

MERENTUTKIMUSLAITOKSEN JULKAISU N:o 207
HAVSFORSKNINGSINSTITUTETS SKRIFT

AVERAGE SEA TEMPERATURES
AT THE FINNISH COASTAL STATIONS
1948 — 1957

BY
KRISTINA AHLNÄS



HELSINKI 1962 HELSINGFORS

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Helsinki 1963. Valtioneuvoston kirjapaino

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This compilation of sea-water temperatures forms in a sense a revised version of Dr GRANQVIST's mean values for 1921 (1926)—1930 in the publication »Baltianmeren lämpötila ja suolaisuus Suomen rannikoilla» — »Havsvattnets temperatur och salthalt uti Finlands kustvatten» (Merentutkimuslaitos — Havsforskningsinstitutet 1938). These tables also occur in his work »Zur Kenntniss der Temperatur und des Salzgehaltes des Baltischen Meeres an den Küsten Finnlands» (Merent. Julk. — Havsf. Skrift N:o 122). These new tables, comprising means of sea temperatures for 1948—57, are also intended for practical purposes. Fifteen Finnish coastal stations, where observations were made every tenth day at standard depths, are treated here. A small error is introduced by the fact that in storms the observations were made one or more days later than intended, but never before the assigned date. No correction was applied to the data to correct this systematic error. The stations, listed from the north, are as follows

- | | |
|-----------------------------|---------------------|
| 1. Ulkokalla | 2. Tankar |
| 3. Valassaaret — Valsörarna | 4. Säppi — Säbbskär |
| 5. Storbrotten, lightship | |
| 6. Märket | |
| 7. Utö | |
| 8. Jungfruskär | |
| 9. Lohm | |
| 10. Bengtskär | |
| 11. Russarö | 12. Tvärminne |
| 13. Harmaja — Gråhara | |
| 14. Söderskär | |
| 15. Tammio — Stamö | |

While the former mean values were smoothed by means of harmonic analysis, using three waves only, one of the disadvantages of which is a certain apparent but non-existent temperature rise in the beginning of the year, usually in February, the present mean values have been smoothed graphically. Starting from the observed temperatures, means were calculated for the 1st, 11th and 21st days of every month for each standard depth, for the decade 1948—57. From the mean temperatures thus calculated a curve characterizing the annual cycle of temperature was drawn for each depth. This curve gives the »theoretical» or normal annual temperature course. From this curve the smoothed temperature values were read. These values are given in tabular form, and are to be considered

normal temperatures for the stations in question. Obviously, the actually observed and smoothed means do not always agree completely as a result of the influence of occasional factors on the observed temperatures. At the end of the tables for each station the following supplementary data are given:

- M = »theoretical» annual mean temperature (based upon the smoothed curve)
 m = observed annual mean temperature (calculated)
 max_A = actual observed absolute maximum temperature for the decade
 max = calculated mean » » (from observed values)
 Max = smoothed maximum temperature (from the curve)
 Min = » minimum » » »
 min = calculated mean minimum temperature (from observed values)
 min_A = actual observed absolute minimum temperature for the decade

In the tables the maximum temperature (Max) is underlined. Sometimes »Max» must have occurred between the days of observation, being therefore somewhat higher than any of the printed values. In these cases the line has been drawn between the two values on each side.

As can be seen from the tables, the greater the depth, the later the maximum temperature is observed. In the mixed surface layer down to the summer thermocline at about 10 m, the maximum temperature occurs almost simultaneously at all the depths observed, owing to the thorough mixing of this layer. At and also below the thermocline the vertical stability is greater and the influence of the poor heat conductivity of water is seen in the time lag of the annual temperature maximum with depth. At the surface the maximum ordinarily occurs early in August, while at the greatest depths of about 100 m it does not occur until the beginning of December.

The minimum temperatures occur in February and March. The delay of minimum temperature by depth can be observed only at the deepest stations. In autumn the surface temperatures drop more quickly than those of the deeper layers. At a certain date in autumn the water has the same temperature and density from the surface almost to the bottom, except for the deepest stations, where this vertical turnover does not reach the bottom because of the permanent salinity gradient. After the time of the autumn turnover the deeper water (above the halocline) cools off slower than the upper waters, until warming up again starts, usually in the beginning of April.

Owing to the general amelioration of the climate, the temperature values now presented are on the whole somewhat higher than in the earlier tables. The mean average increase of temperature between 1921—30 and 1948—57 is most pronounced in the surface layers, where it amounts to $+0.39^{\circ}\text{C}$, while the average rise for the whole water body is $+0.30^{\circ}\text{C}$.

1. Ulkokalla

64°19'55"N; 23°26'50"E

2. Tankar

63°57'03"N; 22°51'03"E

Date	0 m	5 m	10 m	0 m	5 m	10 m	Date
Jan.							Jan.
1	0.6			0.3	0.5	0.6	1
11	0.1			0.1	0.1	0.2	11
21	-0.2			-0.1	0.0	0.1	21
Feb.							Feb.
1	-0.2			-0.2	0.0	0.1	1
11	-0.2			-0.2	0.0	0.1	11
21	-0.2			-0.2	-0.1	0.0	21
Mars							Mars
1	-0.2			-0.2	0.0	0.0	1
11	-0.2			-0.2	0.0	0.1	11
21	-0.2			-0.1	0.0	0.2	21
Apr.							Apr.
1	-0.2			0.1	0.1	0.2	1
11	0.1			0.2	0.2	0.3	11
21	0.6			0.7	0.6	0.7	21
May							May
1	1.3			1.8	1.2	1.1	1
11	2.2	1.8	1.7	3.4	2.0	1.7	11
21	3.2	2.7	2.4	5.2	3.4	2.8	21
June							June
1	4.9	4.0	3.8	7.5	5.4	4.2	1
11	6.9	5.6	5.2	9.5	7.4	5.5	11
21	9.1	7.5	5.6	11.3	9.1	6.6	21
July							July
1	11.0	9.6	8.0	12.9	10.6	7.7	1
11	12.4	10.9	9.2	14.1	11.8	8.8	11
21	13.0	11.7	10.0	15.0	12.7	10.0	21
Aug.							Aug.
1	13.3	12.3	10.8	15.1	13.4	11.2	1
11	13.4	12.6	11.3	14.8	13.7	12.0	11
21	13.2	12.6	11.7	14.3	13.7	12.6	21
Sept.							Sept.
1	12.7	12.4	12.0	13.5	13.1	12.6	1
11	12.0	12.0	11.7	12.4	12.2	12.0	11
21	11.0	11.0	10.9	11.0	10.8	10.6	21
Oct.							Oct.
1	9.7	9.7	9.6	9.3	9.3	9.3	1
11	8.3	8.3	8.3	7.7	7.6	7.7	11
21	7.1	7.0	7.0	6.4	6.3	6.4	21
Nov.							Nov.
1	5.7	5.7	5.7	4.8	4.8	4.8	1
11	4.6	4.6	4.6	3.5	3.4	3.5	11
21	3.6	3.6	3.6	2.2	2.2	2.2	21
Dec.							Dec.
1	2.7	2.7	2.7	1.2	1.4	1.4	1
11	2.0	2.1	2.1	0.7	1.0	1.1	11
21	1.3	1.5	1.5	0.5	0.8	0.9	21
M	5.1	-	-	5.5	5.0	4.4	M
m	5.1	-	-	5.5	5.0	4.4	m
max _A	18.0	17.4	16.5	18.5	18.4	16.5	max _A
max	14.0	12.6	12.0	15.5	13.9	12.9	max
Max	13.4	12.6	12.0	15.1	13.7	12.7	Max
Min	-0.3	-	-	-0.2	-0.1	0.0	Min
min	-0.3	-	-	-0.2	-0.1	-0.1	min
min _A	-0.3	-	-	-0.8	-0.8	-0.6	min _A

3. Valassaaret - Valsörarna

63°25'17"N; 21°04'05"E

4. Säppi - Säbbskär

61°29'00"N; 21°21'00"E

Date	0 m	5 m	10 m	0 m	5 m	10 m	15 m	20 m	24 m	Date
Jan.										Jan.
1	0.3	0.3	0.3							1
11	0.0	0.0	0.0							11
21	-0.2	-0.2	-0.1							21
Feb.										Feb.
1	-0.3	-0.2	-0.1							1
11	-0.2	-0.2	-0.1							11
21	-0.2	-0.2	-0.1							21
Mars										Mars
1	-0.2	-0.2	-0.1							1
11	-0.2	-0.1	-0.1							11
21	-0.2	-0.1	0.0							21
Apr.										Apr.
1	-0.1	0.0	0.1							1
11	0.2	0.2	0.2							11
21	1.0	0.8	0.8	1.7	1.2	1.0	0.9	1.1	1.2	21
May										May
1	2.1	2.0	1.9	3.0	2.4	2.0	1.9	1.5	1.5	1
11	3.5	3.4	3.3	4.5	3.7	3.0	2.8	2.4	2.2	11
21	5.0	4.8	4.6	5.9	5.0	4.1	3.5	3.1	2.8	21
June										June
1	7.1	6.6	6.1	7.8	6.3	5.4	4.4	3.8	3.4	1
11	8.9	8.2	7.4	9.3	7.6	6.4	5.2	4.3	4.0	11
21	10.7	9.7	8.5	10.9	8.9	7.4	6.0	5.0	4.6	21
July										July
1	12.3	11.3	9.6	12.3	10.2	8.5	6.9	5.7	5.2	1
11	13.6	12.6	10.6	13.6	11.4	9.4	7.9	6.4	5.8	11
21	14.8	13.6	11.4	14.5	12.4	10.4	8.8	7.1	6.5	21
Aug.										Aug.
1	15.3	14.5	12.2	15.0	13.1	11.2	9.9	8.0	7.3	1
11	15.0	14.5	12.8	15.0	13.5	11.8	10.5	8.7	8.0	11
21	14.4	14.0	13.0	14.8	13.5	12.0	10.9	9.4	8.7	21
Sept.										Sept.
1	13.4	13.2	12.9	14.1	13.1	11.8	10.9	9.9	9.3	1
11	12.3	12.3	12.2	12.8	12.3	11.1	10.5	10.1	9.4	11
21	11.0	10.9	10.9	11.2	11.0	10.3	9.8	9.4	9.0	21
Oct.										Oct.
1	9.4	9.4	9.4	9.5	9.5	9.2	8.8	8.4	8.2	1
11	7.9	7.9	7.9	7.9	7.9	7.9	7.6	7.4		11
21	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.5		21
Nov.										Nov.
1	5.2	5.2	5.2	5.5	5.5	5.5	5.6	5.6		1
11	4.1	4.1	4.1	4.6	4.6	4.6	4.8	4.9		11
21	3.2	3.2	3.2	3.9	3.9	3.9	4.1	4.2		21
Dec.										Dec.
1	2.4	2.4	2.4	3.4	3.4	3.4	3.6	3.7		1
11	1.6	1.6	1.6							11
21	0.9	1.0	1.0							21
M	5.6	5.4	5.0	-	-	-	-	-	-	M
m	5.5	5.3	5.0	-	-	-	-	-	-	m
max _A	17.6	17.2	17.2	18.8	18.2	17.4	16.8	16.8	15.7	max _A
max	15.5	15.1	13.4	15.5	14.6	13.8	13.4	11.7	12.4	max
Max	15.3	14.6	13.0	15.1	13.6	12.0	11.0	10.1	9.4	Max
Min	-0.3	-0.2	-0.1	-	-	-	-	-	-	Min
min	-0.3	-0.2	-0.1	-	-	-	-	-	-	min
min _A	-0.5	-0.4	-0.4	-	-	-	-	-	-	min _A

5. Storbrotten lightship

60°25'48"N; 19°12'48"E

Date	0 m	5 m	10 m	20 m	30 m	Date
Jan.						Jan.
1	2.3	2.3	2.6	2.6	3.2	1
11	1.7	1.7	1.7	2.0	2.5	11
21	1.2	1.2	1.2	1.5	1.9	21
Feb.						Feb.
1	0.8	0.8	0.7	1.0	1.4	1
11	0.6	0.6	0.6	0.9	1.1	11
21	0.5	0.5	0.5	0.8	1.0	21
Mars						Mars
1	0.5	0.5	0.6	0.8	1.0	1
11	0.4	0.4	0.6	0.8	1.0	11
21	0.5	0.5	0.7	0.8	0.9	21
Apr.						Apr.
1	0.8	0.8	0.8	1.0	1.0	1
11	1.2	1.2	1.2	1.2	1.2	11
21	1.8	1.5	1.6	1.6	1.4	21
May						May
1	2.5	2.2	2.2	2.1	1.8	1
11	3.3	2.9	2.8	2.6	2.2	11
21	4.4	3.9	3.7	3.2	2.6	21
June						June
1	6.0	5.3	4.8	4.0	3.0	1
11	7.8	7.1	5.9	4.7	3.3	11
21	9.8	9.2	7.4	5.4	3.8	21
July						July
1	11.7	11.1	9.0	6.1	4.3	1
11	13.5	12.8	10.8	6.8	4.8	11
21	15.0	14.4	12.5	7.6	5.3	21
Aug.						Aug.
1	<u>15.8</u>	15.3	14.0	8.6	5.9	1
11	<u>15.8</u>	<u>15.5</u>	14.7	9.5	6.3	11
21	<u>15.4</u>	<u>15.2</u>	<u>14.8</u>	10.3	6.7	21
Sept.						Sept.
1	14.7	14.4	14.3	11.1	7.2	1
11	13.6	13.3	13.3	<u>11.4</u>	7.5	11
21	12.3	12.0	12.0	<u>11.0</u>	<u>7.8</u>	21
Oct.						Oct.
1	10.9	10.7	10.7	10.1	<u>7.8</u>	1
11	9.5	9.3	9.3	8.9	<u>7.6</u>	11
21	8.2	8.1	8.1	7.9	7.3	21
Nov.						Nov.
1	7.1	7.1	7.1	7.1	6.9	1
11	6.0	6.0	6.0	6.1	6.3	11
21	5.2	5.2	5.2	5.3	5.6	21
Dec.						Dec.
1	4.4	4.4	4.4	4.6	4.8	1
11	3.6	3.6	3.7	3.8	4.1	11
21	3.0	3.0	3.1	3.2	3.6	21
M	6.4	6.2	5.9	4.9	4.0	M
m	6.5	6.2	5.9	4.9	(4.4)	m
max _A	18.9	18.6	17.2	15.0	11.5	max _A
max	16.4	15.7	15.0	11.4	8.4	max
Max	15.8	15.5	14.8	11.4	7.8	Max
Min	0.4	0.4	0.5	0.8	1.0	Min
min	0.2	0.2	0.2	0.4	-	min
min _A	-0.2	-0.1	-0.1	-0.1	0.0	min _A

6. Märket

60°18'00"N; 19°09'00"E

Date	0 m	5 m	10 m	20 m	30 m	40 m	50 m	60 m	70 m	80 m	90 m	100 m	Date
Jan. 1	2.0	2.3	2.5	3.1	3.6	4.0	4.2	4.6	5.0	5.2	5.3	5.4	Jan. 1
11	1.4	1.6	1.8	2.3	2.9	3.3	3.5	3.8	4.6	4.8	4.9	5.0	11
21	1.0	1.2	1.4	1.8	2.4	2.8	3.0	3.3	4.2	4.4	4.5	4.6	21
Feb. 1	0.8	0.9	1.0	1.4	2.0	2.3	2.6	2.8	3.7	4.0	4.2	4.3	Feb. 1
11	0.5	0.6	0.8	1.3	1.7	2.0	2.3	2.6	3.4	3.7	3.8	3.9	11
21	0.4	0.4	0.5	1.2	1.5	1.8	2.1	2.5	3.0	3.3	3.4	3.6	21
Mars 1	0.3	0.2	0.4	1.0	1.3	1.7	2.0	2.3	2.7	2.9	3.0	3.3	Mars 1
11	0.3	0.2	0.3	0.9	1.2	1.6	1.8	2.1	2.2	2.4	2.5	2.9	11
21	0.4	0.4	0.4	0.8	1.0	1.4	1.6	1.8	2.1	2.2	2.3	2.6	21
Apr. 1	0.8	0.8	0.8	0.9	1.0	1.3	1.5	1.6	2.0	2.1	2.3	2.6	Apr. 1
11	1.3	1.2	1.1	1.1	1.1	1.3	1.5	1.6	2.0	2.1	2.3	2.5	11
21	1.9	1.7	1.6	1.5	1.4	1.5	1.6	1.7	2.0	2.1	2.3	2.4	21
May 1	2.7	2.4	2.2	2.0	1.7	1.6	1.7	1.8	2.0	2.1	2.2	2.3	May 1
11	3.6	3.1	2.9	2.5	2.0	1.8	1.8	1.9	2.0	2.1	2.2	2.3	11
21	4.4	3.9	3.6	3.1	2.4	1.9	1.9	2.0	2.0	2.1	2.2	2.3	21
June 1	5.8	5.2	4.6	3.8	2.7	2.2	2.0	2.0	2.0	2.1	2.2	2.3	June 1
11	7.9	6.9	5.9	4.4	3.1	2.5	2.1	2.1	2.1	2.2	2.2	2.3	11
21	10.5	9.2	7.6	5.3	3.6	2.7	2.3	2.3	2.2	2.2	2.2	2.3	21
July 1	12.6	11.6	9.4	6.2	4.2	3.1	2.6	2.4	2.3	2.3	2.2	2.3	July 1
11	14.1	13.2	11.2	7.3	4.8	3.5	3.0	2.7	2.5	2.5	2.5	2.4	11
21	15.1	14.4	12.7	8.3	5.3	3.9	3.3	2.9	2.7	2.6	2.6	2.6	21
Aug. 1	15.8	15.3	13.9	9.2	5.8	4.2	3.5	3.2	2.8	2.7	2.7	2.6	Aug. 1
11	16.0	15.5	14.6	9.8	6.1	4.4	3.7	3.4	3.1	3.0	2.9	2.8	11
21	15.8	15.3	14.6	10.2	6.4	4.6	3.9	3.5	3.4	3.3	3.2	3.1	21
Sept. 1	14.9	14.5	14.2	10.5	6.6	4.8	4.1	3.8	3.6	3.4	3.4	3.4	Sept. 1
11	13.8	13.4	13.2	10.6	6.8	5.0	4.3	3.9	3.7	3.6	3.6	3.6	11
21	12.4	12.3	12.1	10.4	6.9	5.4	4.7	4.3	4.1	3.9	3.7	3.7	21
Oct. 1	11.1	10.9	10.8	9.9	7.0	5.8	5.1	4.7	4.5	4.2	3.9	3.9	Oct. 1
11	9.8	9.7	9.7	9.3	7.1	6.1	5.5	5.1	4.9	4.5	4.3	4.2	11
21	8.6	8.6	8.6	8.5	7.0	6.2	6.0	5.7	5.4	5.0	4.6	4.5	21
Nov. 1	7.4	7.5	7.5	7.6	6.7	6.2	6.2	6.2	6.1	5.7	5.4	5.1	Nov. 1
11	6.6	6.7	6.7	6.7	6.4	6.1	6.4	6.4	6.4	6.2	5.8	5.6	11
21	5.8	5.9	5.9	6.0	6.0	6.0	6.3	6.5	6.6	6.3	5.9	5.8	21
Dec. 1	5.0	5.1	5.1	5.3	5.5	5.6	6.1	6.3	6.5	6.3	5.8	5.8	Dec. 1
11	4.2	4.5	4.6	4.7	5.1	5.4	5.7	5.9	6.1	5.9	5.6	5.7	11
21	3.3	3.6	3.8	4.2	4.6	4.9	5.2	5.3	5.5	5.5	5.2	5.3	21
M	6.6	6.4	6.1	5.1	4.0	3.6	3.5	3.5	3.6	3.6	3.5	3.6	M
m	6.5	6.3	5.9	4.9	4.0	3.6	3.4	3.4	3.5	3.5	3.5	3.6	m
max _A	19.5	18.2	17.6	14.4	12.5	10.6	7.0	7.0	6.8	6.6	5.9	5.9	max _A
max	16.1	15.4	14.8	10.7	7.2	6.7	6.5	6.8	6.8	6.6	5.9	5.9	max
Max	16.0	15.5	14.6	10.6	7.1	6.2	6.4	6.5	6.6	6.4	5.9	5.8	Max
Min	0.3	0.2	0.3	0.8	0.9	1.3	1.5	1.6	1.7	1.8	1.8	2.1	Min
min	0.2	0.2	0.3	0.4	0.7	1.0	1.1	0.9	1.0	1.0	1.0	-	min
min _A	-0.2	-0.1	-0.1	0.2	0.2	0.6	0.9	0.2	0.2	0.2	0.3	0.4	min _A

7. Utö

59°46'58"N; 21°22'42"E

Date	0 m	5 m	10 m	20 m	30 m	40 m	50 m	60 m	70 m	80 m	90 m	Date
Jan. 1	2.9	3.2	3.3	3.4	3.6	3.8	3.9	4.0	4.1	4.1	4.1	Jan. 1
11	2.1	2.3	2.4	2.6	2.7	2.8	2.9	3.1	3.3	3.3	3.3	11
21	1.5	1.6	1.7	1.8	2.0	2.2	2.3	2.4	2.7	2.7	2.7	21
Feb. 1	0.9	1.0	1.1	1.3	1.4	1.6	1.8	1.9	2.2	2.2	2.2	Feb. 1
11	0.6	0.6	0.8	0.9	1.1	1.3	1.5	1.6	1.9	1.9	1.9	11
21	0.4	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.8	1.8	1.8	21
Mars 1	0.3	0.3	0.4	0.5	0.6	0.7	1.0	1.3	1.7	1.7	1.7	Mars 1
11	0.2	0.2	0.2	0.3	0.5	0.5	0.8	1.2	1.6	1.6	1.6	11
21	0.4	0.4	0.4	0.4	0.5	0.5	0.7	1.1	1.6	1.6	1.6	21
Apr. 1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.6	1.6	1.6	Apr. 1
11	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.7	1.8	1.8	11
21	2.2	1.9	1.9	1.8	1.8	1.6	1.5	1.5	1.9	1.9	1.9	21
May 1	3.1	2.9	2.7	2.6	2.6	2.2	1.8	1.8	1.9	1.9	1.9	May 1
11	4.4	4.1	4.0	3.6	3.3	2.8	2.3	2.2	2.1	2.0	2.0	11
21	6.0	6.6	6.4	5.0	4.3	3.6	2.9	2.8	2.6	2.6	2.6	21
June 1	8.0	7.3	7.0	6.5	5.3	4.1	3.4	3.3	3.2	3.2	3.2	June 1
11	10.1	9.2	8.8	7.8	6.0	4.5	3.7	3.6	3.5	3.5	3.5	11
21	12.2	11.3	10.6	8.8	6.5	4.8	3.8	3.6	3.5	3.5	3.5	21
July 1	14.1	13.4	12.6	9.7	7.0	5.0	3.8	3.6	3.5	3.5	3.5	July 1
11	15.3	14.8	14.0	10.4	7.2	5.3	4.0	3.6	3.5	3.5	3.5	11
21	16.0	15.5	14.8	11.0	7.5	5.4	4.2	3.8	3.6	3.6	3.6	21
Aug. 1	16.3	15.9	15.2	11.5	7.7	5.6	4.4	4.0	3.6	3.6	3.6	Aug. 1
11	16.2	15.8	15.2	11.7	7.8	5.7	4.4	4.0	3.6	3.6	3.6	11
21	15.7	15.4	14.9	11.7	7.8	5.8	4.4	4.0	3.6	3.6	3.6	21
Sept. 1	14.6	14.4	13.9	11.4	7.9	5.9	4.5	4.0	3.6	3.6	3.6	Sept. 1
11	13.1	13.0	12.6	11.0	8.1	6.1	4.7	4.2	3.9	3.8	3.8	11
21	11.7	11.6	11.2	10.4	8.2	6.4	5.0	4.5	4.1	3.9	3.9	21
Oct. 1	10.5	10.4	10.0	9.8	8.3	6.8	5.3	4.8	4.3	4.2	4.2	Oct. 1
11	9.4	9.4	9.2	9.0	8.2	7.1	5.8	5.5	4.5	4.5	4.5	11
21	8.4	8.4	8.4	8.3	7.9	7.2	6.4	6.1	4.7	4.6	4.6	21
Nov. 1	7.2	7.3	7.3	7.3	7.1	6.9	6.6	6.3	4.9	4.9	4.9	Nov. 1
11	6.4	6.5	6.5	6.5	6.3	6.3	6.5	6.3	5.4	5.4	5.4	11
21	5.6	5.7	5.8	5.8	5.7	5.8	6.0	6.0	5.7	5.7	5.7	21
Dec. 1	4.8	4.9	5.0	5.1	5.2	5.2	5.4	5.4	5.7	5.7	5.7	Dec. 1
11	4.2	4.3	4.4	4.5	4.6	4.6	4.7	4.7	5.1	5.0	5.0	11
21	3.5	3.7	3.8	3.9	4.0	4.1	4.2	4.2	4.6	4.5	4.5	21
M	7.0	6.8	6.6	5.8	4.8	4.0	3.6	3.4	3.4	3.3	3.3	M
m	6.9	6.8	6.6	5.8	4.8	4.0	3.6	3.5	3.4	3.3	3.3	m
max ^A	19.6	18.8	18.0	17.4	12.4	11.4	9.0	9.0	8.8	8.8	8.8	max ^A
max	16.8	16.0	15.2	11.8	8.6	7.4	7.0	7.0	6.4	6.4	6.4	max
Max	16.3	15.9	15.3	11.7	8.3	7.2	6.6	6.3	5.8	5.8	5.8	Max
Min	0.2	0.2	0.2	0.3	0.5	0.5	0.7	1.0	1.6	1.6	1.6	Min
min	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.1	1.1	1.1	min
min _A	-0.4	-0.4	-0.4	-0.4	-0.6	-0.6	-0.6	0.4	0.4	0.4	0.4	min _A

8. Jungfruskär

60°08'31"N; 21°04'20"E

Date	0 m	5 m	10 m	20 m	30 m	40 m	Date
Jan.							Jan.
1	2.6	2.6	2.6	2.6	2.6	2.6	1
11	1.6	1.6	1.6	1.7	1.7	1.7	11
21	0.7	0.7	0.7	0.8	0.9	0.9	21
Feb.							Feb.
1	0.2	0.2	0.2	0.3	0.4	0.4	1
11	-0.1	-0.1	-0.1	-0.1	0.0	0.0	11
21	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	21
Mars							Mars
1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	1
11	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	11
21	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	21
Apr.							Apr.
1	0.1	0.1	0.0	0.0	0.0	0.0	1
11	0.5	0.4	0.3	0.3	0.2	0.2	11
21	1.1	1.0	1.0	0.9	0.8	0.7	21
May							May
1	2.2	1.9	1.7	1.6	1.6	1.5	1
11	3.8	3.4	3.1	2.9	2.7	2.6	11
21	5.7	5.2	4.6	4.3	4.0	3.7	21
June							June
1	7.9	7.2	6.2	5.6	5.1	4.7	1
11	9.9	9.2	7.9	6.7	6.0	5.6	11
21	11.9	11.1	9.8	7.8	6.9	6.3	21
July							July
1	13.6	12.9	11.4	8.7	7.4	6.7	1
11	14.9	14.4	12.9	9.3	7.5	6.8	11
21	15.7	15.3	14.1	9.8	7.7	7.0	21
Aug.							Aug.
1	15.8	15.5	14.8	10.3	8.0	7.2	1
11	15.6	15.4	14.9	10.9	8.5	7.5	11
21	15.3	15.1	14.9	11.6	9.1	7.9	21
Sept.							Sept.
1	14.5	14.4	14.2	12.4	9.8	8.4	1
11	13.7	13.6	13.5	12.5	10.5	9.0	11
21	12.6	12.6	12.5	12.2	11.0	9.5	21
Oct.							Oct.
1	11.4	11.4	11.4	11.2	10.6	9.7	1
11	10.3	10.3	10.3	10.0	9.9	9.5	11
21	9.2	9.2	9.2	9.2	9.2	9.0	21
Nov.							Nov.
1	8.0	8.0	8.0	8.1	8.1	8.0	1
11	6.8	6.8	6.8	6.9	6.9	6.9	11
21	6.7	6.7	6.7	6.7	6.7	5.7	21
Dec.							Dec.
1	4.6	4.6	4.6	4.6	4.6	4.6	1
11	3.8	3.8	3.8	3.9	3.9	3.9	11
21	3.1	3.1	3.1	3.1	3.2	3.2	21
M	6.7	6.6	6.2	5.4	4.8	4.5	M
m	6.7	6.5	6.2	5.4	4.8	4.5	m
max	19.6	18.5	18.5	15.8	13.0	12.2	max
max ^A	16.2	15.8	14.9	12.5	11.4	9.8	max ^A
Max	15.8	15.5	14.9	12.5	11.0	9.7	Max
Min	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	Min
min	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	min
min ^A	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	min ^A

9. Lohm

60°06'38"N; 21°40'42"E

Date	0 m	5 m	10 m	20 m	30 m	40 m	50 m	Date
Jan. 1	1.6	1.6	1.6	1.6	1.7	1.8	1.8	Jan. 1
11	0.7	0.8	0.9	1.0	1.1	1.2	1.3	11
21	0.2	0.3	0.4	0.6	0.7	0.8	0.8	21
Feb. 1	0.0	0.1	0.2	0.2	0.4	0.4	0.4	Feb. 1
11	-0.1	0.0	0.0	0.0	0.2	0.2	0.2	11
21	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	21
Mars 1	-0.2	0.0	0.0	0.0	0.1	0.1	0.1	Mars 1
11	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	11
21	0.0	0.0	0.0	0.0	0.0	0.1	0.1	21
Apr. 1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Apr. 1
11	0.7	0.6	0.6	0.5	0.5	0.4	0.4	11
21	1.8	1.5	1.4	1.2	1.2	1.0	0.9	21
May 1	3.2	2.8	2.6	2.3	2.3	1.9	1.6	May 1
11	4.9	4.3	3.8	3.4	3.3	2.8	2.3	11
21	6.8	6.3	5.6	4.7	4.1	3.6	3.1	21
June 1	9.1	8.3	7.5	5.9	5.0	4.3	3.8	June 1
11	11.0	10.1	9.0	6.9	5.7	4.9	4.5	11
21	12.9	11.9	10.4	7.9	6.4	5.6	5.2	21
July 1	14.8	13.8	11.9	9.0	7.1	6.2	5.8	July 1
11	16.4	15.4	13.1	10.0	7.6	6.8	6.3	11
21	17.3	16.3	14.2	10.6	8.1	7.3	6.8	21
Aug. 1	17.6	16.7	15.0	11.0	8.3	7.6	7.0	Aug. 1
11	17.4	16.6	15.3	11.2	8.3	7.7	7.2	11
21	16.7	16.1	15.3	11.4	8.5	7.9	7.5	21
Sept. 1	15.7	15.3	14.7	11.7	9.0	8.3	7.9	Sept. 1
11	14.6	14.2	13.8	12.0	9.4	8.7	8.3	11
21	13.4	12.9	12.7	11.7	9.8	9.2	8.9	21
Oct. 1	11.9	11.6	11.5	11.0	10.2	9.6	9.4	Oct. 1
11	10.5	10.4	10.4	10.2	9.9	9.5	9.4	11
21	9.3	9.2	9.3	9.3	9.2	9.0	8.8	21
Nov. 1	7.8	7.8	8.1	8.1	8.0	7.8	7.8	Nov. 1
11	6.5	6.5	6.5	6.6	6.6	6.7	6.8	11
21	5.3	5.3	5.4	5.4	5.5	5.5	5.5	21
Dec. 1	4.1	4.3	4.4	4.4	4.5	4.6	4.7	Dec. 1
11	3.2	3.4	3.5	3.6	3.6	3.6	3.7	11
21	2.5	2.6	2.8	2.9	3.0	3.1	3.1	21
M	7.2	6.9	6.4	5.5	4.7	4.4	4.2	M
m	7.1	6.9	6.4	5.4	4.7	4.4	4.3	m
max _A	19.5	19.0	18.0	16.2	12.4	11.8	11.6	max _A
max	17.6	16.7	15.6	12.4	10.2	9.6	9.4	max
Max	17.6	16.7	15.3	12.0	10.2	9.6	9.4	Max
Min	-0.2	0.0	0.0	0.0	0.0	0.1	0.1	Min
min	-0.2	0.0	0.0	0.0	0.0	0.1	0.1	min
min _A	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	min _A

10. Bengtskär

59°43'24"N; 22°30'20"E

Date	0 m	5 m	10 m	20 m	30 m	40 m	Date
Jan. 1	2.7	2.8	2.8	2.9	2.9	3.3	Jan. 1
11	1.9	1.9	1.9	2.0	2.2	2.5	11
21	1.3	1.3	1.3	1.4	1.6	1.8	21
Feb. 1	0.8	0.8	0.8	0.9	1.0	1.2	Feb. 1
11	0.4	0.4	0.4	0.5	0.6	0.7	11
21	0.2	0.2	0.2	0.3	0.3	0.3	21
Mars 1	0.0	0.0	0.0	0.1	0.1	0.2	Mars 1
11	-0.1	-0.1	-0.1	0.0	0.0	0.1	11
21	0.0	0.0	0.0	0.0	0.0	0.1	21
Apr. 1	0.0	0.0	0.0	0.0	0.1	0.1	Apr. 1
11	0.5	0.4	0.4	0.4	0.4	0.4	11
21	1.2	1.1	1.0	0.9	0.8	0.8	21
May 1	2.4	2.2	2.0	1.8	1.6	1.5	May 1
11	3.9	3.5	3.2	2.8	2.6	2.4	11
21	5.7	5.0	4.6	3.6	3.5	2.9	21
June 1	7.0	7.0	6.5	4.5	4.2	3.2	June 1
11	9.7	8.9	8.3	5.3	4.6	3.5	11
21	11.4	10.6	9.8	6.1	4.7	3.6	21
July 1	13.0	12.3	11.2	6.9	4.9	3.6	July 1
11	14.4	13.7	12.6	7.8	5.3	3.7	11
21	15.4	14.9	13.7	8.6	5.9	4.0	21
Aug. 1	16.1	15.8	14.7	9.5	6.5	4.6	Aug. 1
11	16.1	15.8	14.9	10.4	7.0	5.2	11
21	15.5	15.2	14.6	10.9	7.4	5.6	21
Sept. 1	14.7	14.4	13.9	10.8	7.6	6.0	Sept. 1
11	13.7	13.4	12.9	10.6	7.9	6.3	11
21	12.5	12.3	11.8	10.2	8.4	6.8	21
Oct. 1	11.3	11.2	10.8	9.8	8.9	7.5	Oct. 1
11	10.1	10.1	9.9	9.3	8.9	7.8	11
21	9.1	9.1	8.9	8.7	8.4	7.5	21
Nov. 1	8.0	8.0	8.0	8.0	7.8	7.3	Nov. 1
11	7.1	7.1	7.1	7.1	7.0	6.9	11
21	6.2	6.2	6.2	6.2	6.5	6.6	21
Dec. 1	5.3	5.3	5.3	5.3	5.7	5.7	Dec. 1
11	4.4	4.4	4.4	4.5	4.8	4.8	11
21	3.4	3.5	3.7	3.8	3.9	4.0	21
M	6.8	6.6	6.3	5.0	4.3	3.7	M
m	6.8	6.6	6.4	5.0	4.2	3.7	m
max ^A	18.4	18.3	18.2	17.5	15.5	12.7	max ^A
max	16.1	15.9	14.9	11.4	9.0	7.8	max
Max	16.2	15.9	14.9	10.9	9.0	7.8	Max
Min	-0.1	-0.1	0.0	0.0	0.0	0.1	Min
min	-0.1	-0.1	0.0	-0.1	0.0	0.1	min
min ^A	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	min ^A

11. Russarö

59°46'33"N; 22°57'05"E

12. Tvärminne

59°51'00"N; 23°15'09"E

Date	0 m	5 m	10 m	20 m	30 m	0 m	5 m	10 m	20 m	30 m	Date
Jan. 1	1.7	1.7	1.7	1.9	2.8	1.2	1.4	1.6	1.8	2.5	Jan. 1
11	1.0	1.0	1.0	1.2	2.0	0.9	1.0	1.2	1.4	2.1	11
21	0.6	0.6	0.6	0.8	1.3	0.6	0.8	0.9	1.1	1.7	21
Feb. 1	0.3	0.3	0.3	0.5	0.7	0.3	0.4	0.5	0.7	1.2	Feb. 1
11	0.1	0.1	0.1	0.3	0.3	0.1	0.2	0.2	0.3	0.8	11
21	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.5	21
Mars 1	-0.1	-0.1	-0.1	0.0	0.1	0.0	-0.1	-0.1	0.0	0.5	Mars 1
11	-0.1	-0.1	-0.1	0.0	0.0	0.1	-0.1	-0.1	0.0	0.4	11
21	0.0	0.0	0.0	0.0	0.0	0.1	0.0	-0.1	0.0	0.4	21
Apr. 1	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.5	Apr. 1
11	0.7	0.7	0.6	0.6	0.6	0.9	0.5	0.4	0.4	0.6	11
21	1.5	1.4	1.3	1.2	1.1	2.1	1.2	0.9	0.8	0.8	21
May 1	3.0	2.8	2.5	2.3	2.1	4.0	2.7	2.4	2.1	1.5	May 1
11	4.7	4.3	4.0	3.7	3.3	5.9	4.5	3.9	3.4	2.4	11
21	6.5	5.8	5.4	4.9	4.5	7.7	6.3	5.6	4.5	3.1	21
June 1	8.4	7.4	7.0	6.2	5.6	9.4	8.1	7.0	5.4	3.7	June 1
11	10.1	9.0	8.3	7.3	6.5	10.8	9.5	8.1	6.0	4.0	11
21	11.7	10.5	9.6	8.4	7.3	12.1	10.8	9.1	6.6	4.2	21
July 1	13.2	12.0	11.1	9.4	7.8	13.4	12.0	10.1	7.2	4.4	July 1
11	14.5	13.4	12.4	10.2	8.3	14.4	13.0	10.9	7.8	4.8	11
21	15.5	14.4	13.5	10.7	8.7	15.1	13.8	11.6	8.5	5.2	21
Aug. 1	16.1	14.9	14.1	11.0	9.1	15.6	14.4	12.2	9.2	5.8	Aug. 1
11	<u>16.2</u>	<u>15.0</u>	<u>14.4</u>	<u>11.2</u>	<u>9.4</u>	<u>15.7</u>	<u>14.6</u>	<u>12.5</u>	<u>9.6</u>	<u>6.4</u>	11
21	15.9	14.8	14.3	11.2	9.6	15.7	14.6	12.5	9.8	7.0	21
Sept. 1	15.0	14.1	13.5	10.9	<u>9.8</u>	15.1	14.2	12.4	<u>9.8</u>	7.6	Sept. 1
11	13.8	13.0	12.2	10.4	<u>9.5</u>	13.9	13.2	11.9	<u>9.8</u>	8.0	11
21	12.3	11.8	11.1	9.9	9.2	12.4	11.9	11.0	<u>9.6</u>	8.3	21
Oct. 1	10.5	10.1	9.8	9.1	8.5	10.7	10.3	9.9	9.2	<u>8.5</u>	Oct. 1
11	9.4	9.1	8.9	8.5	8.1	9.3	9.1	8.9	8.6	<u>8.4</u>	11
21	8.4	8.2	8.2	8.0	7.7	8.0	8.0	8.0	8.0	8.0	21
Nov. 1	7.1	7.1	7.1	7.1	7.1	6.8	6.8	6.8	7.1	7.2	Nov. 1
11	6.0	6.0	6.0	6.1	6.1	5.7	5.7	5.8	6.1	6.1	11
21	5.1	5.1	5.1	5.1	5.1	4.8	4.8	4.8	5.1	5.2	21
Dec. 1	4.2	4.2	4.2	4.3	4.3	3.8	3.8	3.8	4.2	4.3	Dec. 1
11	3.4	3.4	3.4	3.8	3.8	2.9	2.9	3.1	3.4	3.7	11
21	2.6	2.6	2.6	2.6	3.4	2.0	2.1	2.4	2.7	3.1	21
M	6.6	6.2	6.0	5.2	4.8	6.7	6.2	5.6	4.7	4.0	M
m	6.6	6.3	5.9	5.2	4.8	6.7	6.2	5.5	4.6	3.9	m
max _A	20.6	18.9	18.5	18.6	18.5	21.0	19.8	18.7	17.8	16.2	max _A
max	16.2	15.6	14.7	11.6	10.4	16.4	16.0	13.6	9.8	8.5	max
Max	16.2	15.0	14.4	11.2	9.8	15.7	14.6	12.5	9.8	8.5	Max
Min	-0.1	-0.2	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.4	Min
min	-0.1	-0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.2	min
min _A	-0.5	(-0.8)	-0.5	-0.5	-0.5	-0.2	-0.2	-0.2	-0.2	-0.2	min _A

13. Harmaja - Gråhara

60°06'18"N; 24°58'36"E

Date	0 m	5 m	10 m	20 m	30 m	Date
Jan.						Jan.
1	1.0	1.1	1.2	1.6	1.6	1
11	0.6	0.7	0.7	1.1	1.4	11
21	0.3	0.4	0.4	0.7	1.2	21
Feb.						Feb.
1	0.1	0.1	0.1	0.4	0.9	1
11	-0.1	0.0	0.0	0.2	0.7	11
21	-0.2	0.0	0.0	0.1	0.6	21
Mars						Mars
1	-0.2	-0.1	0.0	0.1	0.5	1
11	-0.2	-0.1	-0.1	0.0	0.5	11
21	-0.2	-0.1	-0.1	0.0	0.5	21
Apr.						Apr.
1	0.0	0.1	0.1	0.3	0.6	1
11	0.6	0.6	0.6	0.6	0.8	11
21	1.4	1.2	1.1	1.0	1.2	21
May						May
1	2.7	2.3	2.0	1.7	1.8	1
11	4.4	3.8	3.4	2.7	2.6	11
21	6.1	5.5	4.9	3.7	3.1	21
June						June
1	8.1	7.4	6.3	4.5	3.6	1
11	10.0	9.0	7.5	5.3	3.9	11
21	11.8	10.6	8.5	6.1	4.1	21
July						July
1	13.1	12.2	9.6	6.9	4.4	1
11	14.1	13.3	10.6	7.5	4.7	11
21	14.8	14.0	11.4	8.1	5.0	21
Aug.						Aug.
1	15.3	14.4	12.1	8.7	5.4	1
11	15.5	14.7	12.5	9.2	5.8	11
21	15.4	14.7	12.7	9.7	6.3	21
Sept.						Sept.
1	14.8	14.2	12.5	10.0	7.1	1
11	13.5	12.9	11.8	10.0	7.8	11
21	11.8	11.3	10.7	9.6	8.3	21
Oct.						Oct.
1	10.1	9.7	9.4	8.8	8.4	1
11	8.8	8.6	8.5	8.1	8.1	11
21	7.8	7.8	7.6	7.4	7.6	21
Nov.						Nov.
1	6.7	6.7	6.7	6.8	6.9	1
11	5.7	5.7	5.7	5.8	6.0	11
21	4.6	4.6	4.6	4.7	5.0	21
Dec.						Dec.
1	3.6	3.6	3.6	3.9	4.2	1
11	2.7	2.8	2.9	3.2	3.5	11
21	1.9	2.0	2.2	2.6	3.0	21
M	6.3	6.0	5.3	4.5	3.8	M
m	6.3	5.9	5.3	4.4	3.7	m
max _A	19.6	19.2	19.0	17.3	15.0	max _A
max	15.9	14.9	13.0	10.7	8.6	max
Max	15.5	14.7	12.7	10.0	8.4	Max
Min	-0.2	-0.2	-0.1	0.0	0.5	Min
min	-0.2	-0.2	-0.1	0.0	0.4	min
min _A	-0.4	-0.4	-0.3	-0.2	-0.1	min _A

14. Söderskär

60°06'34"N; 25°24'50"E

Date	0 m	5 m	10 m	20 m	30 m	40 m	50 m	Date
Jan.								Jan.
1	1.7	1.8	1.9	2.0	2.4	2.8	3.8	1
11	0.9	1.0	1.1	1.4	1.7	2.3	3.2	11
21	0.4	0.5	0.6	1.0	1.3	2.0	2.8	21
Feb.								Feb.
1	0.2	0.2	0.3	0.7	1.0	1.8	2.6	1
11	0.0	0.1	0.2	0.5	0.8	1.6	2.5	11
21	-0.2	-0.1	0.0	0.3	0.6	1.5	2.5	21
Mars								Mars
1	-0.2	-0.2	-0.1	0.1	0.5	1.5	2.5	1
11	-0.1	-0.1	-0.1	0.0	0.4	1.5	2.5	11
21	-0.1	-0.1	-0.1	0.0	0.5	1.5	2.4	21
Apr.								Apr.
1	0.0	0.0	0.0	0.2	0.6	1.5	2.4	1
11	0.4	0.4	0.4	0.4	0.8	1.6	2.4	11
21	1.0	0.9	0.9	0.8	0.9	1.6	2.4	21
May								May
1	2.1	2.1	1.8	1.4	1.1	1.7	2.4	1
11	3.8	3.5	3.1	2.5	1.8	1.8	2.4	11
21	5.5	5.2	4.8	3.4	2.3	2.0	2.4	21
June								June
1	7.7	7.0	6.5	4.1	2.7	2.1	2.4	1
11	9.7	8.8	7.9	4.6	3.0	2.2	2.4	11
21	11.5	10.6	9.4	5.0	3.3	2.4	2.4	21
July								July
1	13.3	12.3	11.0	5.5	3.7	2.6	2.4	1
11	14.5	13.6	12.2	6.2	4.1	2.8	2.6	11
21	15.1	14.3	13.0	7.1	4.6	3.1	2.7	21
Aug.								Aug.
1	15.6	14.8	13.6	8.1	5.1	3.3	2.8	1
11	15.7	14.8	13.8	9.2	5.4	3.5	2.9	11
21	15.4	14.7	13.7	10.2	5.9	3.9	3.0	21
Sept.								Sept.
1	14.7	14.2	13.3	11.1	6.7	4.3	3.3	1
11	13.6	13.4	12.5	11.3	7.5	4.8	3.6	11
21	12.4	12.2	11.5	11.1	8.2	5.4	3.9	21
Oct.								Oct.
1	10.8	10.7	10.4	10.1	8.5	6.0	4.2	1
11	9.4	9.3	9.2	9.0	8.2	6.4	4.7	11
21	8.2	8.2	8.2	7.9	7.7	6.6	5.3	21
Nov.								Nov.
1	7.0	7.0	7.0	7.0	7.0	6.4	6.0	1
11	5.9	5.9	5.9	6.2	6.2	6.3	6.1	11
21	5.0	5.0	5.0	5.1	5.4	5.6	5.9	21
Dec.								Dec.
1	4.2	4.2	4.2	4.2	4.5	5.0	5.5	1
11	3.4	3.5	3.5	3.5	3.9	4.3	5.0	11
21	2.6	2.6	2.8	2.9	3.2	3.7	4.4	21
M	6.4	6.2	5.8	4.6	3.6	3.3	3.4	M
m	6.4	6.2	5.8	4.5	3.6	3.3	3.4	m
max _A	21.0	19.0	18.4	17.2	13.5	10.0	8.5	max _A
max	16.2	15.7	14.8	11.8	8.7	7.0	6.6	max
Max	15.7	14.8	13.8	11.3	8.5	6.6	6.1	Max
Min	-0.2	-0.2	-0.2	0.0	0.4	1.5	2.4	Min
min	-0.2	-0.2	-0.2	-0.2	0.2	1.3	2.0	min
min _A	-0.5	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	min _A