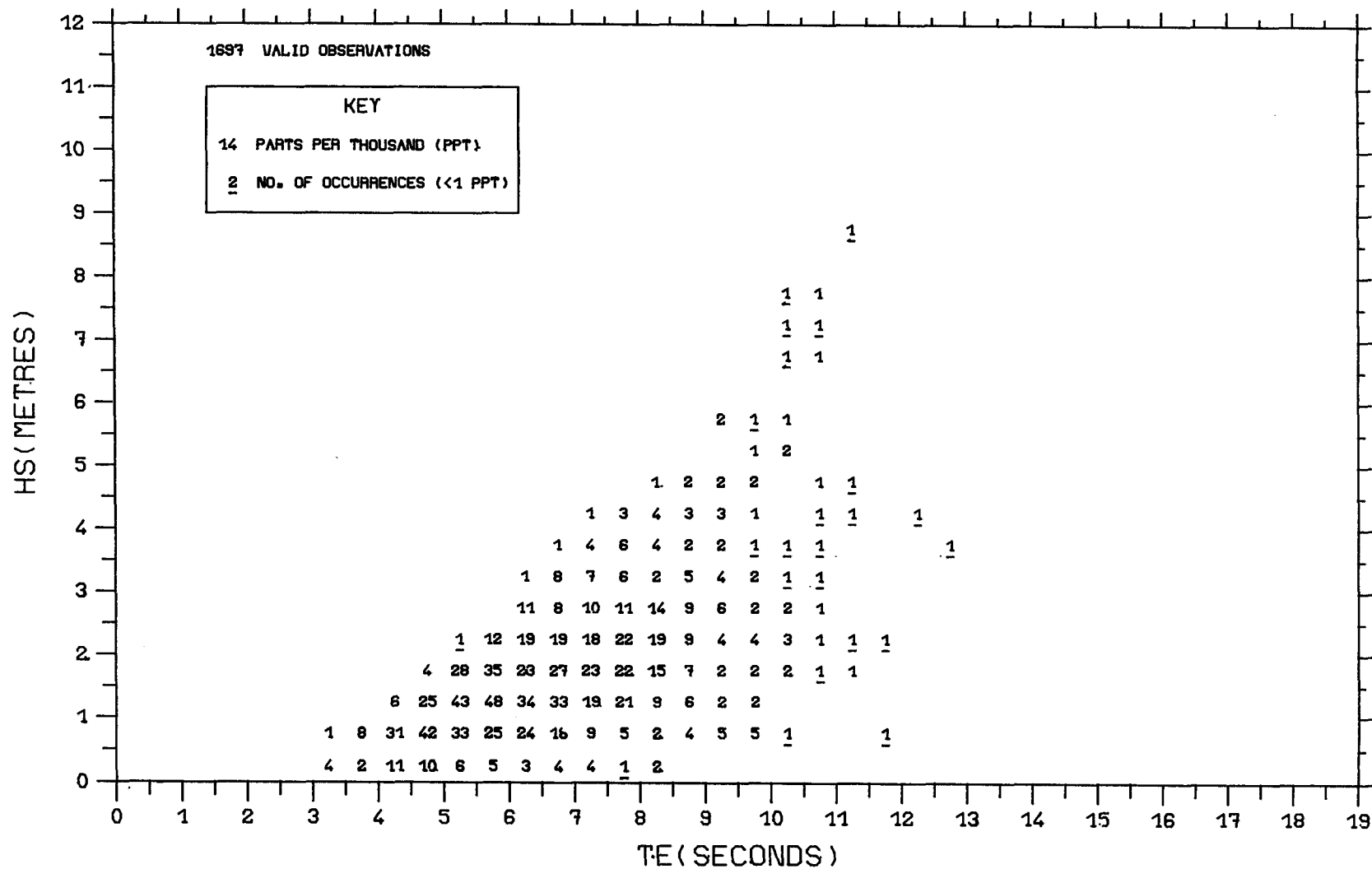
ISLES OF SCILLY WAVERIDER

TIME SERIES OF T_E

Fig. 1.13

TABLE 2 KINNAIRDS HEAD MONTHLY AVERAGE POWER VALUES

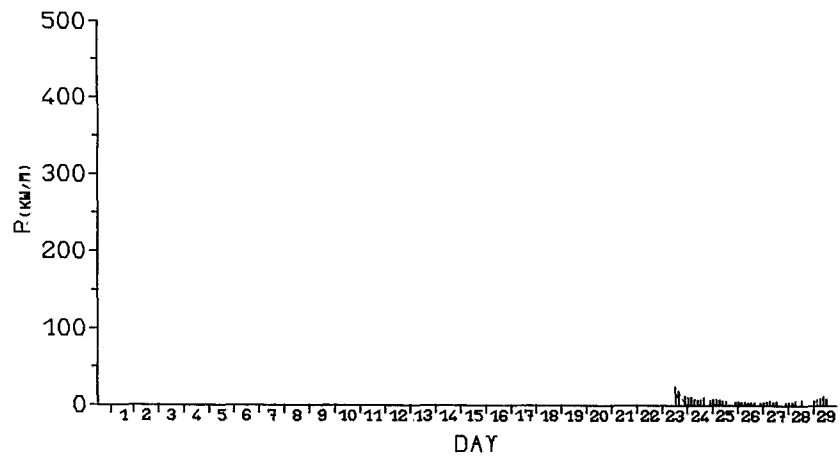
Year	Month	Average Power kw/m	Standard- Deviation	Number of Observations
1980	January	-	-	-
	February	6.3	4.4	38
	March	23.3	25.0	155
	April	10.4	19.9	163
	May	4.2	3.4	149
	June	3.2	3.7	27
	July	3.5	2.7	50
	August	7.8	10.2	242
	September	1.3	1.0	42
	October	31.5	23.9	11
	November	18.4	12.9	69
	December	no data	-	-
1981	January	28.3	33.8	182
	February	22.7	55.2	215
	March	25.7	38.0	215
	April	9.1	10.7	139



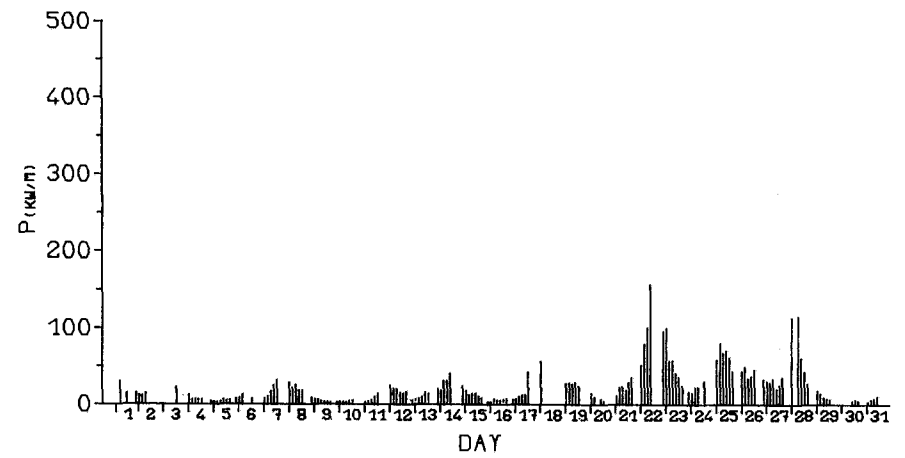
SCATTER PLOT OF HS AND TE

KINNAIRDS HEAD WAVERIDER, FEBRUARY 1980-APRIL 1981

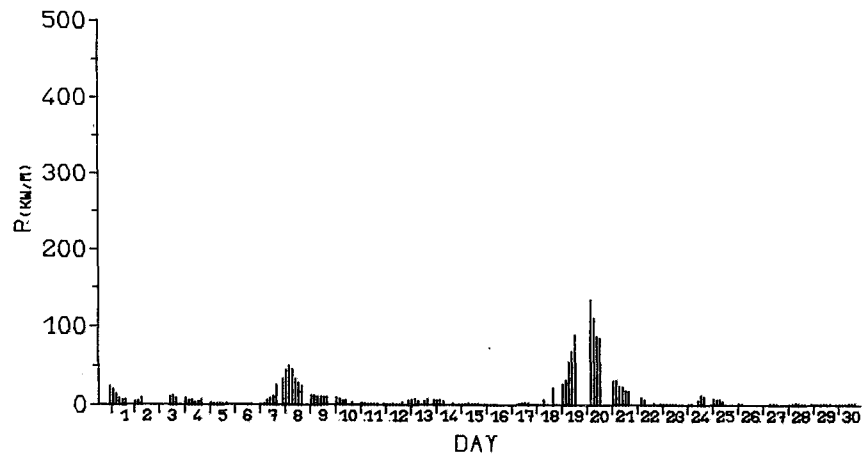
Fig. 2.1



FEB 1980



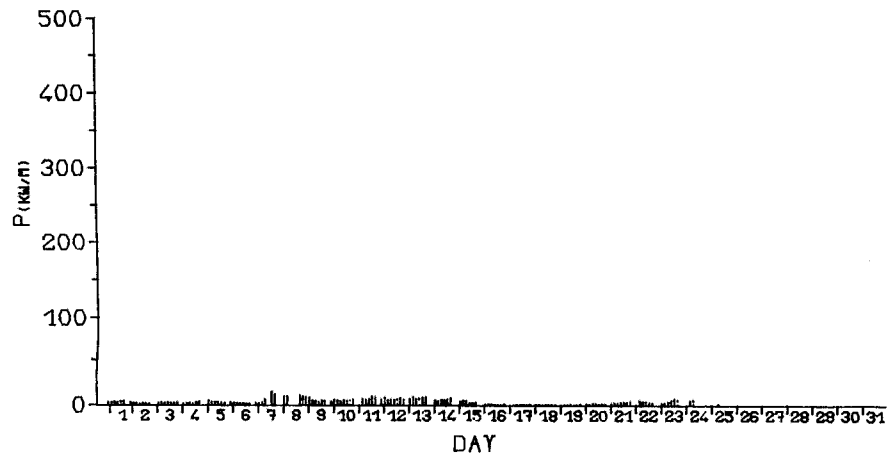
MAR 1980



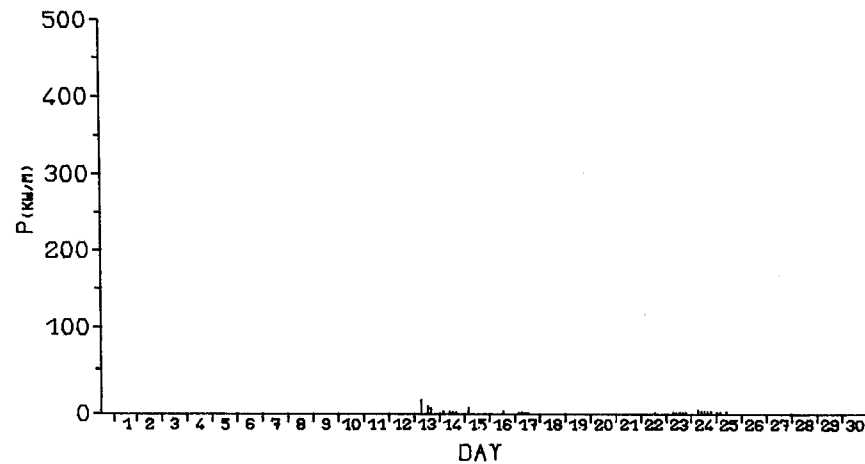
APR 1980

TIME SERIES OF POWER
KINNAIRDS HEAD WAVERIDER

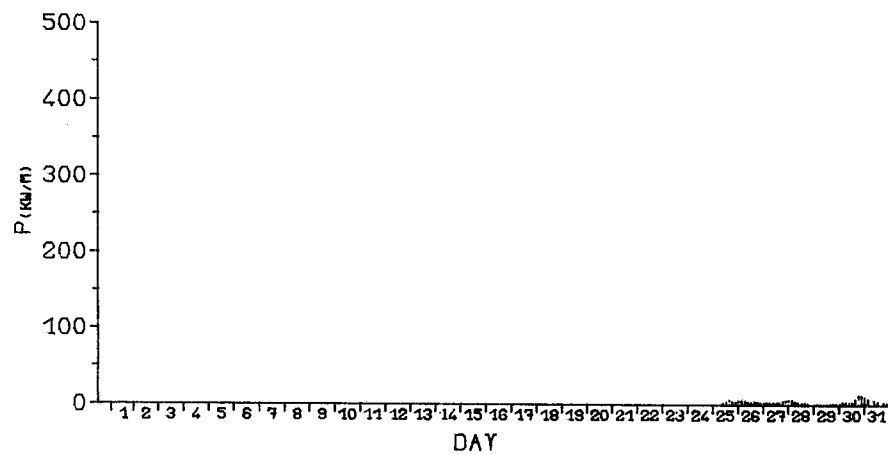
Fig. 2.2



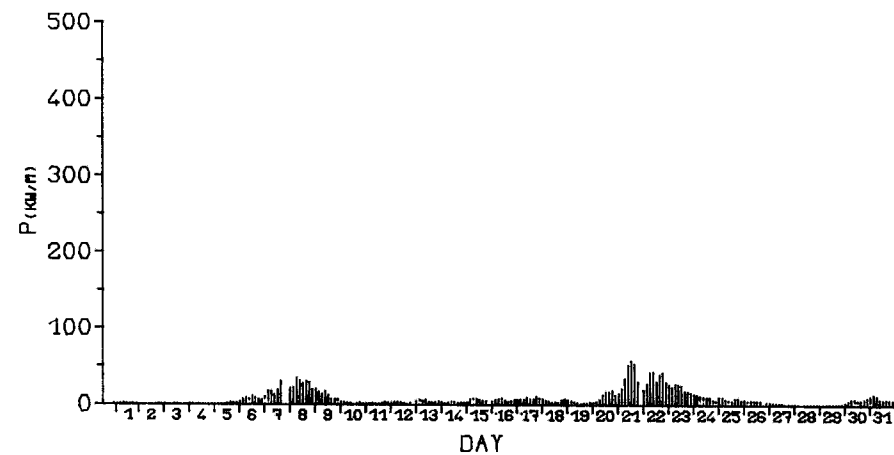
MAY 1980



JUN 1980



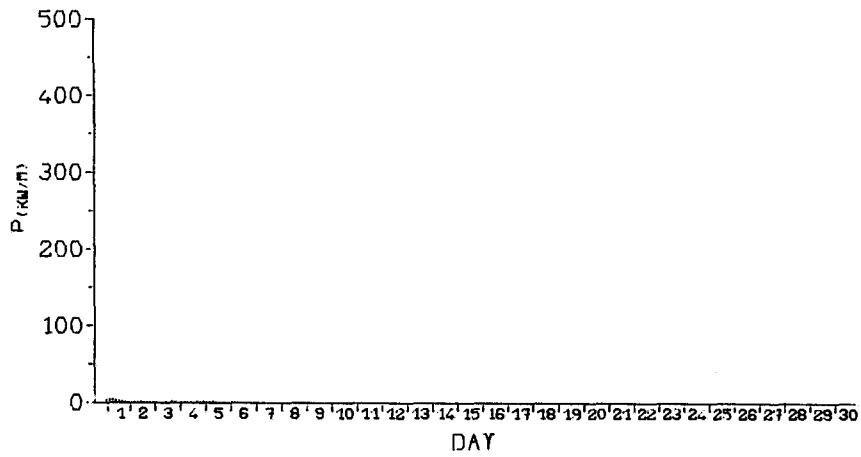
JUL 1980



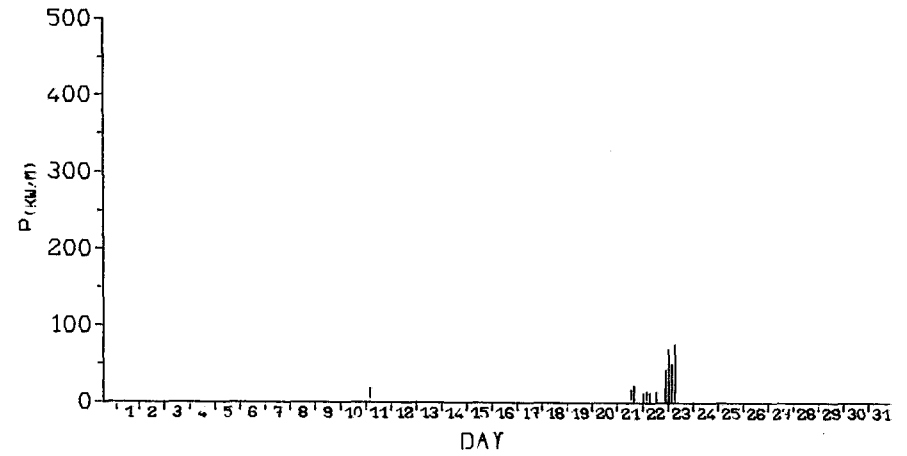
AUG 1980

TIME SERIES OF POWER
KINNAIRDS HEAD WAVERIDER

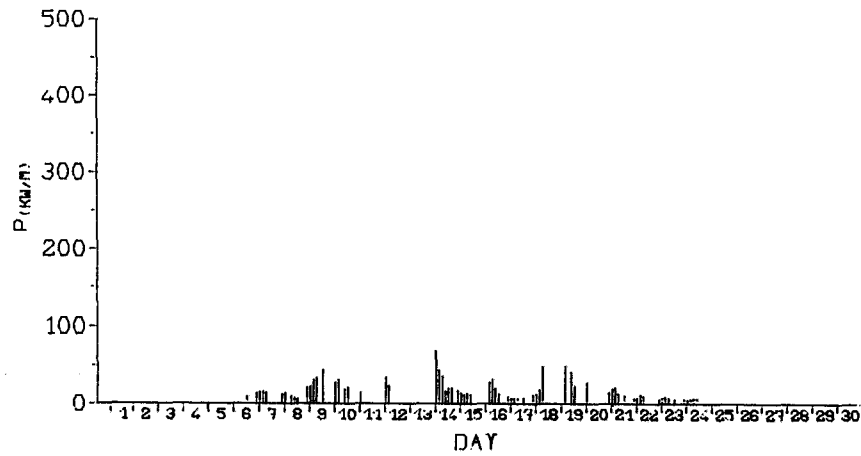
Fig. 2.3



SEP 1980

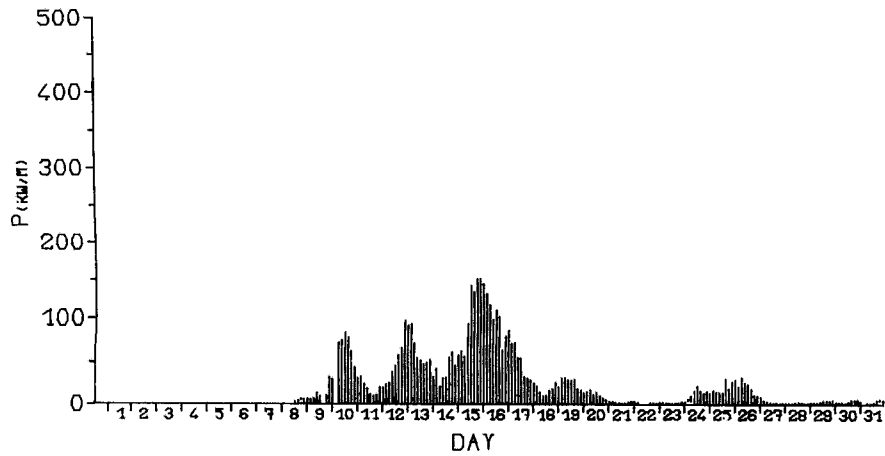


OCT 1980

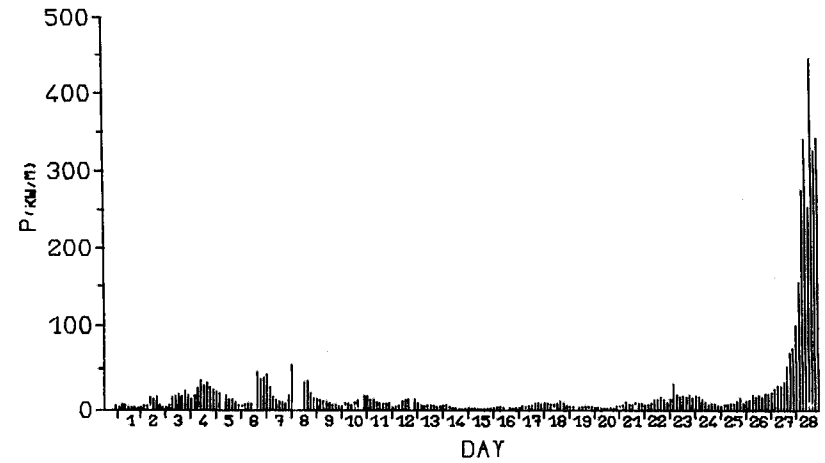


NOV 1980

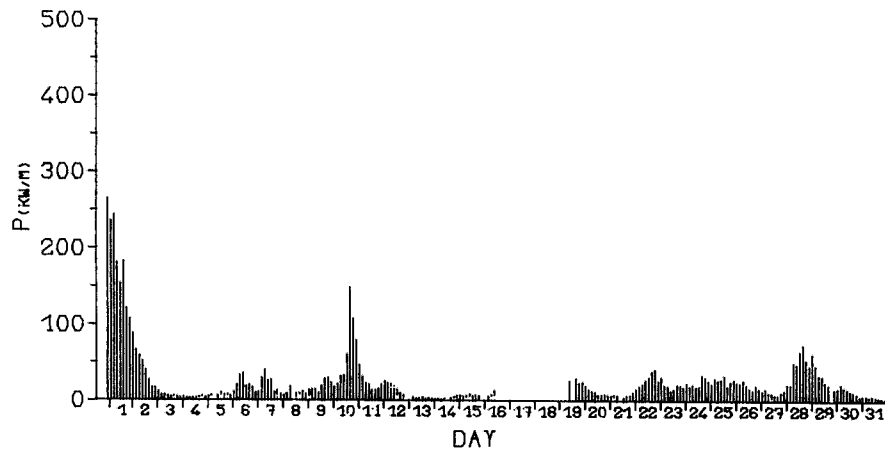
TIME SERIES OF POWER
KINNAIRDS HEAD WAVERIDER



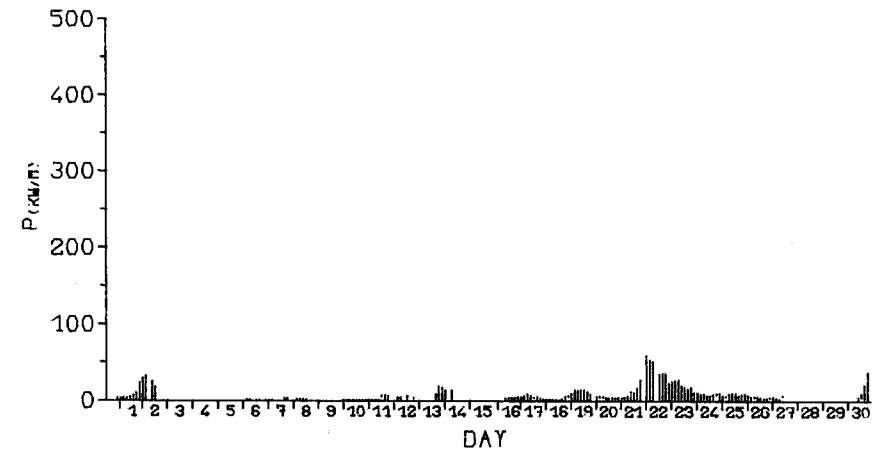
JAN 1981



FEB 1981



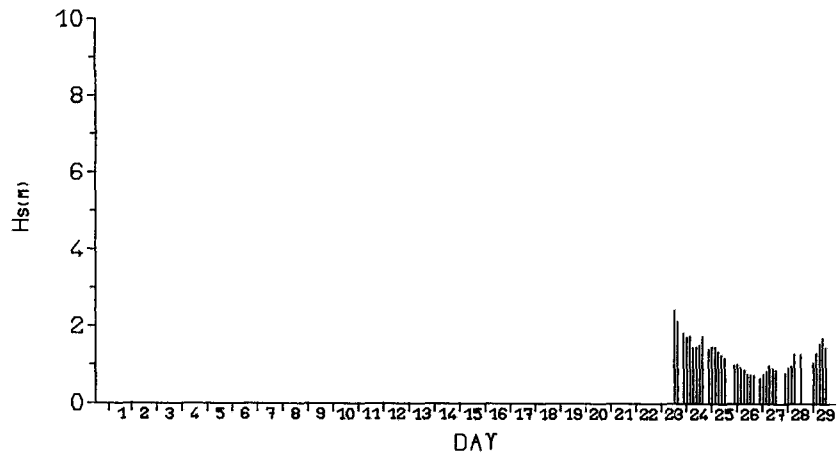
MAR 1981



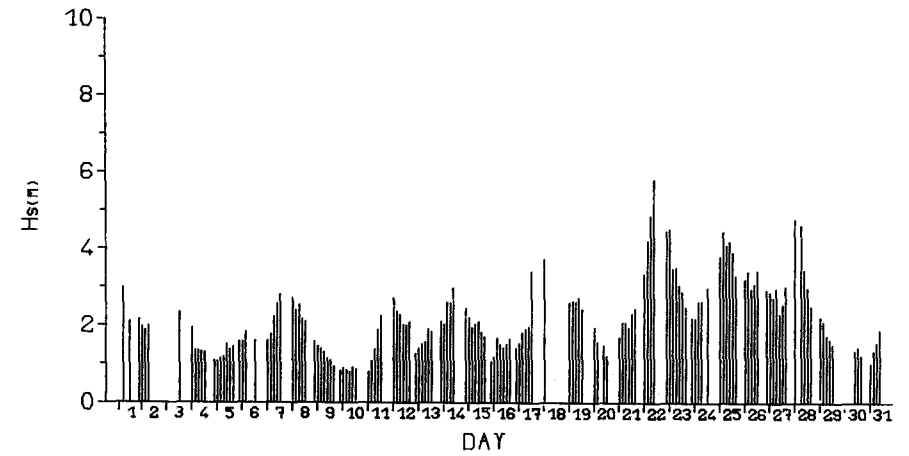
APR 1981

TIME SERIES OF POWER
KINNAIRDS HEAD WAVERIDER

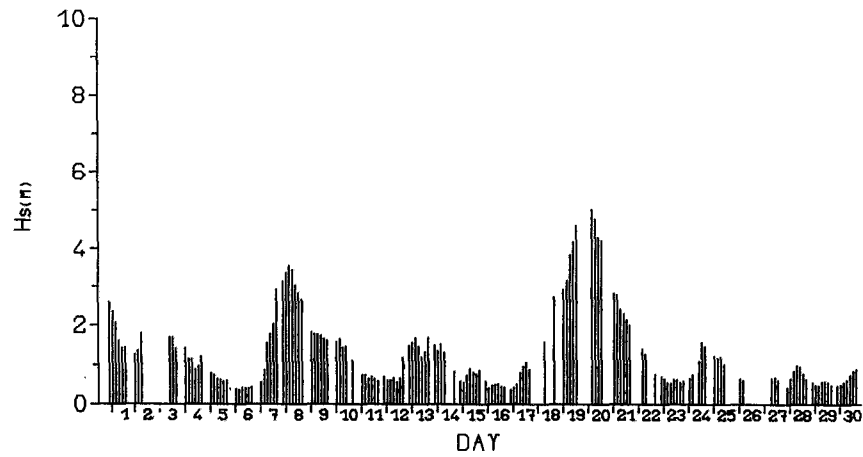
Fig. 2.5



FEB 1980



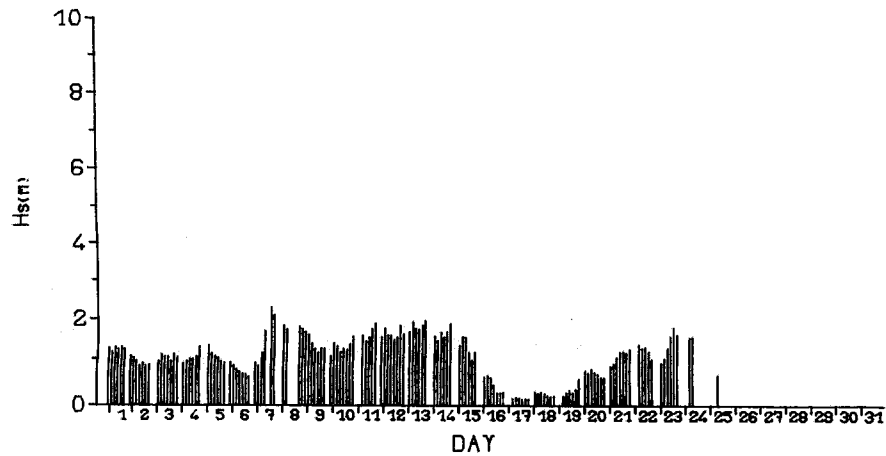
MAR 1980



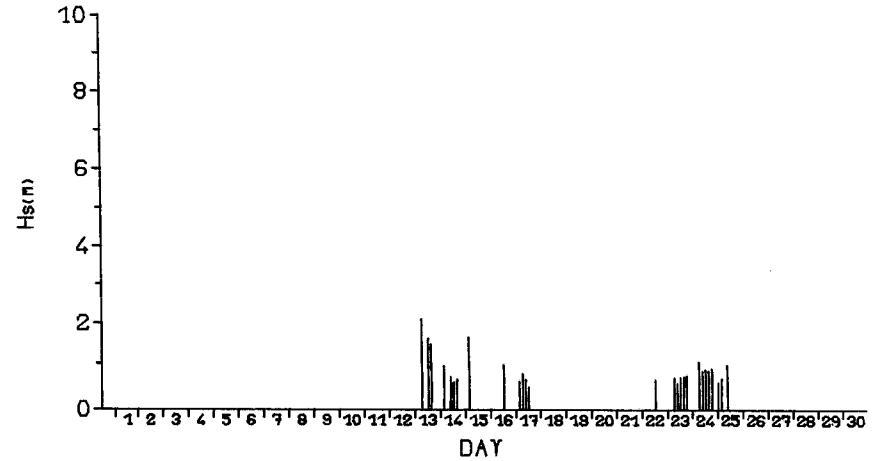
APR 1980

TIME SERIES OF H_s
KINNAIRDS HEAD WAVERIDER

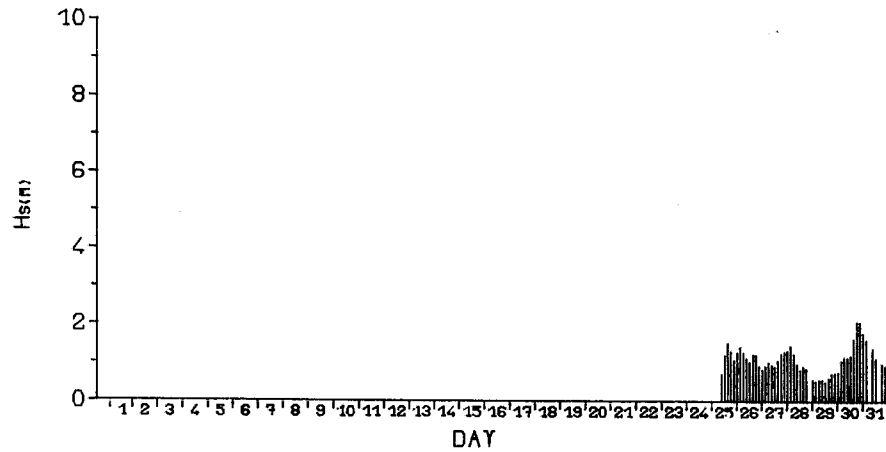
Fig. 2.6



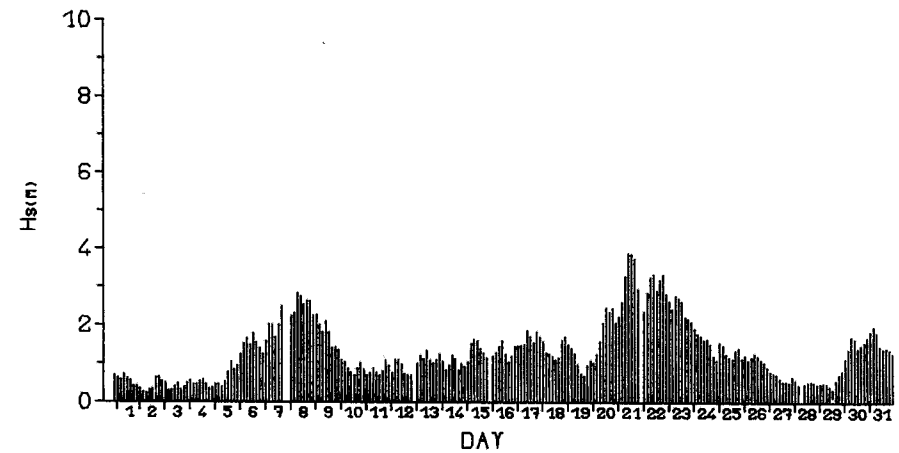
MAY 1980



JUN 1980



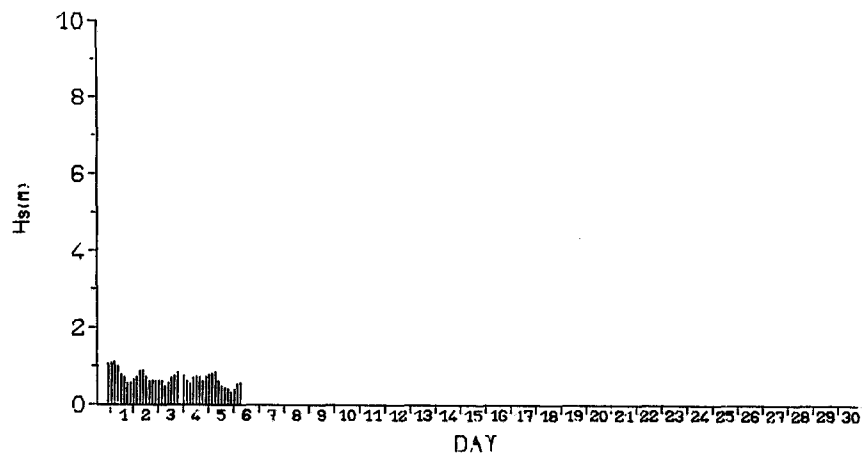
JUL 1980



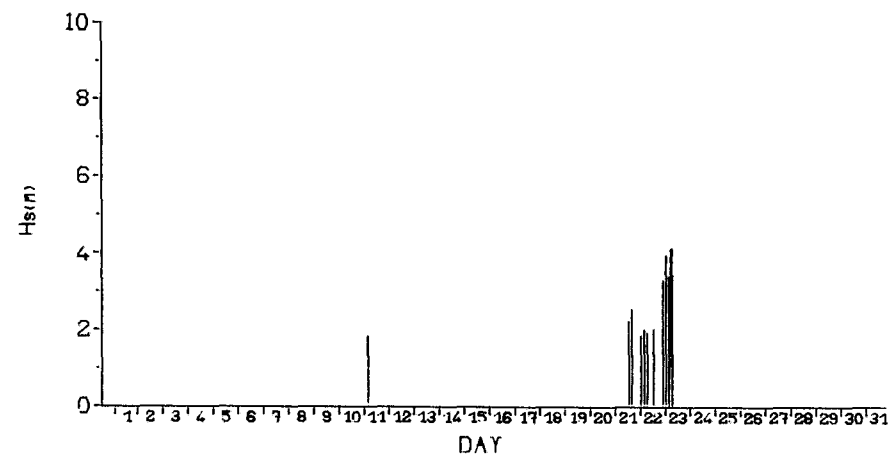
AUG 1980

TIME SERIES OF H_s
 KINNAIRDS HEAD WAVERIDER

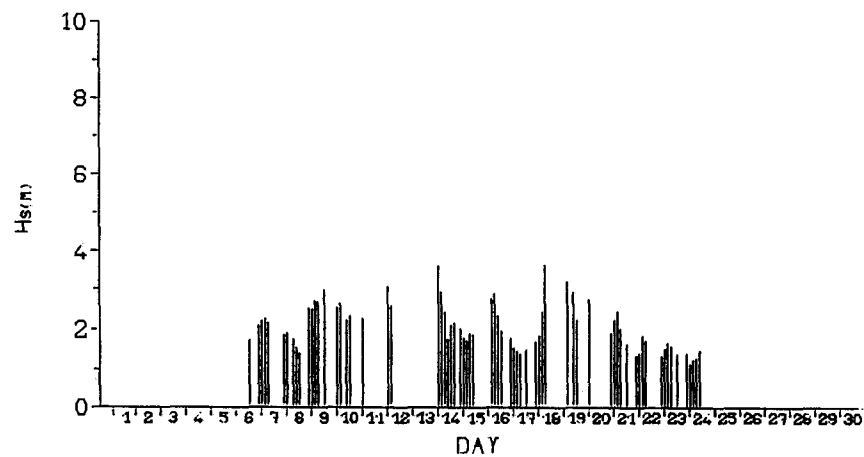
Fig. 2.7



SEP 1980

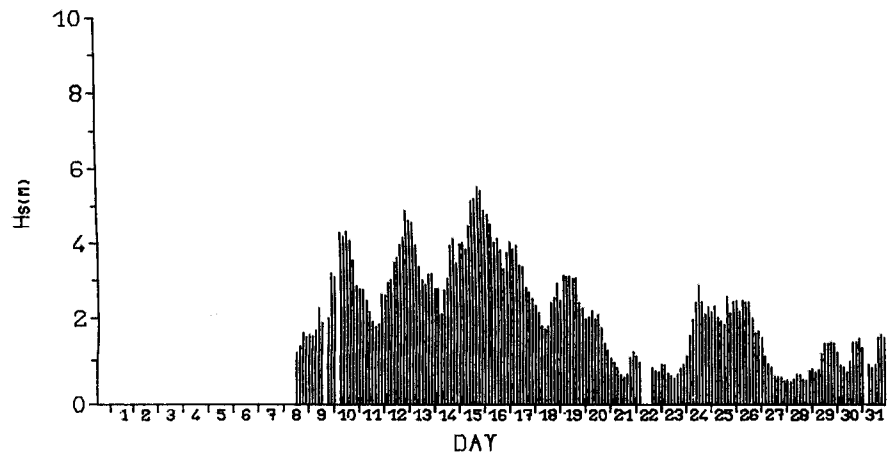


OCT 1980

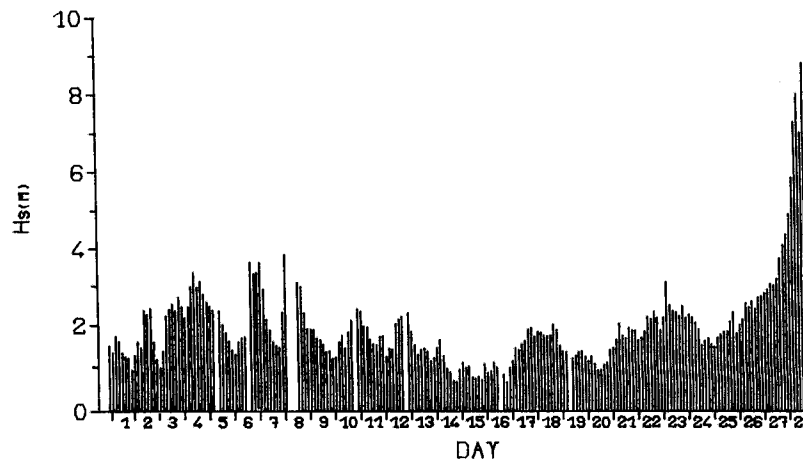


NOV 1980

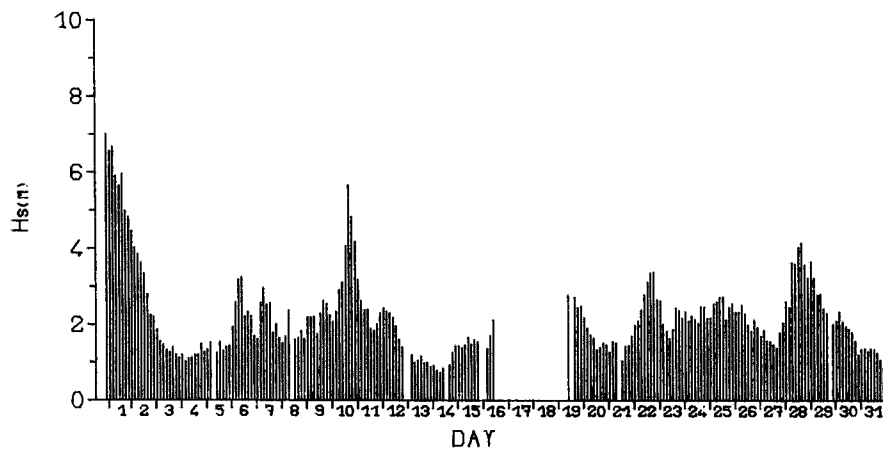
TIME SERIES OF H_s
KINNAIRDS HEAD WAVERIDER



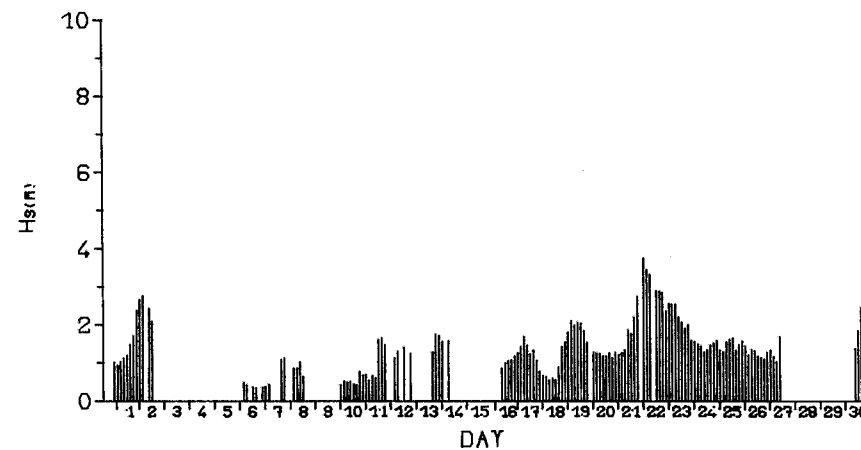
JAN 1981



FEB 1981



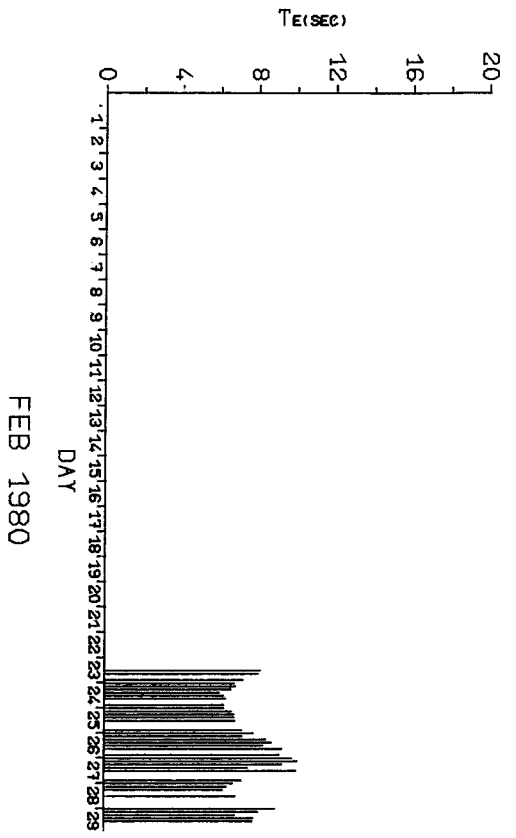
MAR 1981



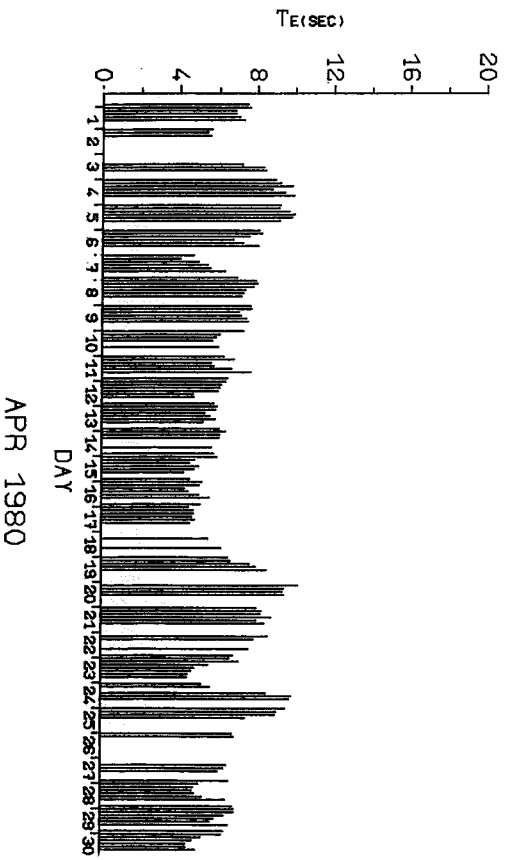
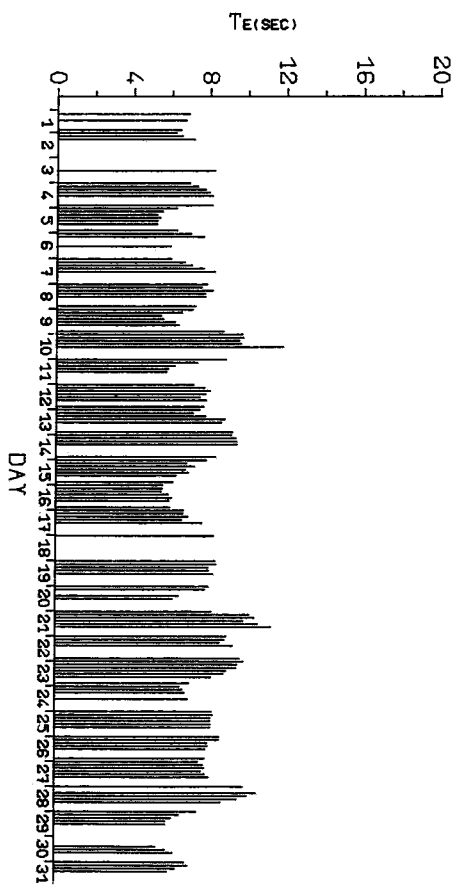
APR 1981

TIME SERIES OF H_s
KINNAIRDS HEAD WAVERIDER

Fig. 2.9

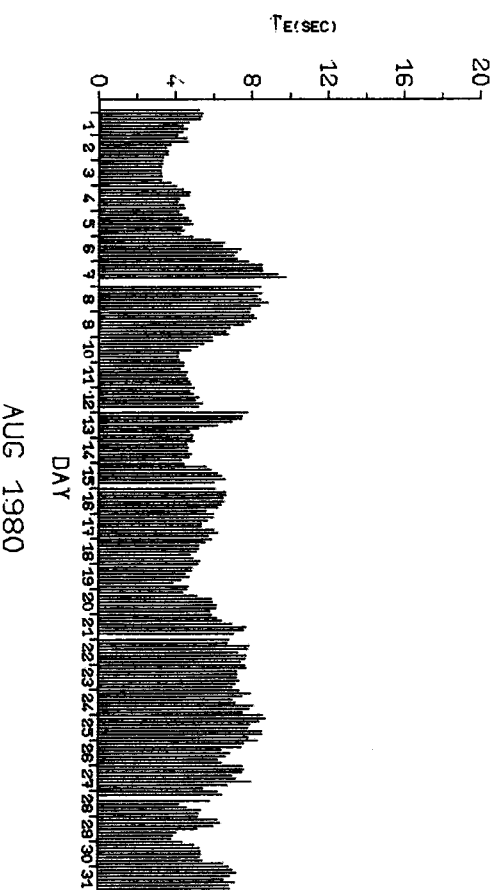
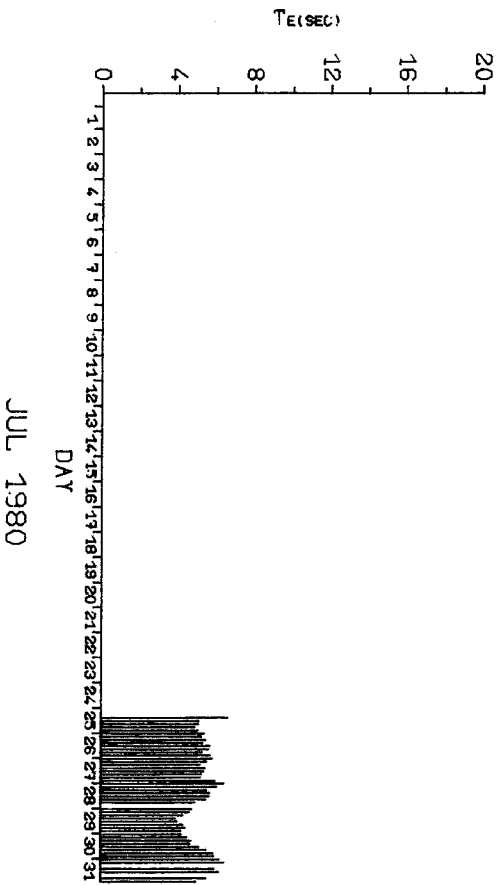
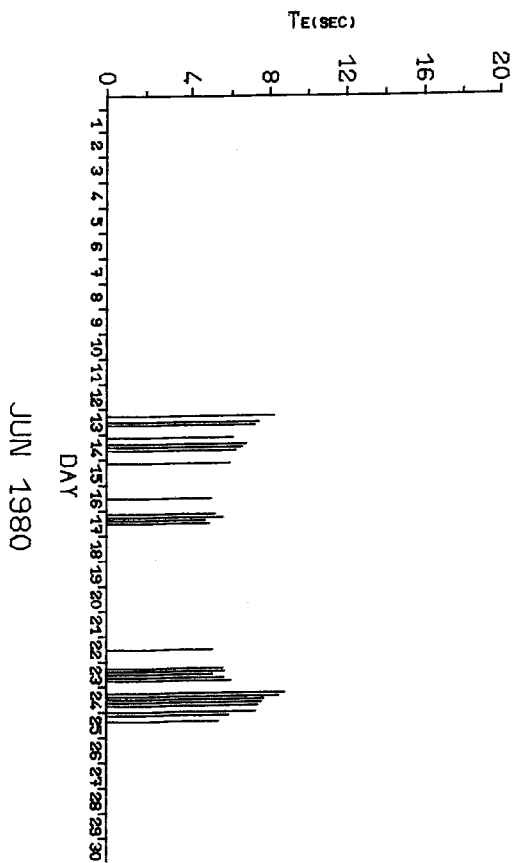
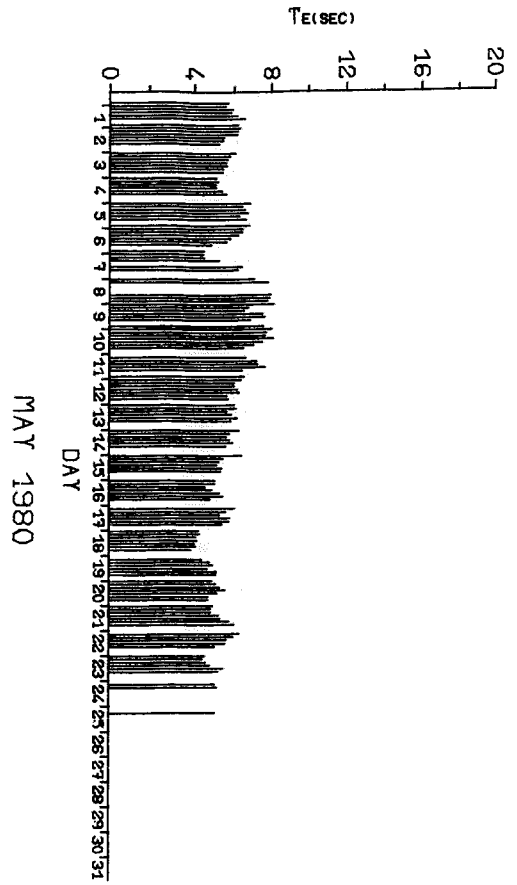


MAR 1980



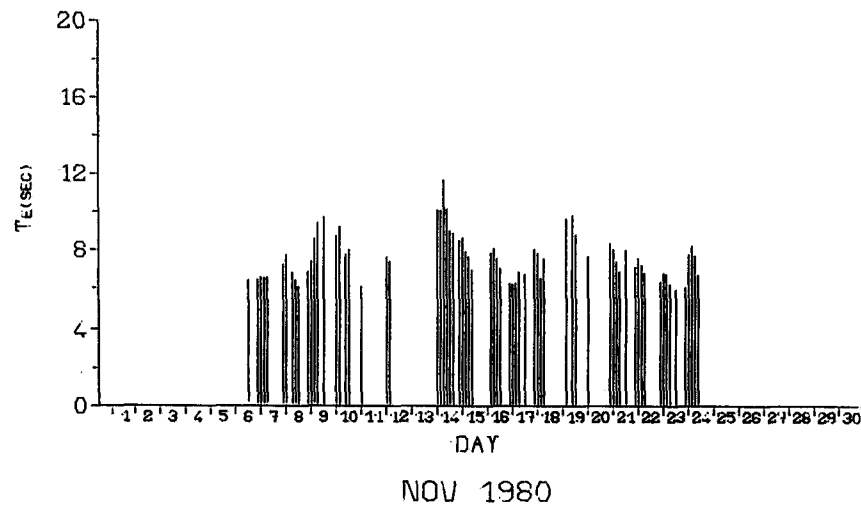
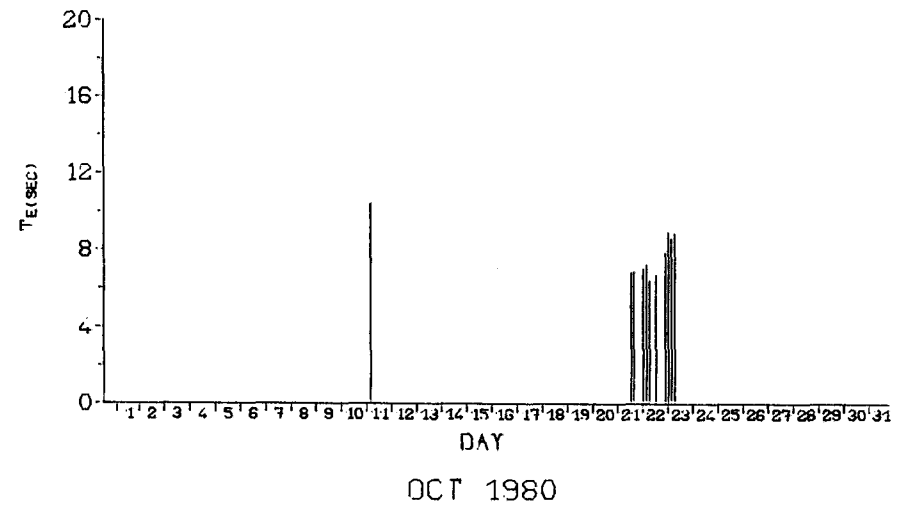
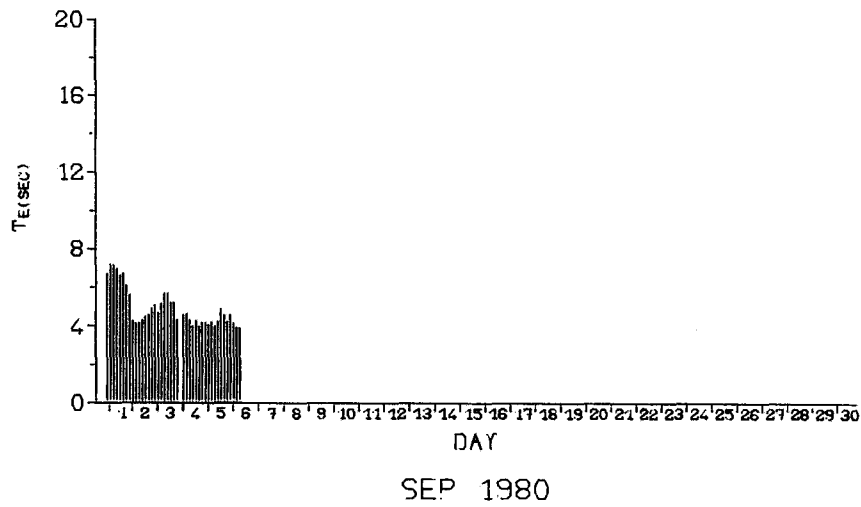
TIME SERIES OF TE

KINNAIRDS HEAD WAVERIDER

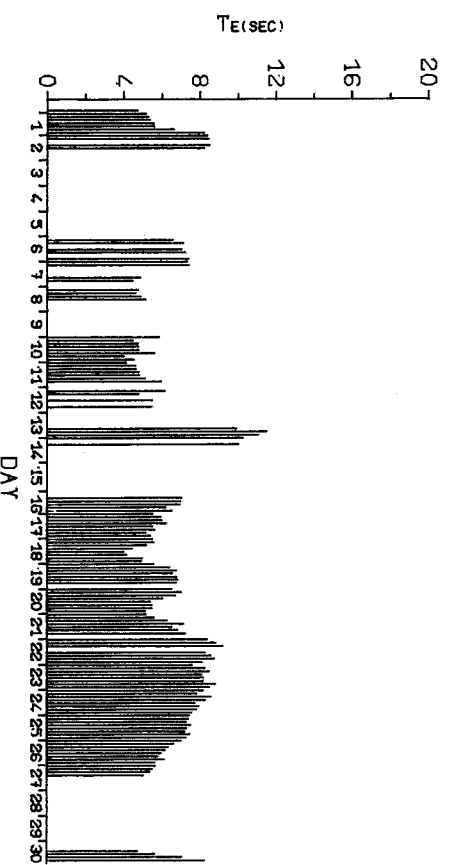
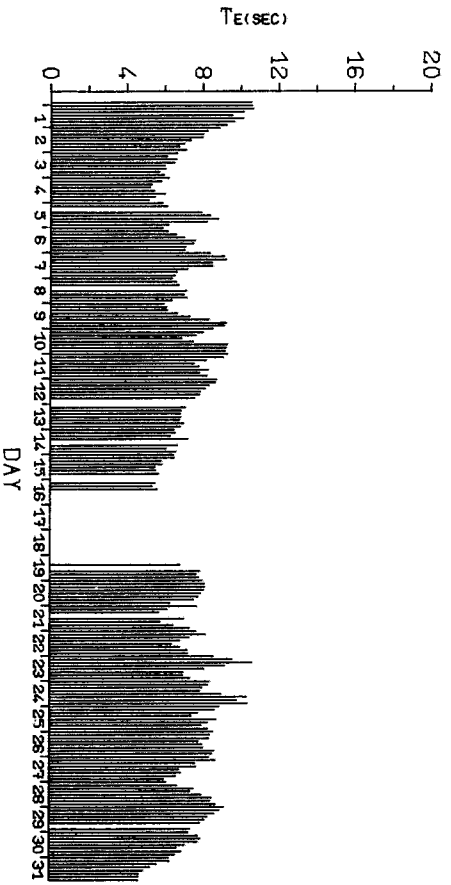
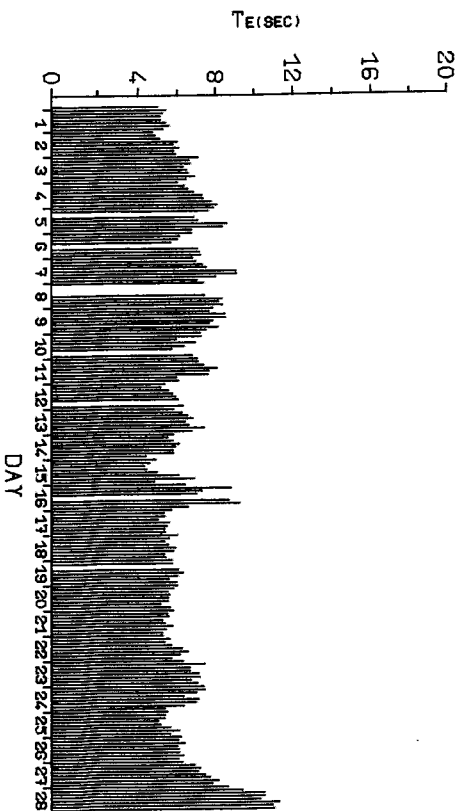
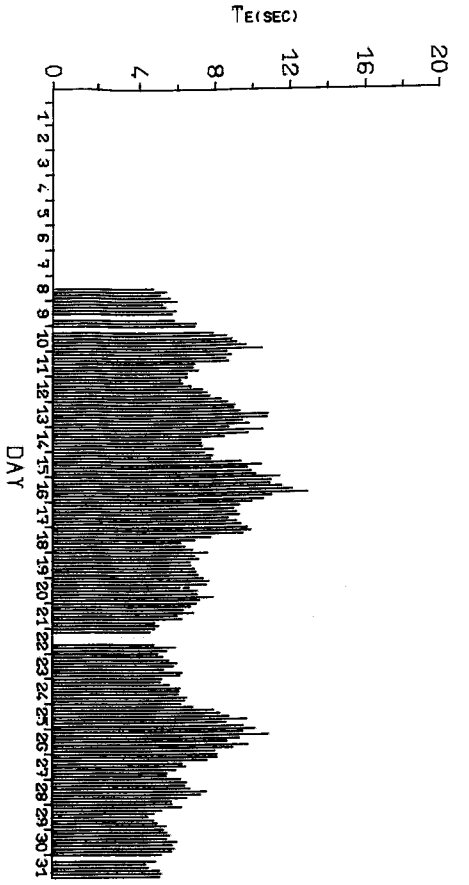


TIME SERIES OF T_E
KINNAIRDS HEAD WAVERIDER

Fig. 2.11



TIME SERIES OF T_E
 KINNAIRDS HEAD WAVERIDER



TIME SERIES OF T_E
KINNAIRDS HEAD WAVERIDER

Fig. 2.13

