

# DNMI - RAPPORT

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TITTEL

PERSISTENCE OF WAVEHEIGHTS AT UTSIRA

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SAMMENDRAG

The report presents the number of 48 hour periods during which the significant waveheight is equal to or less than 2.0 m, 2.5 m and 3.0 m from 1981 to 1986. The same information is given for 24 hour periods.

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## PERSISTENCE OF WAVEHEIGHTS AT UTSIRA

### Introduction.

In this report we present the number of 48 hour periods during which the significant waveheight is equal to or less than 2.0m, 2.5m and 3.0m from 1981 to 1986. The same information considering 24 hour periods.

### 1. The data.

Waves have been measured at UTSIRA in the period june 1974 to june 1986 with a Datawell Waverider buoy, a surface-following device. The position is given in fig. 1. The data coverage is given in table 1. To find the persistence of waveheights we need 100% data coverage, this is not possible at the moment.

We have used a dataserie from 1981 to 1986 which have the best data coverage for the winter months(dec., jan., feb.). To improve the data coverage, single missing values are filled in by means of linear interpolation. Periods with sequences of missing values are omitted.

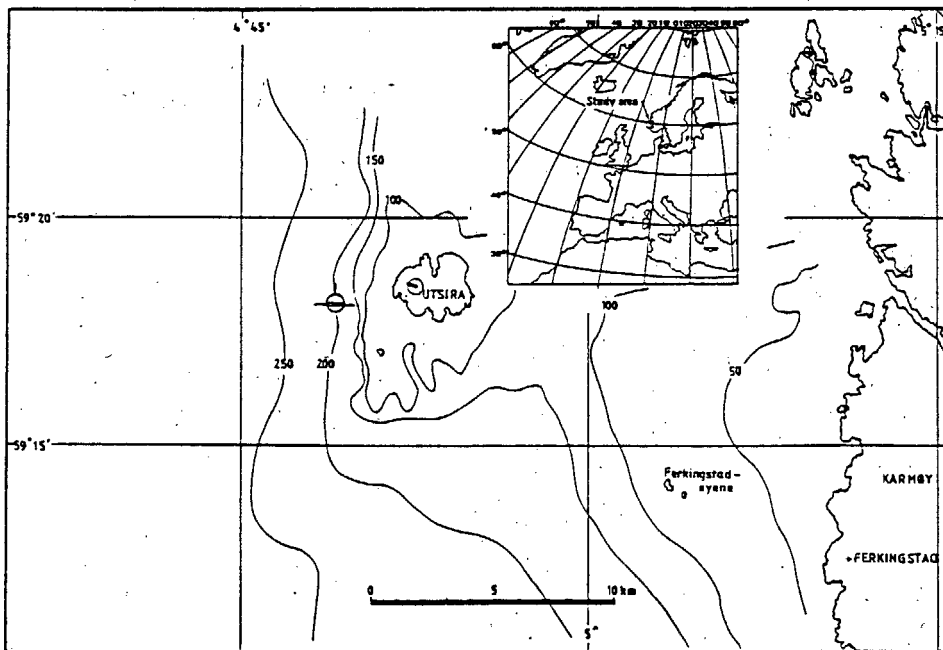


Fig. 1 The position of the Waverider buoy at Utsira.

DATA COVERAGE FOR THE WHOLE PERIOD

YEAR	74	75	76	77	78	79	80	81	82	83	84	85	86
MONTH													
JAN	0	80	12	59	97	49	78	97	32	79	100	98	91
FEB	0	90	77	58	83	50	37	96	38	98	97	97	100
MAR	0	36	72	30	87	37	39	96	98	100	96	91	100
APR	0	56	31	89	87	36	83	99	74	100	99	70	100
MAY	0	57	71	57	25	87	99	99	12	100	99	99	63
JUN	0	8	92	0	82	70	98	85	44	81	96	96	52
JUL	0	39	43	0	91	79	83	78	54	41	99	69	-
AUG	0	0	4	0	86	75	72	60	45	90	98	87	-
SEP	0	19	4	24	86	27	98	94	99	96	98	95	-
OCT	47	95	0	85	57	50	93	77	99	99	99	97	-
NOV	82	5	0	80	58	38	95	61	97	99	77	96	-
DEC	70	0	2	91	43	0	50	91	98	100	77	96	-
YEAR	16	40	34	48	73	50	77	86	66	90	99	79	-

Table 1.

2. The results

The results are given in two sets of tables, table 2, table 3 without interpolation, and table 4, table 5 with interpolation of single missing values.

- An observation of Hs is taken valid for 3 hours by definition.
- The end of the events is used for the sorting on the months. As a consequence of this, one of the 24 hours period with  $H_s \leq 3.0m$  in december 1982 will be sorted out in january 1983 when we use 2.5m as limit. This is the explanation of two 24 hours with  $H_s \leq 2.5m$  in january 1983, but only one 24 hours period with  $H_s \leq 3.0m$  in the same month.

Number of 48-hours periods with HS  $\leq$ 2.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	0	3	3	6	13	5	8	4	7	1	0	7
1982	2	2	4	6	0	5	7	1	2	6	1	0
1983	0	5	3	10	11	8	2	10	6	1	2	2
1984	1	3	5	8	12	5	10	11	8	3	3	2
1985	7	7	7	2	14	9	9	6	6	5	4	3
1986	3	14	3	0	5	7	-	-	-	-	-	-
MEAN	2	5	4	5	9	6	7	6	5	3	2	2

Number of 48-hours periods with HS  $\leq$ 2.5m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	3	5	7	9	14	6	9	5	9	1	0	7
1982	2	4	6	6	0	5	8	2	6	8	3	3
1983	0	8	4	12	16	8	4	13	6	3	5	3
1984	4	6	5	12	14	8	13	13	11	4	5	5
1985	11	8	9	3	14	11	9	9	10	9	9	4
1986	4	14	5	0	7	7	-	-	-	-	-	-
MEAN	4	7	6	7	10	7	8	8	8	5	4	4

Number of 48-hours periods with HS  $\leq$ 3.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	4	6	8	11	14	9	9	6	10	2	0	8
1982	2	4	7	5	0	6	8	3	8	9	4	4
1983	0	8	9	15	16	11	4	13	7	3	9	5
1984	5	7	7	13	13	10	13	13	12	8	6	9
1985	12	9	11	3	16	11	9	10	10	11	9	8
1986	5	14	8	0	7	7	-	-	-	-	-	-
MEAN	4	8	8	7	11	9	8	9	9	6	5	6

Table 2.

Number of 24-hours periods with HS  $\leq$ 2.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	3	10	11	19	27	14	20	13	17	3	0	16
1982	6	4	11	12	1	10	15	6	9	16	5	6
1983	0	12	7	21	27	16	8	23	13	4	7	4
1984	6	9	13	21	26	16	24	26	18	7	9	8
1985	19	15	18	7	29	20	18	18	15	16	12	8
1986	8	27	10	0	12	14	-	-	-	-	-	-
MEAN	7	12	11	13	20	15	17	17	14	9	6	8

Number of 24-hours periods with HS  $\leq$ 2.5m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	9	12	17	22	29	17	21	14	21	5	0	18
1982	7	8	14	14	1	11	16	9	15	20	8	9
1983	2	17	12	27	31	18	10	26	14	8	13	10
1984	10	15	14	25	28	21	28	28	24	14	13	16
1985	24	18	20	10	29	25	19	22	22	22	18	12
1986	11	27	15	0	16	14	-	-	-	-	-	-
MEAN	10	16	15	16	22	17	18	19	19	13	10	13

Number of 24-hours periods with HS  $\leq$ 3.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	12	17	20	24	29	21	21	15	22	11	5	18
1982	7	9	18	13	1	13	15	10	19	22	11	13
1983	1	18	21	30	31	23	10	27	19	9	19	14
1984	13	17	20	27	28	23	28	28	27	20	16	22
1985	28	22	22	12	31	26	19	23	23	26	20	18
1986	14	28	19	0	16	14	-	-	-	-	-	-
MEAN	12	18	20	17	22	20	18	20	22	17	14	17

Table 3.

MISSING DATA INTERPOLATED.

Number of 48-hours periods with HS  $\leq$  2.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	0	4	3	8	13	6	10	5	7	1	0	9
1982	3	2	4	7	1	5	7	1	2	8	1	1
1983	0	5	3	10	11	8	2	10	6	1	3	2
1984	1	3	6	8	13	8	11	12	8	3	3	2
1985	7	7	7	2	14	10	9	6	6	6	4	3
1986	3	14	3	0	5	7	-	-	-	-	-	-
MEAN	2	5	4	5	9	7	7	6	5	3	2	3

Number of 48-hours periods with HS  $\leq$  2.5m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	3	7	7	11	14	8	11	6	10	1	0	10
1982	4	4	6	8	1	5	8	2	6	10	3	3
1983	0	8	4	12	16	8	4	13	6	3	6	3
1984	4	7	7	12	14	11	14	14	12	4	6	5
1985	11	8	9	4	14	12	9	9	11	11	9	4
1986	4	14	5	0	7	7	-	-	-	-	-	-
MEAN	4	8	6	7	11	8	9	8	9	5	4	5

Number of 48-hours periods with HS  $\leq$  3.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	4	7	9	12	14	10	11	7	11	2	0	11
1982	4	4	7	8	1	6	8	3	8	11	4	5
1983	0	9	9	15	16	11	4	13	8	3	9	5
1984	5	8	9	14	13	13	14	14	14	9	8	9
1985	12	9	11	4	16	13	10	10	11	12	9	8
1986	5	14	8	0	7	7	-	-	-	-	-	-
MEAN	5	8	8	8	11	10	9	9	10	7	6	7

Table 4.

MISSING DATA INTERPOLATED.

Number of 24-hours periods with HS  $\leq$  2.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	3	11	11	21	28	14	21	14	19	3	0	18
1982	7	4	11	14	2	10	15	6	9	17	5	7
1983	0	13	7	21	27	16	8	23	13	4	8	4
1984	6	9	14	21	27	19	25	27	19	7	10	8
1985	19	15	18	7	29	22	18	18	15	17	12	8
1986	8	27	10	0	12	14	-	-	-	-	-	-
MEAN	7	13	11	14	20	15	17	17	15	9	7	9

Number of 24-hours periods with HS  $\leq$  2.5m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	10	14	17	24	29	19	23	15	22	5	0	23
1982	10	8	14	16	2	11	16	9	15	21	8	10
1983	2	18	12	27	31	18	10	26	15	8	14	10
1984	10	16	16	25	28	24	29	29	26	15	14	16
1985	24	18	20	11	29	26	19	22	22	24	18	12
1986	11	27	15	0	17	14	-	-	-	-	-	-
MEAN	11	16	15	17	22	18	19	20	20	14	10	14

Number of 24-hours periods with HS  $\leq$  3.0m

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1981	12	18	21	26	29	22	23	16	24	11	5	23
1982	10	9	18	16	2	13	16	10	19	24	11	14
1983	1	19	21	30	31	23	10	27	20	9	19	14
1984	13	19	22	28	28	26	30	28	29	21	18	22
1985	28	22	22	14	31	29	20	24	23	27	20	18
1986	14	28	19	0	17	14	-	-	-	-	-	-
MEAN	13	19	20	19	23	21	19	21	23	18	14	18

Table 5.