Technical Report

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Meteorological, hydrological and oceanographical information and data for the site investigation program in the community of Oskarshamn

Sonja Larsson-McCann, Anna Karlsson, Margitta Nord,
Jonas Sjögren, Lasse Johansson, Mats Ivarsson, Sven Kindell

SMHI

June 2002

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Summary

The most frequent wind directions in Southern Sweden are west and south-west, with some local and regional deviations. This makes the East Coast climate somewhat less maritime than that on the West Coast, which also means that the differences are less pronounced between the actual coastal sites and their inland neighbourhood than is the case on the West Coast. Near-coast locations are far more exposed to strong winds than inland sites.

An important feature of the actual coastal areas is that they are largely composed of forest; the large wind exposure at the coastline has very markedly decreased a few km inland. True annual precipitation (adjusted for measuring losses) is estimated to between 600 and 700 mm, with a slight tendency of increasing inland. A yearly mean temperature of 6-7°C makes the Simpevarp site about 1°C warmer than the region Östhammar/Tierp.

The South-eastern parts of Sweden have the lowest values of specific runoff, with a mean 1961-1990 of <10 l/s km^2. Specific runoff for the Oskarshamn region is <6 l/s km^2 . For Östhammar-Tierp it is 6-9 l/s km^2 . (Raab and Vedin, 1995).

For lakes in both Southern and Northern Sweden the ice freeze-up is strongly related to lake depth; it appears earlier on a lake with small depth than on a lake with great depth. When it comes to ice break-up, there are no significant relationships between the characteristics of different lakes like for ice freeze-up. This is because ice break-up is mostly effected by weather, especially solar radiation.

The water around Simpevarp is an area with good water exchange. The area is strongly effected by coastal processes induced by the local wind conditions and the stratification in the sea. The same situation is valid for the most of the water around Forsmark.

Existing observing stations in the area around Oskarshamn have been located.
In figure 0-1 all stations and their locations are shown. The stations that are not run by SMHI have not been evaluated due to difficulties in accessing data in an easily readable format. At the nuclear power plant Simpevarp there is a 100 m tall mast instrument for registration of wind (direction and speed) at 25, 70 and 100 m above ground, temperature at 2 mm, temperature difference to 70 and 100 m and air pressure. Measurements started about 1970 and are still going on. A synthesis of wind data for 25 m level, 1996-2000, has been made by Bengt Hallberg, Eco & Safety AB, Studsvik. Data from SMHI stations are used for long term statistics.

The following stations have been chosen to represent the Oskarshamn area:

Temperature:	Oskarshamn	Sea temperature:	Station K1, station BY38
Precipitation:	Oskarshamn	Salinity:	Station BY38
Relative humidity:	Ölands norra udde	Nitrate + nitrite:	Station BY38
Air pressure:	Ölands norra udde	Ammonium:	Station BY38
Global radiation:	Ölands norra udde	Total nitrogen:	Station BY38
Wind	Ölands norra udde	Phosphate phosphorus:	Station BY38
Discharge:	Forshultesjön nedre	Total phosphorus:	Station BY38
Water level:	Forshultesjön nedre	Silicate-silicon:	Station BY38
Ice (lakes):	Gnötteln	Oxygen:	Station BY38
		Chlorophyll:	Station BY38
		PH:	Station BY38
		Alkaline:	Station BY38
		Sea water level:	Oskarshamn

Together with this report "one reference year" with data was selected. At first, the years possible from a hydrological point of view were selected since hydrological data are scarcer than meteorological. The selected year should be as normal as possible, monthly averages and sums should approximately be according to corresponding values for the standard normal period 1961 - 1990. All meteorological parameters should refer to the same station if possible. The parameters, temperature and precipitation, are considered most important when the year is selected. On these conditions meteorological data for 1981 from Ölands norra udde was selected, except for snow depth which was not measured at this site. Data on snow cover are taken from Oskarshamn some km inland. For discharge and water level the station Forshultesjön nedre has been chosen. As oceanographic data over the year is incoherent we can not provide time series for an actual year for these parameters. Data for the specially selected year, 1981 (see below p. 25), has been delivered in ASCII-format to the Swedish Nuclear Fuel and Waste Management Co.

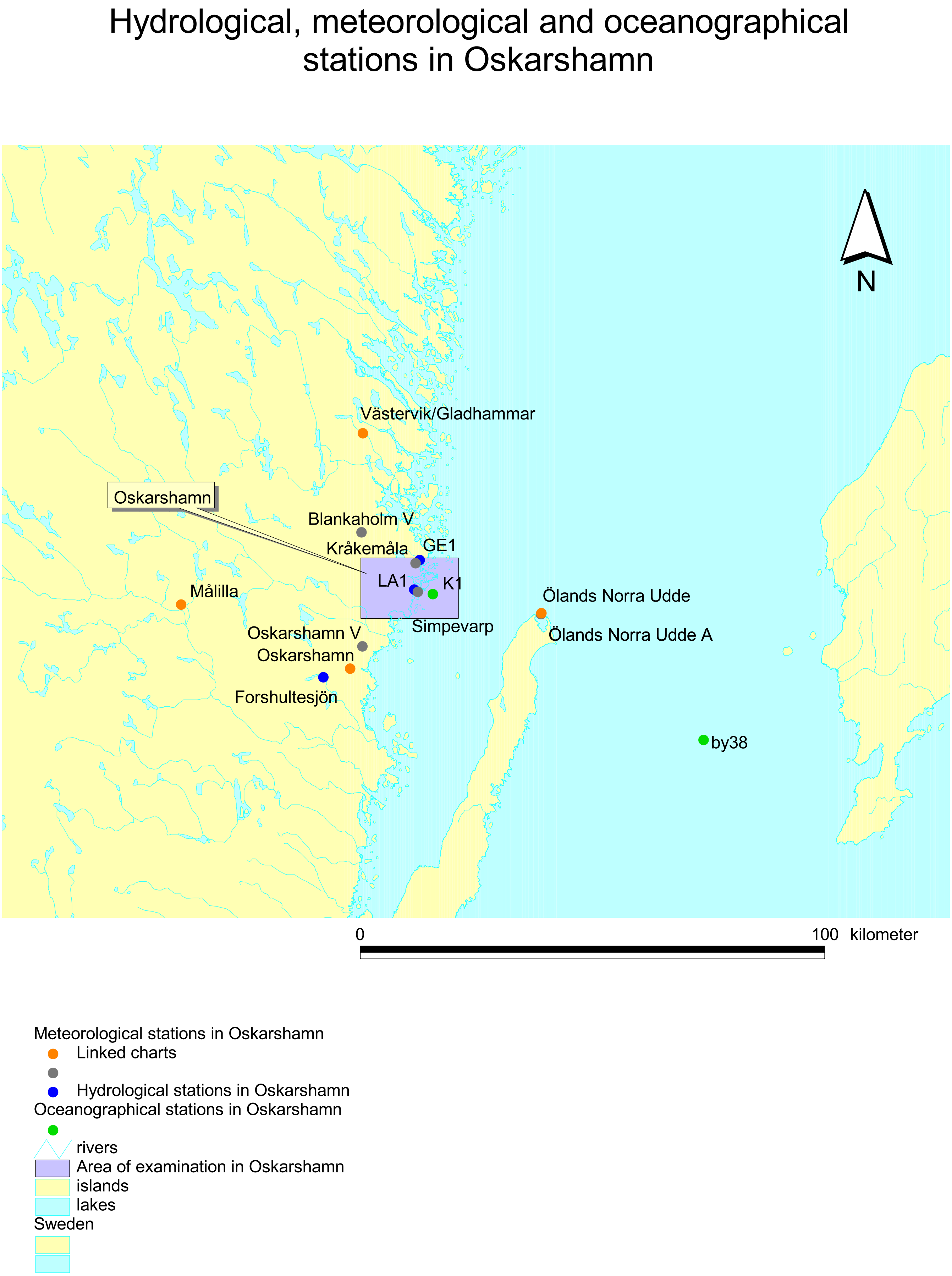

Figure 0-1: *All stations used in the report*

Contents

1. Climate description

1.1 Climate description — meteorology

The most frequent wind directions in southern Sweden are west and south-west, with some local and regional deviations. This makes the East Coast climate somewhat less maritime than that on the West Coast, which also means that the differences are less pronounced between the actual coastal sites and their inland neighbourhood than is the case on the West Coast.

Locations near the coast are far more exposed to strong winds than inland sites. The coastal area around Simpevarp is forested to a large extent, which means that the heavy wind exposure close to the sea (e.g. at the nuclear power plant) has diminished considerably a few km inland.

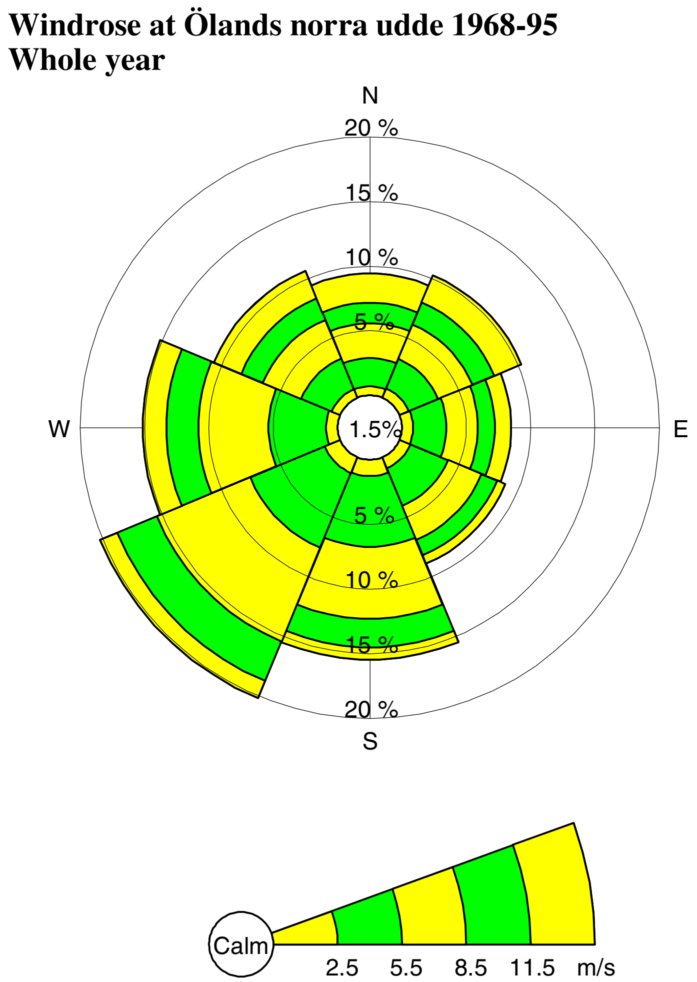

Figure 1-1. *Wind rose showing the average yearly distribution of the wind direction and wind speed for Ölands norra udde. The percentage of calm is noted in the centre of the windrose. The wind direction is grouped into 8 classes of 45° (N, NE, E, SE, S, SW, W and NW). Wind speed is classified in intervals of 3 m/s.*

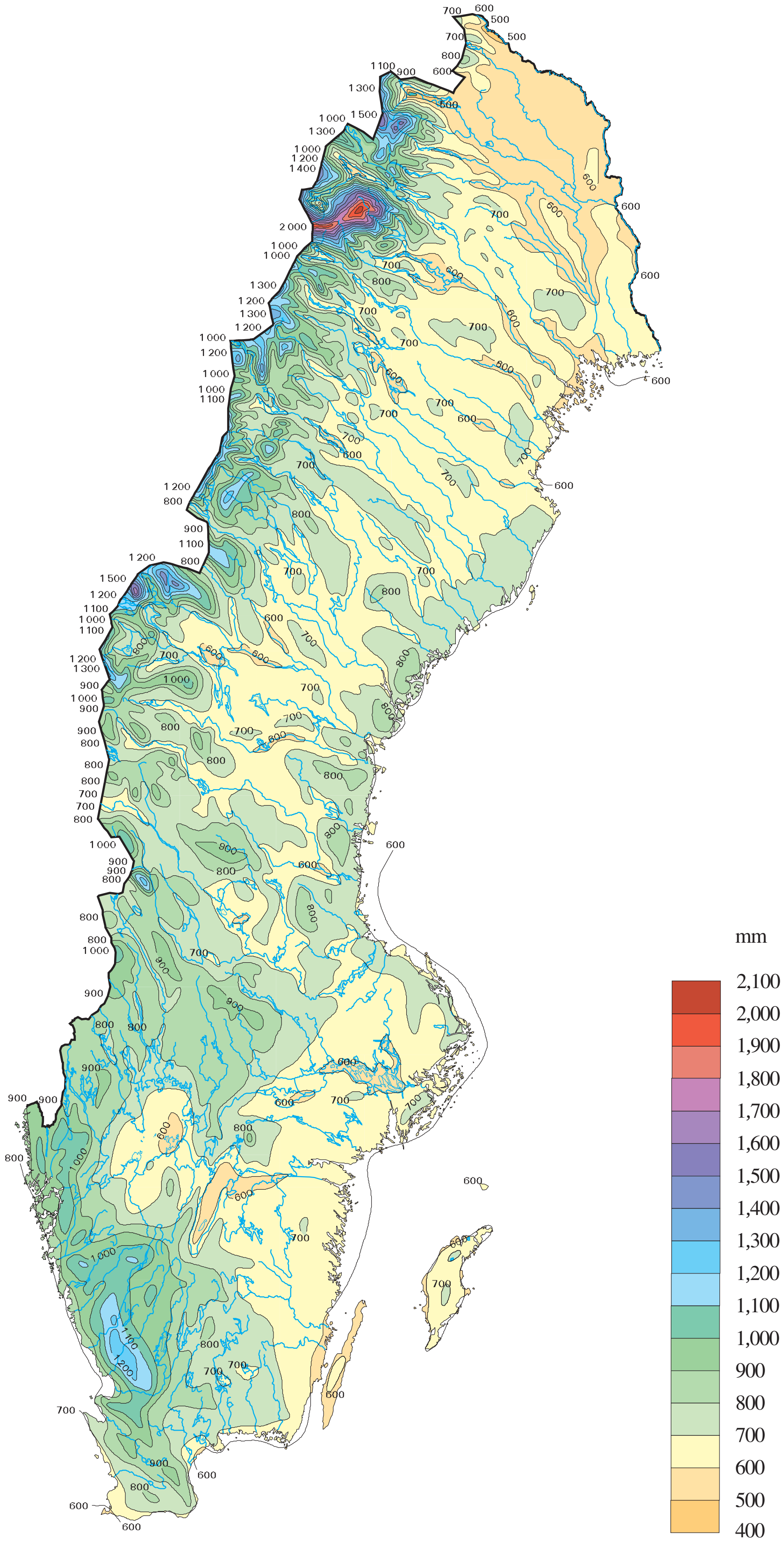

Figure 1-2. *Yearly precipitation, 1961-90. The amounts are corrected for measuring losses. (Raab and Vedin, 1995).*

Yearly precipitation (gauged) amounts to 500-600 mm in the actual region, with a slight tendency of increasing towards the inland. This is marginally less than the North Uppland region (Östhammar/Tierp).

Disregarded the mountainous region in northern Sweden with as high as about 2000 mm (gauged value) per year, the Swedish region with the highest precipitation is the western slopes of the South Swedish highlands with up to about 1100 mm. True annual precipitation (adjusted for measuring losses) is estimated to exceed the gauged amounts with about 100 mm more. On the other hand, appreciably less than 500 mm of yearly mean precipitation can be found only in the northernmost part of Sweden with locally about 400 mm, though associated with considerably weaker evaporation rates than in southern Sweden.

A yearly mean temperature of 6-7°C, January mean about -2°C and July mean of 16-17°C make the Simpevarp site about 1°C warmer (in January 2°C) than the region Östhammar/Tierp. This can be compared to Stockholm (6,6°C), Malmö (8,2°C) and Östersund (2,5°C).

As for Östhammar/Tierp, the sea-land dualism implies annual and diurnal variations in temperature between near-coast sites and inland sites. This means smaller annual variations at the coastline, i.e. higher winter and lower summer temperatures than over land, combined with a similar day-night pattern, connected to the small diurnal variations over sea. The differences between the coastline and a site 10-20 km inland are, however, weaker here than in northern Uppland. The vegetative period (daily mean temperature exceeding 5°C) is about 200 days long, i.e. about 20 days more than at Östhammar and Tierp.

The normal yearly sunshine time is about 1800 hours, a level typical for Swedish coastal sites, and near the highest Swedish values (about 1900 hours). The values of sunshine time are lower inland, but the differences are weaker than in Northern Uppland. In the interior of Götaland the values go down to 1300 hours. The cloudiness percentage is 60-65 %, slightly less in summer and slightly more in winter. The annual mean value is marginally less here than in northern Uppland. In early summer the cloudiness tends to decrease near the coast compared to inland conditions.

Thunderstorms occur in average about 10 days a year, slightly more inland than at the coast. This could be compared to 4-8 days in the most thunder-meagre regions in Northern Sweden, or up to 20-24 days in the part of Western Götaland that constitutes the most thunder frequent district in Sweden.

The ground is covered by snow in average about 75 days a year, with an average yearly maximum depth of snow of 35-40 cm. The coast does not differ much from the conditions 10-20 km inland.

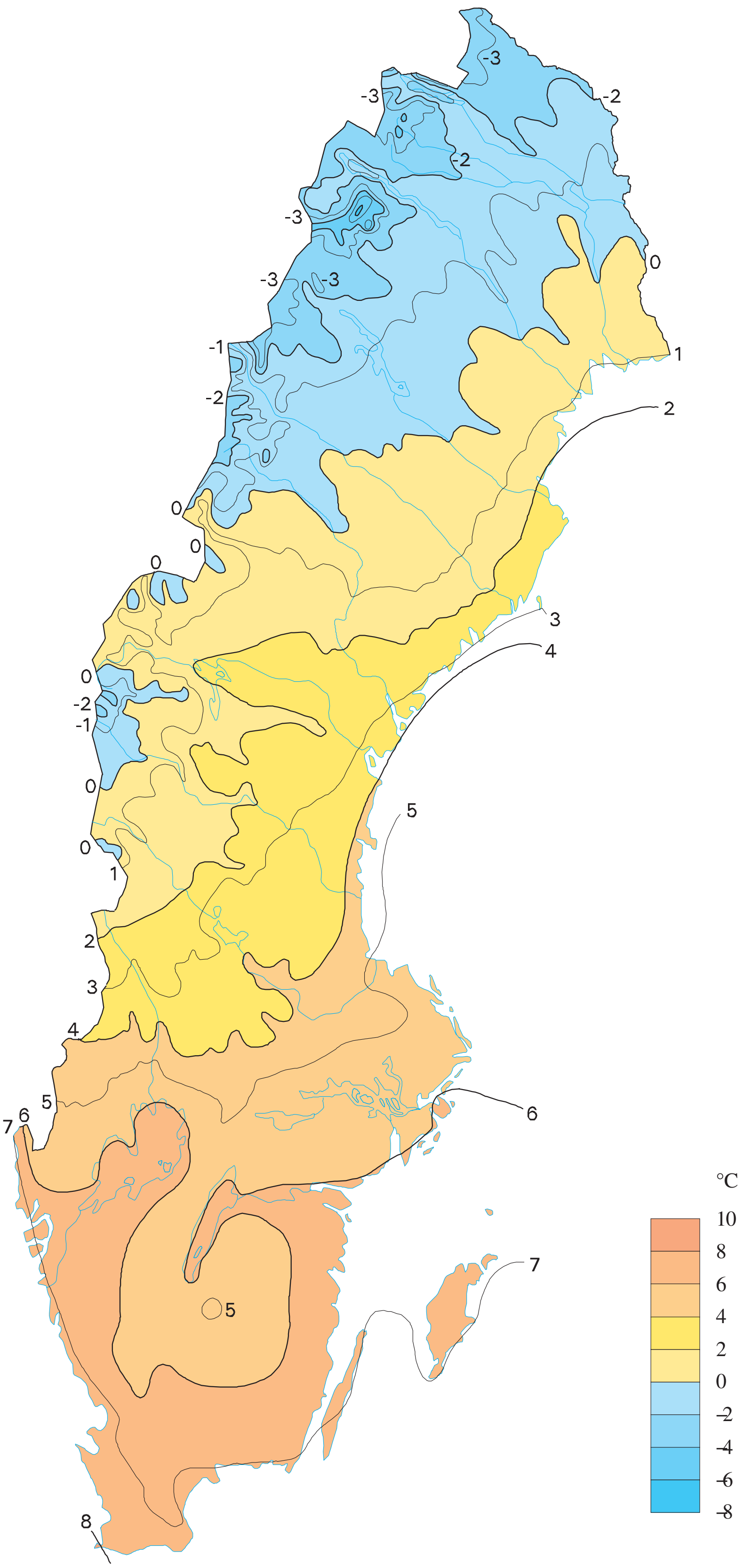

Figure 1-3. *Yearly mean temperature, 1961-90 (Raab and Vedin, 1995).*

1.2 Climate description — hydrology

The South-eastern parts of Sweden have the lowest values of specific runoff, with a mean 1961-1990 of <10 l/s km^2. Specific runoff for the Oskarshamn region is <6 l/s·km^2. For Östhammar-Tierp it is 6-9 l/s·km^2 (Raab and Vedin, 1995).

For lakes in both Southern and Northern Sweden the ice freeze-up is strongly related to lake depth; it appears earlier on a lake with small depth than on a lake with great depth. The reason for this is that it takes longer for the water in a deep lake to be cooled and be stratified in autumn. For lakes in Northern Sweden there is also a relationship between ice freeze-up and lake area because a large lake is more effected by wind but also that a large lake often has a great depth. In the south of Sweden there is no such relationship; what directs time of freeze-up is here the altitude because the air temperature is mainly lower at high altitudes.

When it comes to ice break-up, there are no such significant relationships between the characteristics of different lakes like for ice freeze-up. This is because ice break-up is mostly effected by weather, especially solar radiation. The period of ice break-up is also much shorter than the period of ice freeze-up. In Southern Sweden there is no relationship between ice break-up and lake area or depth (as for Northern Sweden), but for lakes at high altitude the break-up is late. This is because air temperature during winter and spring is lower at high altitudes and the lakes can form a thicker ice-cover (Eklund, 1999).

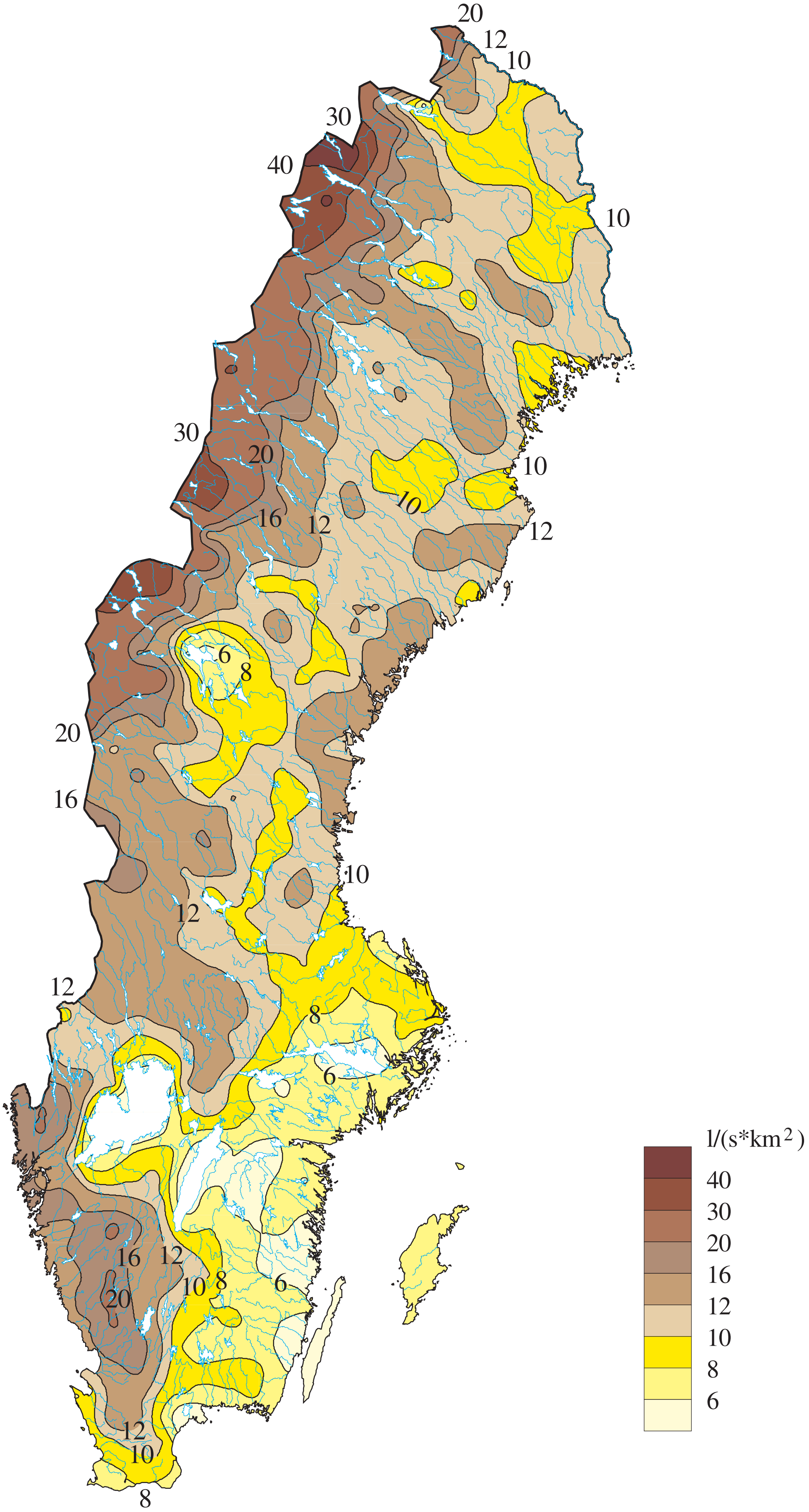

Figure 1-4. *Yearly discharge. Average for 1961-90 (Raab and Vedin, 1995).*

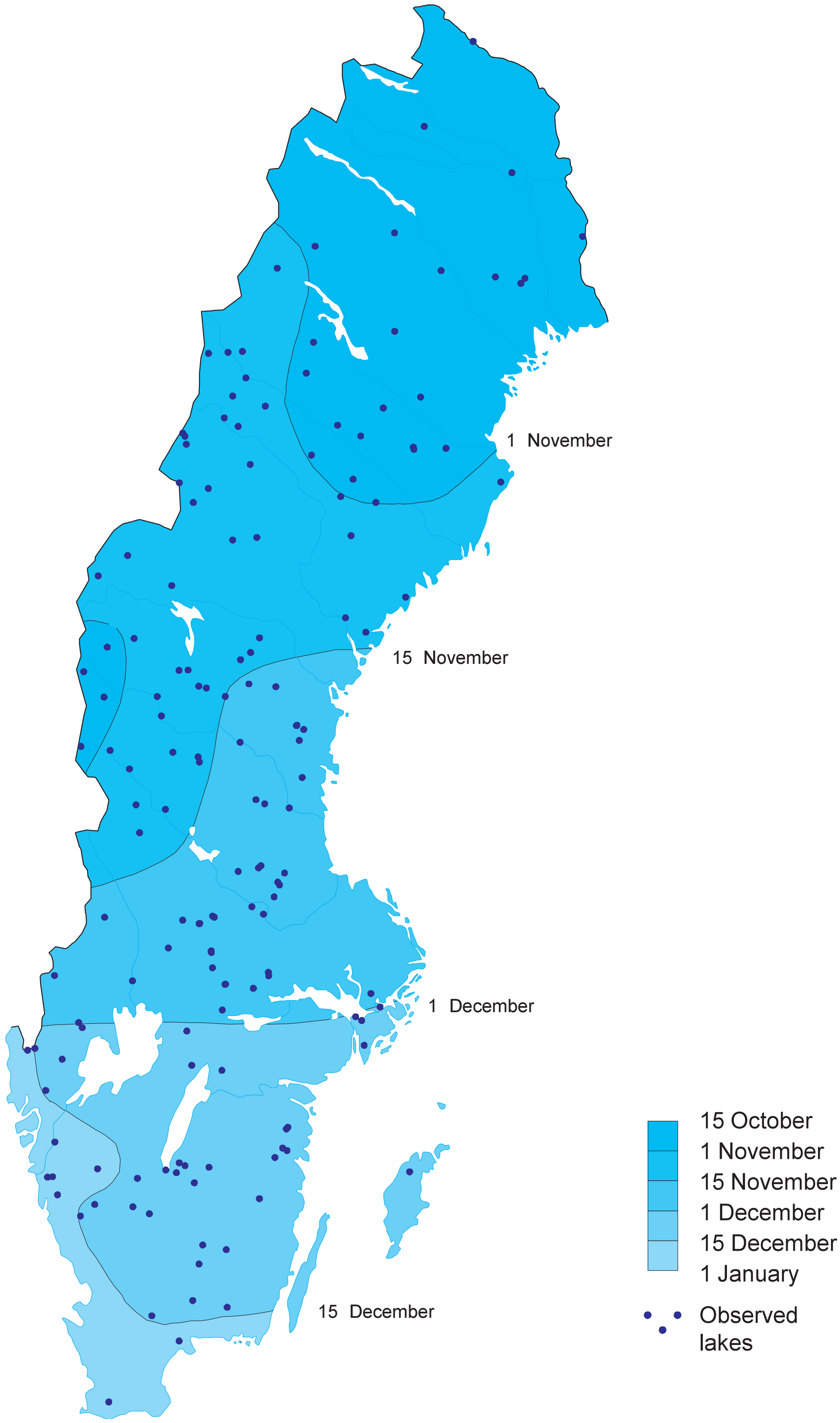

Figure 1-4. *Average date for ice freeze-up. Valid for small lakes, < 10 km^2 (Raab and Vedin, 1995).*

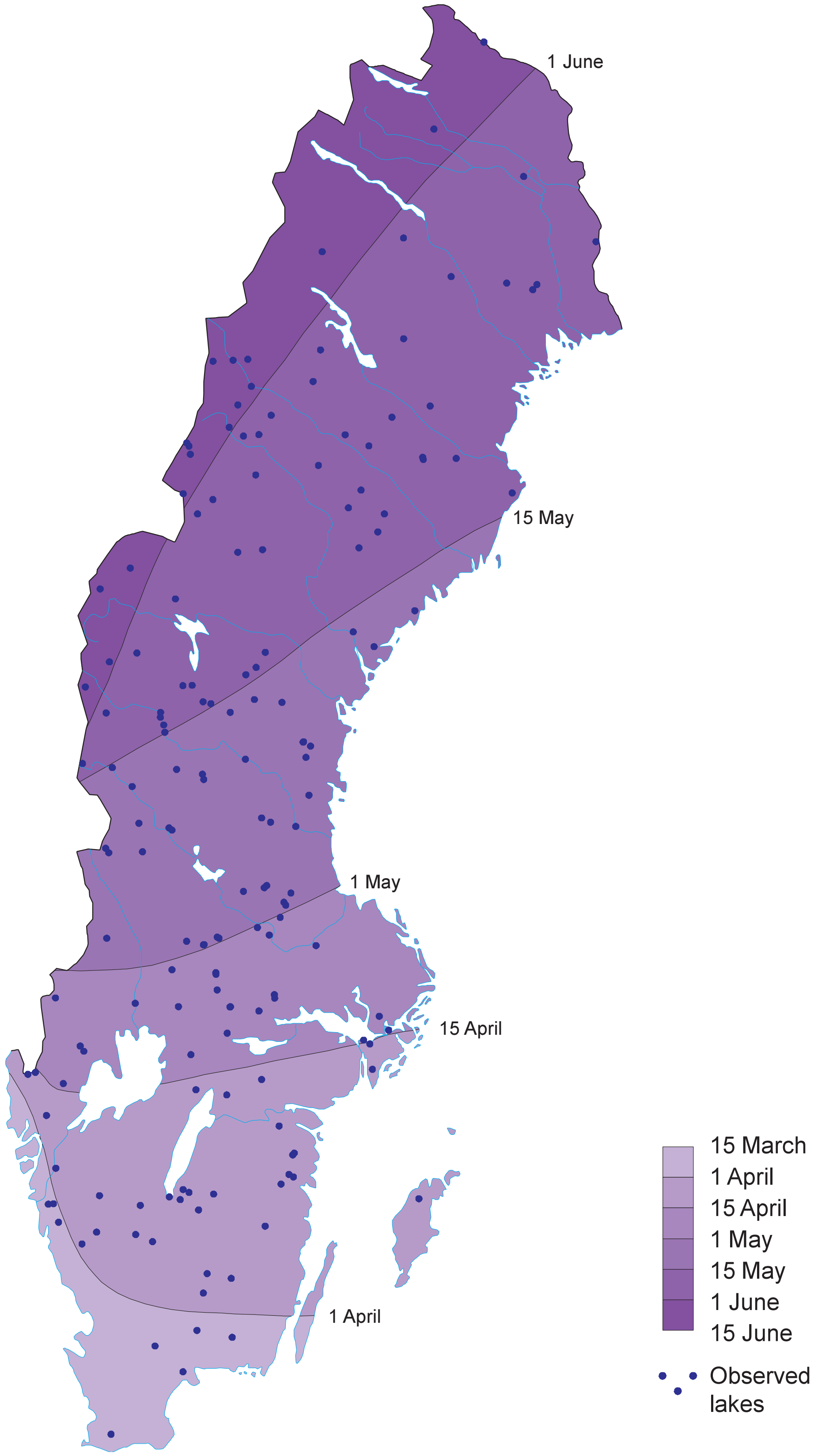

Figure 1-5. *Average date for ice break-up. Valid for small lakes, < 10 km^2 (Raab and Vedin, 1995.*

1.3 Climate description — oceanography

The area in the northern part of The Kalmar Strait is part of the Baltic Sea basin where the hydrography is governed by salinity stratification with two haloclines. Between the surface and the primary halocline at a depth of 50 – 60 meters, the salinity varies between 6 – 7 psu. Between the primary and the secondary halocline, which is found at a depth of 70 meters, the salinity varies between 8 – 10 psu. Below the secondary halocline, the salinity varies between 11 – 13 psu (Fysisk Riskplanering, 1978).

The temperature in the surface layer has the same seasonal variations that are found in the Bothnia Sea. A warm surface layer is developed during spring due to the increased solar radiation. The temperature in this layer can exceed 20°C with a thermocline found at 20 – 30 meter's depth by the end of summer. In the fall, the temperature stratification breaks down due to increase cooling and wind mixing. Below the primary thermocline the temperature is stable between 5 – 6°C all year round (Fysisk Riskplanering, 1978).

The oxygen conditions in the Baltic Sea vary with depth and season. Above the primary halocline the water is saturated during fall du to the thermohaline circulation. The uppermost layer reaching down to 20 – 30 m stays saturated all year. In the deeper layers the oxygen supply is constricted by the strong salinity stratification. Oxygen can be added only by inflow of heavy salt water from the Öresund region through the Darsser threshold. Between such inflows, the oxygen concentration constantly diminishes in the deep water. This is a result of the biological degradation of dead organic matter sinking from the surface layer (Fysisk Riskplanering, 1978).

In near shore areas the conditions differ somewhat from those found in the open Baltic Sea basin. The temperature variations are more rapid in spring and fall, which occasionally results in large lateral temperature differences. The reason for this is that the water depth in the near shore areas is lower than in the open sea. Enhanced mixing in the water, due to the bottom friction, is also important (Fysisk Riskplanering, 1978).

A mechanism that can induce rapid temperature variations in the coastal areas throughout the year is upwelling. Upwelling occurs along several coastlines along the Swedish east-coast during conditions with winds from the sector between south and west. Surface water is then forced out to sea by the wind and water from greater depths is brought up to the surface to take its place. In summer this could result in a significant lowering of the surface temperature in near shore areas. In the opposite situation, with winds from the sector between north and east, warm surface water is brought in to the coast forcing down the thermocline to a larger depth. The phenomenon is to a certain degree governed by the bottom topography, which makes some areas more favourable than others. An area where upwelling frequently occurs is between the Hanöbukten and Landsort, also east of Öland and Gotland. During upwelling occasions the sea breeze is often enhanced and fog can occur.

Along the coast, north of Simpevarp, the discharges of freshwater from rivers and from the land result in a less saline surface water and pronounced salinity stratification. The summer thermocline and the salinity stratification often coincide, which results in strong stratification in the water column. This reduces the exchange of deep water in enclosed or semi-enclosed areas in the archipelago often leading to poor water quality with low oxygen concentrations or even anoxic conditions. Examples of such areas are the fjords Slätbaken, Valdemarsviken and Gropviken where poor water quality has been observed during summer. In most places this situation is resolved by fall when the thermocline breaks down and the vertical circulation exchanges the deep water (Wändahl and Bergström, 1973).

In the open waters around Simpevarp the conditions are strongly affected by coastal processes with large variability in the surface temperature. This is due to the local wind conditions resulting in near shore upwelling. The salinity stratification is weak and the water exchange is good which is observed in measurements of high values of oxygen saturation in the water column. The currents in the near shore area are weak and dominated by long shore directions.

The water exchange in the area as a whole is considered average, classification 1 (Naturvårdsverket, 1999).

Summary

The waters around Forsmark and Simpevarp are both areas with good water exchange except for the deepest parts of the Oregrundsgrepen where periods of stagnation can occur. Both areas are strongly affected by coastal processes induced by the local wind conditions and the stratification in the sea.

2 Methodology and statistics

In this chapter you will find information about meteorological, hydrological and oceanographical data and measuring stations for the selected area in Oskarshamn community. Data has been evaluated and different types of presentations and diagrams have been created, containing mean values, standard deviation and extreme values. The underlying statistical data you will find in the appendices. More diagrams and statistical information have been collected in a ArcView database. Data for the specially selected year, 1981 (see below p. 25), has been delivered in ASCII-format to the Swedish Nuclear Fuel and Waste Management Co.

2.1 Methodology – meteorology

Complete lists of stations in the area that have data during some period for any parameter of interest were published in an earlier report (Lindell et al, 2000). These lists include stations where observations are no longer made. In table 2-1 stations with ongoing observations are listed, former stations are included only if their statistics are presented in this report. A remark is made in the information column if only one or two parameters are observed at a station. The co-ordinates in the tables are in RT90-format.

If nothing is else stated the stations are operated by SMHI. There are also some stations operated by Swedish National Road Administration (SNRA). These stations are used to detect situations with the high risk of icing (of the roadway) and are often located at ”cold” places like bridges, crests and so on. Temperature, humidity (dew point), precipitation (amount and type) and wind speed and direction are registered. Most of the SNRA stations are in operation only in winter.

At the nuclear power plant Simpevarp there is a 100 m tall mast instrument for registration of wind (direction and speed) at 25, 70 and 100 m above ground, temperature at 2 m, temperature difference to 70 and 100 m and air pressure. Measurements started about 1970 and are still going on. A synthesis of wind data for 25 m level, 1996-2000 have been made (Hallberg, 2001). See Appendix 4 for more details.

Long-term average values of temperature and precipitation refer to the so-called standard normal period 1961 - 2000, which will be used until 2020 in climatological analysis. In 1995 about 100 manual weather stations were replaced by automatic ones, in many cases at a new site. The environment of a station may also change in a 40 year period in a way that has an influence on the measured values.

All stations where measurements were made for some periods during 1961 - 2000 have been revised and tested for homogeneity, (Alexandersson H, Karlström C, 2001). For stations with non-complete data, the missing values were interpolated using nearby stations. New so-called reference normal values referring to the present location of the stations for the period 1961-1990 were then computed. If a station has been located at the same site the entire period and no major changes in the surroundings have taken place the reference normal value is identical with the period normal, which is calculated from the measurements. In this report the interpolated values are used for monthly values of temperature and precipitation for stations without a complete data set.

MESAN is another system for analysing surface meteorological parameters and clouds. This system has been in use at SMHI for about 5 years. Field data has been saved since

1997. The analysis in MESAN refers to mean values for an area of 11x11 km^2. More details about MESAN in Lindell et al, 2000, and Häggmark et al, 1997. MESAN — data can also be used as a source of information for today and tomorrow. However, MESAN-data can hardly produce the small-scale variation in precipitation or temperature, which depend on differences in the local terrain or vegetation.

Table 2-1. Meteorological stations[1)] in the Oskarshamn area

Station no	Station name	Co-ordinates	RT 90	Period	Information
7722	Ölands norra udde	636108	157776	1880-1995	
7721	Ölands norra udde A	636089	157763	1996-	
7616	Oskarshamn	634920	153660	1918-	Only temp, prec
7628	Kråkemåla	637184	155073	1990-	Only prec
7524	Målilla	636291	150033	1931-	
7647	Västervik	639977	153933	1951-1995	
7642	Gladhammar A	639819	153876	1995-	
823	Blankaholm V[2)]	637848	153904	1990-	
822	Oskarshamn V[3)]	635398	153927	1990-	
---	OKG, Simpevarp [4)]	636570	155120	1971 -	

[1)] Parameters: Temperature, precipitation, relative humidity, air pressure, wind (direction and speed)
[2)] "Vägverkets station", Not stored in SMHI:s database. Operates during winter only.
[3)] "Vägverkets station", Not stored in SMHI:s database. Operates also in summer.
[4)] Wind speed and direction at 25 and 100 m a ground, temp at 2m and temperature difference 2 - 70, and 2-100 m. Available are data for 1996 - 2000.

Choice of meteorological data representing Oskarshamn

Data from SMHI stations are used for long-term statistics. Data for Ölands norra udde are regarded representative of coastal areas of Oskarshamn for most meteorological parameters. As was noted in the introduction temperature and precipitation shows a gradient from the coast towards inland. The climate station at Oskarshamn was chosen for precipitation and temperature, which is located some km inland from the coast.

Air pressure decrease with height above the sea level so measurements from different places can not be directly compared. The measured values are therefore reduced to mean sea level.

Temperature

The average monthly mean temperature varies between about -2 °C in January-February and about 16°C in July, Figure 2-1. The year to year variation is much greater in winter months than in summer, this is clearly seen both with standard deviation and in the absolute maximum and minimum values. The influence from the sea decreases inland and the average winter temperature is about 2 °C lower in Oskarshamn than at Ölands norra udde. Note that the extreme monthly mean temperatures refer to the period 1918 - 2000 while the averages refer to the standard normal period 1961-1990, Table App1-2 in appendix 1.

The coldest years during the period 1961-2000 occurred in the 1980s. The winters of 1985 and 1987 were quite comparable to the war winters 1940-42. However, since 1988 almost every year has been warmer than normal as measured by the yearly mean temperature. In particular this is obvious when looking at the running 5-year means. The only exception in the last decade is 1996 when the yearly mean was below normal.

All data shown in figures 2-1 -- 2-6 are also given in Tables App1-2 -- App1-6 in appendix 1.

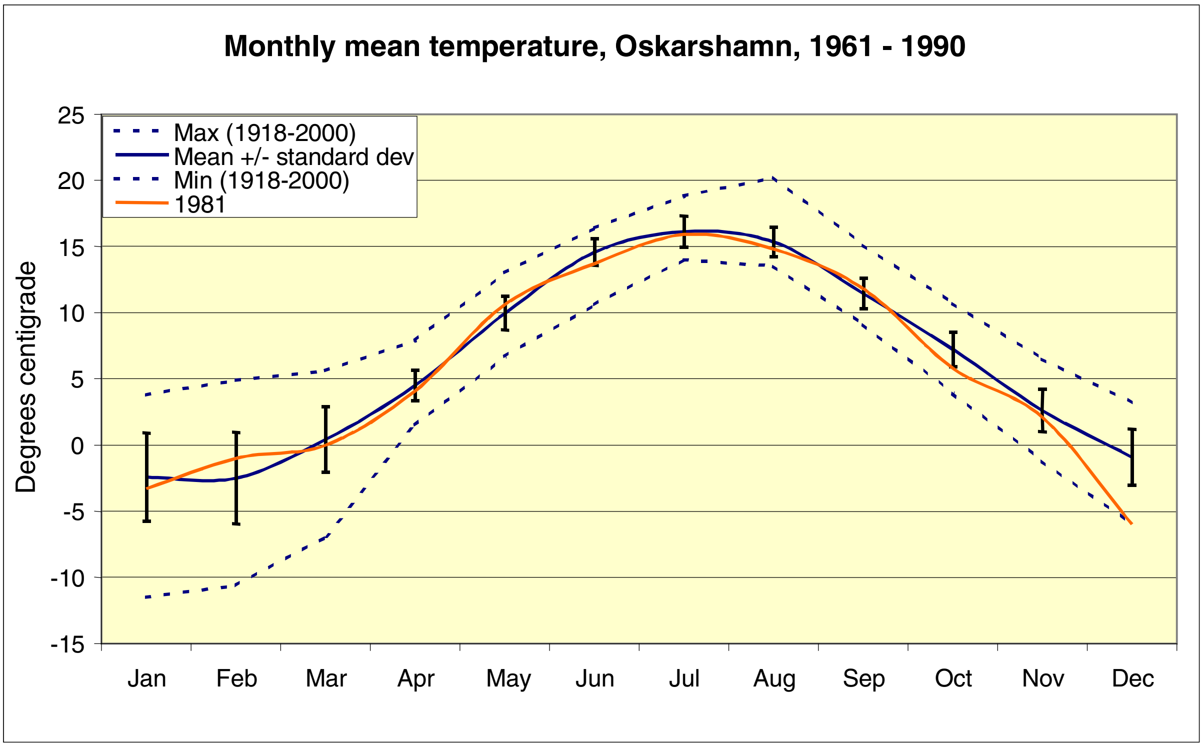

Figure 2-1. *Monthly mean temperature for the standard normal period 1961-1990, Oskarshamn. Vertical lines represent standard deviation and dashed lines maximum and minimum of the monthly mean temperature. Monthly means for the selected year 1981 are included (red line).*

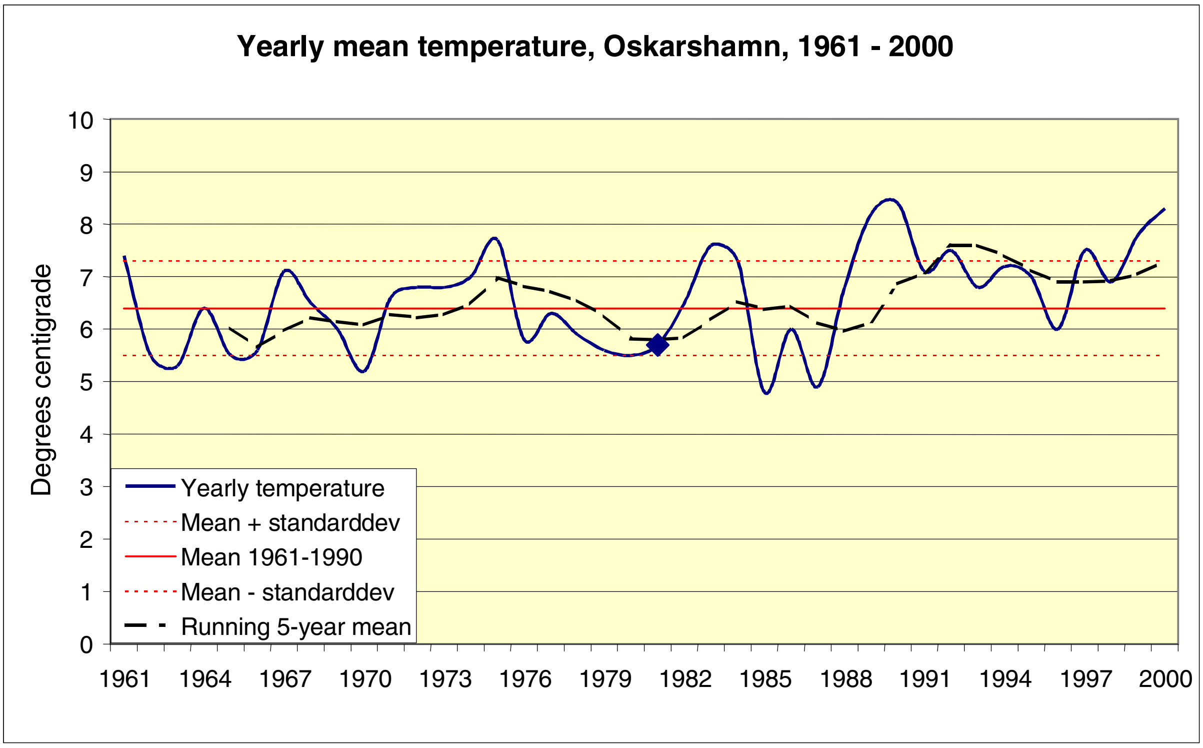

Figure 2-2. *Yearly mean temperature for the period 1961-2000, Oskarshamn and running 5-year mean temperature (dashed curve). Average yearly mean temperature for the standard normal period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). Diamond refers to the year 1981.*

Temperature diagrams are shown also for Ölands norra udde and Målilla. Differences between these stations clearly reflect the typical coast - inland conditions mentioned in section 1. Ölands norra udde is situated outside the coast and Målilla about 45 km inland from the coast. Winter months are colder in Målilla than in Oskarshamn or at Ölands norra udde while temperature rise faster in Målilla springtime, see Figure 2-1, 2-3 and 2-5.

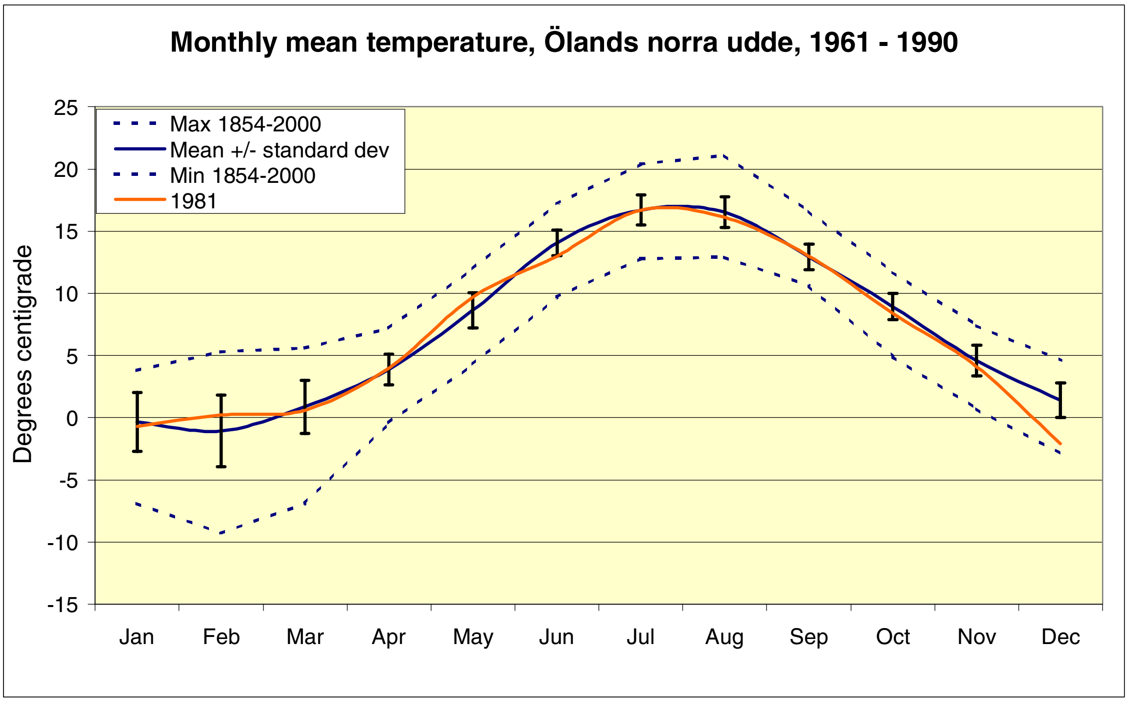

Figure 2-3. *Monthly mean temperature for the standard normal period 1961-1990, Ölands norra udde. Vertical lines represent standard deviation and dashed lines maximum and minimum of the monthly mean temperature. Monthly means for the selected year 1981 are included (red line).*

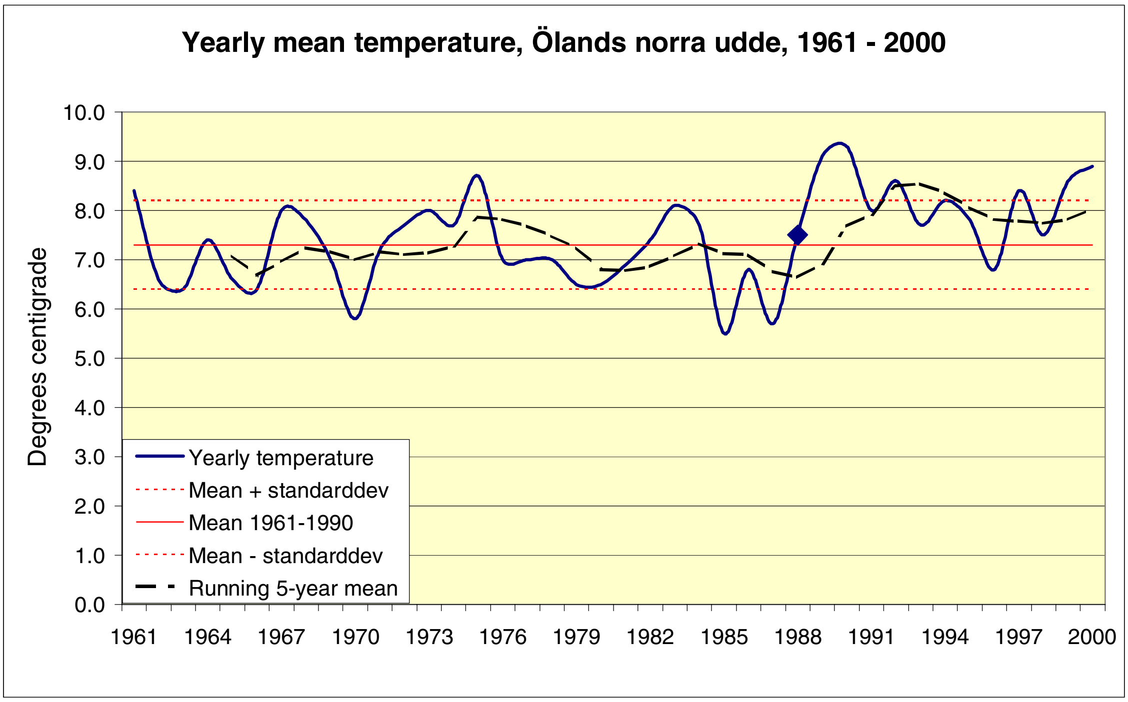

Figure 2-4. *Yearly mean temperature for the period 1961-2000, Ölands norra udde and running 5-year mean temperature (dashed curve). Average yearly mean temperature for the standard normal period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). Diamond refers to the year 1981.*

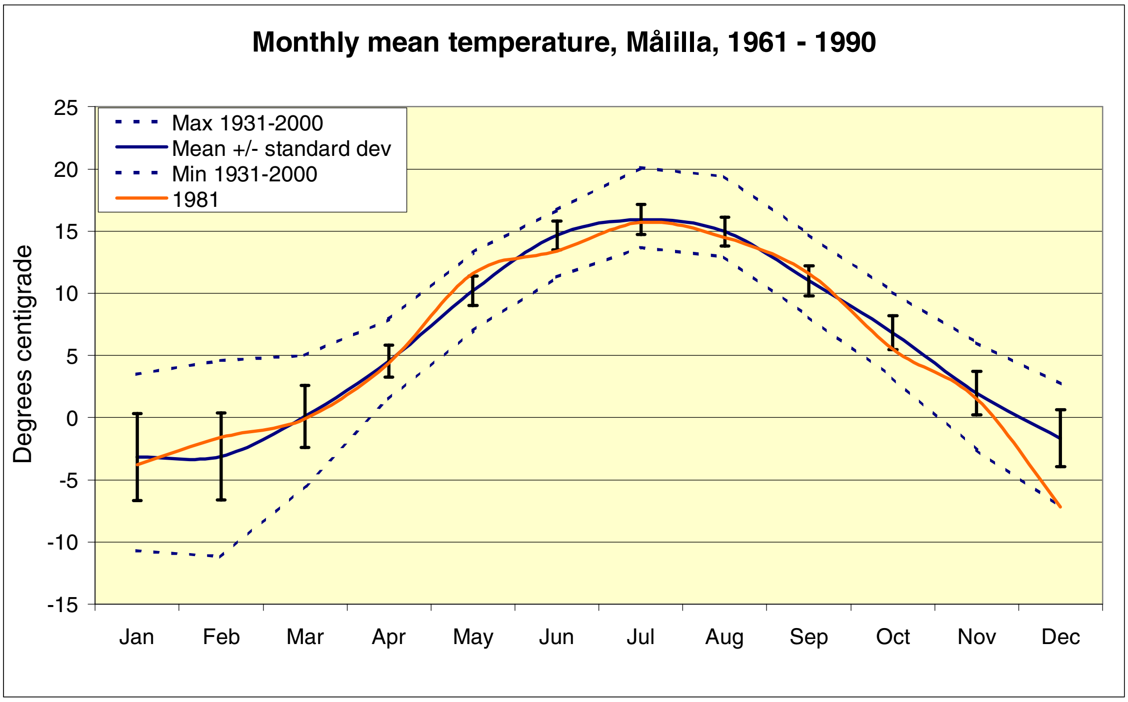

Figure 2-5. *Monthly mean temperature for the standard normal period 1961-1990, Målilla. Vertical lines represent standard deviation and dashed lines maximum and minimum of the monthly mean temperature. Monthly means for the selected year 1981 are included (red line).*

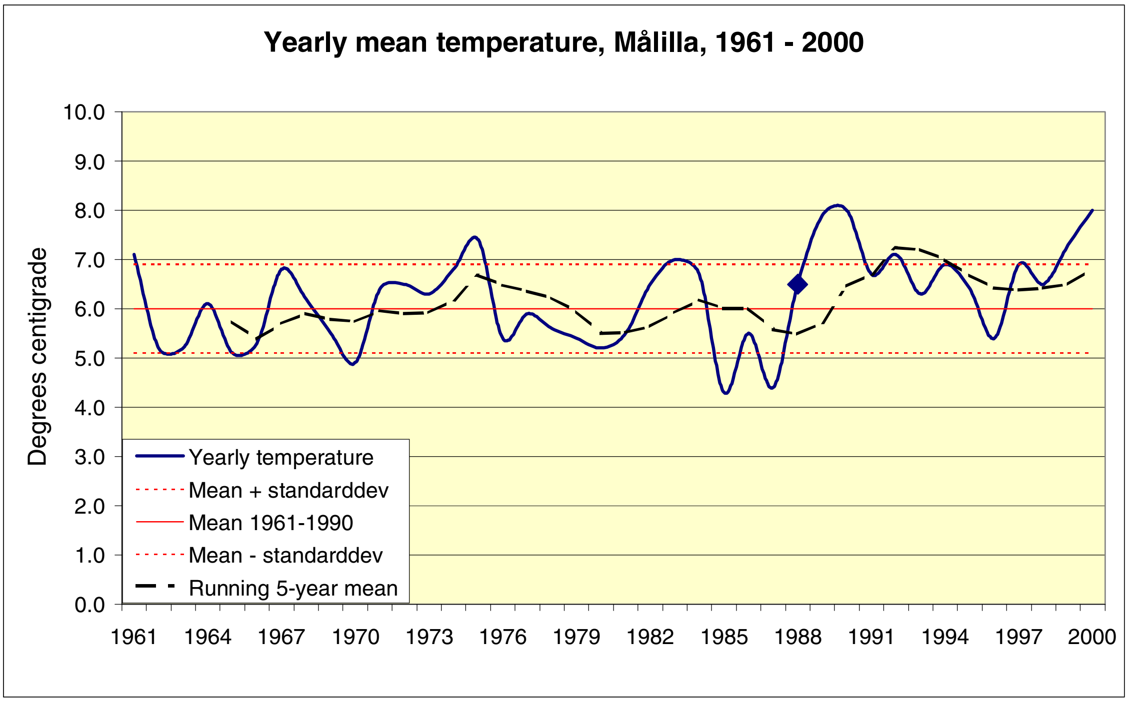

Figure 2-6. *Yearly mean temperature for the period 1961-2000, Målilla and running 5-year mean temperature (dashed curve). Average yearly mean temperature for the standard normal period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). Diamond refers to the year 1981.*

Precipitation

Measured precipitation shows a large variation from place to place. The maximum is usually found some km inland from the coast. The measured amount of precipitation is fully 100 mm more in Oskarshamn than at Ölands norra udde.

The measured precipitation is always less than the real. There are losses because of evaporation, adhesion and above all because of wind especially when it is snowing, (Raab and Vedin, 1995). Monthly and yearly sums of precipitation given here have been corrected for measuring losses. The correction factors are given in Table 2-2.

Monthly sums of precipitation for Oskarshamn are shown in Figure 2-7 and Table App1-7 in appendix 1. The monthly sums of precipitation are greatest in the summer (60-70 mm per month) and least in March (36 mm). The variation from one year to another is also greater in summer. The extreme values (measured, not adjusted for measuring losses) refer to the period 1931-2000. The maximum values show the same annual pattern as the averages with a flat maximum July - October and a minimum in March.

The year to year variation of the yearly sum of precipitation is illustrated in Figure 2-8 and Table App1-8 in appendix 1 for the period 1961 - 2000. The greatest value in these years (997 mm in 1985) is more than double the least one (403 mm in 1982). It has been said that (Raab and Vedin, 1995) in a 10-year period will the monthly sum of precipitation vary between 30 and 200% of the normal value for each month. About 20% of yearly precipitation fall as snow.

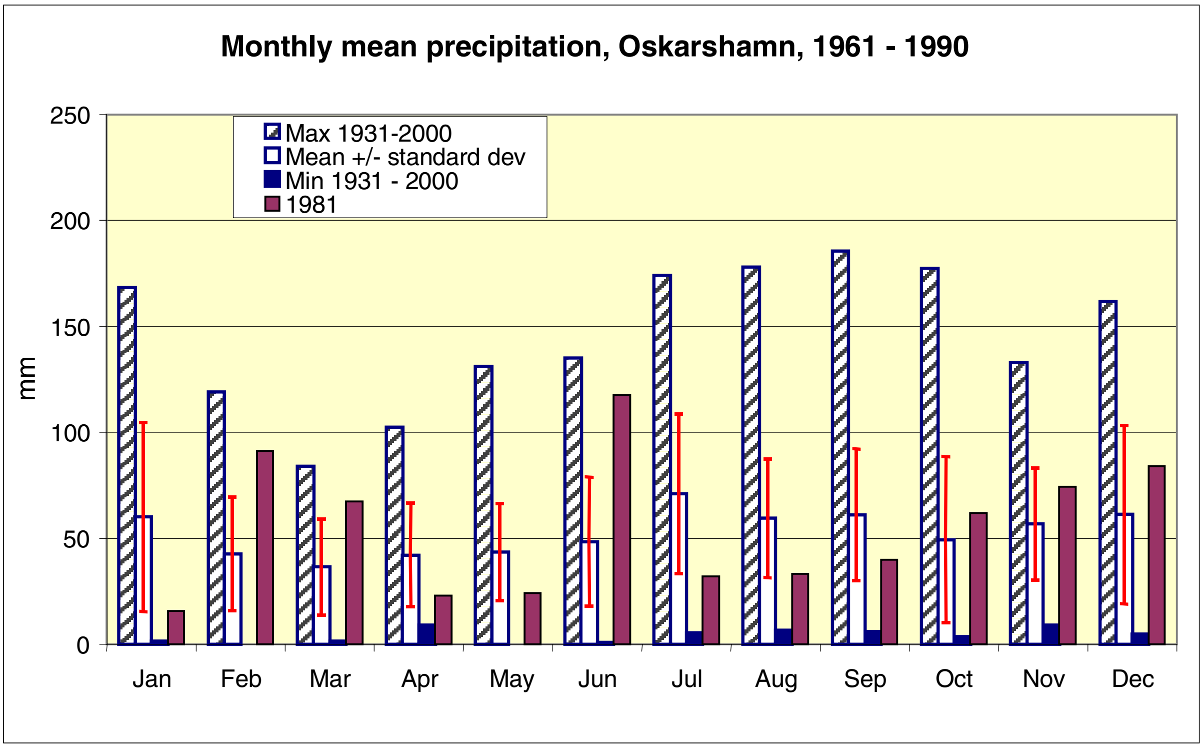

Figure 2-7. *Average the monthly sum of precipitation for the standard normal period 1961-1990, Oskarshamn (unfilled columns), max and min. Vertical lines represent standard deviation about mean. Monthly sums for selected year 1981 are also included (striped columns).*

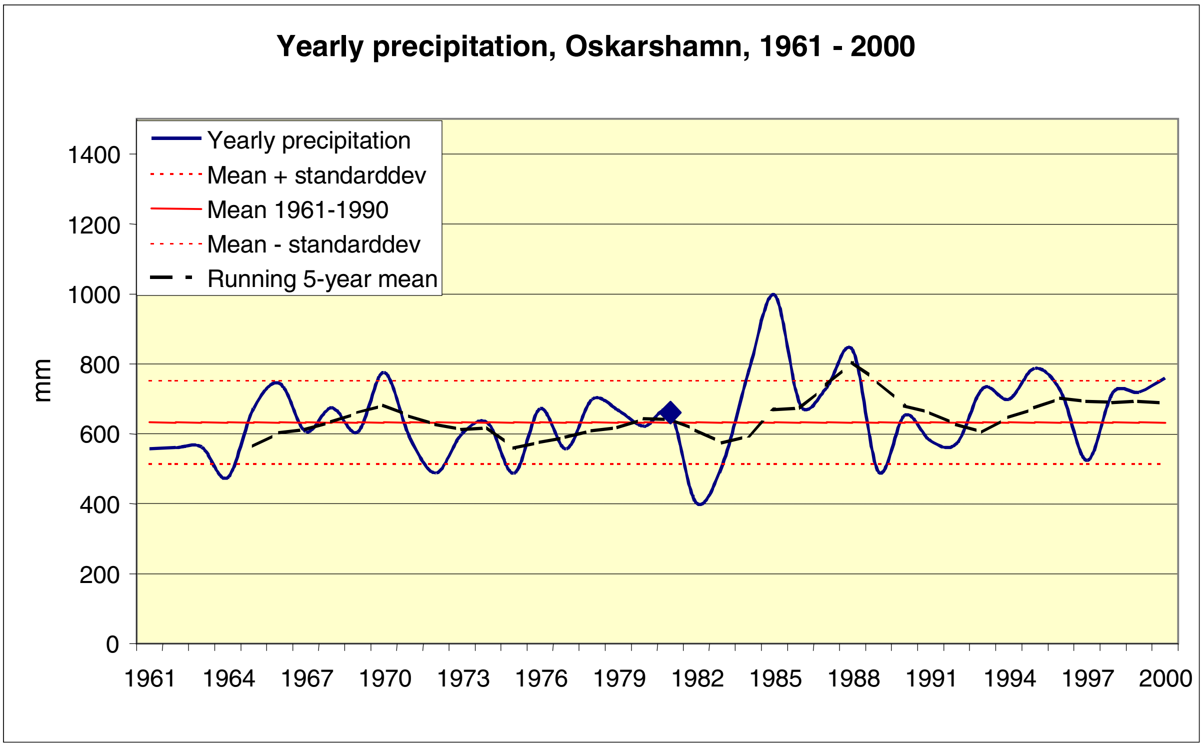

Figure 2-8. *Yearly sums of precipitation (continuous curve) for the period 1961- 2000, Oskarshamn and running 5-year mean sum of precipitation (dashed curve). Average yearly precipitation for the standard normal period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). The year 1981 is marked with a diamond. Corrected values.*

All data shown in figure 2-7 and 2-8 is also given in Table App1-7 and App1-8 in appendix 1.

Table 2-2. Correction factors[1)] for adjusting measured precipitation

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Oskars-hamn	1.277	1.265	1.156	1.105	1.100	1.091	1.092	1.091	1.089	1.089	1.163	1.271	1.146
Ölands n:a udde	1.364	1.348	1.240	1.160	1.188	1.188	1.175	1.178	1.173	1.184	1.234	1.359	1.227
Målilla	1.310	1.313	1.176	1.108	1.111	1.120	1.125	1.115	1.117	1.128	1.184	1.306	1.156
Kråkemåla[2)]	1.277	1.265	1.156	1.105	1.100	1.091	1.092	1.091	1.089	1.089	1.163	1.271	1.146

[1)] *Correction factors have recently been modified and will be published within a year. These are the new (modified) ones. (Alexandersson, 2002)*

[2)] *Correction factors for Kråkemåla have not yet been determined. Factors for Oskarshamn are used.*

To show the spatial variation corresponding diagrams are given for Ölands norra udde and Målilla. Målilla is situated about 45 km from the coast. The precipitation amounts are slightly greater in Målilla than in Oskarshamn (about 30 mm per year). Ölands norra udde, situated outside the coast, gets about 100 mm per year less rain than Oskarshamn.

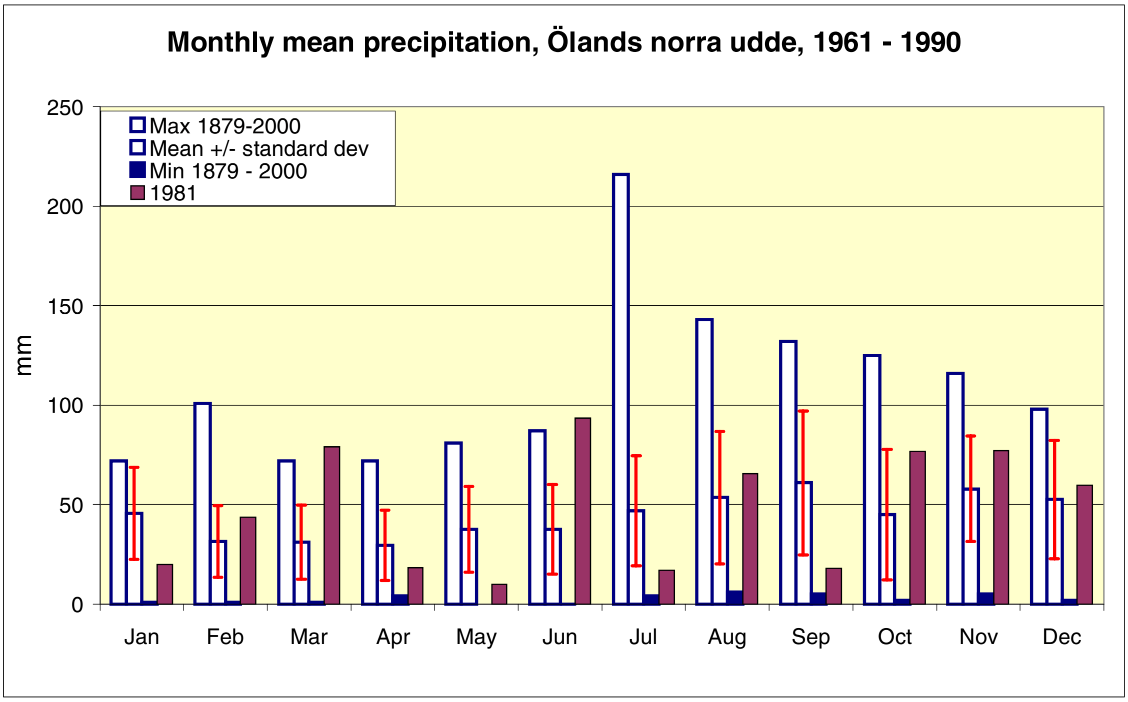

Figure 2-9. *Average the monthly sum of precipitation for the standard normal period 1961-1990, Ölands norra udde (unfilled columns), max and min. Vertical line represents standard deviation about mean. Monthly sums for selected year 1981 are also included (striped columns)*

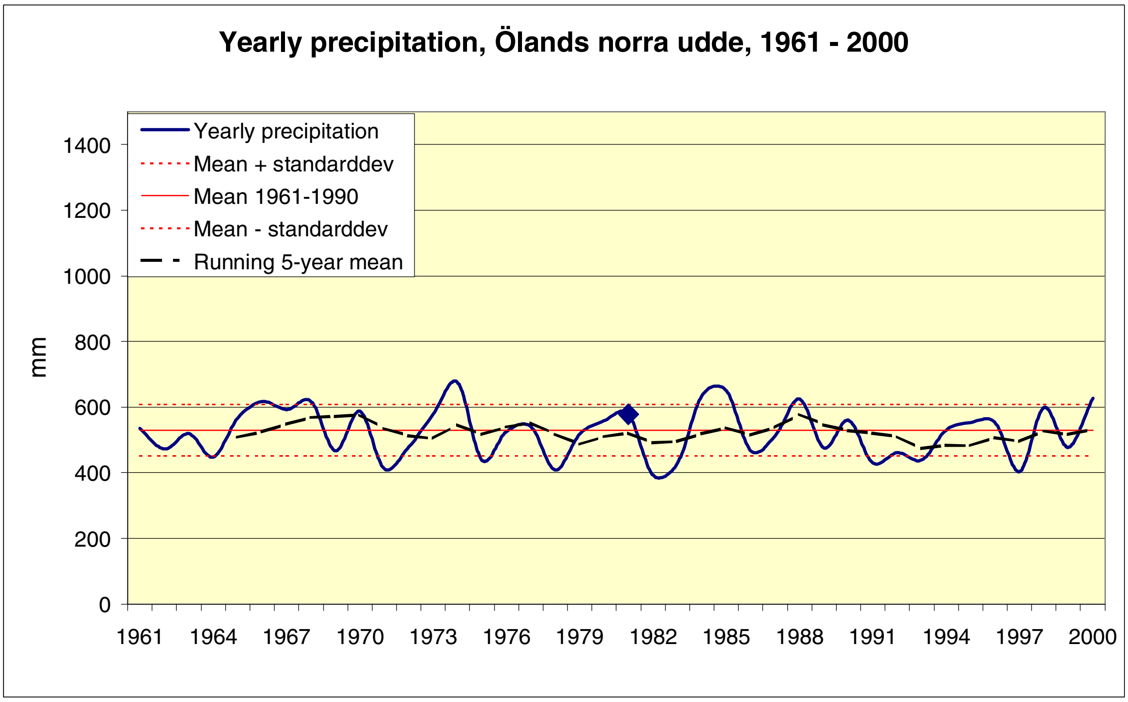

Figure 2-10. *Yearly sums of precipitation (continuous curve) for the period 1961- 2000, Ölands norra udde and running 5-year mean sum of precipitation (dashed curve). Average yearly precipitation for the standard normal period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). The year 1981 is marked with a diamond. Corrected values*

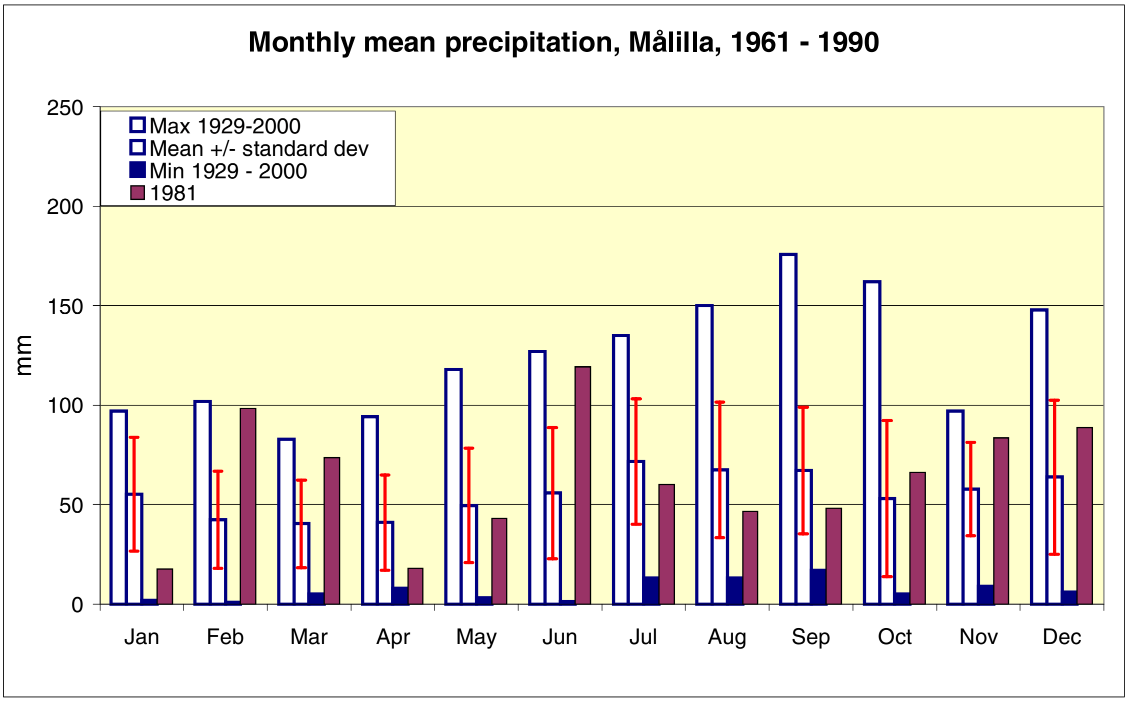

Figure 2-11. *Average the monthly sum of precipitation for the standard normal period 1961-1990, Målilla (unfilled columns), max and min. Vertical lines represent standard deviation about mean. Monthly sums for selected year 1981 are also included (striped columns)*

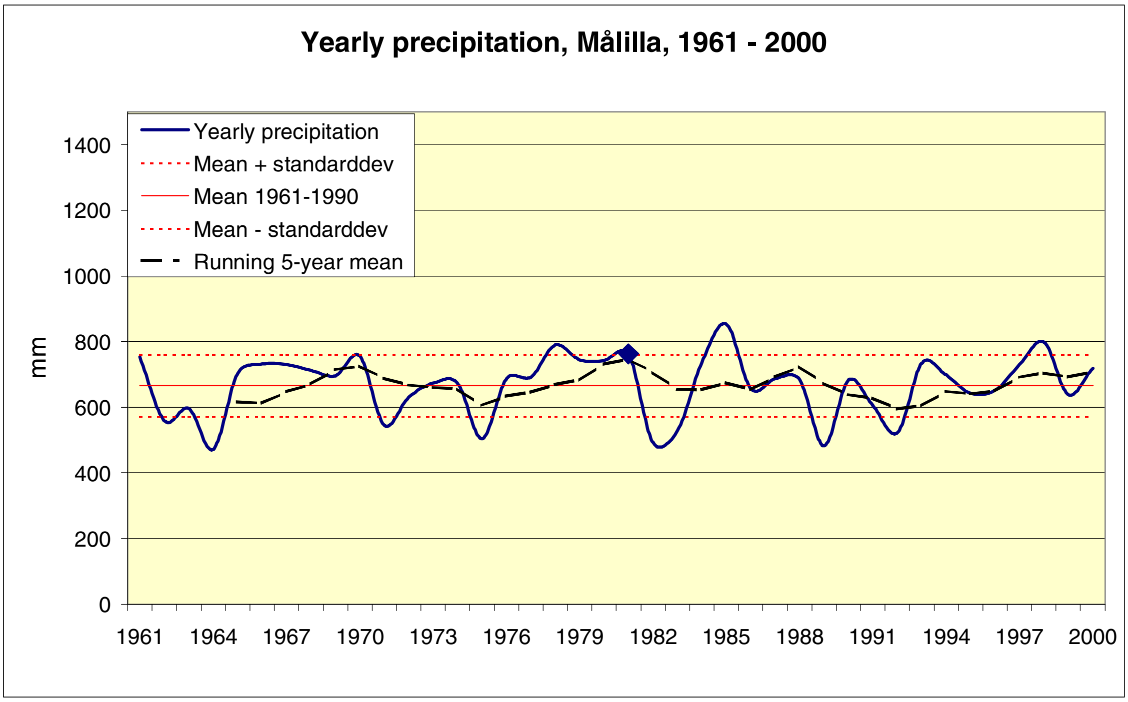

Figure 2-12. *Yearly sums of precipitation (continuous curve) for the period 1961- 2000, Målilla and running 5-year mean sum of precipitation (dashed curve). Average yearly precipitation for the standard normal period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). The year 1981 is marked with a diamond. Corrected values*

Since 1991 measurements of precipitation are made also in Kråkemåla. Kråkemåla is situated only 6 km north of Simpevarp and quite close to the coast. Yearly amount of precipitation is about the same as in Oskarshamn. Average value for the period 1991-2000 is 694 mm compared to 681 mm in Oskarshamn, 507 mm at Ölands norra udde and 579 mm for the same period in Målilla.

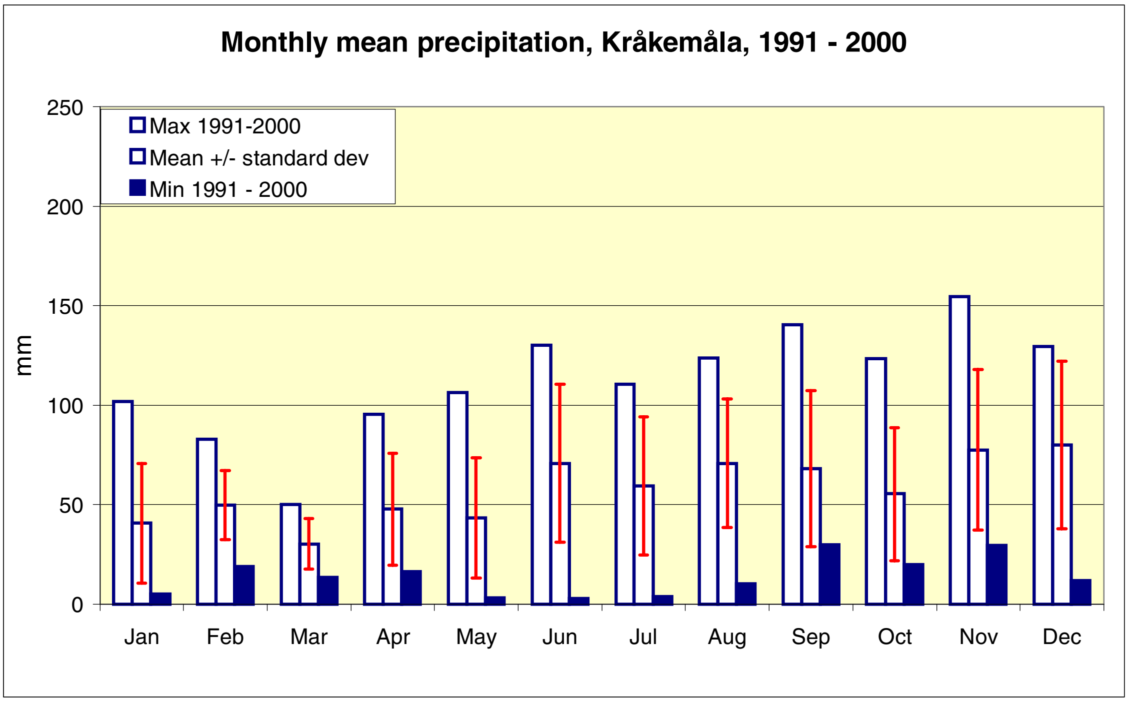

Figure 2-13. *Average the monthly sum of precipitation for the standard normal period 1991-2000, Kråkemåla (unfilled columns), max and min. Vertical lines represent standard deviation about mean.*

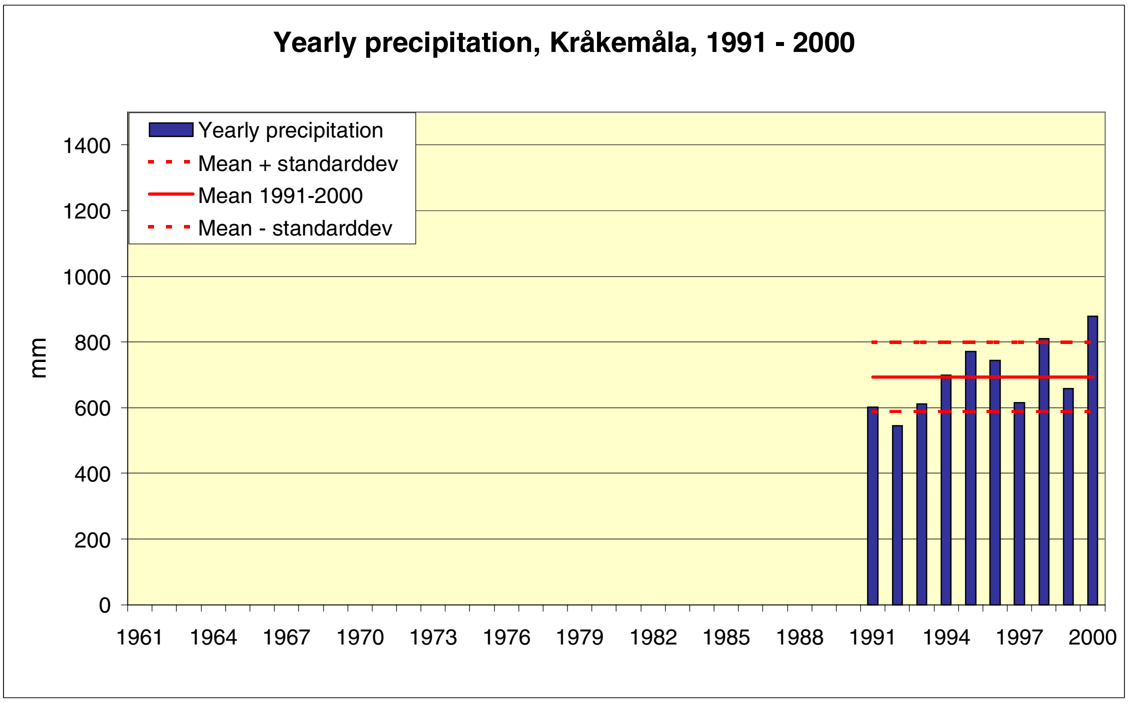

Figure 2-14. *Yearly sums of precipitation (continuous curve) for the period 1991- 2000, Kråkemåla. Average yearly precipitation for the period 1991-2000 +/- one standard deviation is drawn (red continuous and dotted lines). Corrected values*

Potential evapotranspiration

Potential evapotranspiration is a measure of the ability of the atmosphere to remove water from the surface through the processes of evaporation and transpiration assuming no control of water supply. Usually the Penman formula is used to estimate potential evapotranspiration with data on global radiation, air temperature, air humidity and wind speed as input. The Penman formula gives a realistic estimate of evapotranspiration from a grass surface and short crops when there is no shortage of water.

There are no measurements of actual evaporation run by SMHI but a hydrological model is used to calculate evaporation in Sweden. The actual evaporation is calculated from potential evaporation and soil water. Evapotranspiration has been calculated as long term annual and monthly mean values for the period 1961-1990 (Brandt et al, 1994, Brandt and Grahn, 1998). This evaporation information is available for 25*25 km squares.

Monthly and annual means of potential evapotranspiration for the period 1961-78 have been calculated for many Swedish weather stations using the Penman formula with routine meteorological observations (Eriksson, 1981).

The same method is used to estimate potential evapotranspiration for the period 1961-2000 (when possible) for temperature stations in the area. Meteorological parameters needed are daily mean of temperature, wind speed, cloud amount and humidity (vapour pressure). Global radiation is estimated by a simple formula involving cloud amount. For winter months the Penman formula gives values close to or below zero. On the other hand the formula was not developed with winter conditions in mind and these values should be used with caution.

If more than five daily values are missing the monthly value is missing. The monthly mean values are calculated as the mean of the non-missing values, but when the yearly sum is calculated the missing monthly value (if it is only one or two) has been replaced by the long-term mean for the month in question.

The results are presented in diagrams and tables similar to those of precipitation.

In Oskarshamn only temperature and precipitation are being measured, therefore it is not possible to calculate potential evaporation for this station. A combination of manually operated station Västervik (1961 - 1995) and new automatic station Gladhammar (1995 -2000) is used to represent a place near the coast. Gladhammar does not report cloud amount; therefore cloud information from Målilla had to be used from August 1995 till 2000.

Average monthly sum of potential evaporation for the period 1961 - 1990 are presented in Figure 2-15, 2-17 and 2-19 and yearly sums for the period 1961 - 2000 in Figure 2-16, 2-18 and 2-20. On the average the potential evaporation is just above 100 mm per month in the summer. On average

Ölands norra udde has reported relative humidity since July 1963; data on potential evapotranspiration is therefore missing the first years of the period. In 1995 there was a shift from manually to automatically performed observations and in connection with that a five months period lacking observations. The cloud amount measured by automatic stations is somewhat less reliable than those made by a skilled observer. The instrument can not detect high clouds; total cloud amount is therefore underestimated. Potential evaporation for Ölands norra udde for the period 1963 - 2000 is shown in

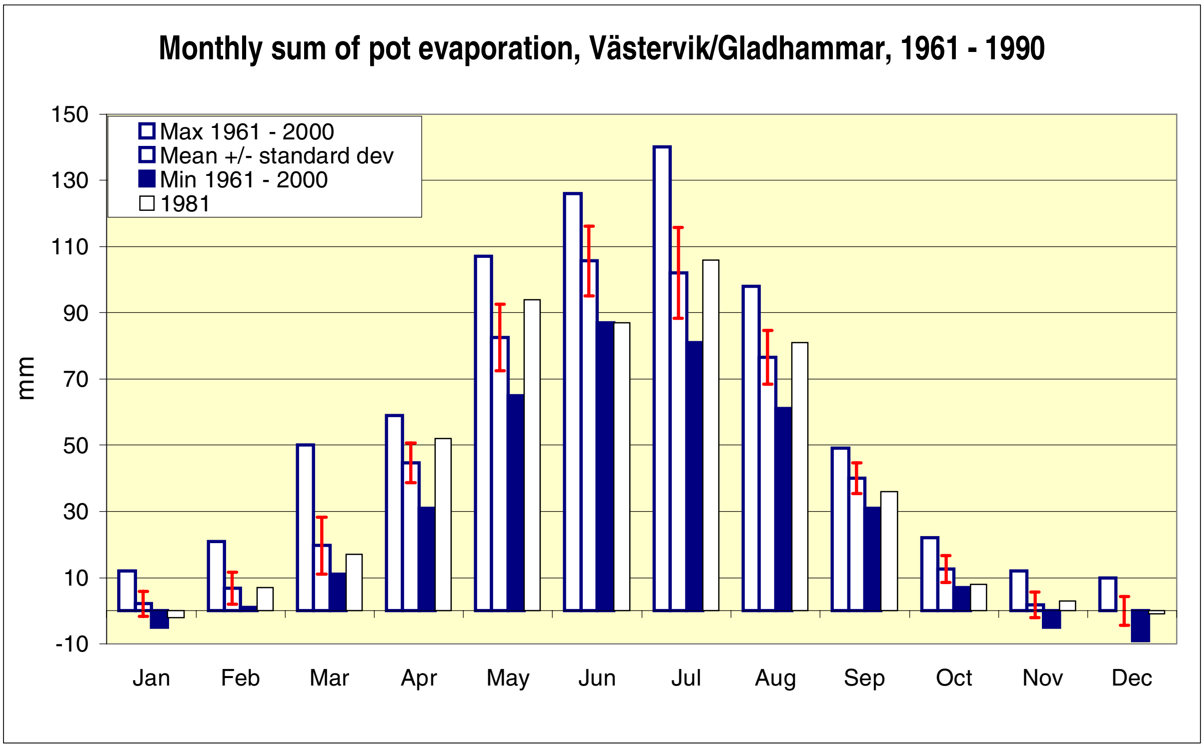

Figure 2-15. *Average monthly sum of potential evaporation in mm for the period 1961-1990, Västervik/Gladhammar (unfilled columns), max and min. Vertical lines represent standard deviation about mean. Monthly sums for the selected year 1981 are also included (striped columns).*

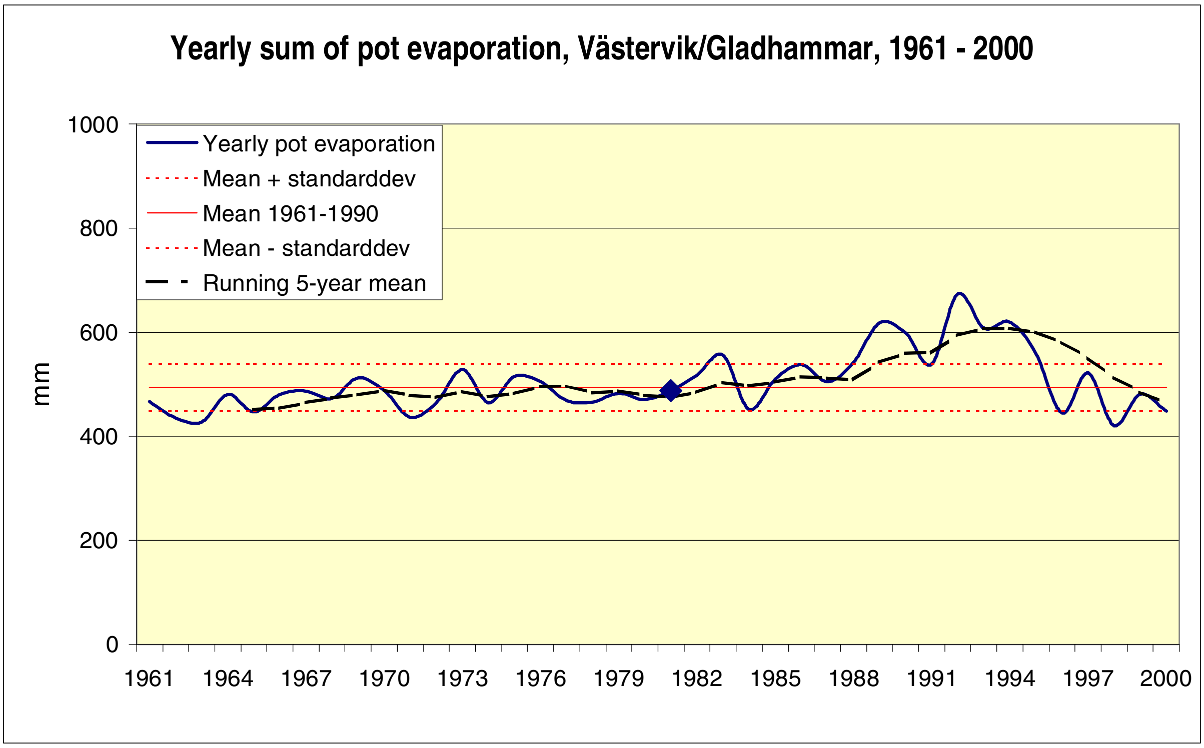

Figure 2-16. *Yearly sums of potential evapotranspiration (continuous curve) for the period 1961- 2000, Västervik/Gladhammar and running 5-year mean sum of potential evapotranspiration (dashed curve). Average yearly potential evapotranspiration for the period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). The year 1981 is marked with a diamond*

Figure 2-17 and 2-18. The average monthly summer values amounts to about 110 mm per month, which are a little, more than for Västervik and Målilla.

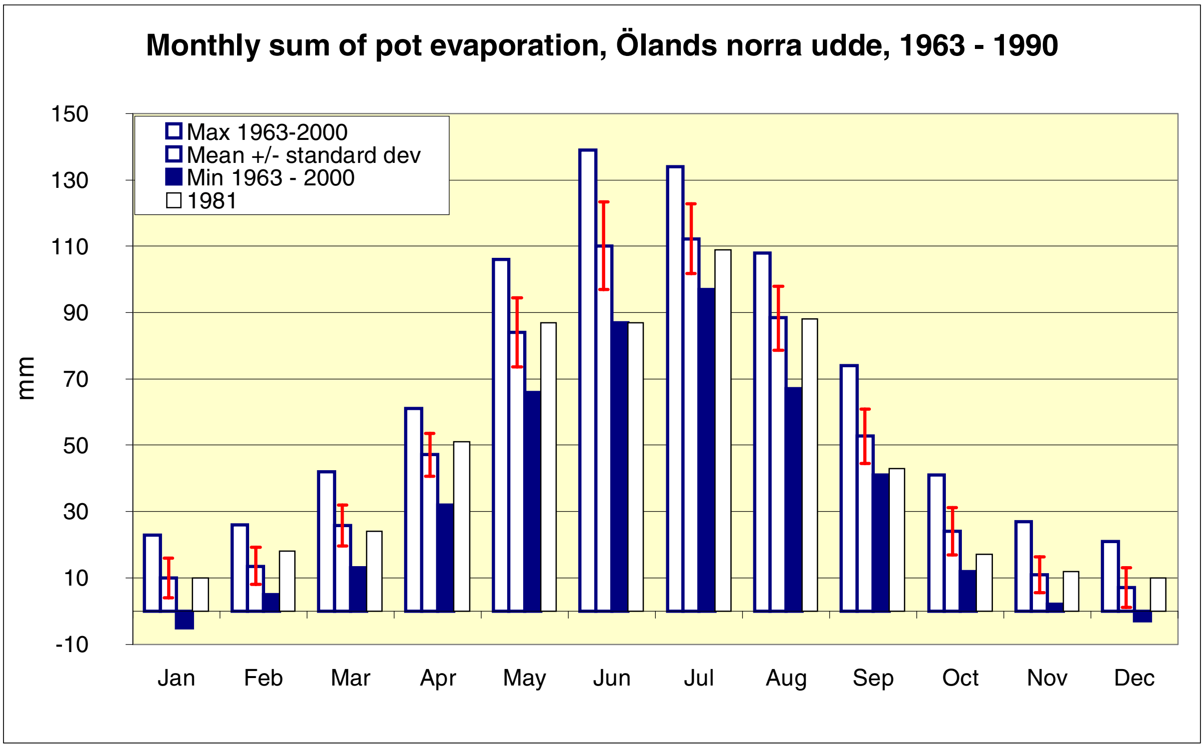

Figure 2-17. *Average the monthly sum of potential evapotranspiration for the period 1963-1990, Ölands norra udde (unfilled columns), max and min. Vertical lines represent standard deviation about mean. Monthly sums for selected year 1981 are also included (striped columns).*

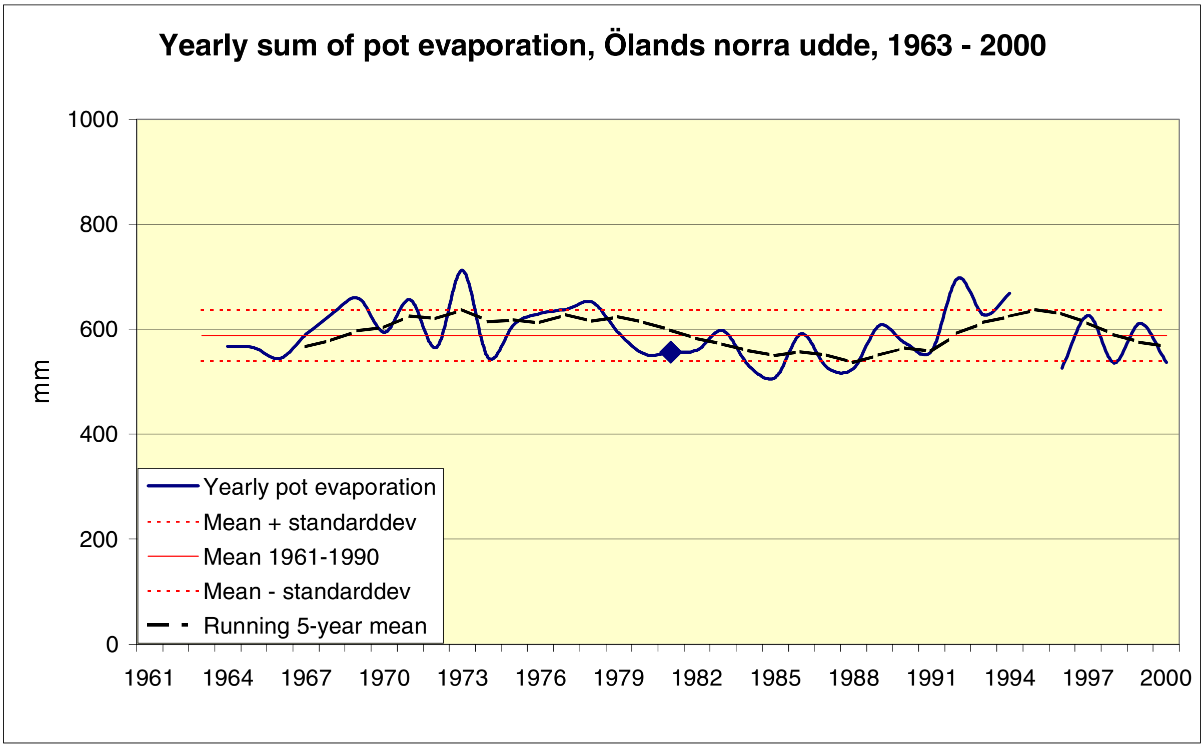

Figure 2-18. *Yearly sums of potential evapotranspiration (continuous curve) for the period 1963 - 2000, Ölands norra udde and running 5-year mean sum of potential evapotranspiration (dashed curve). Average yearly potential evapotranspiration for the period 1963-1990 +/- one standard deviation is drawn (red continuous and dotted lines). The year 1981 is marked with a diamond*

Before 1965 only precipitation was reported from Målilla. Potential has been calculated for the period 1965 - 2000. The result is presented in Figure 2-19 and 2-20. On the average the potential evaporation in summer is about 100 mm. The yearly values shows less year-to-year variation for Målilla than for Västervik and Ölands norra udde.

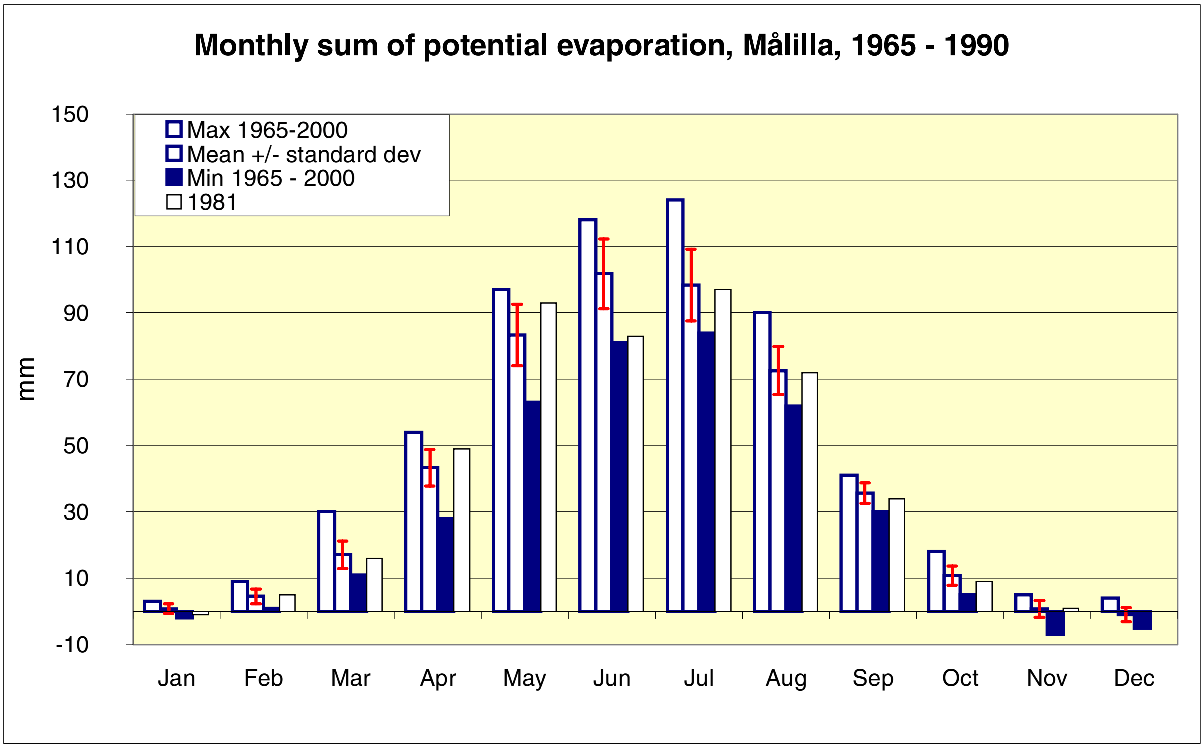

Figure 2-19. *Average of the monthly sum of potential evapotranspiration for the period 1965 -1990, Målilla (unfilled columns), max and min. Vertical lines represent standard deviation about mean. Monthly sums for selected year 1981 are also included (striped columns)*

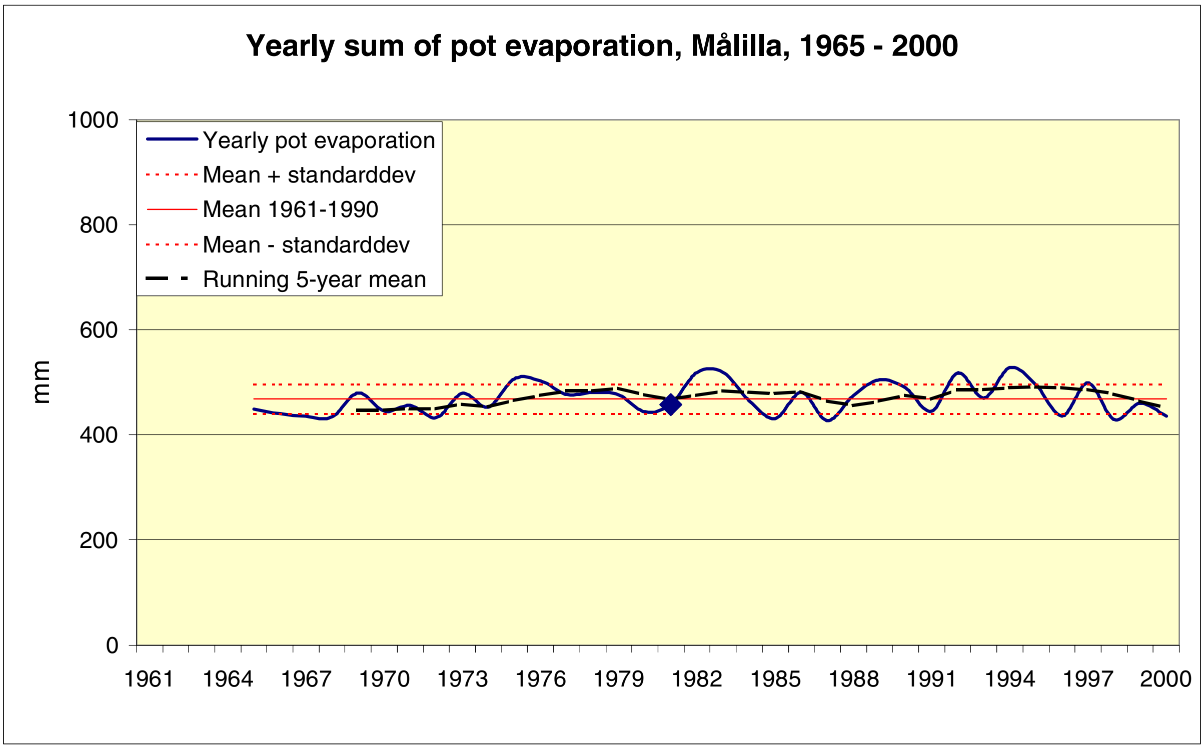

Figure 2-20. *Yearly sums of potential evapotranspiration (continuous curve) for the period 1965 - 2000, Målilla and running 5-year mean sum of potential evapotranspiration (dashed curve). Average yearly potential evapotranspiration for the period 1961-1990 +/- one standard deviation is drawn (red continuous and dotted lines). The year 1981 is marked with a diamond.*

Relative humidity

The most well known measure of humidity is relative humidity, which is expressed in per cent. percentageIn saturated air the relative humidity is 100% and in the air on a summer day it is usually 40-60%.

On average the relative humidity is over 80% all day in midwinter. In the summer it has a marked diurnal cycle with 80 - 100% at night and less than 70% at noon. The pattern shown for Ölands norra udde is typical of the coastline. Diurnal and annual variations are greater inland, humidity data for one coast and one inland station in Uppland are compared (Larsson-McCann et al, 2002).

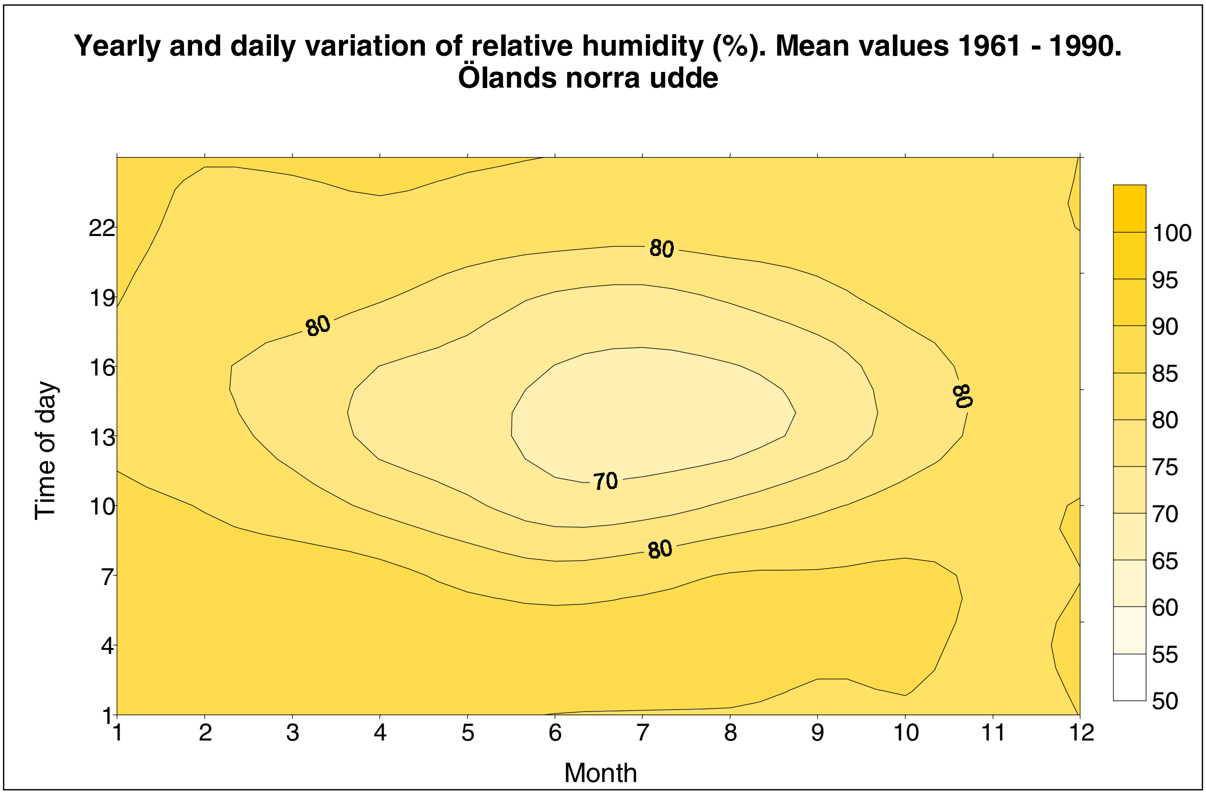

Figure 2-21. *Diurnal and annual variation of relative humidity (%), Ölands norra udde. Mean values for period 1963-1990.*

Global radiation

Like many other meteorological parameters the global radiation shows a significant variation between coastal and inland areas. This depends mainly on differences in cloudiness. In the summer it is often overcast over land but clear sky over sea. In winter differences between north and south are more important.

Global radiation has only been measured at 12 places in Sweden since the late 1950s. been measured only In this work global radiation has been computed (Taesler and Andersson, 1984.). The basis for the computations is the synoptic observations from Ölands norra udde. In Figure 2-22 average monthly sums of global radiation for the period 1961-1990 are presented together with standard deviation and extreme monthly values. The selected year 1981 is also included.

All data shown in figure 2-22 are also given in Table App1-20 in appendix 1.

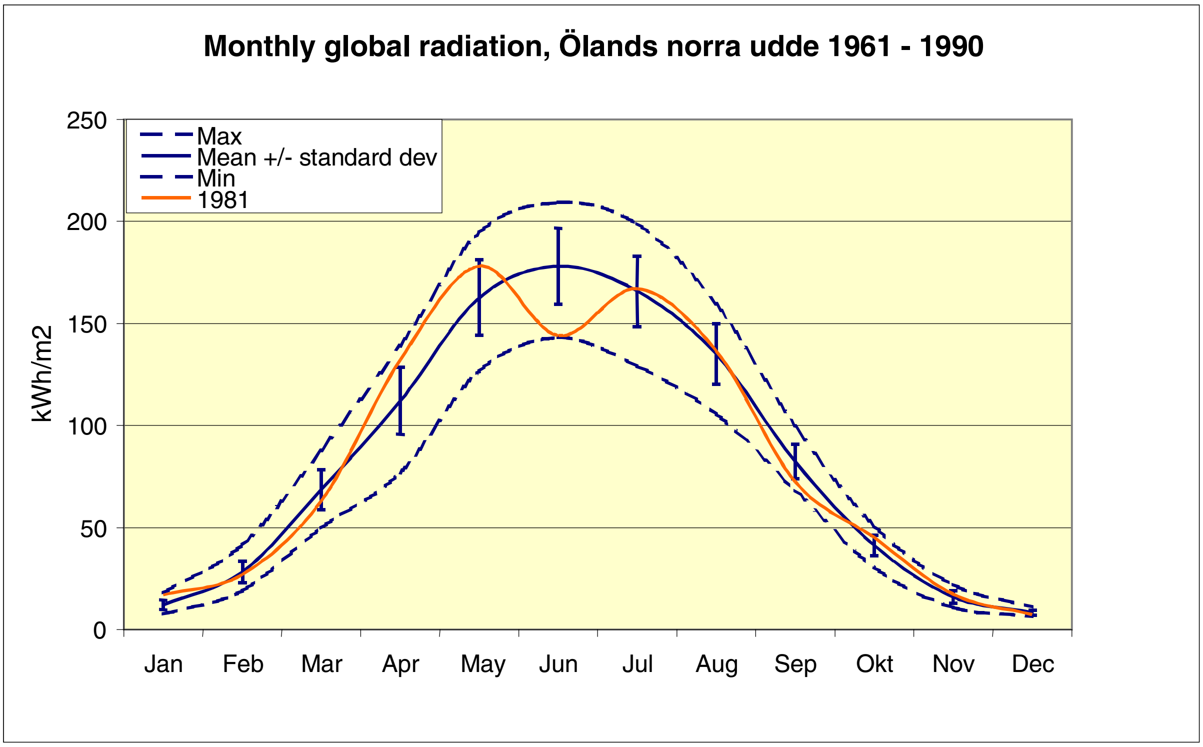

Figure 2-22. *Average monthly global radiation in kWh/ m^2 for the period 1961 - 1990, Ölands norra udde. Vertical lines represent standard deviation and dashed lines maximum and minimum of monthly mean global radiation. Monthly values for the selected year 1981 (red continuous curve) are also included.*

Air pressure

Air pressure is usually above 950 and below 1050 hPa. Occasionally higher or lower values are reported. The lowest air pressure observed in Sweden is 937.2 hPa and the highest is 1063.2 hPa.

The monthly mean value of air pressure has only small annual amplitude in comparison to the day to day variations. On the average the air pressure does not deviate more than a few hPa from the ”normal” value 1013 hPa. Both the highest and the lowest air pressures are more common in the winter. This implies that air pressure variations are greater in winter.

Frequency distributions of air pressure observations for January, April, July and October are shown in Figure 2-7. In January the observations range from 959 hPa to 1048 hPa while in July the range is 985 - 1033 hPa. The distribution for January has a low, flat maximum with less than 25% of the observations within the range 1005 - 1015 hPa while the one for July more than 40% of observations fall in that range. Air pressure values are reduced to mean sea level.

Great changes of air pressure are not well documented, especially over shorter time than three hours. One of the most rapid air pressure falls that have been observed in Sweden, 20 hPa in three hours, was reported from Sandhammaren in the south of Sweden on 23rd of January 1995. That day an intensive cyclone moved towards northeast from Skåne to Åland.

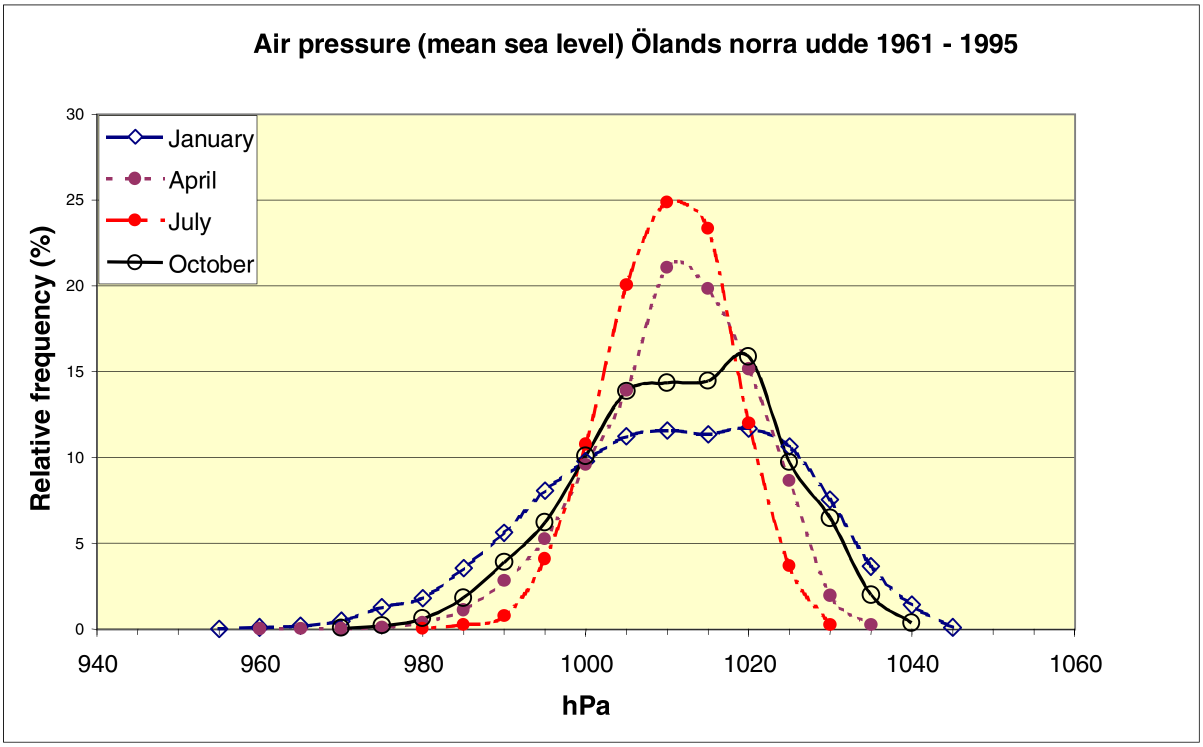

Figure 2-23. *Relative frequency (%) of air pressure at mean sea level (hPa), Ölands norra udde, 1961 - 1995. Curves are given for January (dashed), April (dotted), July and October (continuous). Curves are based on observations every 3 hour.*

Changes of air pressure of that magnitude are very unusual. In Figure 2-24 the frequency of pressure fall and rise with a magnitude greater than 5 hPa in three hours is shown for Ölands norra udde. Great changes in air pressure are much more frequent in the winter than in the summer, this is true for both rising and for falling pressure. The frequency of pressure fall is greater than the one of pressure rise using the limit 5 hPa in three hours.

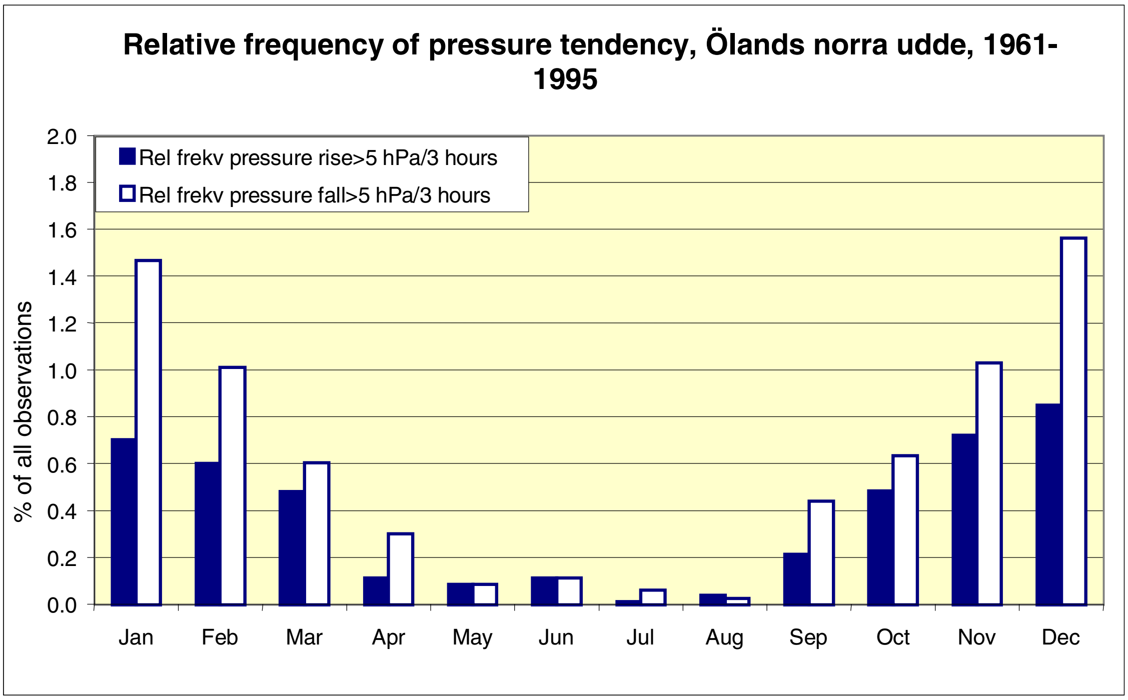

Figure 2-24. *Relative frequency (%) of air pressure tendency greater than 5 hPa/ 3 hours, Ölands norra udde, 1961 - 1995. Frequencies are based on observations every 3 hour.*

Wind

The observing station Ölands norra udde was located close to a lighthouse and the staff made observations until 1995. Today it is an automatic station. In 1968 the wind measurement equipment was placed on top of the lighthouse at a height of 35 m above the ground. The complete weather station was moved in 1995 to a new site south of the old one. The period 1968-1995 was selected in order to get homogeneous data. to

On average winds from south-to-west are most frequent, figure 2-8. In spring hard winds from northeast are not unusual. There is only a small proportion of calm (about 2%), which is due partly to the height of the anemometer and partly to the position at the coast. A frequency of 5-10% with calm is not unusual for inland conditions also for an open place like Uppsala Airport (Larsson-McCann et al, 2002).

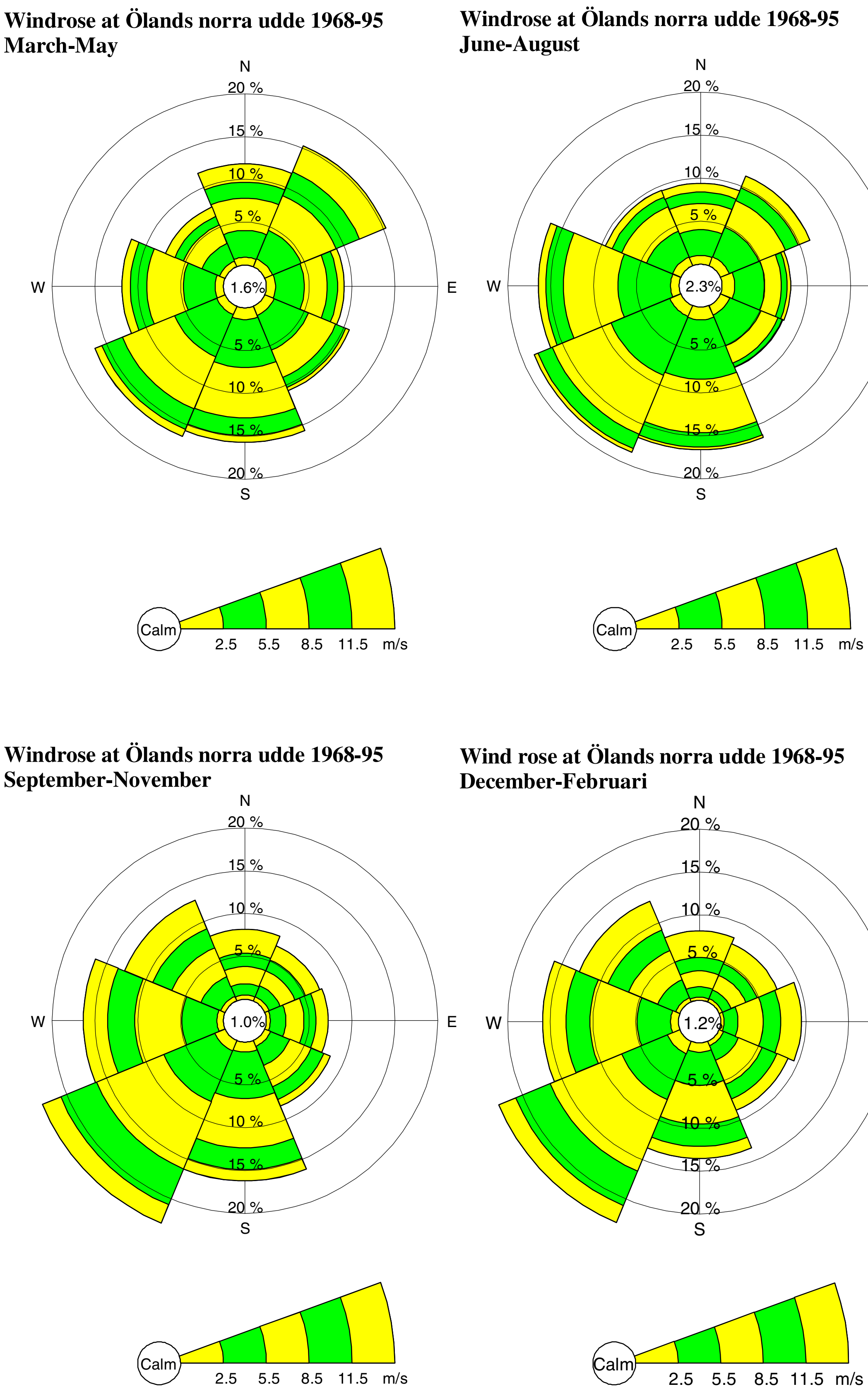

Figure 2-25. *Frequencies (%) of wind (simultaneous direction and speed), 1968 - 1995, Ölands norra udde for spring, summer, autumn and winter. Percent of calm is noted in the centre of each windrose. The wind direction is grouped into 8 classes of 45° (N, NE, E, SE, S, SW, W and NW). Wind speed is classified in intervals of 3 m/s.*

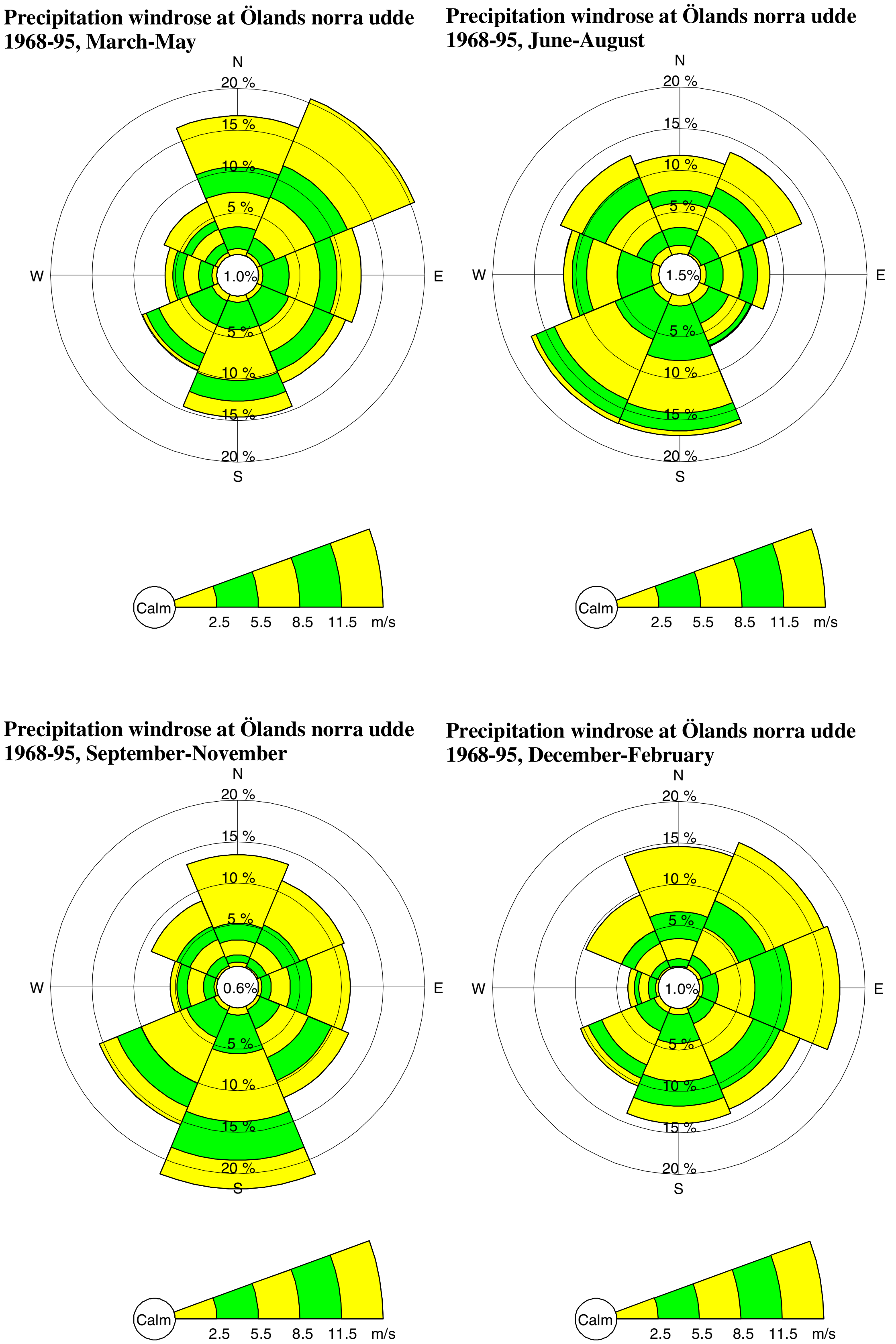

Figure 2-26. *Frequencies (%) of wind (simultaneous direction and speed) in connection with precipitation. Period 1968-1995, Ölands norra udde, spring, summer, autumn and winter. The percentage of calm is noted in the centre of each windrose. The wind direction is grouped into 8 classes of 45° (N, NE, E, SE, S, SW, W and NW). Wind speed is classified in intervals of 3 m/s.*

In connection with precipitation there is a much higher frequency of winds from northeast to east. In connection with snowfall winds from these sectors has a frequency of 60% and a great deal of that time wind speeds are beyond 12 m/s, Figure 2-9 and 2-10.

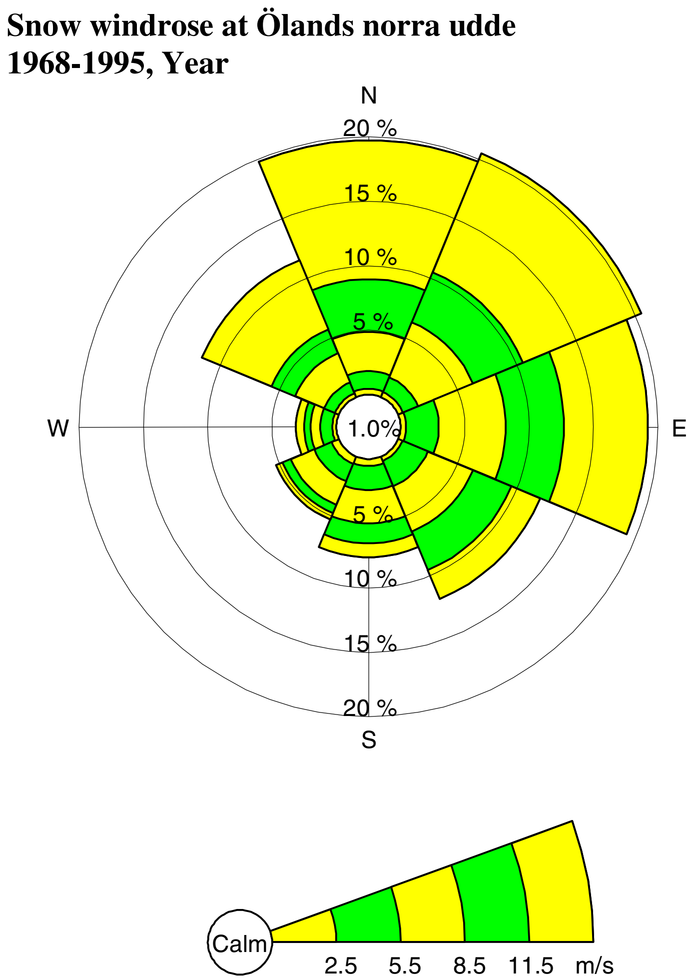

Figure 2-27. *Frequencies (%) of wind (simultaneous direction and speed) in connection with Snow. Period 1968 - 1995, Ölands norra udde for the whole year. The percentage of calm is noted in the centre of the windrose. The wind direction is grouped into 8 classes of 45° (N, NE, E, SE, S, SW, W and NW). Wind speed is classified in intervals of 3 m/s.*

Specially selected year

One "reference" year with data for at least every three hour was selected. First years possible from hydrological point of view were selected since hydrological data are more scarce than meteorological.

The selected year should be as normal as possible, monthly averages and sums should approximately be according to corresponding values for the standard normal period 1961 - 1990. All meteorological parameters should refer to the same station if possible. The parameters, temperature and precipitation, are considered most important when the year is selected.

On these conditions data for 1981 from Ölands norra udde was selected, except for snow depth which was not measured at this site. Data on snow cover are taken from

Oskarshamn some km inland. How close to normal this set of data is can be studied in Figures 2-1 and 2-2 (temp), 2-3 and 2-4 (precip), and 2-7 (global rad) and in table 2-3.

The temperature in 1981 was quite normal. Relatively few monthly means deviate more than 0.5 °C from the normal values. The greatest deviation occurs in December which was 3.5 °C cooler than normal. The yearly mean was 0.4 °C below normal. Precipitation was about 110% of the normal yearly sum. The global radiation seems fairly close to normal except for a very low value in June when it was raining a lot. The amount of measured precipitation was more than twice the normal sum. All station where global radiation was measured showed the same pattern at least in the south and eastern parts of Sweden. (Josefsson, 1987)

Table 2-3. Selected year 1981 compared to the normal period 1961 - 1990, Ölands norra udde

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature, °C													
Mean 61-90	-0.3	-1.1	0.9	3.9	8.6	14.1	16.7	16.5	12.9	8.9	4.6	1.4	7.3
Stand dev	2.4	2.9	2.1	1.2	1.4	1.0	1.2	1.2	1.0	1.1	1.2	1.4	0.9
1981	-0.7	0.2	0.6	4.0	9.7	13.0	16.7	16.1	13.0	8.4	4.1	-2.1	6.9
Precipitation, mm													
Mean 61-90	33	23	25	25	32	32	40	45	52	38	47	39	431
Stand dev	17	13	15	15	18	19	24	28	31	28	21	22	63
1981	15	32	64	16	8.5	79	14	56	15	65	62	44	470
Global radiation, kWh/m^2													
Mean 61-90	12.2	28.5	69.2	113.1	163.8	179.5	168.0	136.6	83.5	41.7	16.2	8.5	1020.7
Stand dev	2.3	5.2	9.5	16.1	18.4	18.2	16.5	14.2	8.4	5.0	2.9	1.1	49.7
1981	16.9	27.3	64.0	133.1	179.1	145.9	168.2	138.8	73.0	45.6	17.6	7.5	1016.8
Potential evapotranspiration, mm													
Mean 63-90	14	14	26	47	84	110	112	88	53	24	11	7	587
Stand dev	6	6	6	6	10	13	10	10	8	7	5	6	49
1981	10	18	24	51	87	87	109	88	43	17	12	10	556

2.2 Methodology – hydrology

The discharge gauging station 1619 Forshultesjön nedre is chosen to represent the Oskarshamn area. It has a continuous record series with registrations since 1955, an annual mean specific discharge of 5.7 l/s·km^2 and a catchment area of 103.2 km^2. No other station in the neighbourhood is found to be able to contribute with completion data. However, by modelling 40 years of daily mean discharge has been simulated for two sites within the area of interest (GE1 and LA1). Using the unit l/s·km^2 has a specific purpose; by doing so it will be easy to compare discharge in different areas. One year has been specially chosen as being close to a statistically "normal" one; for the Oskarshamn area the year 1981 has been chosen. A statistical analysis has been made to determine the characteristics of discharge where the minimum 50 years, maximum 50 and 100 years has been carried out by frequency analysis. Long term minimum and maximum as well as a long term average has been determined by mean value calculation. All data shown in the figures are also given in tables in the appendix 2.

Table 2-4. Hydrological stations. Area = catchment area (km^2). Co-ordinates in RT90.

Stn No	Name	River	Lake %	Area	N	E	Period	Represents
1619	Forshultesjön	Lillån	5	103.2	634734	153084	1955-2000	Oskarshamn
	GE1	Gerseboån	1.2	24.8	637249	155155	1962-2001	Oskarshamn
	LA1	Laxemarån	0	41.3	636614	155041	1962-2001	Oskarshamn

Table 2-5. Characteristic discharge 1619 Forshultesjön nedre 1955-2000 (l/s km^2). Catchment area: 103.2 km^2. Daily mean values. Obs min = observed minimum.

Obs min	MLQ[1)]	MQ	MHQ	HHQ50	HHQ100
0	0.58	5.7	26	59	66

[1)] MLQ = longterm average of annual minimum discharge, MQ = longterm average discharge, MHQ = longterm average of annual maximum discharge, HHQ50 = highest maximum flow 50 years, HHQ100 = highest maximum flow 100 years

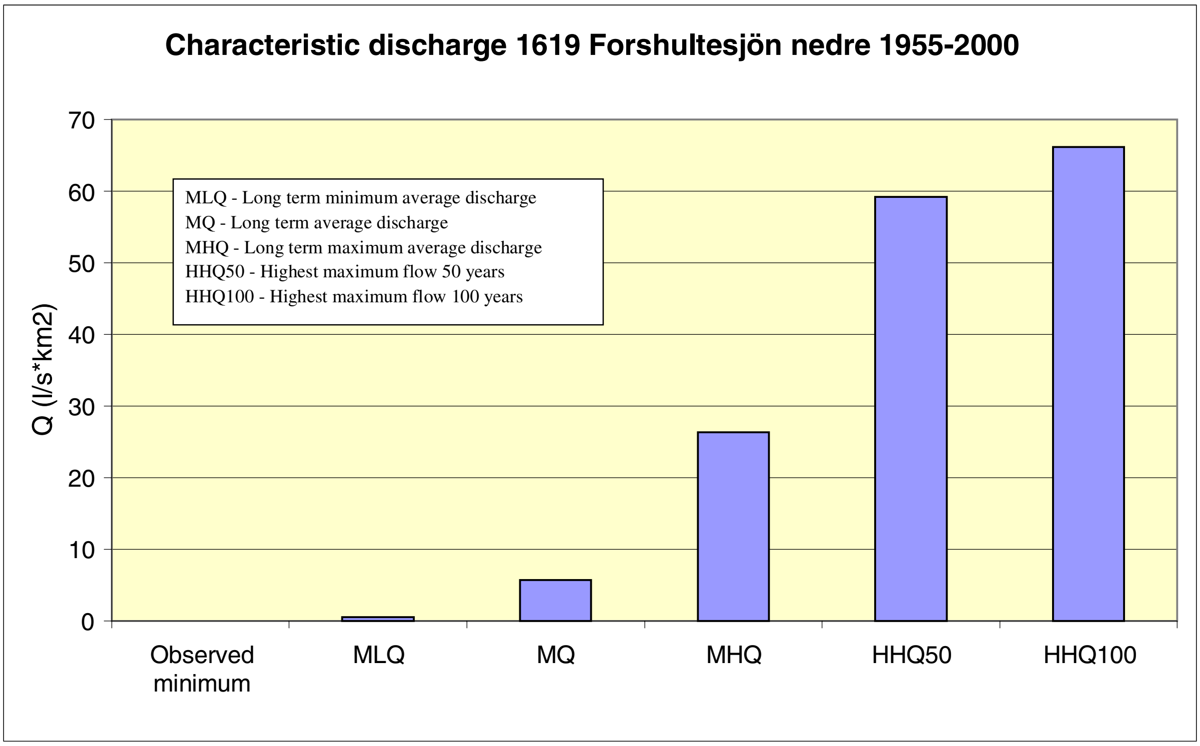

Figure 2-28. *Characteristic discharge 1619 Forshultesjön nedre 1955-2000. Daily mean values (l/s·km^2).*

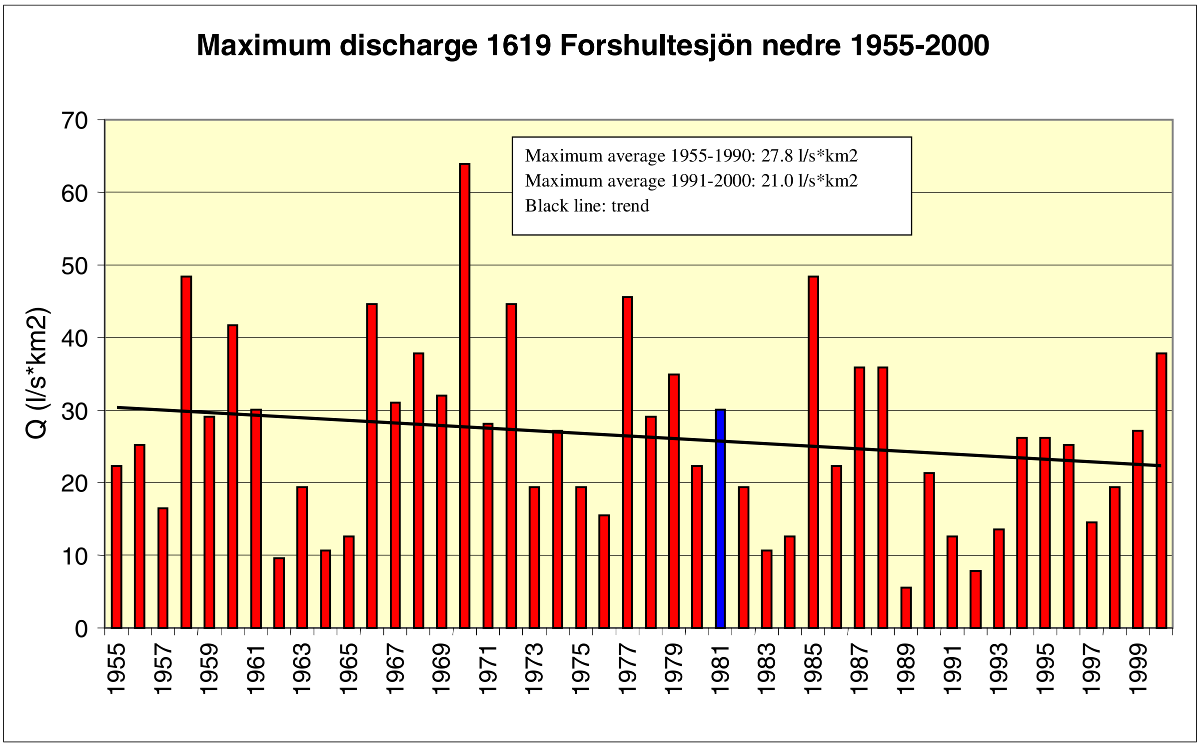

Figure 2-29. *Maximum daily mean discharge 1619 Forshultesjön nedre 1955-2000 with trend (l/s·km^2). 1981 specially selected year.*

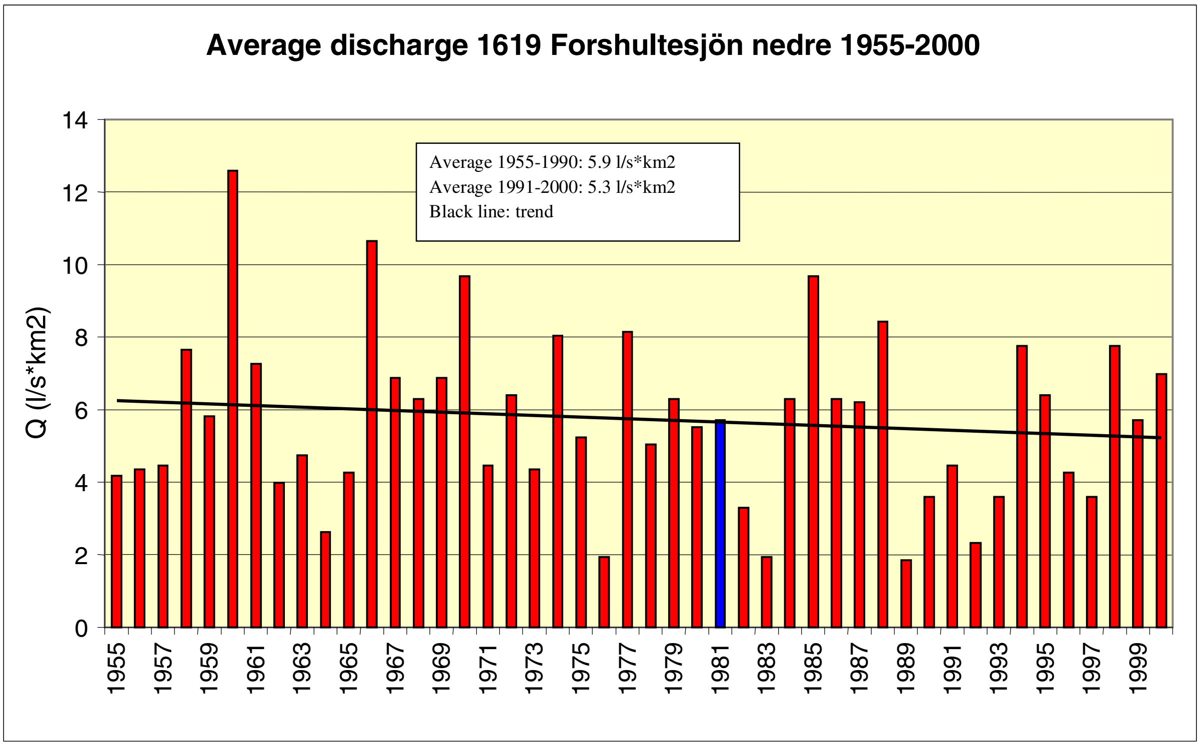

Figure 2-30. *Average discharge 1619 Forshultesjön nedre 1955-2000 with trend (l/s·km^2). 1981 specially selected year.*

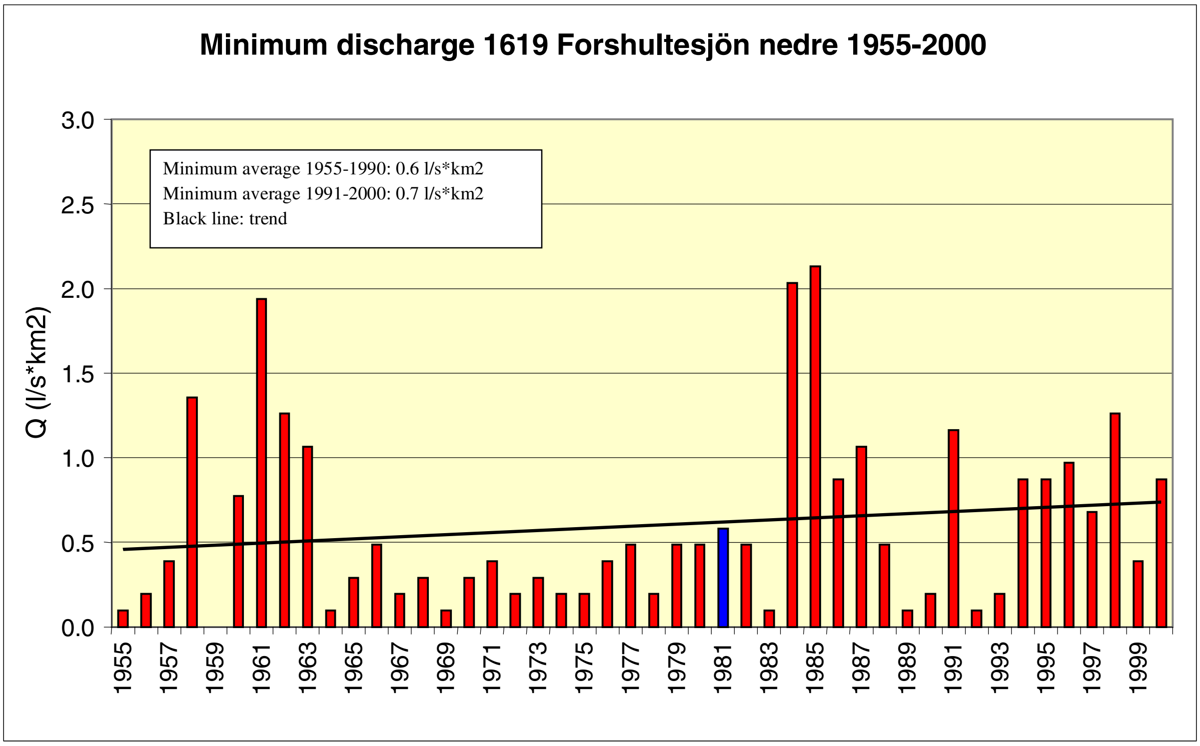

Figure 2-31. *Minimum daily mean discharge 1619 Forshultesjön nedre 1955-2000 with trend (l/s·km^2). 1981 specially selected year.*

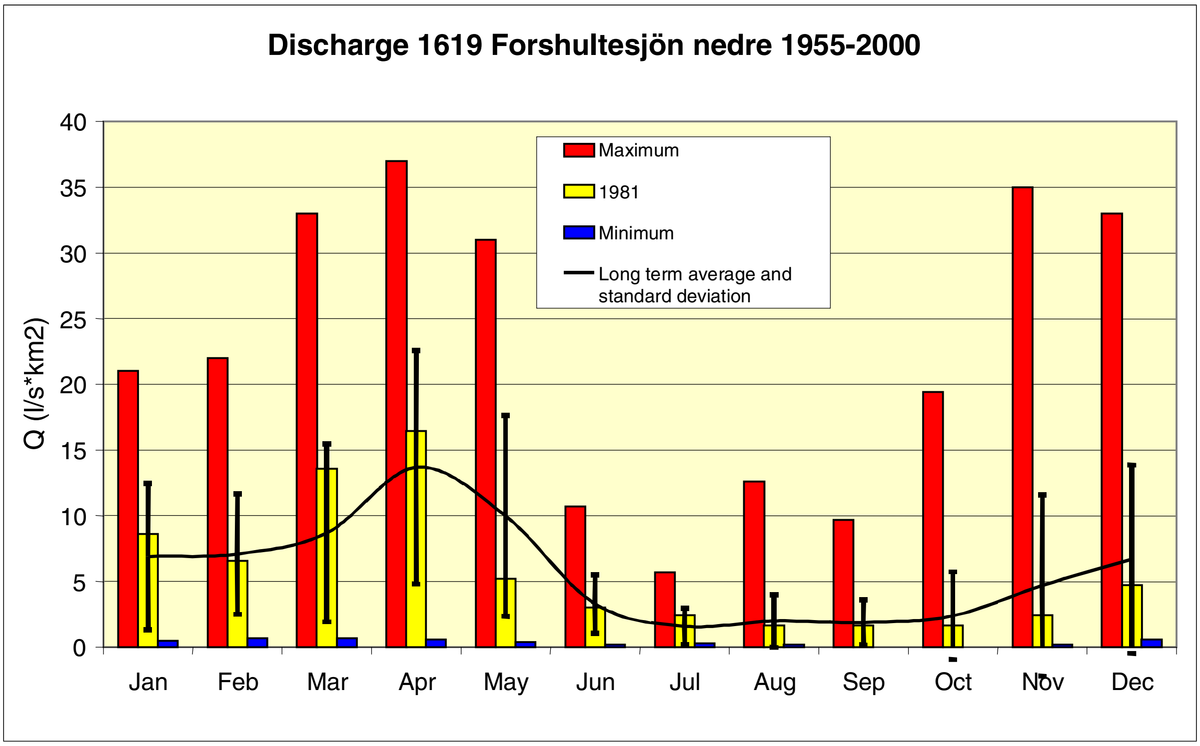

Figure 2-32. *Monthly discharge 1619 Forshultesjön nedre 1955-2000. Maximum and minimum daily mean, long term average and standard deviation (l/s·km²). 1981 specially selected year.*

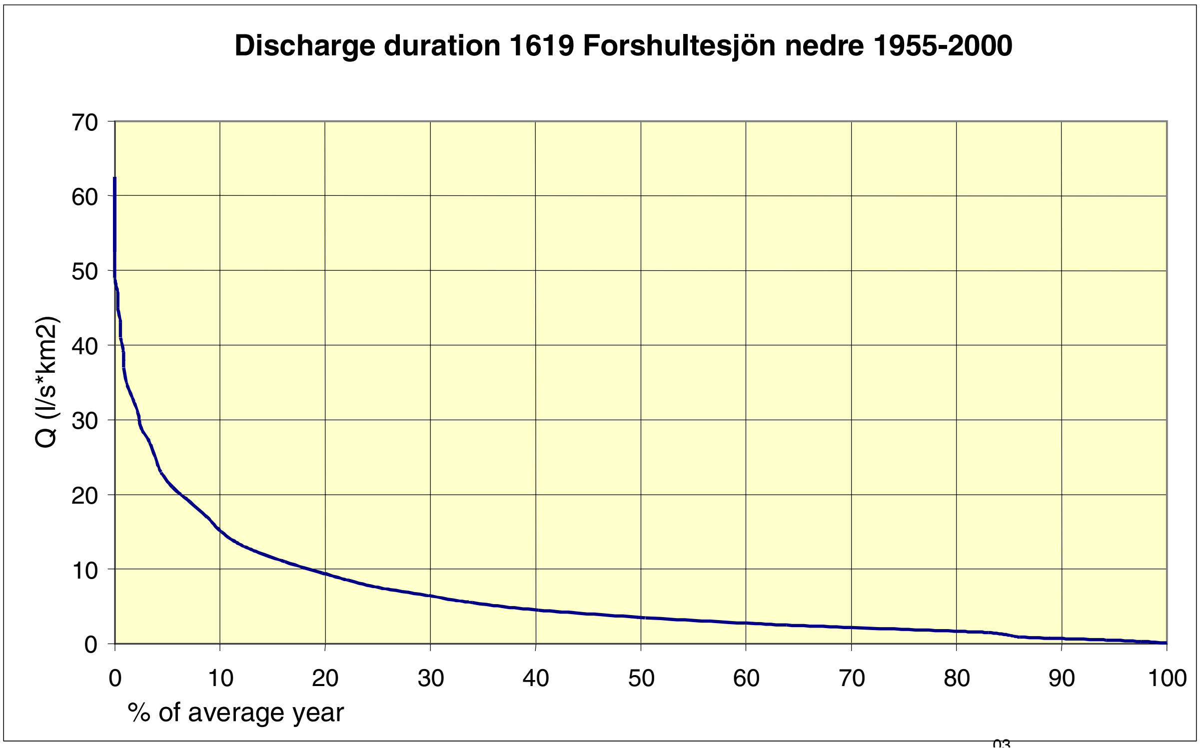

Figure 2-33. *Discharge duration based on daily mean values for 1619 Forshultesjön nedre 1955-2000 (l/s·km²).*

Table 2-6. Characteristic monthly discharge 1619 Forshultesjön nedre 1955-2000 (l/s km²). Catchment area: 103.2 km². Daily mean values.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	21	22	33	37	31	11	5.7	13	9.7	19	35	33
Med	6.9	7.1	8.7	14	10	3.3	1.6	2.0	1.9	2.4	4.7	6.7
Min	0.48	0.68	0.68	0.58	0.39	0.19	0.29	0.19	0	0	0.19	0.58
Std	5.6	4.6	6.8	8.9	7.6	2.2	1.4	2.0	1.7	3.3	6.9	7.2

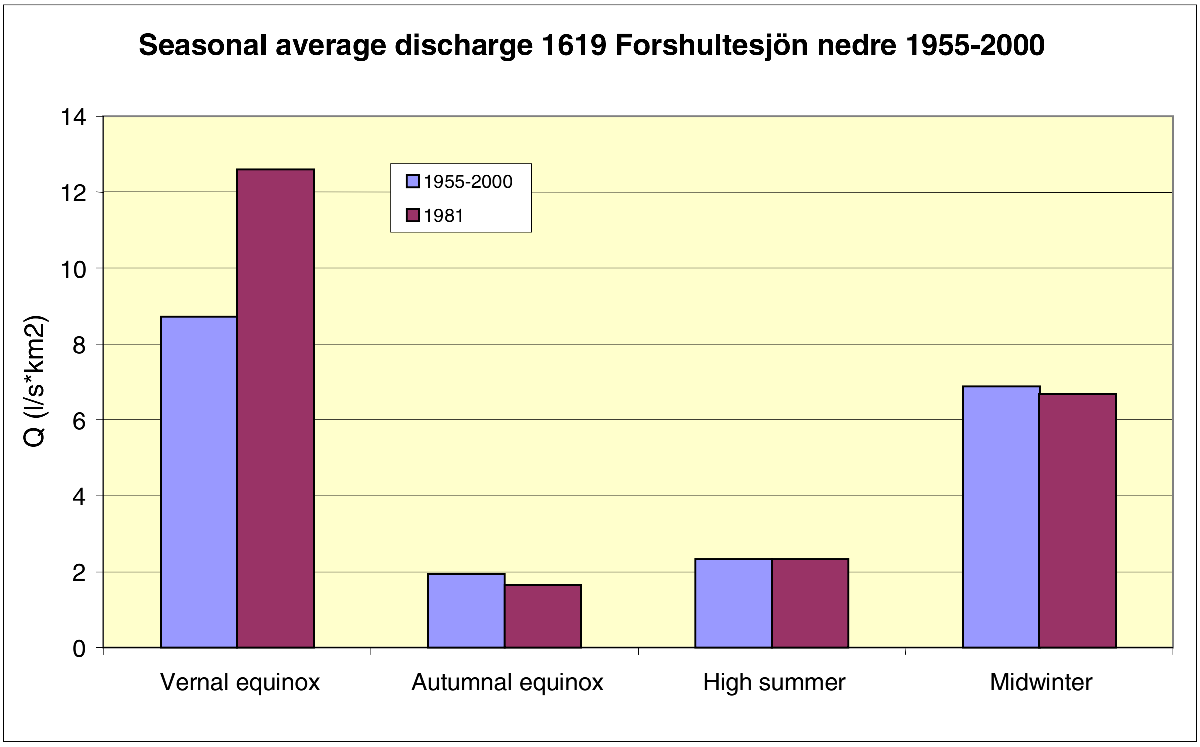

Figure 2-34. *Seasonal average discharge 1619 Forshultesjön nedre 1955-2000 (l/s·km^2). Vernal equinox (March 20), autumnal equinox (Sept 23), high summer (average Jun-Aug) and Midwinter (average Dec-Feb). 1981 specially selected year.*

Table 2-7. Seasonal average discharge 1619 Forshultesjön nedre 1955-2000 (l/s km^2). Catchment area: 103.2 km^2. Daily mean values.

Season	Vernal equinox (March 23)	Autumnal equinox (Sept 20)	High summer (Jun-Aug)	Midwinter (Dec-Feb)
Discharge	8.7	1.9	2.3	6.9

Table 2-8. Calculated characteristic discharge GE1 Gerseboån 1962-2001 (l/s km²). Catchment area: 24.8 km². Daily mean values. Calc min = calculated minimum.

Calc min	MLQ	MQ	MHQ	HHQ50	HHQ100
0	0.46	4.7	21	52	56

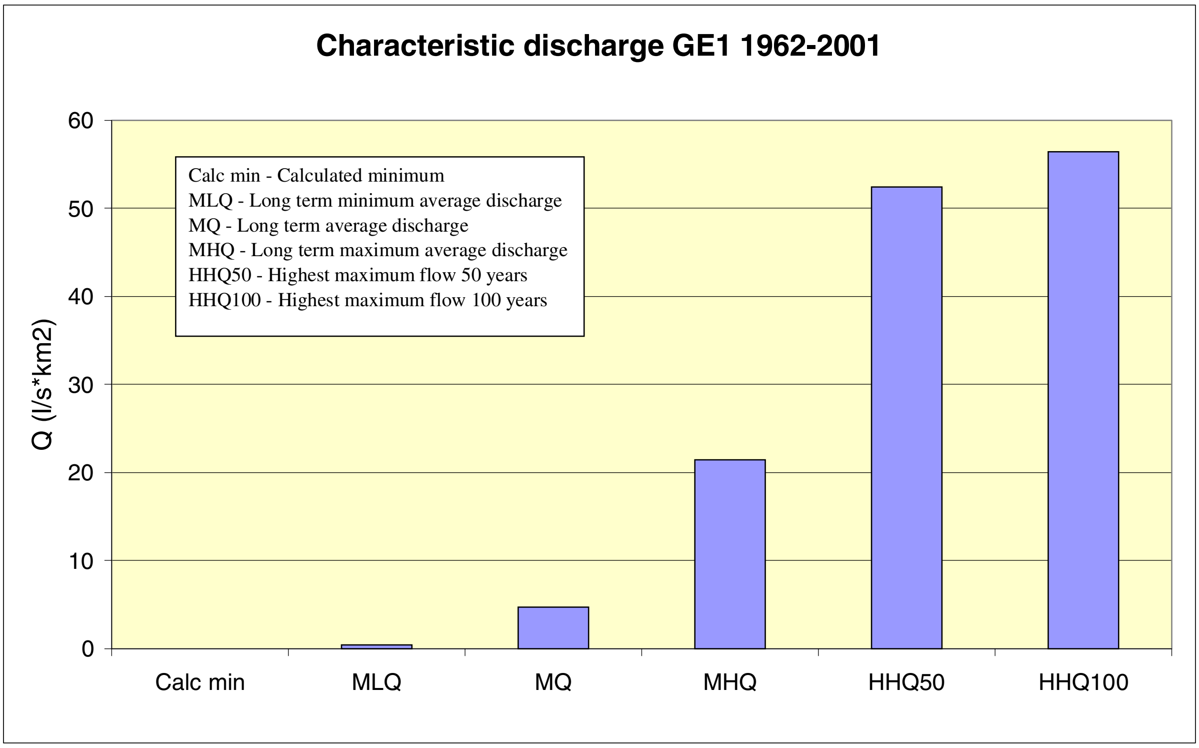

Figure 2-35. *Calculated characteristic discharge GE1 Gerseboån 1962-2001. Daily mean values (l/s·km²).*

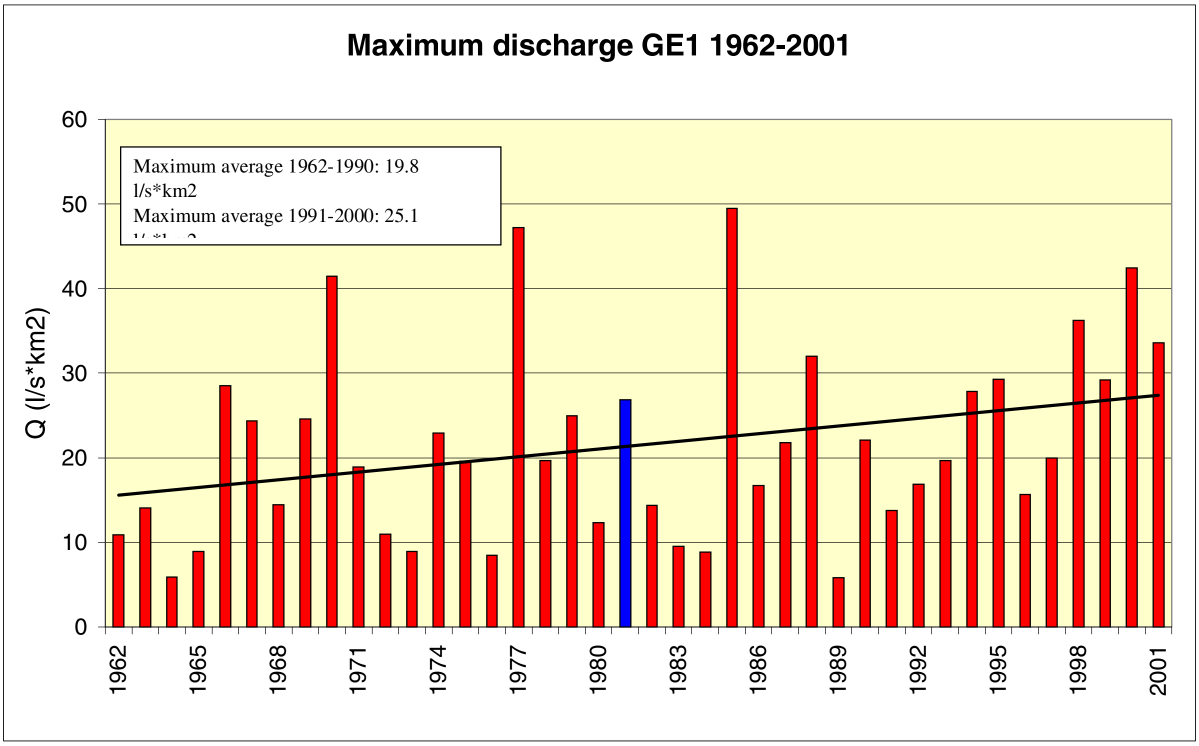

Figure 2-36. *Calculated maximum daily mean discharge GE1 Gerseboån 1962-2001 with trend (l/s·km²). 1981 specially selected year.*

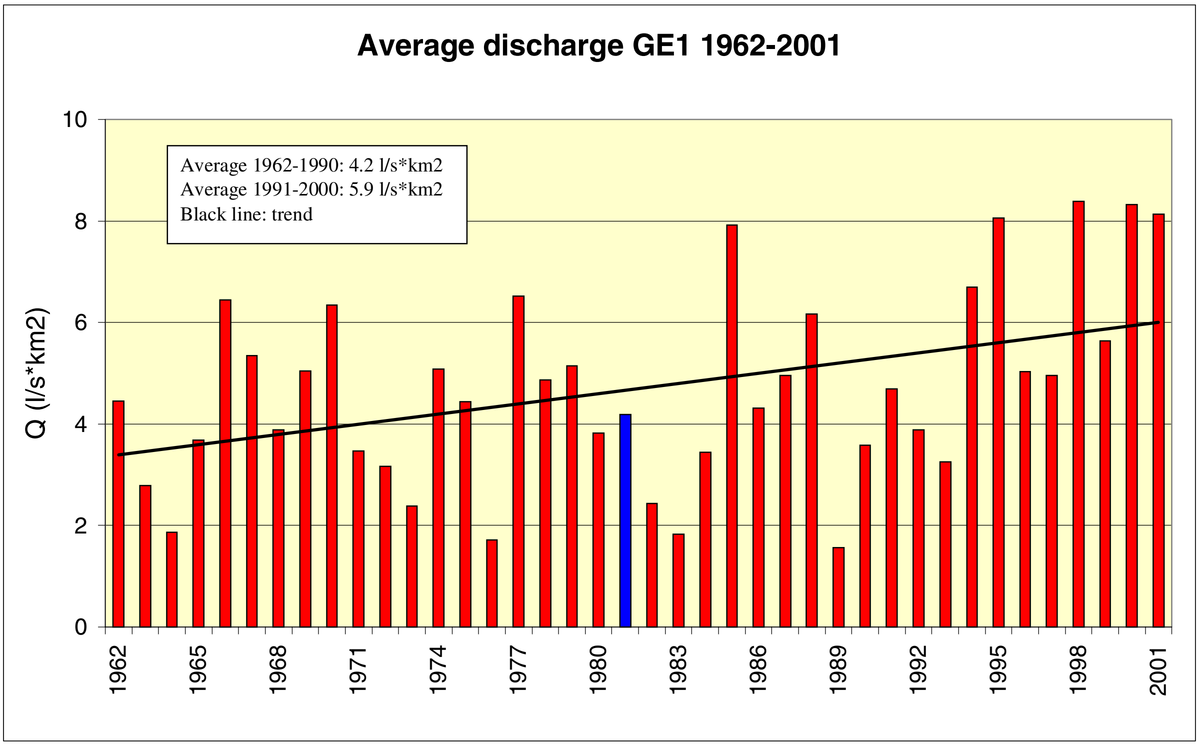

Figure 2-37. *Calculated average discharge GE1 Gerseboån 1962-2001 with trend (l/s·km^2). 1981 specially selected year.*

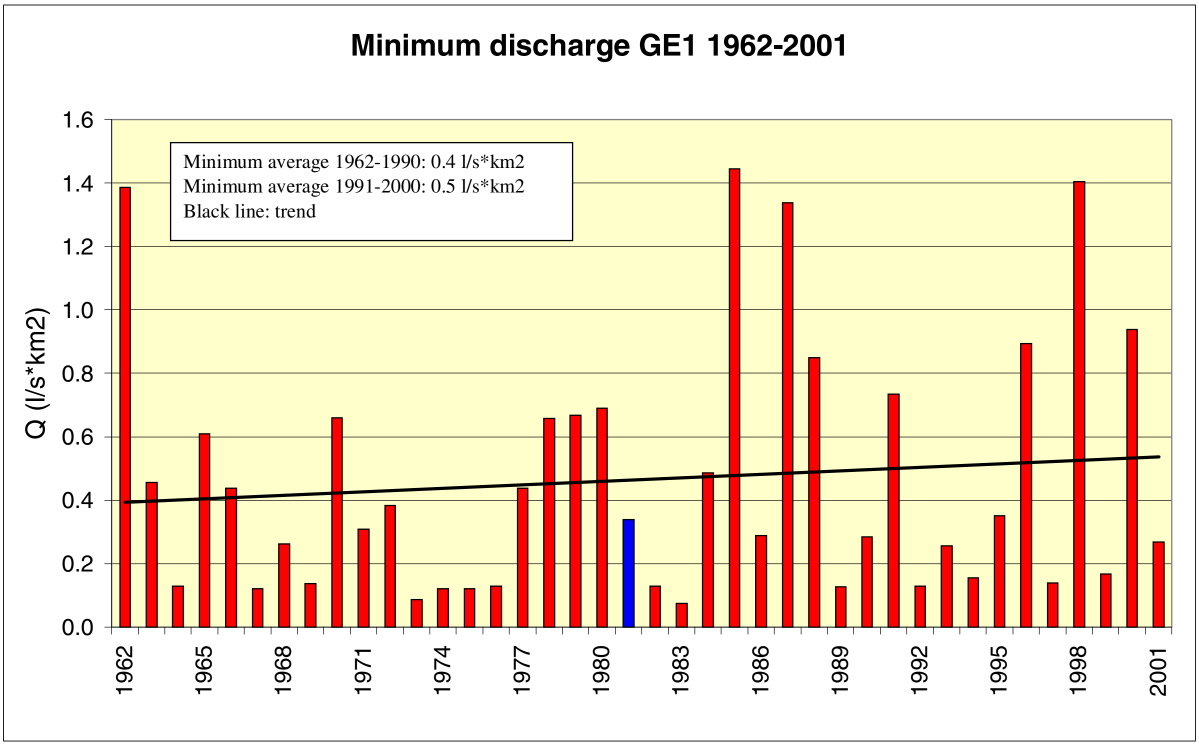

Figure 2-38. *Calculated minimum daily mean discharge GE1 Gerseboån 1962-2001 with trend (l/s·km^2). 1981 specially selected year.*

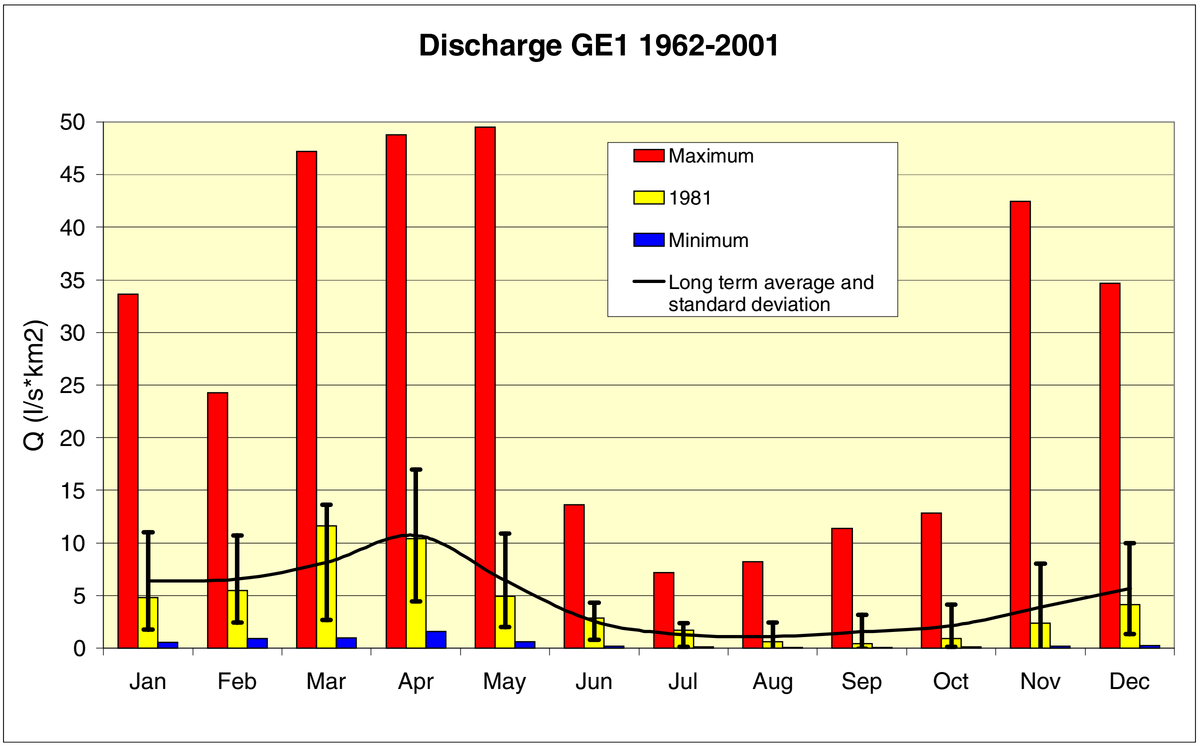

Figure 2-39. *Monthly discharge GE1 Gerseboån 1962-2001. Maximum and minimum daily mean, long term average and standard deviation (l/s·km^2). 1981 specially selected year.*

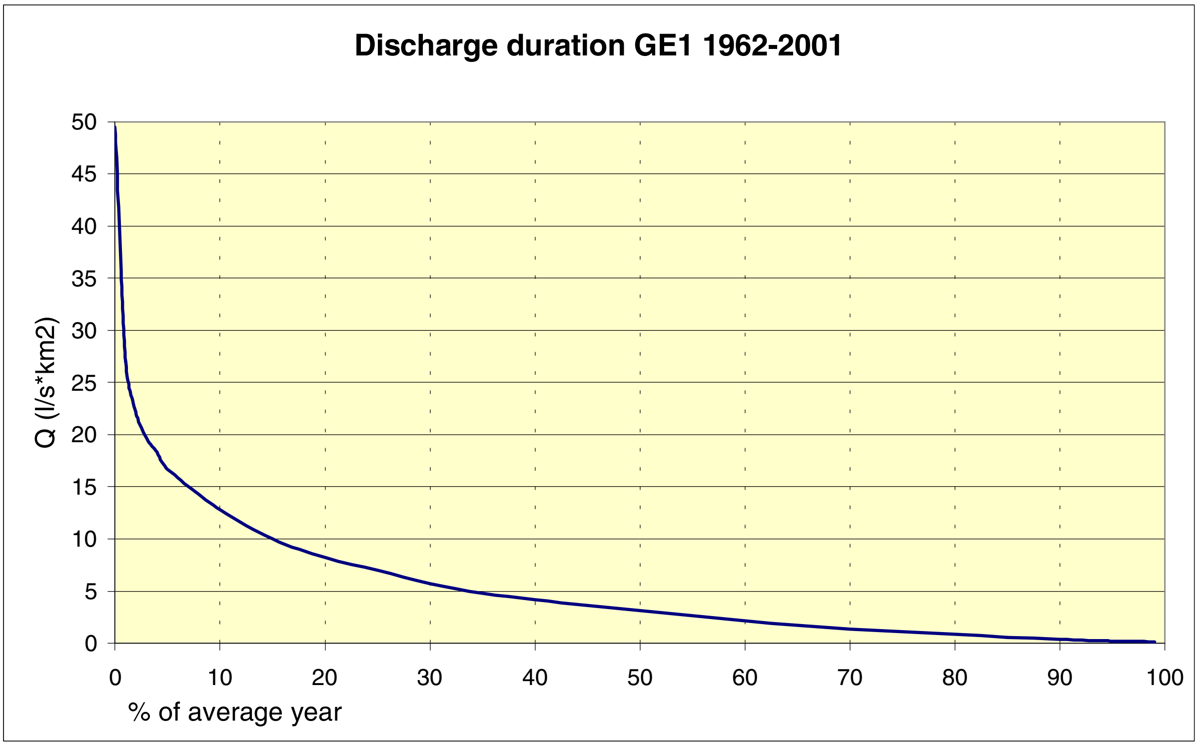

Figure 2-40. *Discharge duration based on daily mean values for GE1 Gerseboån 1962-2001 (l/s·km^2).*

Table 2-9. Calculated characteristic monthly discharge GE1 Gerseboån 1962-2001 (l/s km^2). Catchment area: 24.8 km^2. Daily mean values.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	34	24	47	49	49	14	7.2	8.2	11	13	42	35
Med	6.4	6.6	8.2	11	6.4	2.5	1.3	1.1	1.6	2.1	3.9	5.6
Min	0.56	0.89	0.98	1.60	0.59	0.20	0.13	0.08	0.07	0.12	0.19	0.22
Std	4.6	4.2	5.5	6.3	4.4	1.8	1.1	1.3	1.6	2.0	4.2	4.3

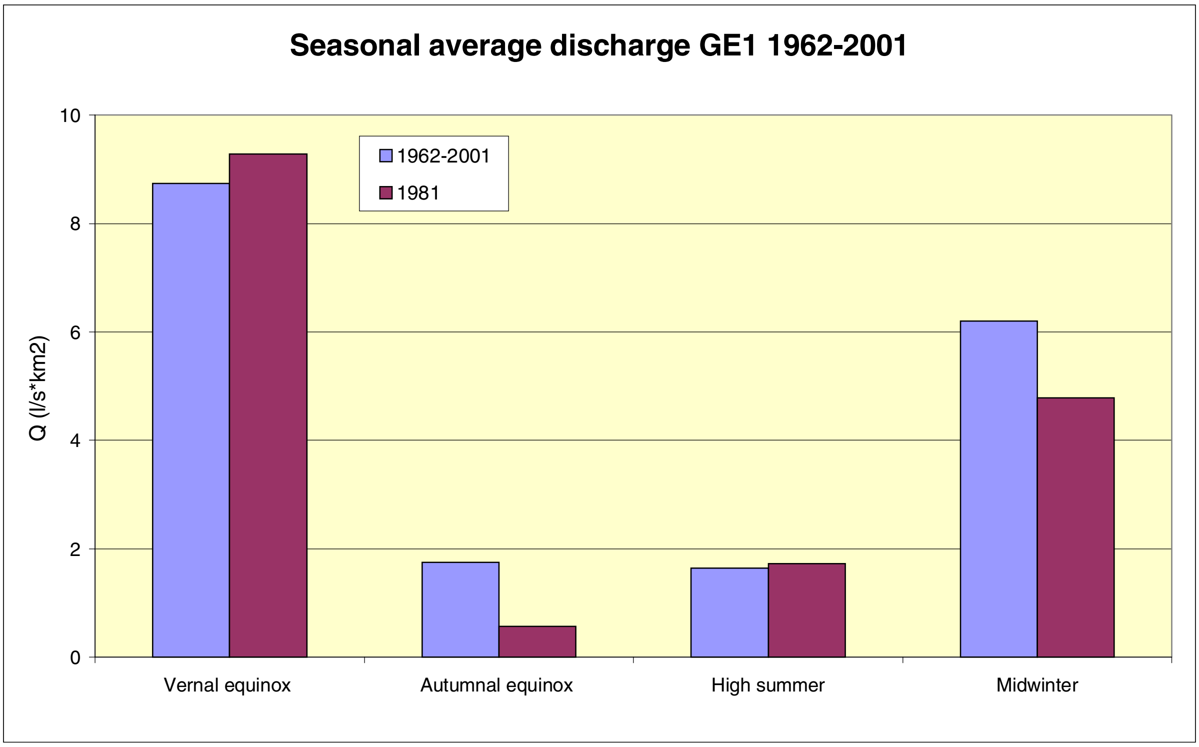

Figure 2-41. *Seasonal average discharge GE1 Gerseboån 1962-2001 (l/s·km^2). Vernal equinox (March 20), autumnal equinox (Sept 23), high summer (average Jun-Aug) and Midwinter (average Dec-Feb). 1981 specially selected year.*

Table 2-10. Calculated seasonal average discharge GE1 Gerseboån 1962-2001 (l/s km^2). Catchment area: 24.8 km^2. Daily mean values.

Season	Vernal equinox (March 23)	Autumnal equinox (Sept 20)	High summer (Jun-Aug)	Midwinter (Dec-Feb)
Discharge	8.7	1.8	1.6	6.2

Table 2-11. Calculated characteristic discharge LA1 Laxemarån 1962-2001 (l/s km²). Catchment area: 41.3 km². Daily mean values. Calc min = calculated minimum.

Calc min	MLQ	MQ	MHQ	HHQ50	HHQ100
0.24	0.63	5.4	43	99	111

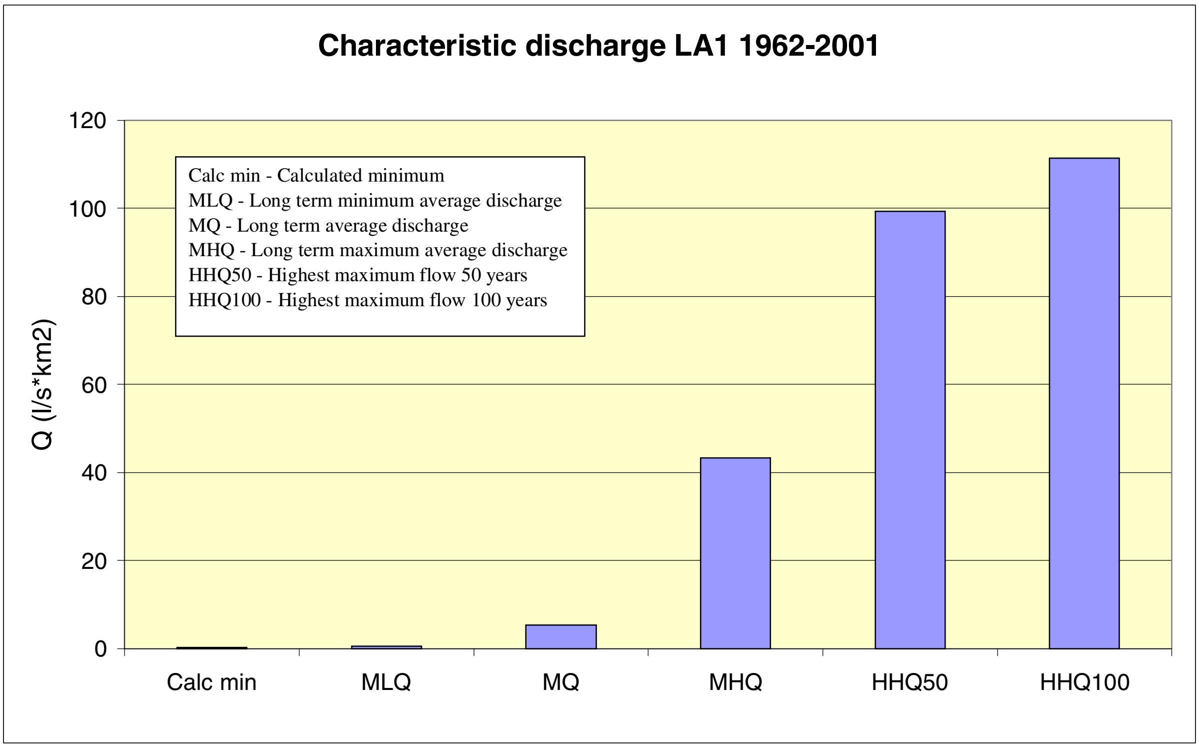

Figure 2-42. *Calculated characteristic discharge LA1 Laxemarån 1962-2001. Daily mean values (l/s·km²).*

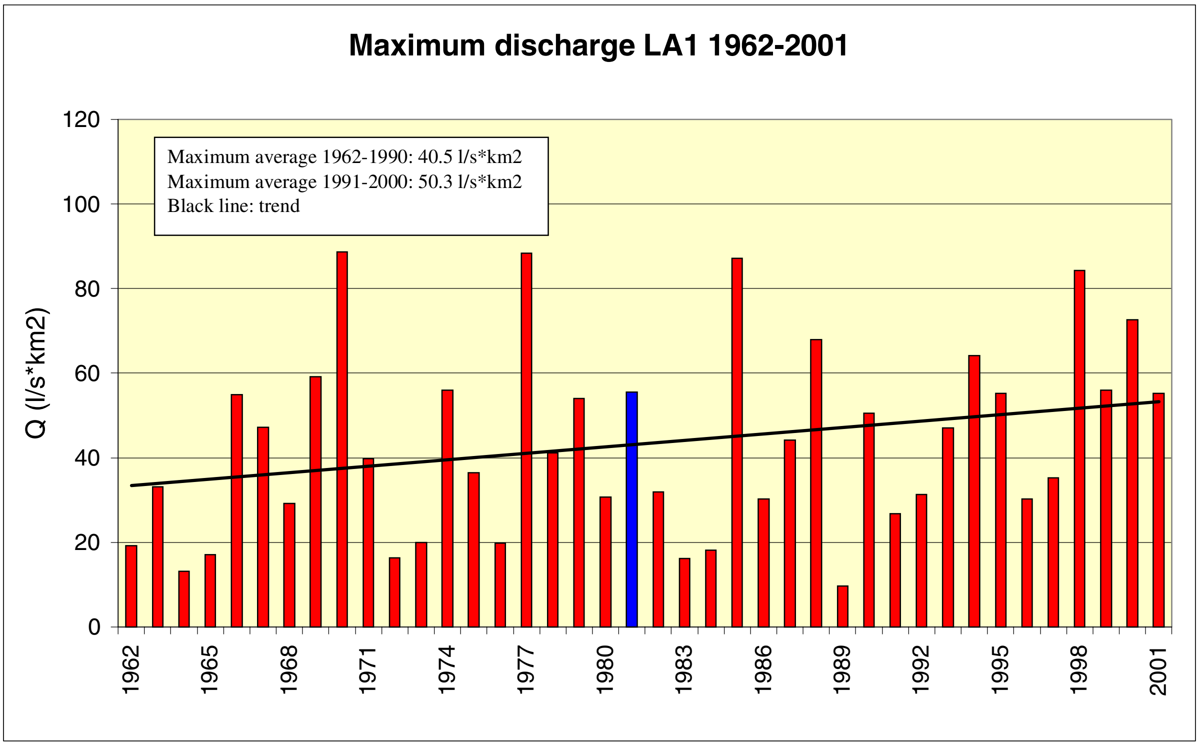

Figure 2-43. *Calculated maximum daily mean discharge LA1 Laxemarån 1962-2001 with trend (l/s·km²). 1981 specially selected year.*

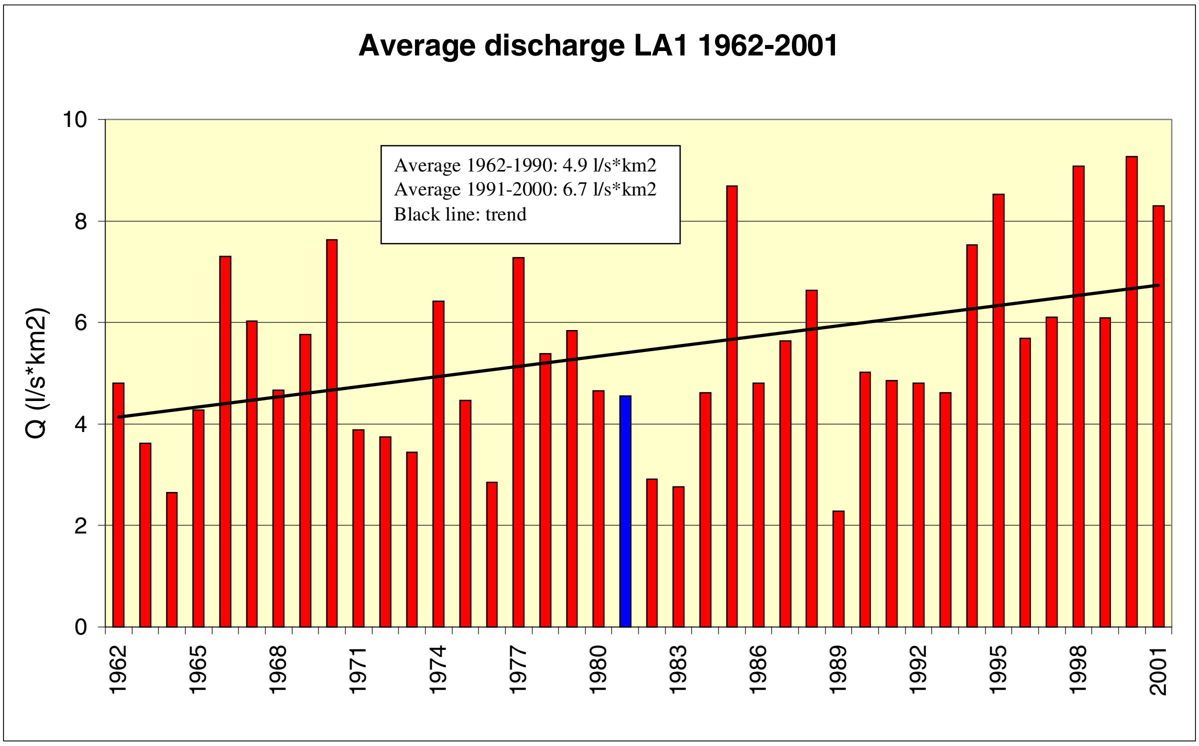

Figure 2-44. *Calculated average discharge LA1 Laxemarån 1962-2001 with trend (l/s·km^2). 1981 specially selected year.*

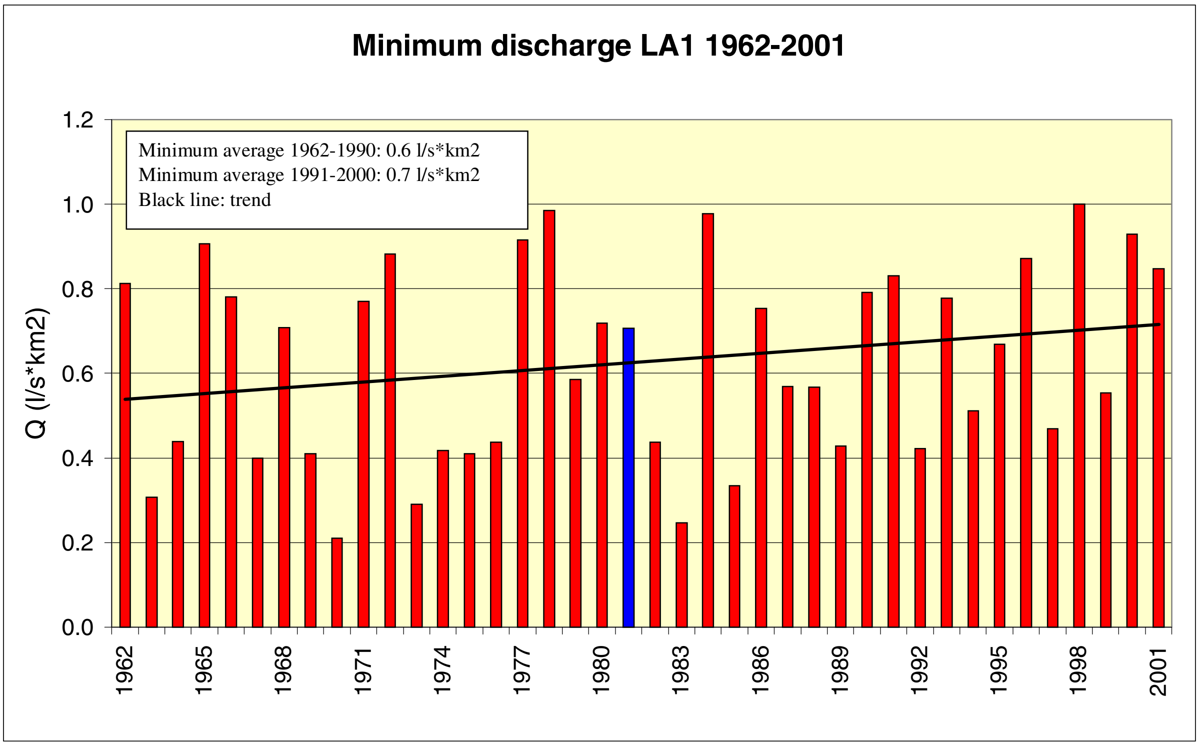

Figure 2-45. *Calculated minimum daily mean discharge LA1 Laxemarån 1962-2001 with trend (l/s·km^2). 1981 specially selected year*

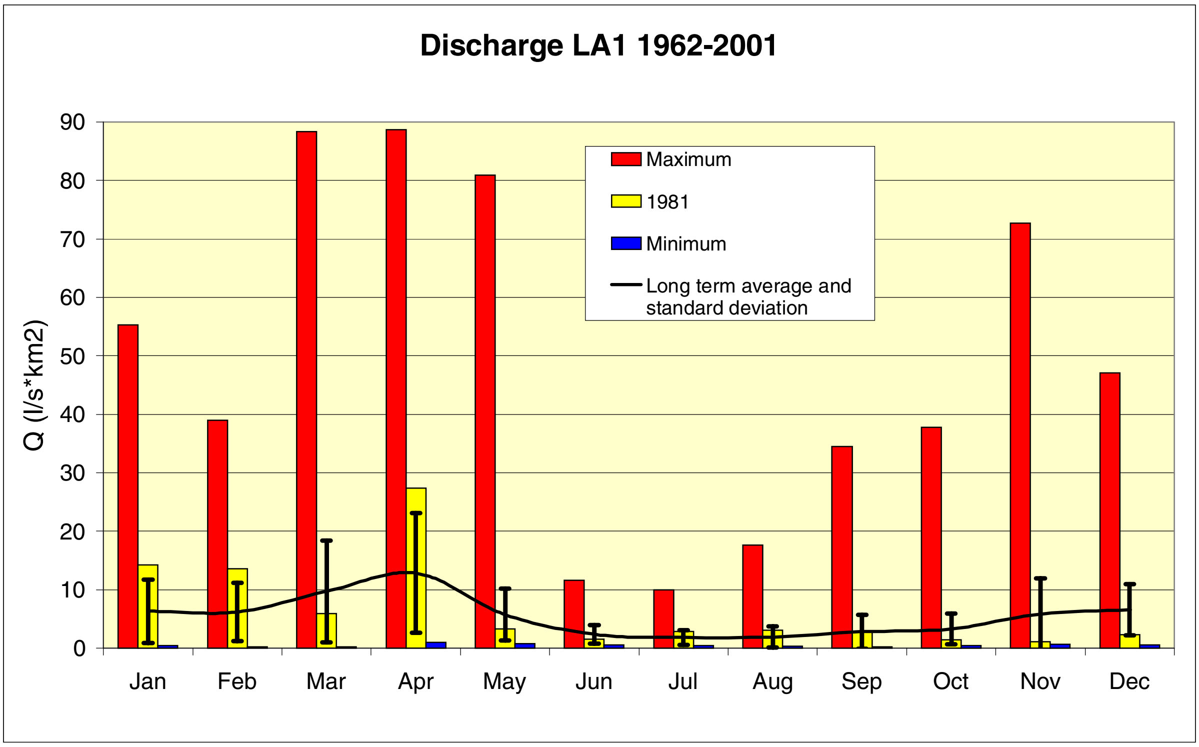

Figure 2-46. *Monthly discharge LA1 Laxemarån 1962-2001. Maximum and minimum daily mean, long term average and standard deviation (l/s·km^2). 1981 specially selected year.*

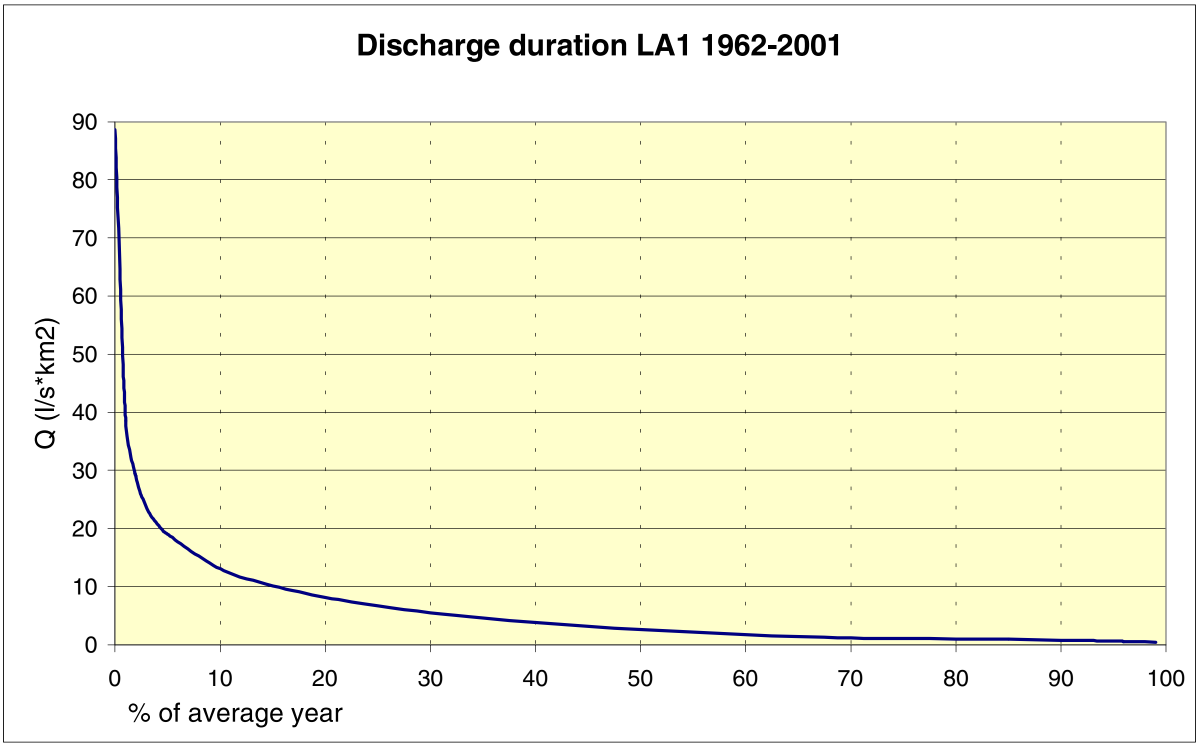

Figure 2-47. *Discharge duration based on daily mean values for LA1 Laxemarån 1962-2001 (l/s·km^2).*

Table 2-12. Calculated characteristic monthly discharge LA1 Laxemarån 1962-2001 (l/s km^2). Catchment area: 41.3 km^2. Daily mean values.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	55	39	88	89	81	12	10	18	34	38	73	47
Med	6.3	6.2	9.7	13	5.7	2.4	1.8	1.9	2.8	3.3	5.8	6.6
Min	0.40	0.23	0.21	0.99	0.80	0.55	0.42	0.28	0.25	0.42	0.62	0.57
Std	5.4	4.9	8.7	10.2	4.4	1.6	1.2	1.8	2.9	2.7	6.1	4.4

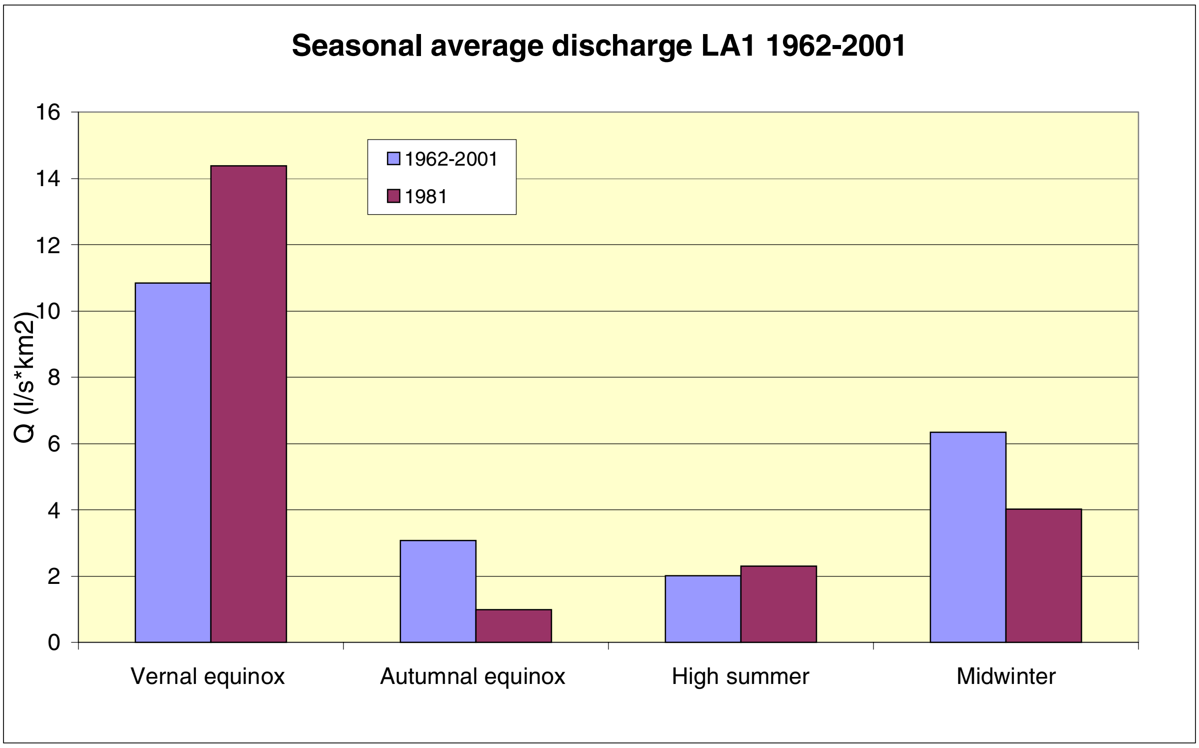

Figure 2-48. *Seasonal average discharge LA1 Laxemarån 1962-2001 (l/s·km^2). Vernal equinox (March 20), autumnal equinox (Sept 23), high summer (average Jun-Aug) and Midwinter (average Dec-Feb). 1981 specially selected year.*

Table 2-13. Calculated seasonal average discharge LA1 Laxemarån 1962-2001 (l/s km^2). Catchment area: 41.3 km^2. Daily mean values.

Season	Vernal equinox (March 23)	Autumnal equinox (Sept 20)	High summer (Jun-Aug)	Midwinter (Dec-Feb)
Discharge	10.8	3.1	2.0	6.4

Water level

A statistical analysis has been made on water level data from the station 1619 Forshultesjön nedre. The water level data is valid only for the lake where the station is situated and not comparable to other lakes. All water level data is uncorrected and can be influenced by ice jam or backwater caused by vegetation. The characteristic water levels and the seasonal average levels show the extremes and levels to be expected during different parts of the year. All levels are given in the RH00 system.

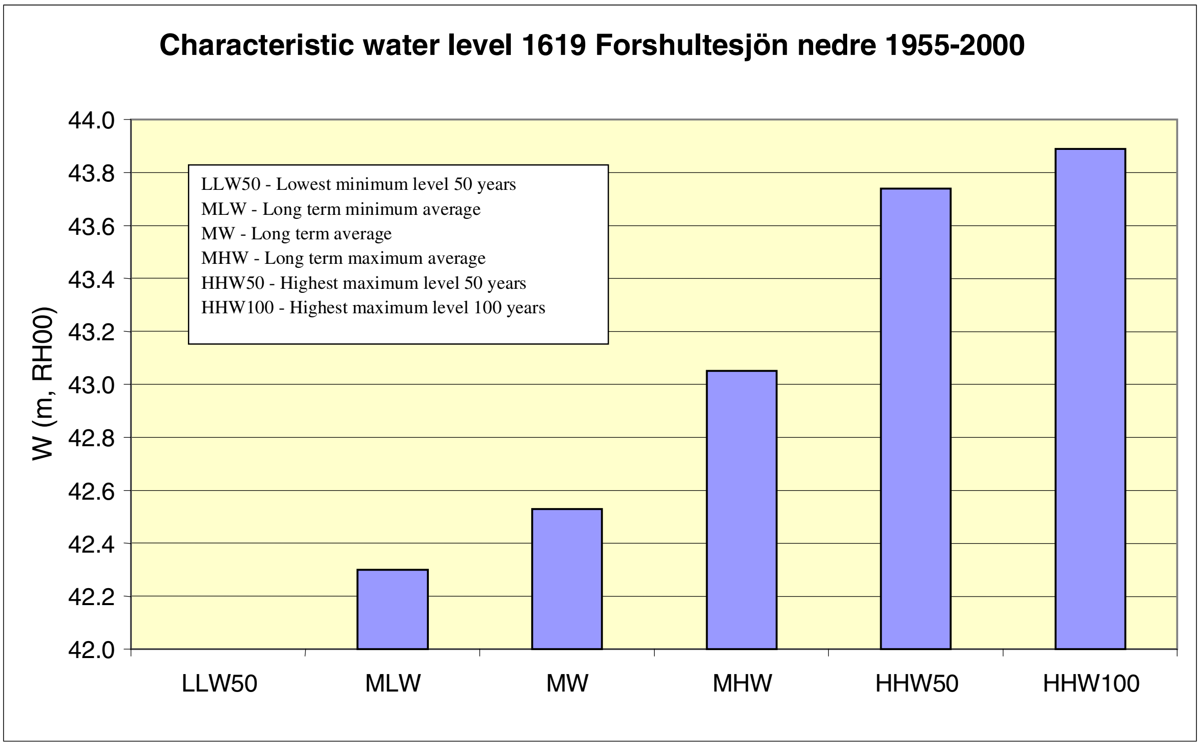

Figure 2-49. *Characteristic water level 1619 Forshultesjön nedre 1955-2000.*

Table 2-14. Characteristic water level 1619 Forshultesjön nedre 1955-2000 (m; RH00).

LLW50	MLW	MW	MHW	HHW50	HHW100
42.00	42.30	42.53	43.05	43.74	43.89

[1] LLW50 = lowest minimum water level 50 years, MLW = longterm average of annual minimum water level, MW = longterm average water level, MHW = longterm average of annual maximum water level, HHW50 = highest maximum water level 50 years, HHW100 = highest maximum water level 100 years

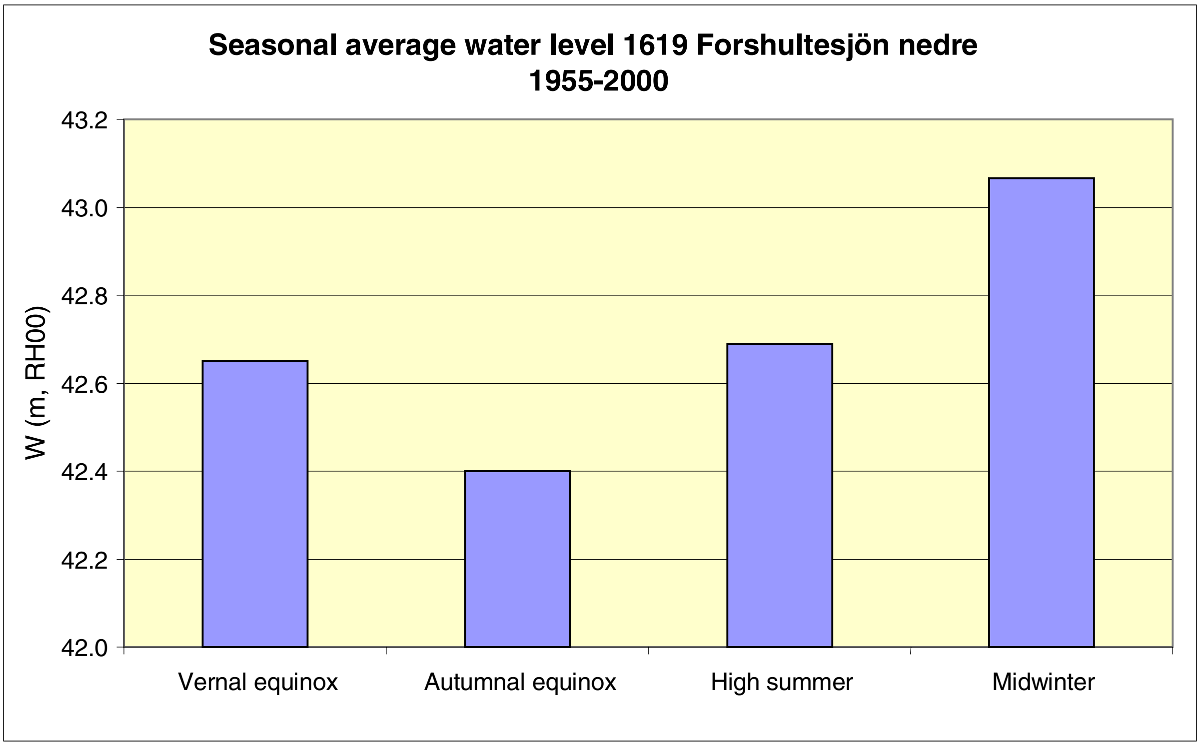

Figure 2-50. *Seasonal average water level 1619 Forshultesjön nedre 1955-2000 (m). Vernal equinox (March 20), autumnal equinox (Sept 23), high summer (average Jun-Aug) and Midwinter (average Dec-Feb).*

Table 2-15. ***Seasonal average water level 1619 Forshultesjön nedre 1955-2000 (m; RH00).***

Season	Vernal equinox (March 20)	Autumnal equinox (Sept 23)	High summer (Jun-Aug)	Midwinter (Dec-Feb)
Water level	42.65	42.40	42.69	43.07

Ice period

The lake Gnötteln is chosen to represent the ice period for the Oskarshamn area. The lake area is 1.8 km^2 and it has a mean depth of 1.7 m. Gnötteln has a continuous record serie with registrations since 1957. In a square of 100x100 km covering the Oskarshamn region, 277 lakes were found with a mean area of 0.5 km^2 and a mean depth of 3.7 m.

Table 2-16. Ice period Gnötteln 1957-2000.

Period	Date	Number of days
Maximum	Nov 8 – May 1	175
Average	Dec 5 – Apr 6	123
Minimum	Jan 25 – Feb 6	13

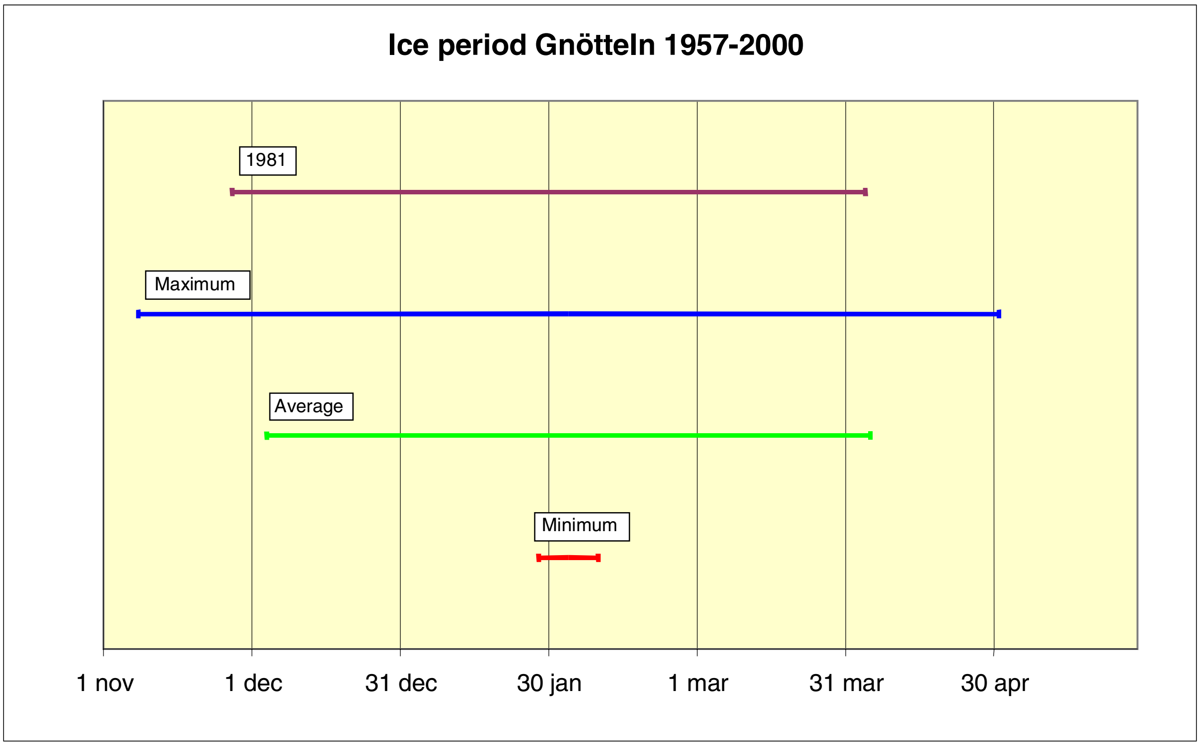

Figure 2-51. *Ice period Gnötteln 1957-2000. Maximum, average and minimum period. 1981 specially selected year.*

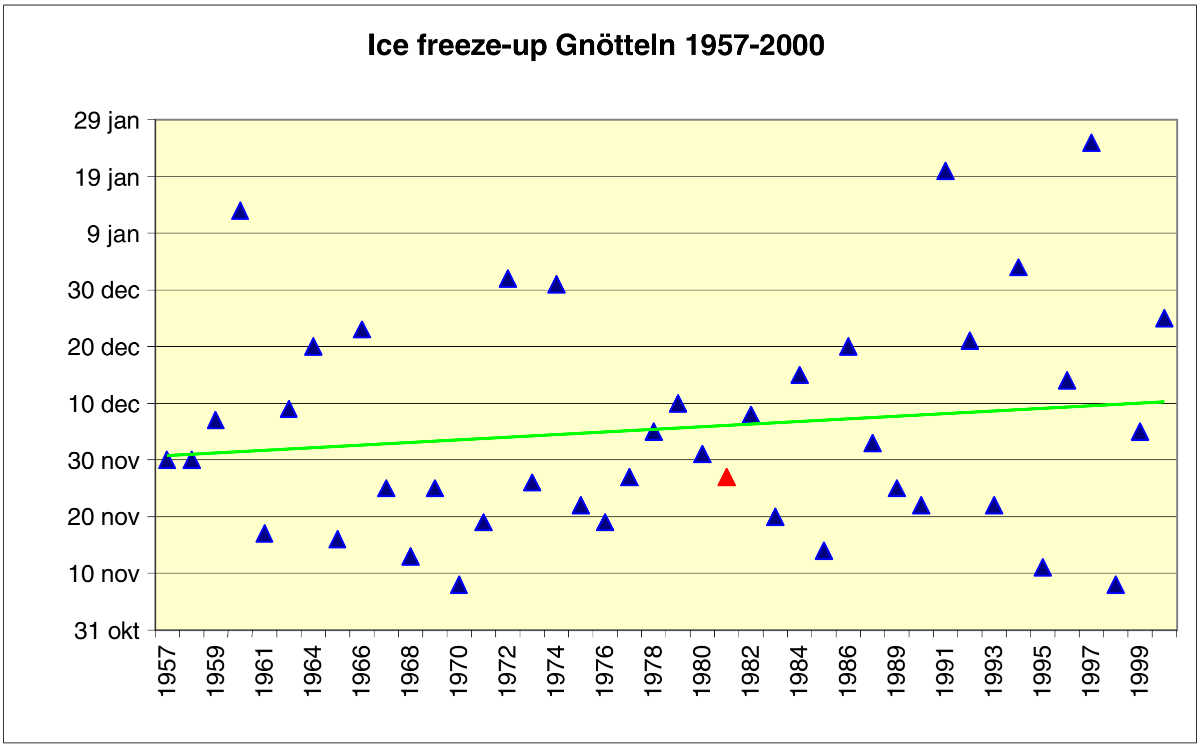

Figure 2-52. *Ice freeze-up Gnötteln 1957-2000 with trend. 1981 specially selected year.*

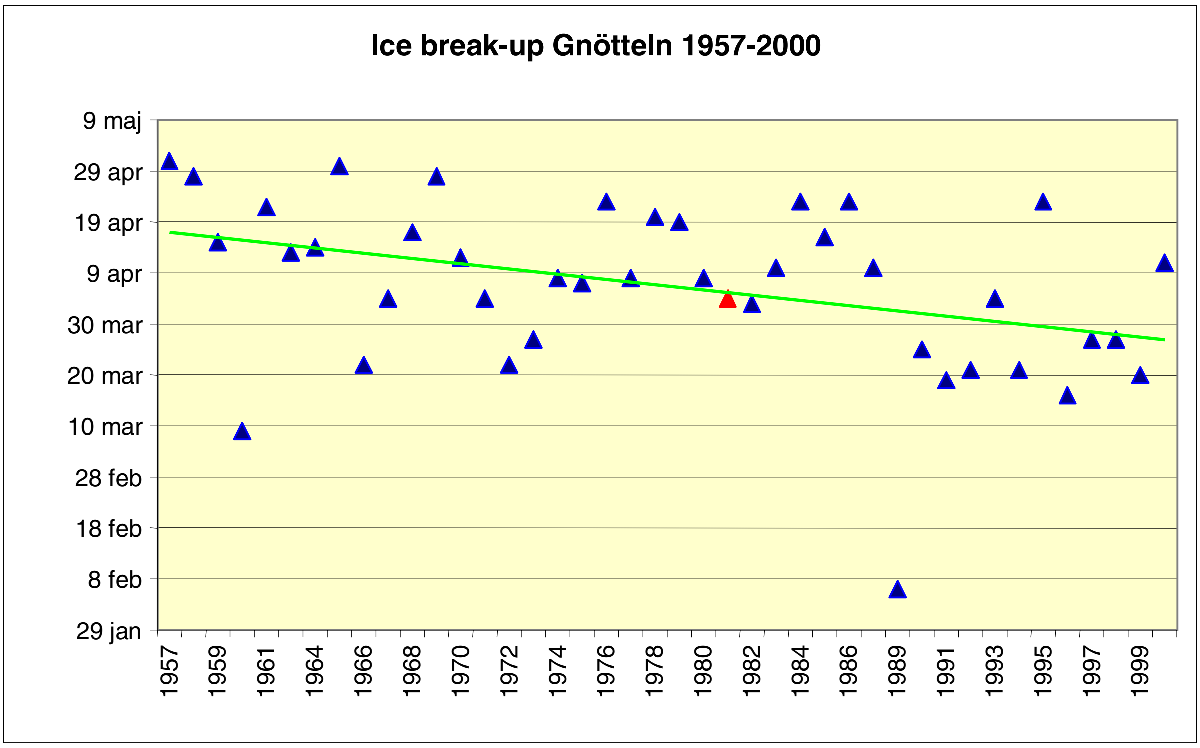

Figure 2-53. *Ice break-up Gnötteln 1957-2000 with trend. 1981 specially selected year.*

External data

An investigation to find hydrological data from other sources than SMHI has been made. Contact was taken with the county administrative board in Kalmar (Roland Enefalk) and the Oskarshamn municipality (Ann-Christin Olofsson), but no additional data records have been found.

2.3 Methodology – oceanography

Temperature was measured in the sea off Simpevarp at different stations between 1971-1983. The temperature was measured at several levels 1-2 times every hour during parts of the years. Within SMHIs regular marine monitoring programme, monthly expeditions are performed in the Baltic Proper, sampling temperature, salinity, nutrients, oxygen, etc. The stations around Oskarshamn where SMHI has available data are described in table 2-10.

Criteria for selection of oceanographic measurements delivered to SKB:

1. *The measurements shall represent the conditions in the two areas indicated by SKB*
2. *The measurements shall contain measurements at several occasions*
3. *The measurements shall not be influenced by the nuclear power plants or by other activities such as industrial or urban waste water outlets*

Water level is measured hourly with an accuracy of 1 cm. The gauge is connected to the national Swedish datum level RH70. Land rise is significant and must be correct for, otherwise old positive and young negative extremes will be biased. The correction made consists of equating the long-term annual mean water level to zero. Note that the actual annual mean water level is not necessarily zero by this procedure. All data shown graphically are also given in tables in appendix 3.

Table 2-17. Stations in the Oskarshamn area where SMHI has available data.

Station	RT90	Parameter(s)	Bottom depth	Map year
K1	6365204 1554387	Temperature	~22 m	Parts of 1971-1983
BY 38	6333805 1612564	Temperature, nutrients, oxygen, pH, alkalinity, secchi depth	~110 m	Monthly 1980-
TSNV	6365892 1550772	Temperature	~2 m	Parts of 1997-2000
OKG1-V	6365190 1553288	Temperature, nutrients, oxygen	~15 m	Every second month 1995-
O1-V	6360457 1546026	Temperature, nutrients, oxygen	~8 m	Every second month 1995-
Oskarshamn 2085	6349740 1540730	Water level	-	1976-2001

One station, K1, was chosen to represent the Simpevarp area in this report. The station has produced a long period of measurements and is located close to the coast. The station BY38 is used to describe the oceanographical conditions off the coast. Only data from the uppermost 20m at BY38 are used for comparison with K1.

Seasonal variations of temperature are shown in two types of graphs; seasonal variation over the year for selected depths and monthly profiles over depth. The other parameters are shown only as seasonal variation over the year as the variation with depth is small.

As data over the year is incoherent, general graphs of the parameter over time do not provide any useful information and are therefore not presented in the report.

Table 2-18. Table of data available but <u>not</u> considered relevant according to the criterias above

Station	Co-ordinates Lat	Long	Parameter (s)	Maximum depth	Period
REF-V3	E16º51,0	N57º25,0	Temperature, salinity, nutrients, oxygen	42	1995-1996
REF-O3V	E16º28,8	N57º15,9	”	9	1995--
MB2V	E16º33,9	N57º5,95	”	14	1995--
V6VMS	E016º32,15	N57º35,3	”	23	1995--
V22V	E016º35,6	N57º39,25	”	17	1995--

External data

SMHI is the principal host for all modern hydrographic data collected off the Småland coast, including the Kalmar-Oskarshamn area. No other significant hydrographic data sources are known to exist.

Other reports

Table 2-19. Other report at SMHI

Report title	Author	Year/no
Sammanställning av meteorologiska och hydrologiska observationer gällande området vid Simpevarp juni 1959-15 aug 1961	Anononymous	1961
Plan/program för hydrografiska/hydrologiska undersökningar vid Simpevarp	Anononymous	1961-1971
Hydrografiska observationer vid Oskarshamns atomkraftverk	Anononymous	1969/H270
Ang. planerad utbyggnad av Oskarshamnsverket	Ehlin	1969/H482
Temperaturkartläggning av kylvattenutbredningen vid Oskarshamnsverket 1979-1982	Anononymous	1980/1802/41
Hydrografiska kontrollundersökningar vid Oskarshamnsverket 1979-1982	Westman	1980/1201/324
Temperaturövervakning i vattenrecipienten utanför Oskarshamnsverket 1979-1982	Bergstrand	1984
Strömundersökning i Kalmarsund	Wickström et al	1970/H145
Yttrande ang. koncessionsansökan för Forsmarks kraftstation	Andersson	1971/H86
De oceanografiska förhållandena i Öregrundsgrepen och inverkan på dessa av en vid Forsmark planerad kärnkraftstation	Holmström/ Andersson	1971/H483 och 484
Komplettering av 1971/H483-484 (2 volymer)	Andersson	1974/H286
Oceanografiska förhållanden i Öregrundsgrepen 1972	Andersson	1975
Vattnets grumlighet i Öregrundsgrepen under 1974 och 1975 (i samband med muddrings- och tippningsarbeten för Forsmarks kärnkraftstation)	Anononymous	1976
Forsmarks kraftstation. Oceanografiska undersökningar 1973-74	Andersson/ Gidhagen	1976/H463
Forsmarks kraftstation. Oceanografiska undersökningar 1974-75	Anononymous	
Forsmarks kraftstation. Oceanografiska undersökningar 1977-78	Andersson	1979/315
SMHI:s undersökningar i Öregrundsgrepen 1979-1981 (1982-09-09)	Andersson	1982
SMHI:s undersökningar i Öregrundsgrepen perioden 1982-1983	Andersson/ Hillgren	1985

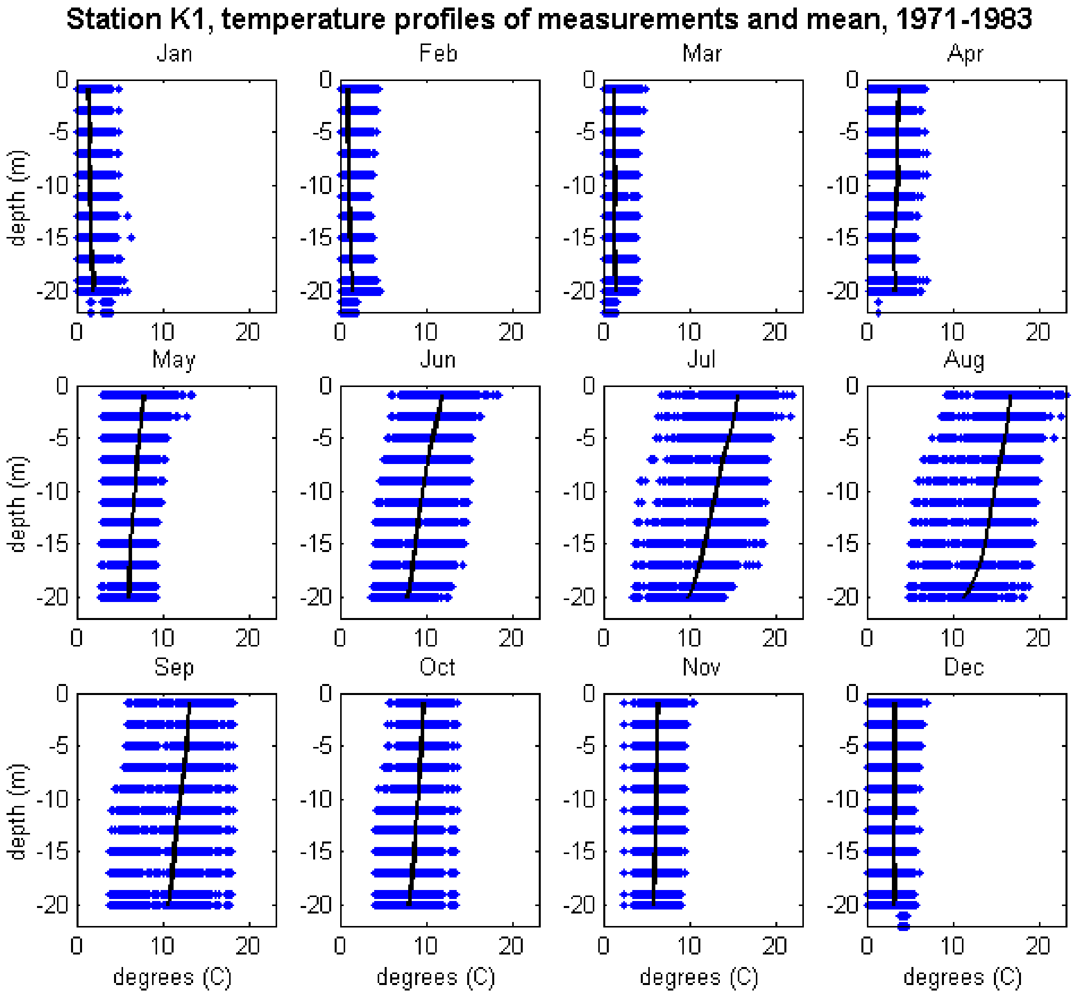

Figure 2-54. *Temperature profiles at station K1, 1971-1983. The daily mean of measurements (dots) and mean over depth (solid line) are plotted in the diagrams. The diagrams show that a temperature stratification is established in April. In June and August the mean water column is completely stratified. The thermocline breaks down during autumn and in December the water is homogeneous with respect to temperature.*

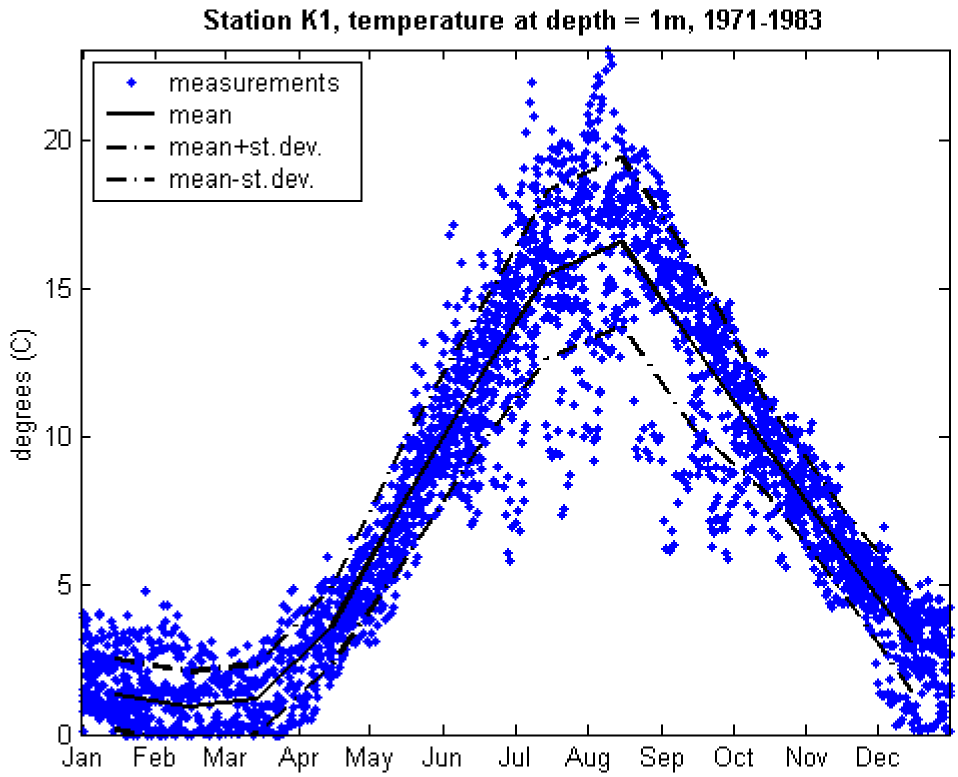

Figure 2-55. *Temperature at 1 m depth, 1971-1983. The daily mean of measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. In summer, upwelling causes large temperature variations, from 6-23 degrees, in the surface water.*

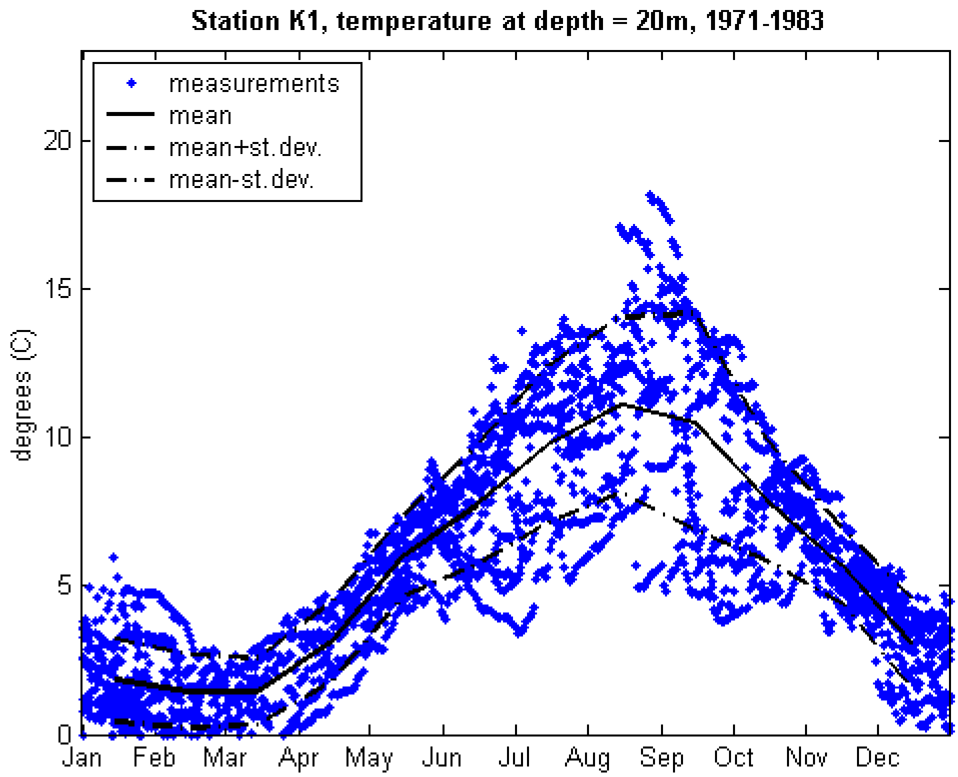

Figure 2-56. *Temperature at 20 m depth, 1971-1983. The daily mean of measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. Upwelling also has an effect the bottom water, although not to the same extent as on the surface water.*

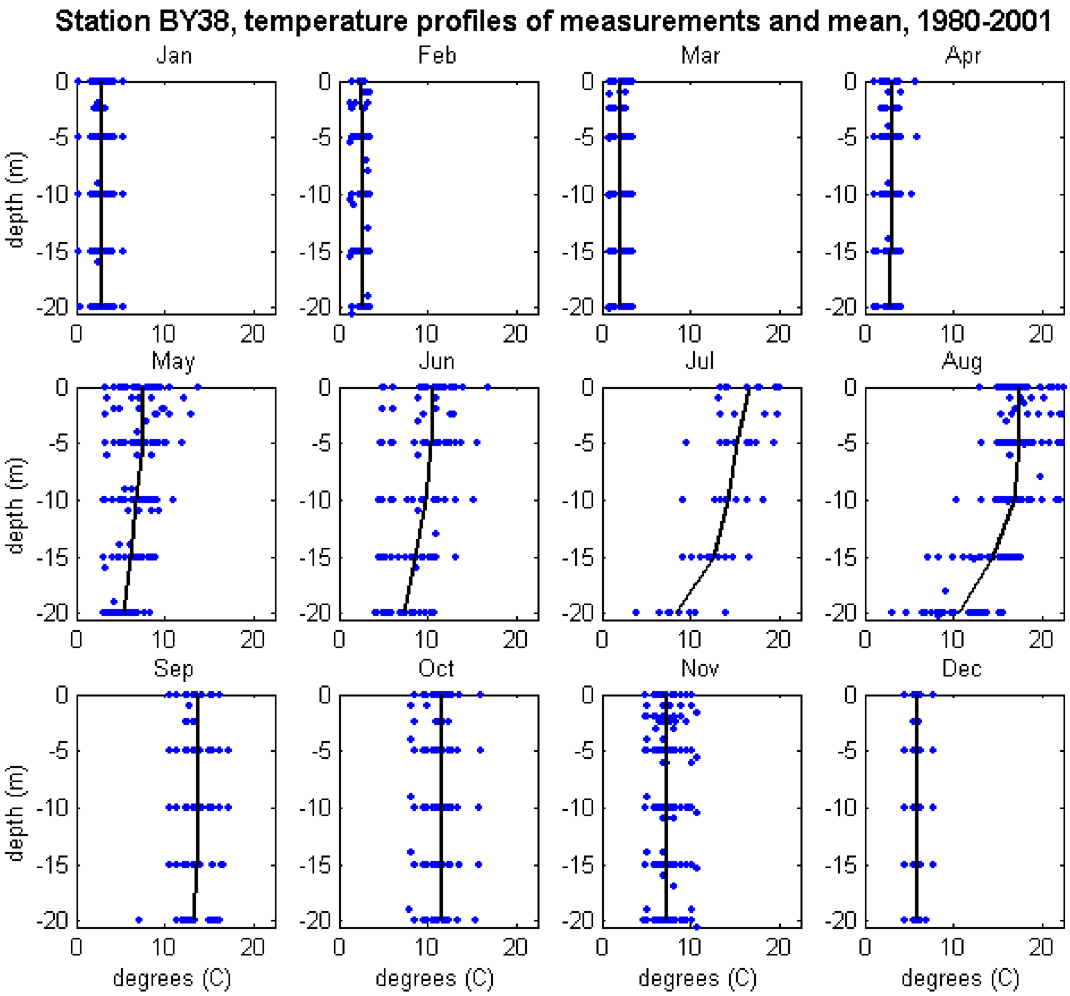

Figure 2-57. *Temperature profiles at station BY38, 1980-2001. The monthly measurements (dots) and mean over depth (solid line) are plotted in the diagrams. Further out in the Baltic Proper, the temperature stratification in the upper 20 m commences in May and is fully developed in August.*

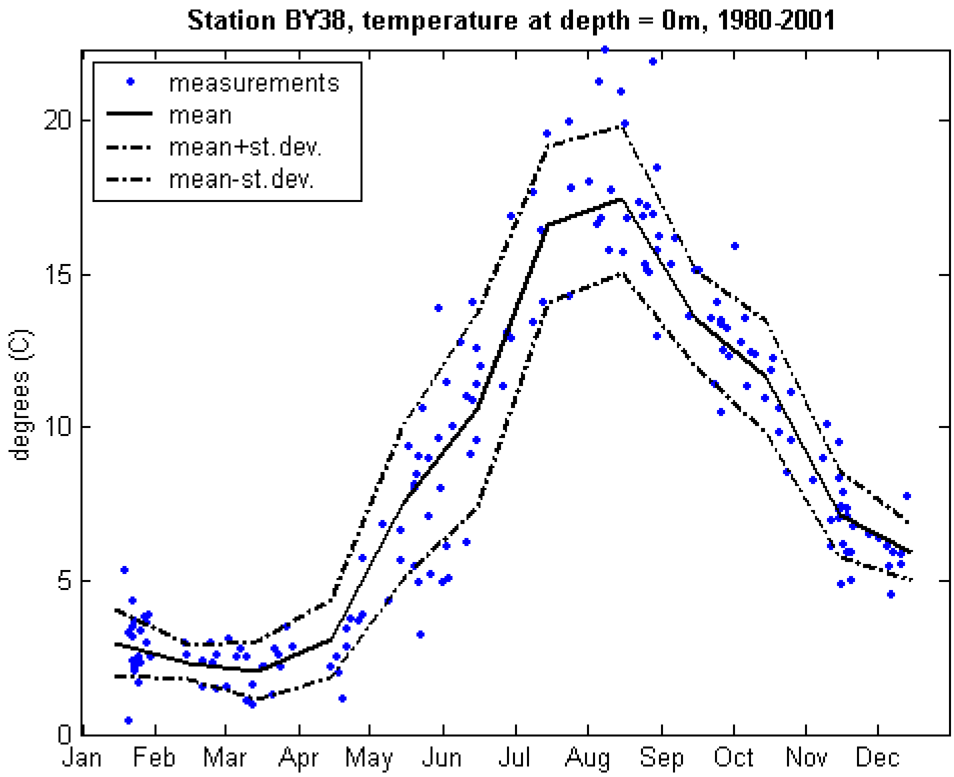

Figure 2-58. *Temperature at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. In the open Baltic Proper, the water temperature rarely falls below 2 degrees in winter. Upwelling does not have an effect on the summer temperature at this station.*

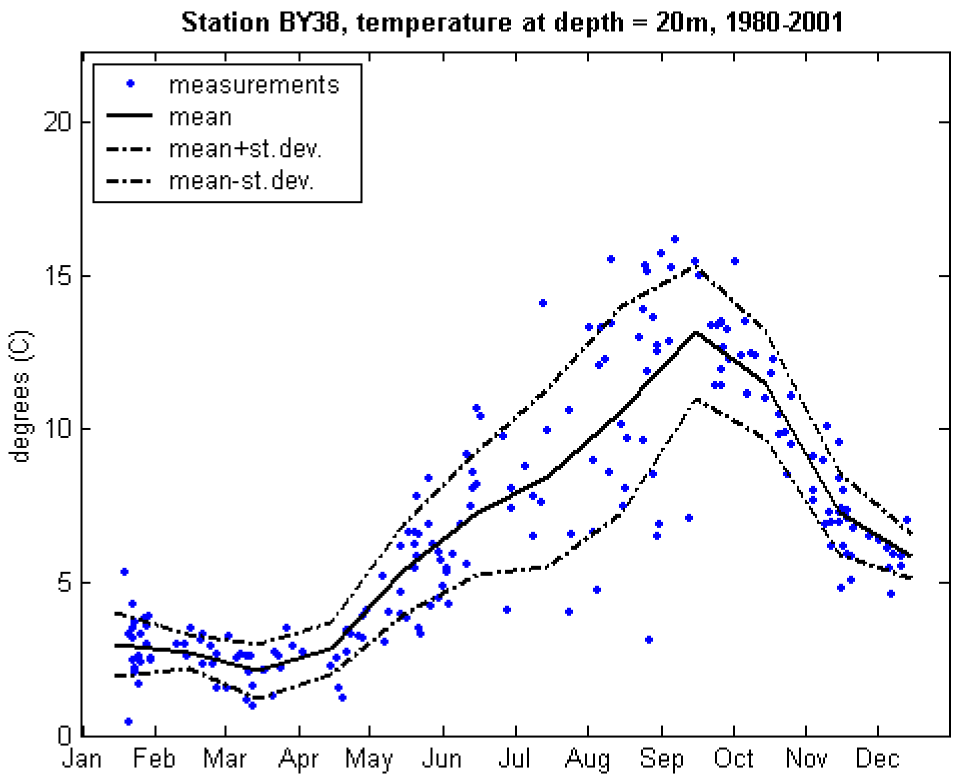

Figure 2-59. *Temperature at 20 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams.*

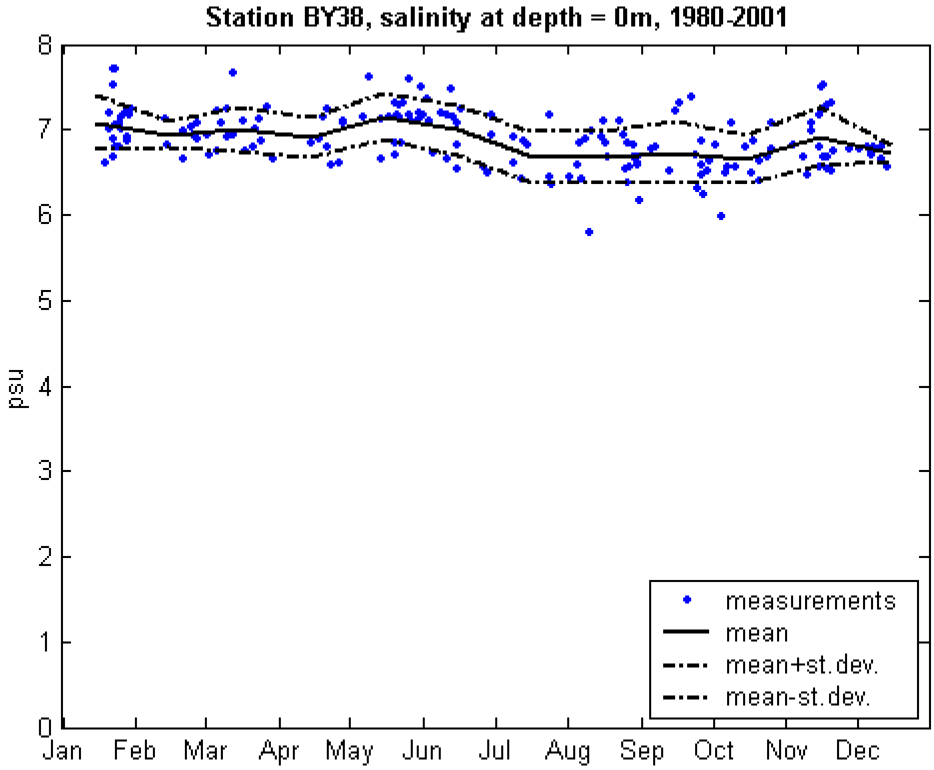

Figure 2-60. *Salinity at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The salinity is quite constant over the year and does not vary in the top 20 m of the water column.*

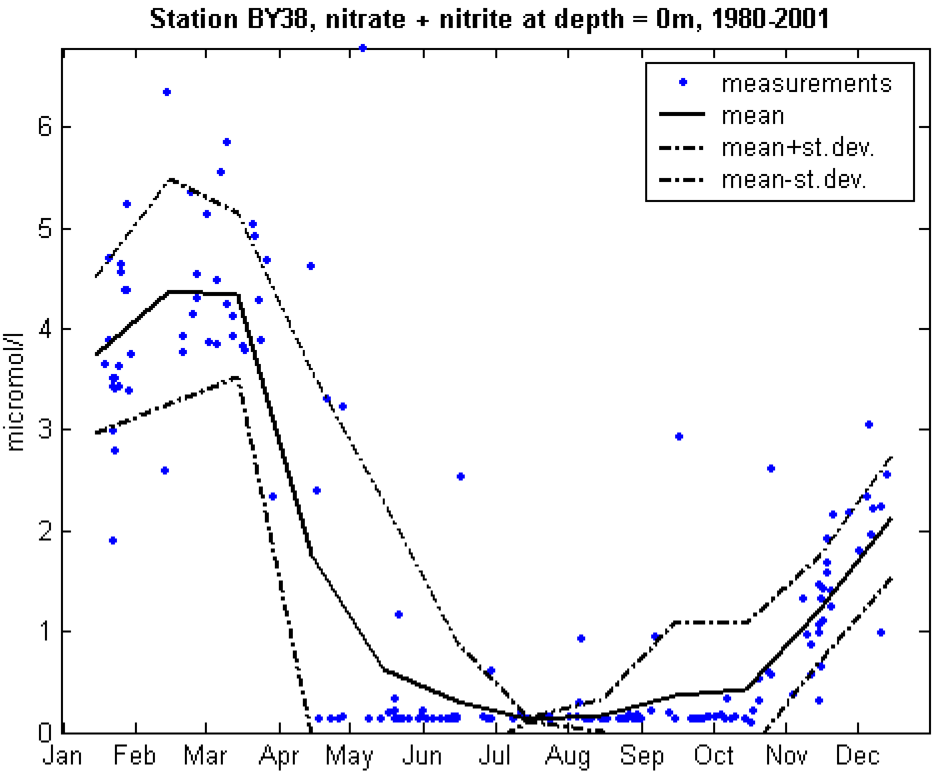

Figure 2-61. *Nitrite + nitrate at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. There is quite a variation in nitrite and nitrate between years as well as a strong seasonal variation. During summer, the nitrogen is almost completely consumed. However, the nitrogen content never goes down to 0 since the level of detection is 0.1 µmol/l. The variations in the upper 20 m are small.*

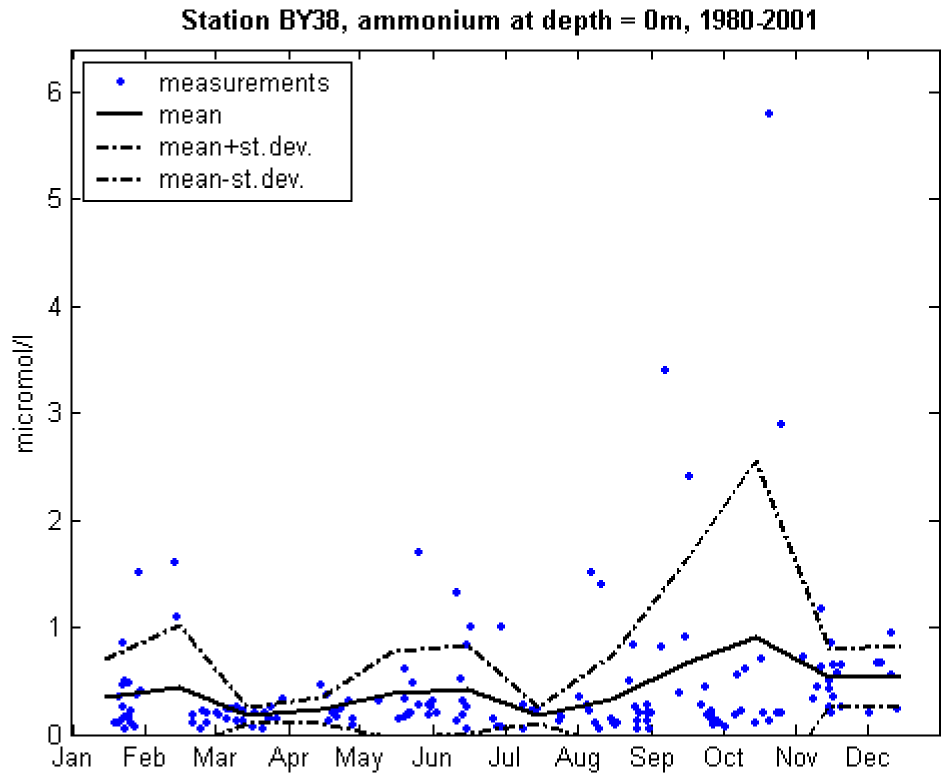

Figure 2-62. *Ammonium at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The largest variations occur in August-October depending on the magnitude of the autumn algae bloom.*

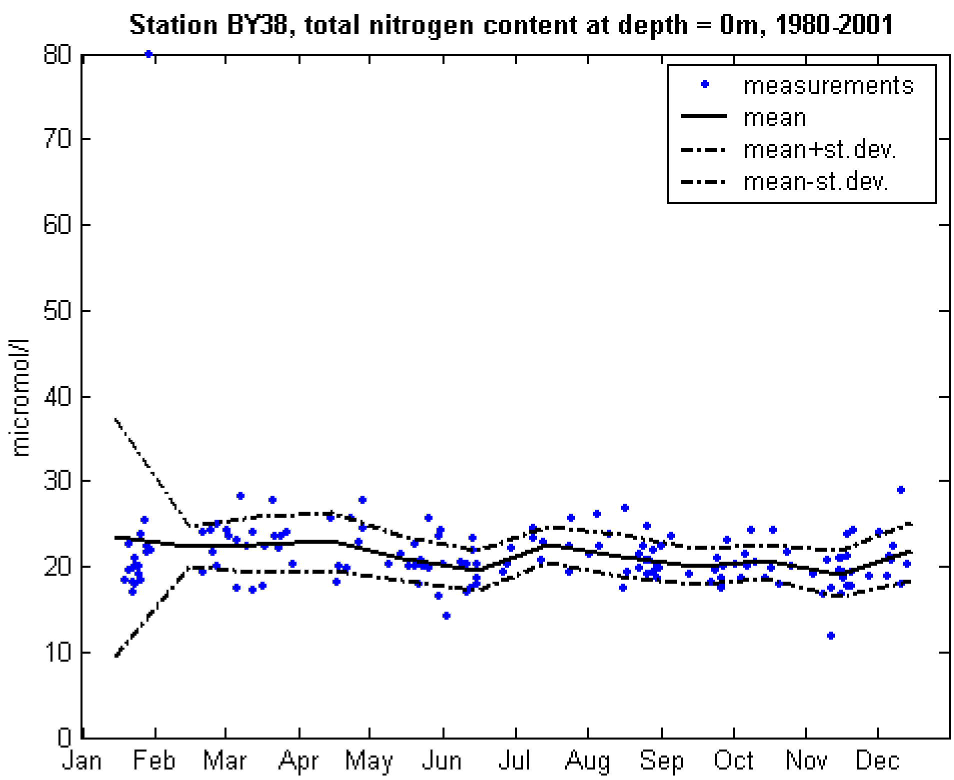

Figure 2-63. *Total nitrogen content at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The total nitrogen content is fairly constant over the year and in the upper 20 m.*

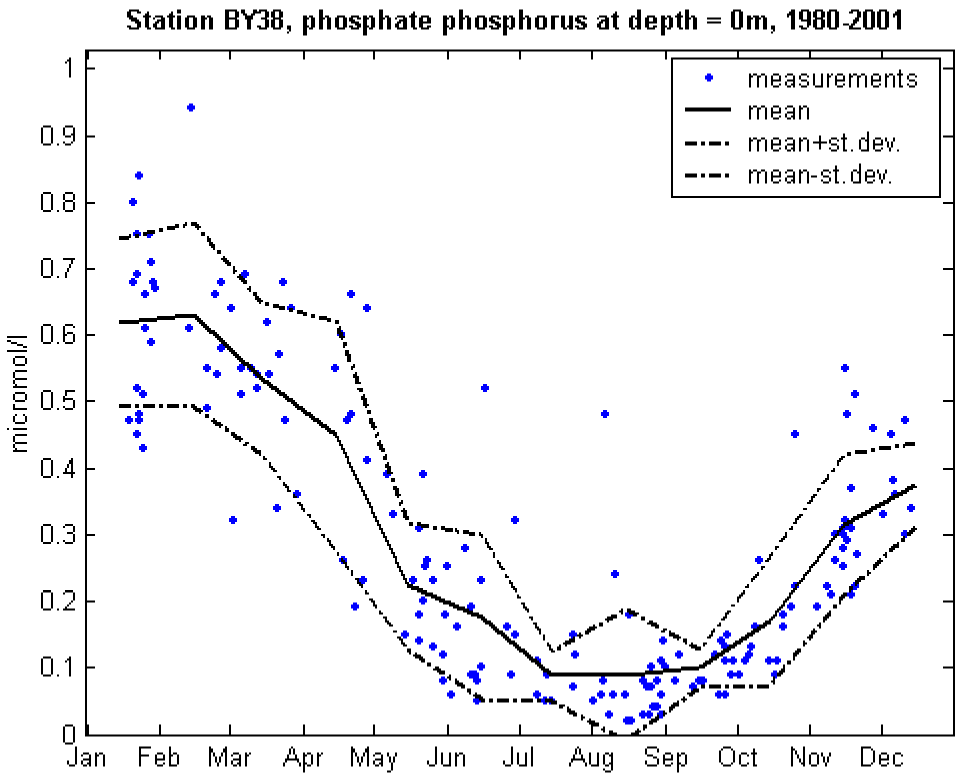

Figure 2-64. *Phosphate phosphorus at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. Inorganic phosphorus has a distinct seasonal cycle with the lowest values in the end of summer.*

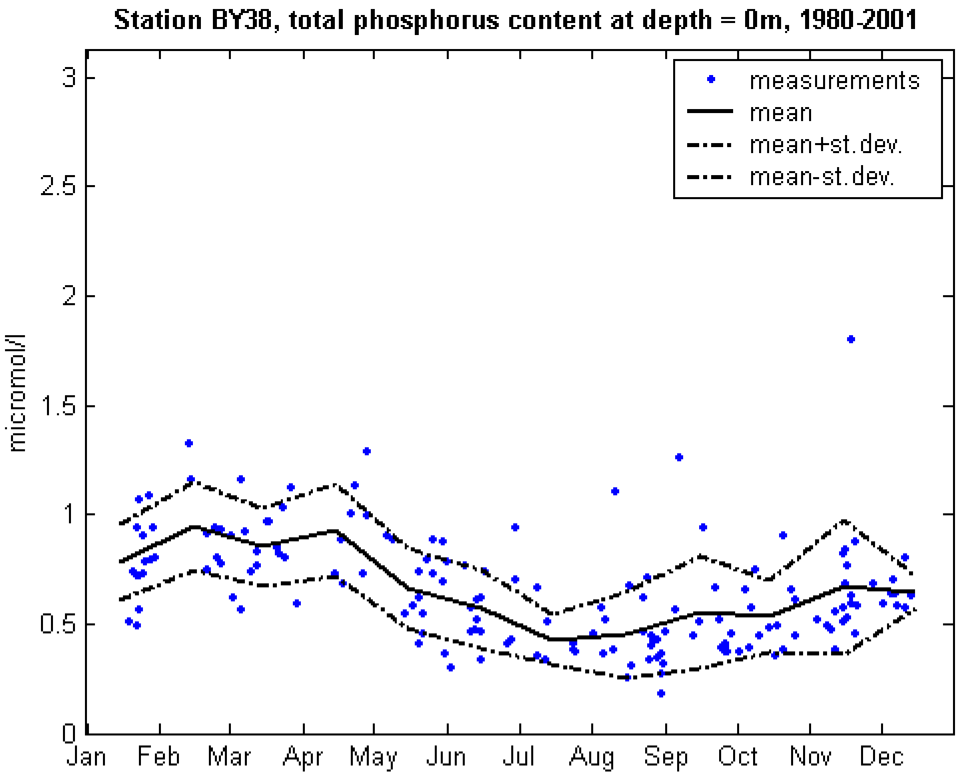

Figure 2-65. *Total phosphorus content at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. There is a weak seasonal cycle, which is quite constant over the top 20 m.*

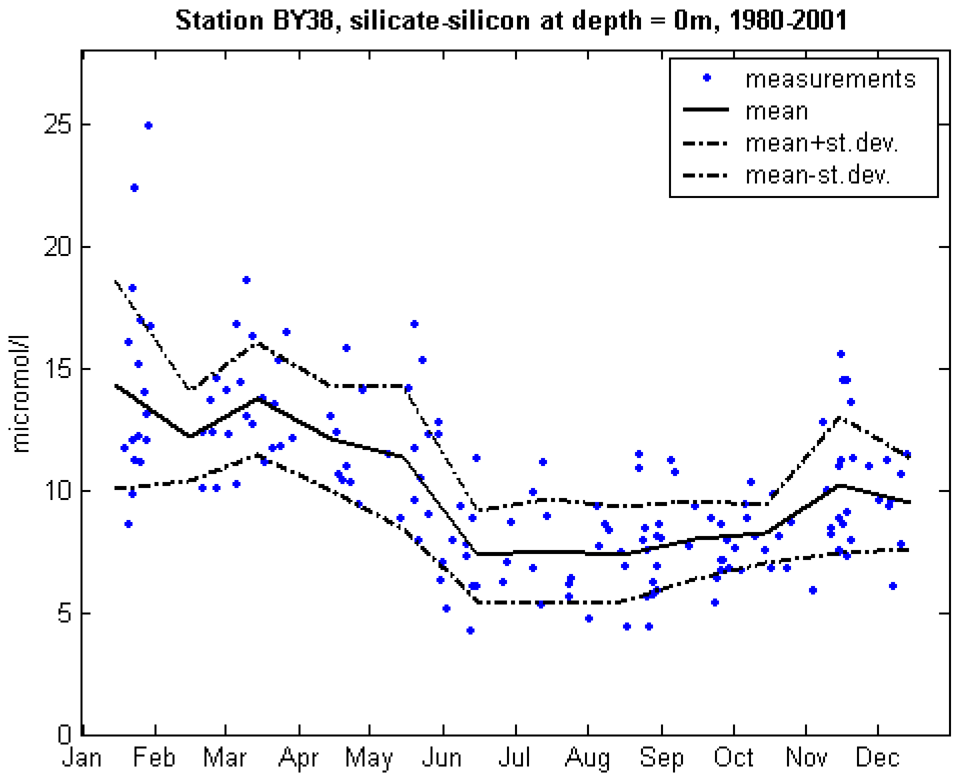

Figure 2-66. *Silicate-silicon content at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. Silicate-silicon has a seasonal cycle with a low during the summer months. There is a higher standard deviation at 20 m but the monthly means are very similar.*

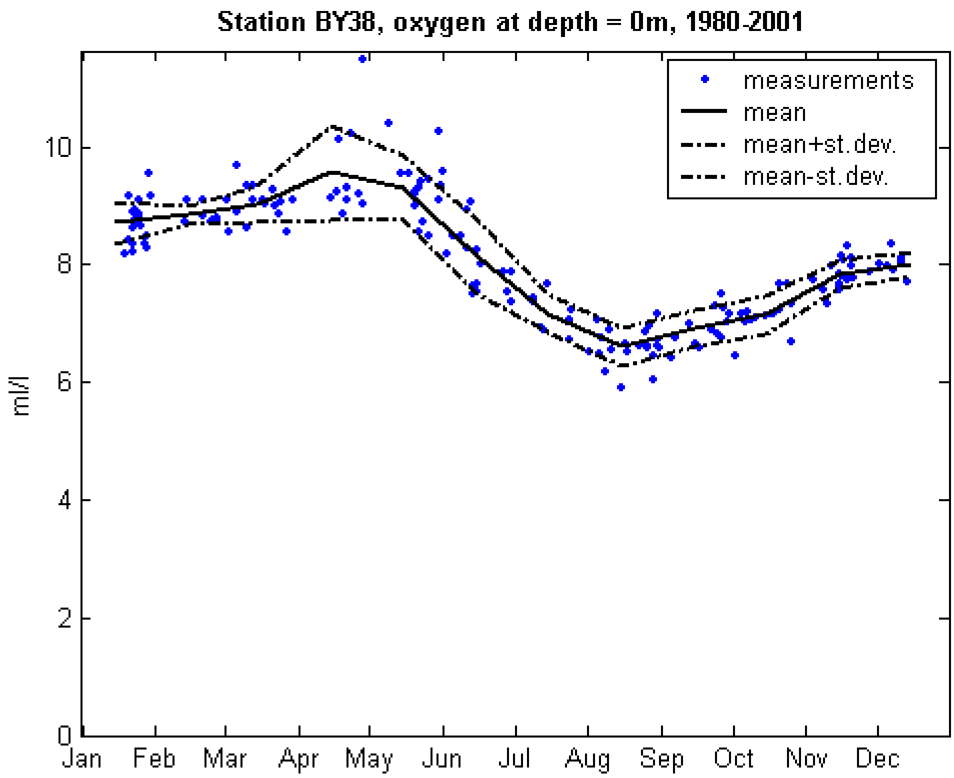

Figure 2-67. *Oxygen at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The oxygen in the surface water is good all year round with a low at the end of summer when the biological decomposition reaches a maximum.*

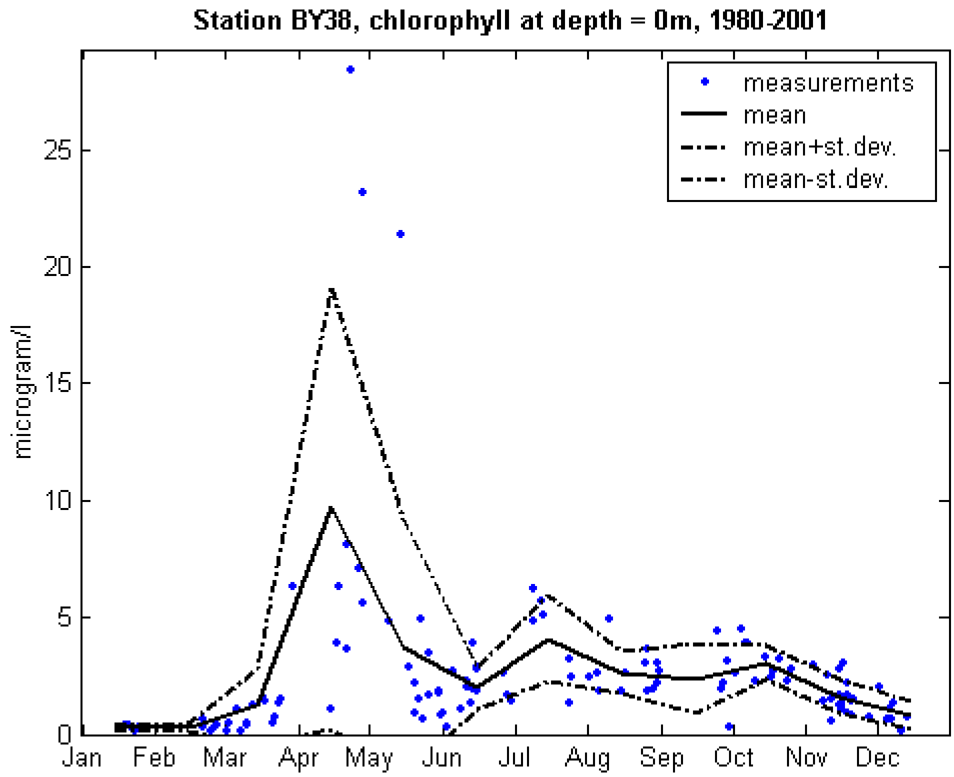

Figure 2-68. *Chlorophyll at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. There is a maximum in chlorophyll in April due to the spring bloom. At 20 m depth the maximum is not as high. Since the blooms occur on a weekly scale and the measuring takes place once a month, the chance of coming across a bloom is smaller than missing it.*

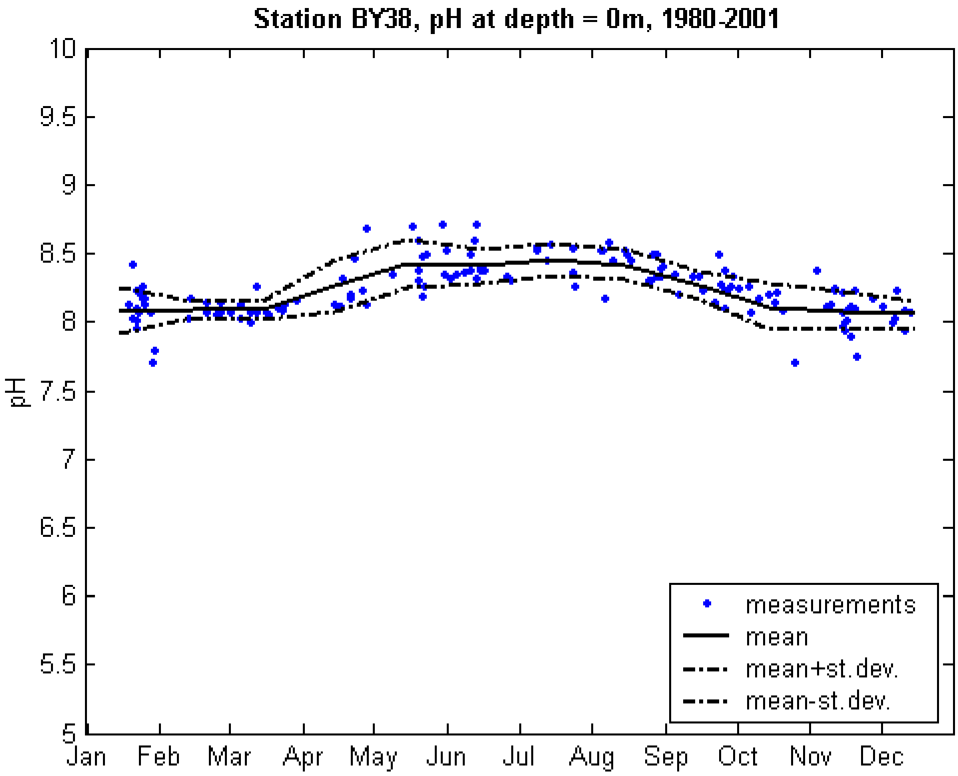

Figure 2-69. *pH at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The pH value is slightly basic in seawater with little variations over the year.*

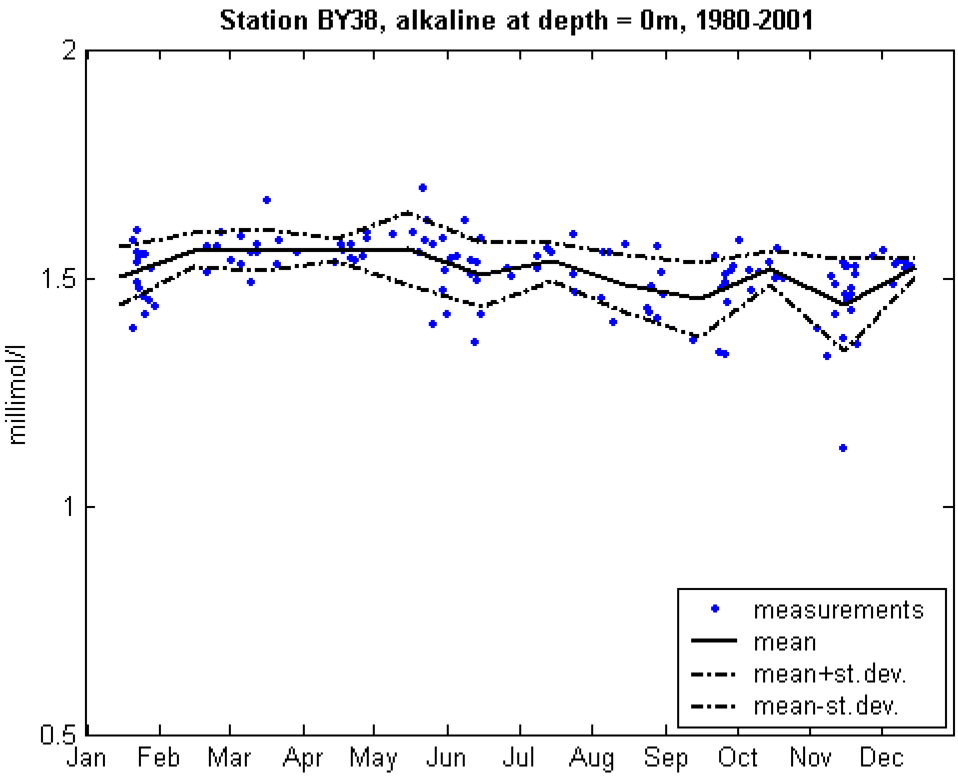

Figure 2-70. *Alkalinity at 0 m depth, 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The alkalinity values are uniform throughout the top 20 m of the water column with little variation over the year.*

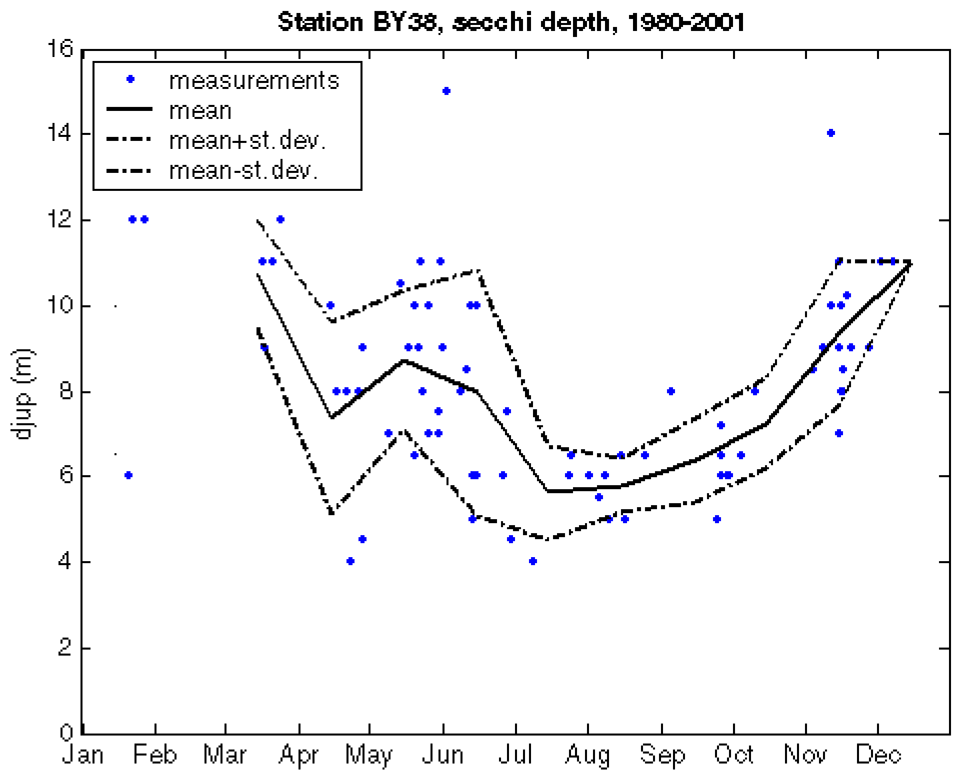

Figure 2-71. *Secchi depth 1980-2001. The monthly measurements (dots), seasonal mean (solid line) and standard deviation (dotted line) are plotted in the diagrams. The Secchi depth is collected only when the sun is 15º above the horizon, which makes winter measurements more scarse.*

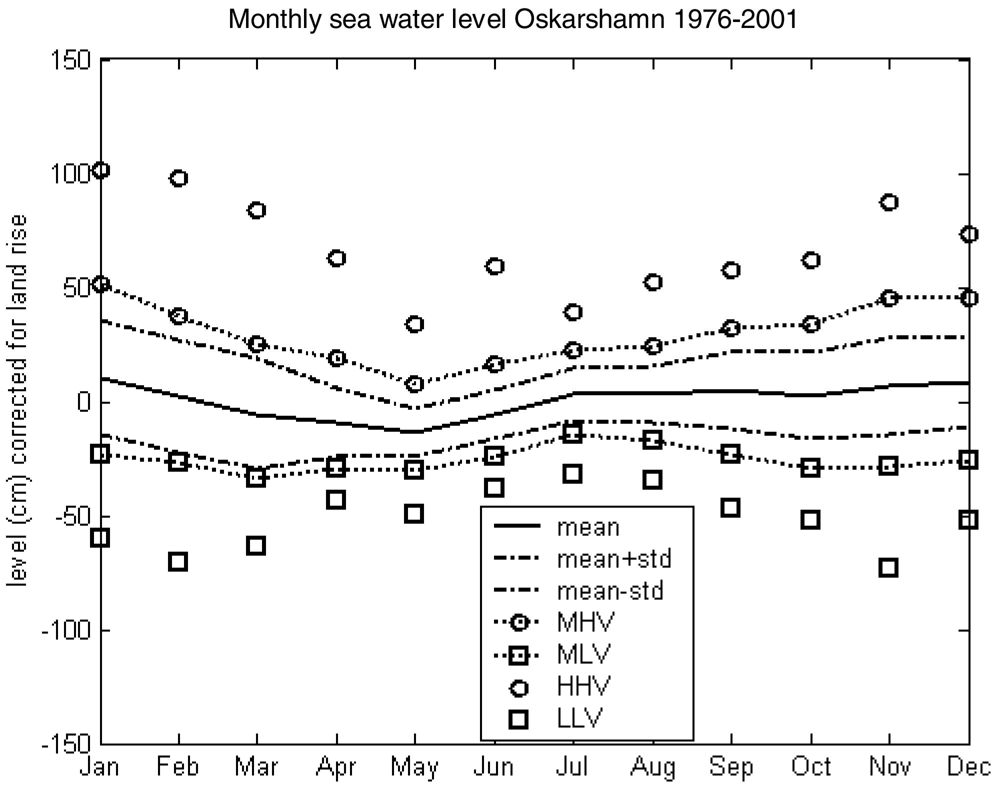

Figure 2-72. *Monthly sea water level (cm) statistics at Oskarshamn 1976-2001. To obtain correct extreme value statistics, levels have been corrected for land rise. Montly mean water level and one standard deviation are shown. MHV/MLV signifies mean high/low water level, i.e. mean of all years 1976-2001. HHV/LLV signifies highest/lowest water level ever during 1976-2001. Based on hourly measurements.*

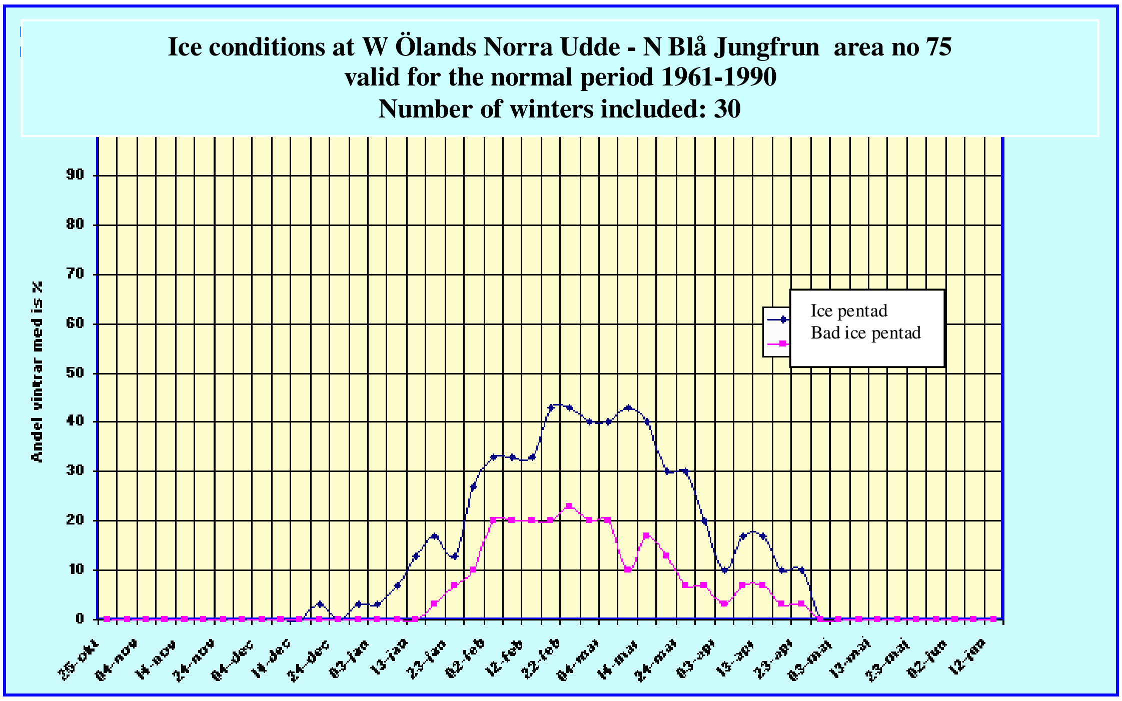

Figure 2-73. *Frequency versus time of year. The blue curve indicates a five day period with ice of any kind during three days or more. The pink curve indicates a five day period with severe ice during three days or more. Severe ice has a thickness over 15 cm.*

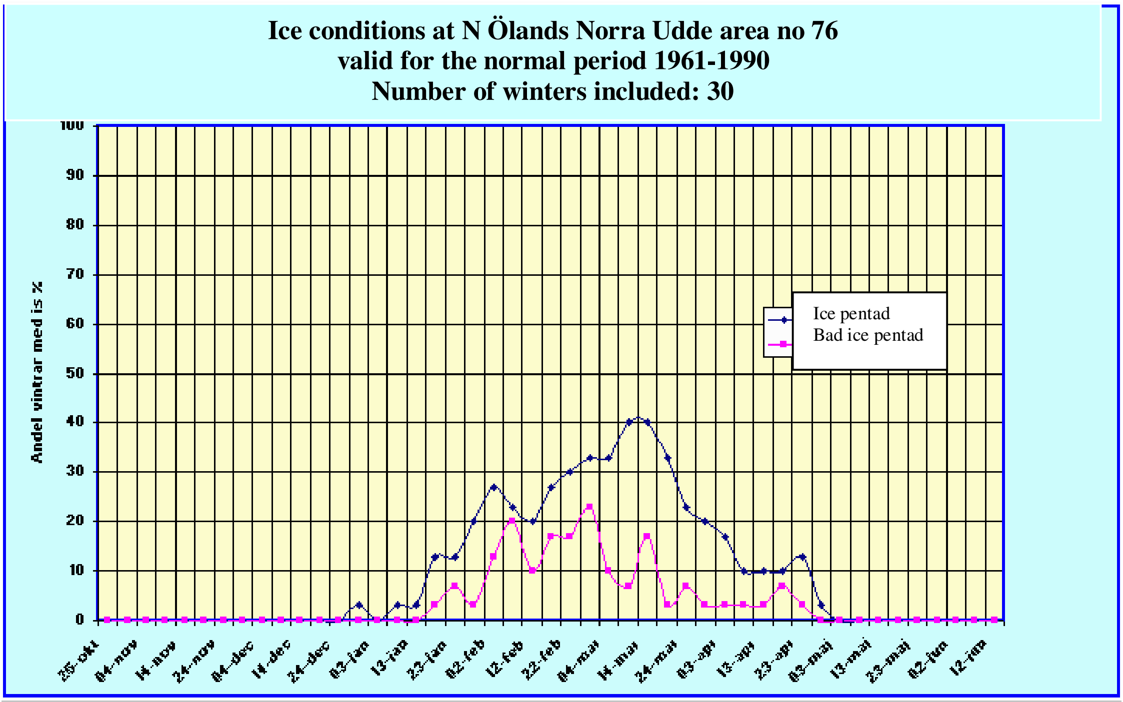

Figure 2-74. *Frequency versus time of year. The blue curve indicates a five day period with ice of any kind during three days or more. The pink curve indicates a five day period with severe ice during three days or more. Severe ice has a thickness over 15 cm.*

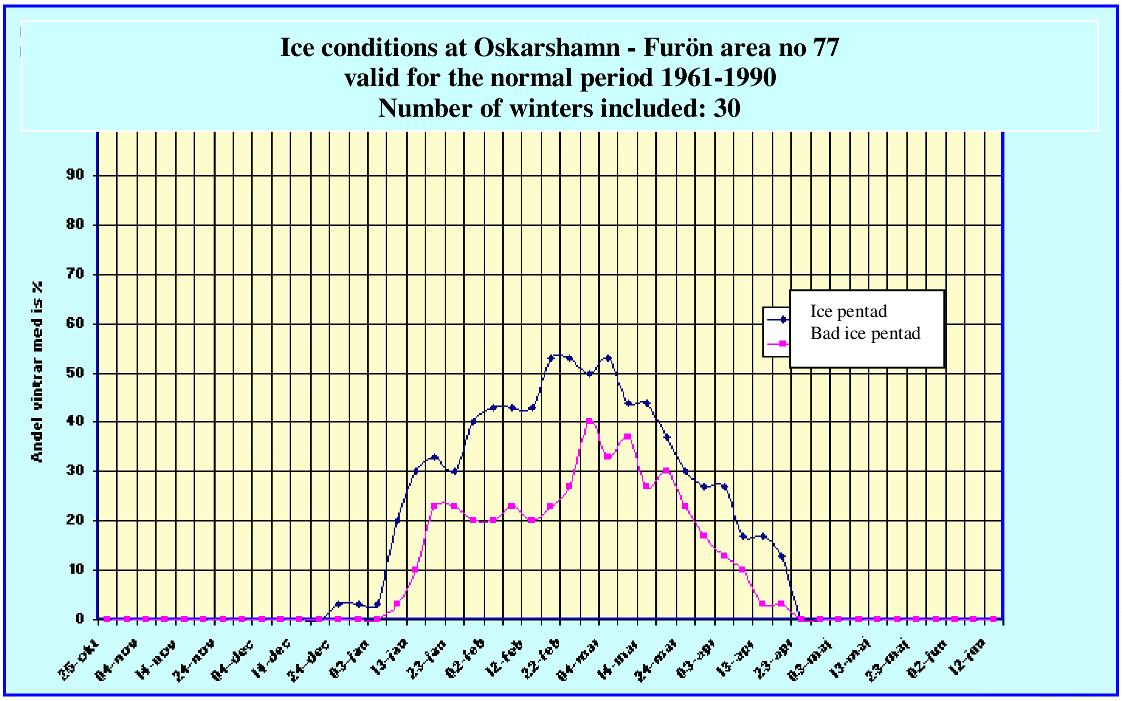

Figure 2-75. *Frequency versus time of year. The blue curve indicates a five day period with ice of any kind during three days or more. The pink curve indicates a five day period with severe ice during three days or more. Severe ice has a thickness over 15 cm.*

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Table App1-1. Stations and parameters in Oskarshamn

Station no	Station name	Co-ordinates	RT 90	Tempera-ture	Precipita-tion	Wind speed	Wind direction	Pressure	Humidity	Cloud amount
7722	Ölands norra udde	636108	157776	1880-1995	1880-1995	1880-1995	1880-1995	1880-1995	1963-1995	1880-1995
7721	Ölands norra udde A	636089	157763	1995-	1995-	1995-	1995-	1995-	1995-	1995-
7616	Oskarshamn	634920	153660	1918-	1918-					
7628	Kråkemåla	637184	155073		1990-					
7524	Målilla	636291	150033	1947-	1947-	1965-	1965-	1965-	1965-	1965-
7647	Västervik	639977	153933	1951-1995	1859-1979	1951-1995	1951-1995	1951-1995	1951-1995	1951-1995
7642	Gladhammar A	639819	153876	1995-	1995-	1995-	1995-		1995-	

Table App1-2. Average monthly mean temperature, 1961 -90, 1991-2000 and extremes, Oskarshamn

Stn no 7616	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990													
Mean	-2.4	-2.5	0.4	4.5	9.9	14.6	16.1	15.3	11.4	7.2	2.6	-0.9	6.4
Max	3.8	4.9	5.6	7.2	12.5	16.3	18.5	18.6	13.5	10.6	6.1	2.9	8.4
Min	-9.4	-9.1	-3.9	1.5	7.6	12.5	14	13.5	9.1	4.4	-1.2	-6.0	4.8
Stand dev	3.3	3.5	2.5	1.2	1.3	1.0	1.2	1.1	1.1	1.3	1.6	2.1	0.9
Median	-2.5	-2.7	0.4	4.7	10.1	14.7	16.0	15.3	11.4	7.3	2.7	-0.6	6.4
Mean 1991-2000	-0.7	-0.4	2.1	5.6	10.3	14.5	17.2	16.5	11.9	7.2	2.7	-0.3	7.2
1981	-3.3	-1.0	0.0	4.1	10.6	13.7	15.9	14.8	11.8	5.8	2.1	-6.0	5.7
1918-2000													
Abs max	3.8	4.9	5.6	7.9	13.0	16.4	18.8	20.2	15.1	10.7	6.5	3.2	
Year	1989	1990	1990	1943	1992	1992	1983	1997	1949	1961	2000	1951	
Abs min	-11.5	-10.6	-6.9	1.5	6.7	10.6	14.0	13.5	9.1	3.9	-1.2	-6.0	
Year	1941	1947	1942	1966	1927	1923	1965	1987	1986	1939	1965	1981	

Table App1-3. Yearly mean temperature 1961-2000, Oskarshamn

Year	Temp	Running 5-yr mean	Standard error
1961	7.4		
1962	5.5		
1963	5.3		
1964	6.4		
1965	5.5	6.0	
1966	5.6	5.7	
1967	7.1	6.0	
1968	6.5	6.2	
1969	6.0	6.1	0.6
1970	5.2	6.1	0.7
1971	6.6	6.3	0.7
1972	6.8	6.2	0.5
1973	6.8	6.3	0.6
1974	7.0	6.5	0.6
1975	7.7	7.0	0.6
1976	5.8	6.8	0.7

Table App1-3. Cont.			
Year	Temp	Running 5-yr mean	Standard error
1977	6.3	6.7	0.7
1978	5.9	6.5	0.7
1979	5.6	6.3	0.7
1980	5.5	5.8	0.7
1981	5.7	5.8	0.5
1982	6.5	5.8	0.5
1983	7.6	6.2	0.8
1984	7.3	6.5	0.8
1985	4.8	6.4	1.1
1986	6.0	6.4	1.1
1987	4.9	6.1	1.2
1988	6.8	6.0	1.1
1989	8.2	6.1	1.4
1990	8.4	6.9	1.3
1991	7.1	7.1	1.3
1992	7.5	7.6	1.2
1993	6.8	7.6	1.2
1994	7.2	7.4	0.8
1995	7.0	7.1	0.4
1996	6.0	6.9	0.6
1997	7.5	6.9	0.6
1998	6.9	6.9	0.5
1999	7.8	7.0	0.6
2000	8.3	7.3	0.7
1961-90			
Mean	6.4		
Max	8.4		
Min	4.8		
Stand dev	0.9		
Median	6.4		
1991- 00			
Mean	7.2		

Table App1-4. Average monthly mean temperature, 1961 -90, 1991-2000 and extremes, Ölands norra udde

Stn no 7722	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990													
Mean	-0.3	-1.1	0.9	3.9	8.6	14.1	16.7	16.5	12.9	8.9	4.6	1.4	7.3
Max	3.8	5.3	5.6	6.7	11.9	15.9	19.3	19.8	14.9	11.7	7.2	4.2	9.3
Min	-5.7	-7.2	-3.5	1.0	6.1	11.6	14.4	14.3	10.9	7.1	2.0	-2.1	5.5
Stand dev	2.4	2.9	2.1	1.2	1.4	1.0	1.2	1.2	1.0	1.1	1.2	1.4	0.9
Median	-0.4	-0.9	0.6	3.9	8.7	14.1	16.6	16.4	12.9	9.0	4.8	1.7	7.1
Mean 1991-2000	1.2	0.8	2.3	4.9	9.3	14.3	17.5	17.5	13.5	9.0	4.6	2.0	8.1
1981	-0.7	0.2	0.6	4.0	9.7	13.0	16.7	16.1	13.0	8.4	4.1	-2.1	6.9
1854 - 2000													
Abs max	3.8	5.3	5.6	7.2	12.0	17.2	20.4	21.1	16.6	11.7	7.4	4.6	9.3
Year	1989	1990	1990	1943	1862	1858	1994	1997	1949	1961	2000	1857	
Abs min	-6.9	-9.3	-6.9	-0.4	4.3	9.7	12.8	12.9	10.6	4.9	0.7	-2.9	
Year	1942	1942	1942	1888	1867	1867	1867	1874	1877	1871	1856	1867	

Table App1-5. Average monthly mean temperature, 1961 -90, 1991-2000 and extremes, Målilla

Stn no 7524	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990													
Mean	-3.2	-3.1	0.1	4.6	10.2	14.7	15.9	15.0	11.0	6.8	2.0	-1.7	6.0
Max	3.5	4.6	5.0	7.1	12.1	16.4	18.1	18.6	13.0	10.1	5.7	2.7	8.0
Min	-10.7	-9.8	-4.6	1.7	7.8	12.4	13.7	12.9	8.3	3.6	-2.6	-7.2	4.3
Stand dev	3.5	3.5	2.5	1.3	1.2	1.2	1.2	1.2	1.2	1.4	1.8	2.3	0.9
Median	-3.2	-3.9	-0.2	4.5	10.3	14.8	15.9	14.8	11.1	7.0	2.1	-1.5	6.0
Mean 1991-2000	-1.4	-1.0	1.7	5.7	10.4	14.4	16.7	16.0	11.2	6.5	2.1	-1.0	6.8
1981	-3.8	-1.6	-0.1	4.4	11.6	13.4	15.7	14.5	11.6	5.5	1.5	-7.2	5.5
1931 - 2000													
Abs max	3.5	4.6	5.0	7.9	13.3	16.7	20.1	19.4	14.7	10.1	6.0	2.7	
Year	1989	1990	1990	2000	1993	1953	1994	1997	1949	1961	2000	1972	
Abs min	-10.7	-11.2	-5.5	1.5	7.0	11.3	13.7	12.9	8.1	3.2	-2.6	-7.2	
Year	1987	1947	1931	1931	1935	1991	1965	1962	1931	1992	1965	1981	

Table App1-6. Yearly mean temperature 1961 - 2000, Ölands norra udde and Målilla

Stn no 7722	Ölands n:a udde				Stn no 7524	Målilla		
Year	Temp (°C)	Running 5-yr mean	Standard error		Year	Temp (°C)	Running 5yr-mean	Standard error
1961	8.4				1961	7.1		
1962	6.6				1962	5.2		
1963	6.4				1963	5.2		
1964	7.4				1964	6.1		
1965	6.6	7.1			1965	5.1	5.7	
1966	6.4	6.7			1966	5.3	5.4	
1967	8.0	7.0			1967	6.8	5.7	
1968	7.8	7.2			1968	6.2	5.9	
1969	7.0	7.2	0.6		1969	5.5	5.8	0.6
1970	5.8	7.0	0.8		1970	4.9	5.7	0.6
1971	7.2	7.2	0.8		1971	6.4	6.0	0.7
1972	7.7	7.1	0.7		1972	6.5	5.9	0.5
1973	8.0	7.1	0.7		1973	6.3	5.9	0.5
1974	7.7	7.3	0.7		1974	6.8	6.2	0.6
1975	8.7	7.9	0.6		1975	7.4	6.7	0.6
1976	7.0	7.8	0.7		1976	5.4	6.5	0.7
1977	7.0	7.7	0.7		1977	5.9	6.4	0.7
1978	7.0	7.5	0.7		1978	5.6	6.2	0.7
1979	6.5	7.2	0.7		1979	5.4	5.9	0.7
1980	6.5	6.8	0.6		1980	5.2	5.5	0.7
1981	6.9	6.8	0.5		1981	5.5	5.5	0.4
1982	7.4	6.9	0.5		1982	6.5	5.6	0.5
1983	8.1	7.1	0.6		1983	7.0	5.9	0.7
1984	7.7	7.3	0.6		1984	6.7	6.2	0.7
1985	5.5	7.1	0.9		1985	4.3	6.0	1.0
1986	6.8	7.1	0.9		1986	5.5	6.0	1.0
1987	5.7	6.8	1.0		1987	4.4	5.6	1.1
1988	7.5	6.6	1.0		1988	6.5	5.5	1.1
1989	9.1	6.9	1.4		1989	7.9	5.7	1.4
1990	9.3	7.7	1.4		1990	8.0	6.5	1.4
1991	8.0	7.9	1.4		1991	6.7	6.7	1.4
1992	8.6	8.5	1.3		1992	7.1	7.2	1.3
1993	7.7	8.5	1.3		1993	6.3	7.2	1.3
1994	8.2	8.4	0.8		1994	6.9	7.0	0.8

1995	7.8	8.1	0.4		1995	6.4	6.7	0.4
1996	6.8	7.8	0.6		1996	5.4	6.4	0.6
1997	8.4	7.8	0.7		1997	6.9	6.4	0.7
1998	7.5	7.7	0.6		1998	6.5	6.4	0.5
1999	8.6	7.8	0.7		1999	7.3	6.5	0.6
2000	8.9	8.0	0.8		2000	8.0	6.8	0.8

Table App1-7. Average, max and mean precipitation (mm), Oskarshamn. Corrected values

Oskars-hamn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990 Mean	60	43	36	42	44	48	71	60	61	49	57	61	633
Max	215	113	85	113	123	127	154	120	139	193	109	205	997
Min	3	3	2	10	10	4	6	7	15	4	10	6	403
Stand dev	45	27	23	24	23	30	38	28	31	39	26	42	120
Median	48	37	32	37	39	42	70	58	53	41	53	52	626
Mean 91-00	39	50	33	47	48	70	53	62	75	49	75	76	681
Mean 61-00	55	45	36	43	45	54	67	60	65	49	61	65	645
1981	16	91	67	23	24	118	32	33	40	62	74	84	660
1931-2000	Measured values												
Abs max	168	119	84	102	131	135	174	178	185	177	133	162	
Year	1985	1958	1940	1985	1932	1991	1947	1945	1995	1974	1960	1976	
Abs min	1	0	2	9	0	1	5	7	6	4	9	5	
Year	1997	1959	1969	1978	1959	1992	1983	1983	1945	1979	1982	1963	

Table App1-8. Yearly sum of precipitation (corrected values) for Oskarshamn, 1961 - 1990

Year	Yearly sum	Running 5y-mean	Standard error
1961	558		
1962	561		
1963	563		
1964	474		
1965	673	566	
1966	745	603	
1967	607	612	
1968	675	635	
1969	605	661	85
1970	776	682	82
1971	589	650	59
1972	488	627	85
1973	601	612	83
1974	631	617	80
1975	487	559	75
1976	673	576	83
1977	557	590	56
1978	699	609	69
1979	668	617	72
1980	622	644	66
1981	660	641	50
1982	403	610	104
1983	512	573	100
1984	775	595	127
1985	997	670	193
1986	681	674	193
1987	732	740	170
1988	840	805	168
1989	491	748	187
1990	653	680	117
1991	580	659	122
1992	573	627	124
1993	730	605	135
1994	699	647	75
1995	787	674	90

1996	720	702	83
1997	523	692	109
1998	718	689	95
1999	719	694	93
2000	760	688	84
Mean 1961-90	633		
Max	997		
Min	403		
Stand dev	120		
Median	626		

Table App1-9. Average, max and mean precipitation (mm), Ölands norra udde. Corrected values

Stn no 7722	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990 Mean	46	31	31	29	37	38	47	54	61	45	58	53	530
Max	92	73	79	84	83	94	120	141	154	148	144	133	675
Min	2	8	2	6	7	0	6	9	17	3	14	8	393
Stand dev	23	18	19	18	22	23	28	33	36	33	26	30	78
Median	44	27	33	29	33	34	41	44	51	41	59	45	531
Mean 1991-2000	28	29	20	32	31	56	54	56	53	37	56	55	507
Mean 1961-2000	41	31	28	30	36	42	49	54	59	43	57	53	524
1981	20	44	79	18	10	94	17	66	18	77	77	60	578
1879-2000	Measured values												
Abs max	72	101	72	72	81	87	216	143	132	125	116	98	
Year	1939	1958	1909	1985	1932	1901	1916	1912	1984	1974	1974	1976	
Abs min	1	1	1	4	0	0	4	6	5	2	5	2	
Year	1997	1896	1943	1883	1947	1969	1999	1921	1911	1937	1920	1905	

Table App1-10. Average, max and mean precipitation (mm), Målilla. Corrected values

Stn no 7524	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990 Mean	55	42	40	41	50	56	72	68	67	53	58	64	665
Max	116	116	88	98	131	138	147	133	161	182	115	193	839
Min	2	4	6	9	17	12	14	16	19	8	23	12	471
Stand dev	29	24	22	24	29	33	31	34	32	39	23	39	95
Median	54	36	36	37	43	44	70	64	61	46	54	56	676
Mean 1991-2000	43	42	32	42	44	74	74	64	80	50	64	64	669
1981	18	98	74	18	43	119	60	46	48	66	83	89	749
1929-2000	Measured values												
Abs max	97	102	83	94	118	127	135	150	176	162	97	148	
Year	1948	1958	1937	1936	1969	1991	1997	1960	1994	1974	1963	1976	
Abs min	2	1	5	8	3	1	13	13	17	5	9	6	
Year	1989	1959	1964	1964	1959	1992	1967	1995	1979	1937	1955	1932	

Table App1-11. Yearly sum of precipitation (corrected values) for Ölands norra udde and Målilla, 1961 -1990

Stn no 7722	Ölands n:a udde				Stn no 7524	Målilla		
Year	Yearly sum	Running 5-yr mean	Standard error		Year	Yearly sum	Running 5yr-mean	Standard error
1961	535				1961	753		
1962	472				1962	559		
1963	520				1963	596		
1964	448				1964	472		
1965	566	508			1965	703	617	
1966	617	525			1966	732	612	
1967	593	549			1967	731	647	
1968	618	568			1968	712	670	
1969	467	572	74		1969	696	715	79
1970	587	576	69		1970	756	725	70
1971	413	535	78		1971	545	688	78
1972	478	512	77		1972	630	668	70
1973	579	505	81		1973	674	660	68
1974	675	547	88		1974	673	656	68
1975	439	517	94		1975	504	605	81
1976	526	540	77		1976	687	634	55
1977	541	552	76		1977	692	646	56
1978	408	518	84		1978	790	669	77
1979	518	486	62		1979	744	683	82
1980	558	510	56		1980	743	731	68
1981	578	521	61		1981	763	746	64
1982	393	491	75		1982	492	706	114
1983	429	495	64		1983	529	654	115
1984	634	519	81		1984	737	653	118
1985	651	537	94		1985	854	675	142
1986	467	515	92		1986	657	654	142
1987	513	539	82		1987	687	693	105
1988	625	578	79		1988	684	724	90
1989	476	547	68		1989	482	673	118
1990	560	528	47		1990	683	638	89
1991	430	521	58		1991	606	628	90
1992	462	511	61		1992	522	595	96
1993	439	473	60		1993	735	605	110

1994	531	484	55		1994	698	649	73
1995	553	483	61		1995	642	641	71
1996	553	507	50		1996	652	650	70
1997	404	496	61		1997	730	691	64
1998	599	528	67		1998	799	704	51
1999	477	517	66		1999	639	692	52
2000	627	532	72		2000	719	708	52

Table App1-12. Average, max and mean precipitation (mm), Kråkemåla. Corrected values

Stn no 7628	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1991-2000 Mean	41	50	30	48	43	71	59	71	68	55	78	80	694
Max	102	83	50	96	106	130	111	124	140	123	155	130	878
Min	5	19	14	16	3	3	4	10	30	20	30	12	545
Stand dev	30	17	13	28	30	40	35	32	39	34	40	42	106
Median	33	49	31	46	34	63	60	78	58	52	67	92	678

Table App1-13. Yearly sum of precipitation (corrected values) for Kråkemåla, 1991 - 2000

Year	Yearly sum	Running 5y-mean	Standard error
1991	602		
1992	545		
1993	612		
1994	699		
1995	771		
1996	744		
1997	616		
1998	811		
1999	657		
2000	878		

Table App1-14. Correction factors[1)] for adjusting measured precipitation

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Oskars-hamn	1.277	1.265	1.156	1.105	1.100	1.091	1.092	1.091	1.089	1.089	1.163	1.271	1.146
Ölands n:a udde	1.364	1.348	1.240	1.160	1.188	1.188	1.175	1.178	1.173	1.184	1.234	1.359	1.227
Målilla	1.310	1.313	1.176	1.108	1.111	1.120	1.125	1.115	1.117	1.128	1.184	1.306	1.156
Kråkemåla[2)]	1.277	1.265	1.156	1.105	1.100	1.091	1.092	1.091	1.089	1.089	1.163	1.271	1.146

[1)] *Correction factors have recently been modified and will be published within a year. These are the new (modified) ones. (Alexandersson, 2002?)*

[2)] *Correction factors for Kråkemåla have not yet been determined. Factors for Oskarshamn are used.*

Table App1-15. Average monthly sum of potential evapotranspiration (mm), 1961 - 1990, and 1991-2000, Västervik /Gladhammar

Stn no 7647	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990													
Mean	2	7	20	45	83	106	102	77	40	13	2	0	494
Max	12	21	50	59	107	126	140	98	49	22	12	10	618
Min	-5	1	11	31	65	87	81	61	31	7	-5	-9	428
Stand dev	4	5	9	6	10	11	14	8	5	4	4	4	45
Median	2	6	17	44	81	106	102	75	39	12	2	-1	485
Mean 1991-2000	4	11	27	49	91	104	109	79	41	14	4	1	532
1981	-2	7	17	52	94	87	106	81	36	8	3	-1	488

Table App1-16. Average monthly sum of potential evapotranspiration (mm), 1963 - 1990, and 1991-2000, Ölands norra udde

Stn no 7722	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1963-1990													
Mean	10	14	26	47	84	110	112	88	53	24	11	7	587
Max	23	26	42	61	106	139	134	108	74	41	27	21	712
Min	-5	5	13	32	66	87	97	67	41	12	2	-3	508
Stand dev	6	6	6	6	10	13	10	10	8	7	5	6	49
Median	10	12	24	48	83	109	109	89	51	24	11	6	590
Mean 1991-2000	5	11	28	50	91	114	126	94	53	21	5	2	593
1981	10	18	24	51	87	87	109	88	43	17	12	10	556

Table App1-17. Average monthly sum of potential evapotranspiration (mm), 1961 - 1990, and 1991-2000, Målilla

Stn no 7524	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1961-1990													
Mean	1	5	17	43	83	102	98	73	36	11	1	-1	468
Max	3	9	30	54	97	118	124	90	41	18	5	4	519
Min	-2	1	11	28	63	81	84	62	30	5	-7	-5	427
Stand dev	1	2	4	6	9	11	11	7	3	3	2	2	28
Median	1	5	16	43	83	101	97	71	36	10	1	-1	470
Mean 1991-2000	1	7	22	45	82	96	101	72	36	11	1	-2	472
1981	-1	5	16	49	93	83	97	72	34	9	1	0	458

Table App1-18. Yearly sum of potential evapotranspiration (mm) for Ölands norra udde and Målilla, 1961 -1990

Stn no 7722	Ölands n:a udde				Stn no 7524	Målilla		
Year	Yearly sum	Running 5-yr mean	Standard error		Year	Yearly sum	Running 5yr-mean	Standard error
1961					1961			
1962					1962			
1963					1963			
1964	567				1964			
1965	565				1965	449		
1966	544				1966	440		
1967	590	567			1967	435		
1968	629	579			1968	434		
1969	659	597			1969	480	448	
1970	594	603			1970	445	447	
1971	656	626			1971	456	450	
1972	565	621	46		1972	433	450	
1973	712	637	52		1973	479	459	19
1974	545	614	54		1974	453	453	12
1975	610	618	54		1975	507	466	22
1976	630	612	53		1976	503	475	25
1977	638	627	47		1977	477	484	24
1978	651	615	36		1978	481	484	23
1979	592	624	24		1979	476	489	23

1980	552	613	36		1980	444	476	20
1981	556	598	40		1981	458	467	16
1982	560	582	41		1982	519	476	25
1983	597	571	39		1983	519	483	30
1984	530	559	38		1984	465	481	30
1985	508	550	33		1985	431	478	34
1986	591	557	31		1986	481	483	34
1987	526	550	32		1987	427	465	32
1988	525	536	30		1988	475	456	29
1989	607	551	37		1989	505	464	34
1990	573	564	32		1990	489	475	27
1991	558	558	28		1991	445	468	29
1992	697	592	54		1992	518	486	28
1993	627	612	54		1993	470	485	27
1994	668	625	51		1994	528	490	26
1995		638	51		1995	496	491	25
1996	526	630	69		1996	436	490	33
1997	626	612	51		1997	499	486	31
1998	536	589	56		1998	429	478	37
1999	611	575	55		1999	460	464	33
2000	537	567	56		2000	436	452	34

Table App1-19. Yearly sum of potential evapotranspiration (mm) for Västervik /Gladhammar, 1961 - 2000

Stn no 7647	Västervik/ Gladham mar		
Year	Yearly sum	Running 5-yr mean	Standard error
1961	467		
1962	436		
1963	428		
1964	481		
1965	447	452	
1966	481	455	
1967	487	465	
1968	473	474	
1969	513	480	21
1970	488	488	21

1971	437	480	26
1972	465	475	24
1973	529	486	31
1974	465	477	28
1975	515	482	31
1976	505	496	25
1977	469	497	28
1978	466	484	22
1979	483	488	21
1980	471	479	16
1981	488	475	16
1982	518	485	18
1983	556	503	29
1984	452	497	35
1985	510	505	35
1986	538	515	36
1987	505	512	33
1988	542	509	27
1989	618	543	38
1990	599	560	42
1991	539	561	42
1992	674	594	55
1993	608	608	53
1994	620	608	41
1995	560	600	41
1996	445	581	73
1997	522	551	65
1998	421	514	77
1999	481	486	77
2000	449	464	75

Table App1-20. Average monhtly sum of global radiation (kWh/ m^2) Ölands norra udde, 1961-1990

Ölands norra udde	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Year
Mean	12.2	28.5	69.2	113.1	163.8	179.5	168.0	136.6	83.5	41.7	16.2	8.5	1020.7
Stdav	2.3	5.2	9.5	16.1	18.4	18.2	16.5	14.2	8.4	5.0	2.9	1.1	49.7
Max	18.6	41.4	87.7	139.5	195.2	209.3	199.9	161.0	101.3	50.9	22.1	11.1	1116.2
Min	7.8	19.2	50.6	78.3	129.5	145.4	135.1	108.6	69.4	30.5	11.5	6.6	933.9
Median	11.7	27.3	69.8	111.2	164.2	180.5	168.2	138.2	83.2	41.2	16.3	8.1	1015.3
1981	16.9	27.3	64.0	133.1	179.1	145.9	168.2	138.8	73.0	45.6	17.6	7.5	1016.8

Table App1-21. Relative frequency of wind speed (m/s) and wind direction, all cases. Ölands norra udde, 1968 - 1995

March - May

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5	-		2.11	3.31	0.79	0.42	0.81	0.89	0.97	1.19	10.48
8.5	11.4		1.86	2.97	1.18	1.29	2.04	2.60	1.93	1.09	14.96
5.5	8.4		3.79	4.40	2.68	3.43	5.90	6.59	4.28	2.34	33.40
2.5	5.4		3.13	3.62	3.37	4.38	5.60	5.34	3.72	2.23	31.38
0.5	2.4		0.91	0.98	1.07	1.16	1.36	1.05	0.97	0.69	8.19
-	0.4	1.59									1.59
Sum		1.59	11.80	15.28	9.09	10.68	15.71	16.47	11.86	7.53	100.00

June – August

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			1.03	1.49	0.39	0.08	0.29	0.47	0.83	0.85	5.42
8.5	11.4		1.32	1.60	0.66	0.53	1.68	1.82	2.09	1.23	10.93
5.5	8.4		3.05	3.36	1.99	2.14	6.23	7.40	6.39	3.10	33.67
2.5	5.4		3.01	3.74	3.47	3.92	6.94	7.46	6.12	3.27	37.93
0.5	2.4		1.01	1.12	1.48	1.18	1.49	1.38	1.01	1.07	9.73
	0.4	2.31									2.31
Sum		2.31	9.42	11.31	7.99	7.85	16.62	18.54	16.44	9.52	100.00

Sept – Nov

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			2.80	1.78	1.44	0.84	1.34	2.30	2.84	3.58	16.92
8.5	11.4		1.57	1.35	1.38	1.60	2.52	4.54	3.18	2.41	18.54
5.5	8.4		2.00	1.88	2.13	2.69	5.75	8.47	5.51	3.67	32.10
2.5	5.4		1.32	1.39	1.81	2.43	5.45	6.46	4.07	2.49	25.43
0.5	2.4		0.49	0.55	0.46	0.74	1.16	1.29	0.76	0.56	6.01
	0.4	1.02									1.02
Sum		1.02	8.18	6.95	7.22	8.29	16.22	23.06	16.37	12.70	100.00

Dec – Feb

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			3.08	2.53	2.43	1.41	1.37	2.12	2.71	3.66	19.33
8.5	11.4		1.60	1.45	2.05	1.86	2.61	4.39	2.83	2.59	19.38
5.5	8.4		1.83	1.86	2.98	3.03	4.58	9.06	5.51	3.69	32.54
2.5	5.4		1.24	1.12	1.61	1.88	3.87	5.81	3.93	2.29	21.75
0.5	2.4		0.35	0.40	0.41	0.55	1.07	1.57	0.90	0.53	5.78
	0.4	1.23									1.23
Sum		1.23	8.11	7.36	9.48	8.74	13.50	22.95	15.89	12.76	100.00

All year

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			2.25	2.28	1.26	0.69	0.94	1.43	1.82	2.29	12.95
8.5	11.4		1.59	1.85	1.32	1.31	2.21	3.33	2.51	1.82	15.94
5.5	8.4		2.68	2.89	2.45	2.82	5.60	7.85	5.44	3.22	32.95
2.5	5.4		2.19	2.48	2.58	3.16	5.46	6.25	4.47	2.58	29.19
0.5	2.4		0.69	0.77	0.86	0.91	1.26	1.31	0.91	0.71	7.44
	0.4	1.54									
Sum		1.54	9.41	10.26	8.48	8.90	15.47	20.18	15.15	10.62	100.00

Table App1-22. Relative frequency of wind speed (m/s) and wind direction. Precipitation. Ölands norra udde, 1968-1995

March - May

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5 -			6.16	8.73	2.91	1.54	1.95	0.46	0.97	2.51	25.25
8.5	11.4		3.07	4.11	2.08	2.46	2.47	1.69	1.30	1.07	18.25
5.5	8.4		4.14	5.30	3.73	3.40	6.12	3.76	1.78	1.78	30.00
2.5	5.4		2.62	1.95	3.17	3.52	3.32	3.17	1.63	1.27	20.66
0.5	2.4		0.71	0.44	0.51	0.63	0.74	0.82	0.57	0.45	4.86
-	0.4	0.98									0.98
Sum		0.98	16.71	20.53	12.39	11.56	14.60	9.90	6.24	7.08	100.00

June - August

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			4.16	4.56	1.47	0.10	0.56	0.62	1.00	2.79	15.26
8.5	11.4		1.57	2.41	1.75	0.60	2.15	2.43	1.75	3.01	15.66
5.5	8.4		2.93	3.80	2.39	2.31	6.29	7.85	3.69	4.08	33.33
2.5	5.4		2.11	2.35	2.05	2.57	6.59	4.90	4.08	2.03	26.67
0.5	2.4		1.02	0.28	0.66	1.29	1.29	1.06	0.94	1.08	7.63
	0.4	1.45									
Sum		1.45	11.79	13.39	8.31	6.87	16.87	16.87	11.47	12.99	100.00

Sept - Nov

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			8.27	5.76	4.64	2.24	3.46	2.29	0.81	3.28	30.75
8.5	11.4		1.99	2.28	2.57	2.99	4.67	3.11	1.23	1.74	20.58
5.5	8.4		1.83	2.07	2.31	3.77	8.16	5.94	1.95	2.15	28.18
2.5	5.4		0.84	1.09	1.13	2.51	4.66	3.56	1.27	1.27	16.32
0.5	2.4		0.52	0.17	0.40	0.46	0.88	0.57	0.31	0.27	3.58
	0.4	0.58									0.58
Sum		0.58	13.44	11.37	11.04	11.96	21.84	15.47	5.58	8.72	100.00

Dec-Feb

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			7.91	7.57	5.84	2.59	2.12	1.03	0.79	4.69	32.55
8.5	11.4		3.25	3.52	4.39	3.55	3.00	1.73	0.53	1.65	21.62
5.5	8.4		2.43	3.63	4.43	5.06	4.60	4.39	1.13	2.18	27.86
2.5	5.4		0.89	1.29	1.84	1.85	3.46	2.46	0.90	0.89	13.57
0.5	2.4		0.13	0.48	0.45	0.33	0.74	0.74	0.29	0.24	3.40
	0.4	1.00									1.00
Sum		1.00	14.61	16.49	16.95	13.38	13.92	10.35	3.64	9.65	100.00

All year

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			7.11	6.95	4.34	1.98	2.16	1.15	0.87	3.62	28.19
8.5	11.4		2.65	3.16	3.10	2.74	3.18	2.17	1.04	1.75	19.79
5.5	8.4		2.72	3.62	3.56	3.97	5.97	5.11	1.83	2.37	29.15
2.5	5.4		1.42	1.53	1.99	2.44	4.16	3.21	1.61	1.21	17.57
0.5	2.4		0.48	0.36	0.48	0.56	0.84	0.75	0.46	0.41	4.36
	0.4	0.95									0.95
Sum		0.95	14.38	15.63	13.46	11.70	16.31	12.40	5.81	9.37	100.00

Table App1-23. Relative frequency of wind speed (m/s) and wind direction. Snow. Ölands norra udde, 1968-1995

From	To	Calm	N	NE	E	SE	S	SW	W	NW	Sum
11.5			10.79	9.98	6.54	2.42	1.06	0.55	0.62	5.84	37.80
8.5	11.4		4.10	4.19	4.53	3.24	1.55	0.69	0.51	1.98	20.79
5.5	8.4		3.06	4.63	5.20	3.80	2.59	1.99	0.76	2.47	24.49
2.5	5.4		1.35	1.26	2.54	2.13	1.87	1.43	0.95	0.90	12.43
0.5	2.4		0.47	0.41	0.43	0.36	0.54	0.62	0.31	0.33	3.46
	0.4	1.03									1.03
Sum		1.03	19.76	20.47	19.24	11.95	7.60	5.28	3.14	11.52	100.00

Table App1-24. Yearly and daily variation of relative humidity (%). Mean values. Ölands norra udde, 1963 - 1990.

Hour	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	86	85	86	86	85	85	85	85	84	85	84	85
4	86	86	86	88	88	88	88	87	86	85	85	85
7	86	86	87	86	84	82	83	85	85	86	85	85
10	86	85	82	79	76	72	73	76	79	82	84	85
13	84	82	78	74	72	68	67	68	71	77	81	83
16	84	81	78	75	73	70	69	70	72	78	82	84
19	85	83	82	80	78	74	74	76	79	82	82	84
22	86	84	84	84	83	83	82	83	83	84	84	85
1	86	85	86	86	85	85	85	85	84	85	84	85

Table App1-25. Relative frequencies (%) of air pressure at mean sea level (hPa), Ölands norra udde, 1961 - 1995

From	To	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1060 -														
1055	1059.99													
1050	1054.99		0.05									0.1		0.01
1045	1049.99	0.1	0.48	0.01								0.19	0.21	0.08
1040	1044.99	1.41	2.14	1.1		0.01					0.37	0.47	0.79	0.51
1035	1039.99	3.65	5.23	3.08	0.25	0.29	0.24			0.28	2.01	1.75	3.14	1.64
1030	1034.99	7.54	7.48	6.18	1.97	3.19	0.95	0.24	0.16	2.01	6.48	4.2	4.69	3.74
1025	1029.99	10.62	9.38	10.1	8.64	10.22	4.46	3.66	4.53	6.44	9.71	8.14	7.8	7.8
1020	1024.99	11.68	13.95	12.22	15.17	18.91	13.15	11.99	13	14.59	15.88	12.69	11.07	13.69
1015	1019.99	11.35	13.11	13	19.8	22.36	21.6	23.31	22.92	20.55	14.45	13.18	11.84	17.33
1010	1014.99	11.55	13.56	12.7	21.04	20.28	26.35	24.85	25.01	21.22	14.34	13.5	12.99	18.15
1005	1009.99	11.23	11.82	12.44	13.87	14.72	20.11	20.04	19.69	14.72	13.85	14.37	12.52	14.97
1000	1004.99	9.78	8.09	10.69	9.56	6.91	10.15	10.77	10.28	11.5	10.11	11.28	11.8	10.08
995	999.99	8.05	5.5	8.51	5.23	2.27	2.43	4.1	3.36	5.43	6.22	7.8	8.23	5.59
990	994.99	5.62	3.93	4.81	2.8	0.7	0.38	0.77	0.8	2.61	3.9	5.45	6.07	3.14
985	989.99	3.55	2.45	2.9	1.12	0.16	0.17	0.25	0.17	0.42	1.83	3.41	3.96	1.69
980	984.99	1.81	1	1.4	0.37			0.01	0.09	0.18	0.61	2.1	2.59	0.84
975	979.99	1.27	0.78	0.54	0.09					0.04	0.2	0.81	1.44	0.43
970	974.99	0.48	0.47	0.32	0.04					0.01	0.05	0.41	0.52	0.19
965	969.99	0.18	0.27	0.01	0.02							0.09	0.2	0.06
960	964.99	0.11	0.11		0.04							0.06	0.09	0.03
955	959.99	0.02	0.15										0.04	0.02
950	954.99		0.05										0.02	0.01
-	949.99													
Nr of observations		8276	7476	8215	8069	8338	8069	8338	8153	7860	8153	7889	8150	96986
Min		959.1	952.2	969.6	963.3	986.2	985.7	984.9	980.4	974.4	970.2	960.2	954.5	952.2
Date of min		19810115	19900227	19720328	19800419	19810501	19840624	19650730	19800822	19780911	19671018	19771115	19821216	19900227
Mean		1012.58	1014.87	1012.81	1013.24	1015.76	1013.28	1012.55	1012.89	1012.97	1013.99	1011.08	1010.44	1013.03
Max		1048.3	1050.4	1045.8	1039.2	1040	1038.1	1032.5	1031.5	1039.3	1042.4	1052.4	1049.3	1052.4
Date of max		19850114	19940213	19720311	19620415	19900502	19790603	19720715	19680823	19700928	19641027	19851118	19621223	19851118
Stand dev		15.02	14.62	13.58	9.77	8.31	7.37	7.4	7.46	9.17	11.93	13.43	14.6	11.51

Table App1-26. Relative frequency of pressure tendency greater than 5 hPa/ 3 hours, 1961 -1995, Ölands norra udde

Stn no 7722	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Total nr of observations 1961-95	8121	7329	8124	8021	8306	8018	8226	7859	7517	7879	7775	8124	95299
Total nr of observations with rising pressure	4062	3692	3895	4038	4015	3811	3945	3840	3720	3817	3868	4089	46792
Nr of observations pressure rising > 5hPa/ 3 hours	57	44	39	9	7	9	1	3	16	38	56	69	348
Rel frequency of pressure rising>5 hPa/ 3 hours (%)	0.70	0.60	0.48	0.11	0.08	0.11	0.01	0.04	0.21	0.48	0.72	0.85	0.37
Total nr of observations with falling pressure	3802	3400	3896	3641	3875	3709	3759	3537	3458	3782	3643	3807	44309
Nr of observations pressure falling > 5 hPa/ 3 hours	119	74	49	24	7	9	5	2	33	50	80	127	579
Rel frequency of pressure falling > 5 hPa/ 3 hours (%)	1.46	1.01	0.60	0.30	0.08	0.11	0.06	0.03	0.44	0.63	1.03	1.56	0.61
Rel frequency of pressure falling > 5 hPa/ 3 hours (%)	1.25	1.07	0.59	0.20	0.04	0.08	0.04	0.02	0.37	0.57	0.91	1.47	0.55

Table App 2-1. Characteristic discharge.

Q-station / calculation site	Area (km2)	Period	LLQ50	MLQ	MQ	MHQ	HHQ50	HHQ100	**(m3/s)**
50110 Vattholma	294,0	1917-2000	0,05	0,33	2,2	8,8	20	23	
2299 Tärnsjö	13,7	1975-2000	0,01	0,03	0,11	0,50	1,0	1,1	
1619 Forshultesjön nedre	103,2	1955-2000	0 [1)]	0,06	0,59	2,7	6,1	6,8	
573 Gimo	587	1923-1931	0,01	0,62	4,5	22	49	55	
1256 Fors	577	1931-1958	0,10	0,56	4,3	23	42	47	
1260 Odensfors	772	1931-1950	0 [1)]	1,59	5,1	13	25	28	
1053 Näs	1176	1925-1970	0,01	1,38	9,0	46	101	113	
910 Uvlunge	263	1917-1942	0.04 [1)]	0,12	1,9	11	30	34	
OL1 Olandsån	880,9	1962-2001	0.01 [2)]	0,40	6,6	48	98	108	
FO1 Forsmarksån	375,5	1962-2001	0.07 [2)]	0,43	3,0	14	34	39	
GE1 Gerseboån	24,8	1962-2001	0 [2)]	0,01	0,12	0,53	1,3	1,4	
LA1 Laxemarån	41,3	1962-2001	0.01 [2)]	0,03	0,22	1,8	4,1	4,6	

Q-station / calculation site	Area (km2)	Period	LLQ50	MLQ	MQ	MHQ	HHQ50	HHQ100	**(l/s*km2)**
50110 Vattholma	294,0	1917-2000	0,18	1,1	7,5	30	69	77	
2299 Tärnsjö	13,7	1975-2000	0,69	2,1	8,2	37	74	82	
1619 Forshultesjön nedre	103,2	1955-2000	0	0,58	5,7	26	59	66	
573 Gimo	587	1923-1931	0,02	1,1	7,7	37	84	94	
1256 Fors	577	1931-1958	0,17	0,97	7,5	39	74	81	
1260 Odensfors	772	1931-1950	0	2,1	6,6	17	33	36	
1053 Näs	1176	1925-1970	0,01	1,2	7,7	39	86	96	
910 Uvlunge	263	1917-1942	0,15	0,46	7,2	43	114	129	
OL1 Olandsån	880,9	1962-2001	0,01	0,45	7,5	55	111	122	
FO1 Forsmarksån	375,5	1962-2001	0,19	1,15	8,0	37	91	103	
GE1 Gerseboån	24,8	1962-2001	0	0,40	4,8	21	52	56	
LA1 Laxemarån	41,3	1962-2001	0,24	0,73	5,3	43	99	111	

[1)] Observed minimum
[2)] Calculated minimum

Table App 2-2. Maximum, minimum and average discharge 50110 Vattholma 1917-2000. Daily mean values.

m3/s	Max	Min	Average	l/s*km2	Max	Min	Average
1917	8,2	0,19	1,8		27,9	0,6	6,1
1918	10	0,25	2,4		34,0	0,9	8,2
1919	13	0,6	2,5		44,2	2,0	8,5
1920	9,2	0,4	2,1		31,3	1,4	7,1
1921	3,5	0,16	0,97		11,9	0,5	3,3
1922	25	0,5	2,9		85,0	1,7	9,9
1923	5,2	0,07	2,4		17,7	0,2	8,2
1924	24	1,3	4,2		81,6	4,4	14,3
1925	6,9	0,35	1,6		23,5	1,2	5,4
1926	8	0,55	2,1		27,2	1,9	7,1
1927	7,3	0,75	3,2		24,8	2,6	10,9
1928	5,5	0,5	2,2		18,7	1,7	7,5
1929	5,4	0,75	2		18,4	2,6	6,8
1930	6,7	0,25	2,1		22,8	0,9	7,1
1931	9,6	0,25	2,4		32,7	0,9	8,2
1932	9,8	0,07	2,1		33,3	0,2	7,1
1933	3,6	0,1	1,1		12,2	0,3	3,7
1934	11	0,5	2,4		37,4	1,7	8,2
1935	5,9	0,4	2,5		20,1	1,4	8,5
1936	7,5	0,4	3		25,5	1,4	10,2
1937	18	0,25	2,5		61,2	0,9	8,5
1938	5,2	0,19	2		17,7	0,6	6,8
1939	5,5	0,35	1,8		18,7	1,2	6,1
1940	6,1	0,19	2,2		20,7	0,6	7,5
1941	7,5	0,19	1,7		25,5	0,6	5,8
1942	6,3	0,45	1,9		21,4	1,5	6,5
1943	5,4	0,25	2,1		18,4	0,9	7,1
1944	13	0,4	3,2		44,2	1,4	10,9
1945	12	0,7	2,9		40,8	2,4	9,9
1946	5,5	0,65	2,2		18,7	2,2	7,5
1947	7,5	0,19	1,3		25,5	0,6	4,4
1948	7,5	0,3	1,2		25,5	1,0	4,1
1949	5	0,11	1,6		17,0	0,4	5,4

1950	9,4	0,14	2	32,0	0,5	6,8
1951	15,3	0,13	1,5	52,0	0,4	5,1
1952	5	0,1	1,3	17,0	0,3	4,4
1953	12,5	0,24	1,9	42,5	0,8	6,5
1954	9,2	0,19	2,2	31,3	0,6	7,5
1955	6,7	0,12	1,7	22,8	0,4	5,8
1956	14,1	0,4	2,2	48,0	1,4	7,5
1957	10,9	1,1	3,5	37,1	3,7	11,9
1958	11,1	0,7	2,4	37,8	2,4	8,2
1959	13,2	0,08	2,4	44,9	0,3	8,2
1960	9,9	0,32	3,2	33,7	1,1	10,9
1961	9,5	1	3,3	32,3	3,4	11,2
1962	15	0,5	2,4	51,0	1,7	8,2
1963	4,9	0,3	1,2	16,7	1,0	4,1
1964	3,7	0,29	1,1	12,6	1,0	3,7
1965	7,2	0,35	2,5	24,5	1,2	8,5
1966	22	0,45	3,1	74,8	1,5	10,5
1967	12,6	0,2	3	42,9	0,7	10,2
1968	10,5	0,32	2,2	35,7	1,1	7,5
1969	13,4	0,23	2,1	45,6	0,8	7,1
1970	16,3	0,2	1,9	55,4	0,7	6,5
1971	8,2	0,11	1,7	27,9	0,4	5,8
1972	4,4	0,17	0,98	15,0	0,6	3,3
1973	4,1	0,11	0,91	13,9	0,4	3,1
1974	7,4	0,23	2,3	25,2	0,8	7,8
1975	6	0,08	1,6	20,4	0,3	5,4
1976	3,2	0,05	0,9	10,9	0,2	3,1
1977	10,5	0,4	3	35,7	1,4	10,2
1978	8,2	0,65	2,9	27,9	2,2	9,9
1979	6,5	0,75	2,6	22,1	2,6	8,8
1980	8,2	0,36	2,6	27,9	1,2	8,8
1981	10,7	0,64	4,1	36,4	2,2	13,9
1982	13,5	0,17	2,4	45,9	0,6	8,2
1983	5,8	0,12	1,6	19,7	0,4	5,4
1984	7,5	0,35	2,6	25,5	1,2	8,8
1985	11,3	0,21	2,2	38,4	0,7	7,5

1986	10	0,27	3,4		34,0	0,9	11,6
1987	7,5	0,4	2,2		25,5	1,4	7,5
1988	7,3	0,14	2,1		24,8	0,5	7,1
1989	5,9	0,06	1,5		20,1	0,2	5,1
1990	8	0,12	2,6		27,2	0,4	8,8
1991	4,7	0,35	1,8		16,0	1,2	6,1
1992	4,6	0,13	1,8		15,6	0,4	6,1
1993	3,1	0,1	0,88		10,5	0,3	3,0
1994	4,8	0,1	1,2		16,3	0,3	4,1
1995	8,7	0,12	2,3		29,6	0,4	7,8
1996	2,2	0,22	0,66		7,5	0,7	2,2
1997	3,6	0,27	1,5		12,2	0,9	5,1
1998	8,1	0,55	2,9		27,6	1,9	9,9
1999	12,9	0,17	2,7		43,9	0,6	9,2
2000	7,4	0,2	1,9		25,2	0,7	6,5
				Average 1917-1990:	31,1	1,2	7,5
				Average 1991-2000	20,4	0,8	6,0

Table App 2-3. Monthly discharge 50110 Vattholma 1917-2000. Maximum and minimum daily mean, long term average and standard deviation.

Month		1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):													
	1917	0,33	0,27	0,23	1,2	0,71	0,19	0,12	0,08	0,08	0,16	0,22	0,42
To		2,2	2	2,4	4,9	4,2	1,3	0,6	0,69	1,1	1,6	2,3	2,6
	2000	6,4	6,6	8,9	10,7	17,7	5,9	2,8	3,9	6,4	8,9	7,8	8,7
StdMQ		1,3	1,4	1,8	2,3	2,9	0,9	0,5	0,7	1,3	1,5	1,7	1,8
(dm3/s/km2) :													
	1917	1,1	0,92	0,8	4,1	2,4	0,66	0,41	0,28	0,27	0,54	0,75	1,4
To		7,6	6,8	8,1	16,8	14,2	4,3	2,1	2,4	3,7	5,4	7,9	9
	2000	22	22	30	37	60	20	9,5	13,3	22	30	27	30
StdMQ		4,5	4,7	6,0	7,7	9,9	3,0	1,7	2,3	4,3	5,1	5,9	6,0

Table App 2-4. Discharge duration based on daily mean values for 50110 Vattholma 1917-2000.

l/s*km2		%
85-90	87,5	0,0
80-85	82,5	0,0
75-80	77,5	0,0
70-75	72,5	0,0
65-70	67,5	0,0
60-65	62,5	0,3
55-60	57,5	0,3
50-55	52,5	0,3
48-50	49	0,3
46-48	47	0,3
44-46	45	0,5
42-44	43	0,8
40-42	41	0,8
38-40	39	1,1
36-38	37	1,1
34-36	35	1,4
32-34	33	1,9
30-32	31	2,2
28-30	29	2,7
26-28	27	3,3
24-26	25	4,1
22-24	23	5,2
20-22	21	6,8
18-20	19	8,8
16-18	17	11,8
14-16	15	15,3
12-14	13	19,7
10-12	11	24,9
9-10	9,5	28,2
8-9	8,5	33,4
7-8	7,5	38,6
6-7	6,5	42,5
5-6	5,5	49,9
4-5	4,5	57,5
3-4	3,5	66,6
2-3	2,5	77,8
1-2	1,5	91,2
0.8-1	0,9	94,0
0.6-0.8	0,7	96,4
0.4-0.6	0,5	98,9
0.2-0.4	0,3	100,0
0.0-0.2	0,1	100,0

Table App 2-5. Maximum, minimum and average discharge 1619 Forshultesjön nedre 1955-2000. Daily mean values.

m3/s	Max	Min	Average	l/s*km2	Max	Min	Average
1955	2,3	0,01	0,43		22,3	0,1	4,2
1956	2,6	0,02	0,45		25,2	0,2	4,4
1957	1,7	0,04	0,46		16,5	0,4	4,5
1958	5	0,14	0,79		48,4	1,4	7,7
1959	3	0	0,6		29,1	0,0	5,8
1960	4,3	0,08	1,3		41,7	0,8	12,6
1961	3,1	0,2	0,75		30,0	1,9	7,3
1962	0,99	0,13	0,41		9,6	1,3	4,0
1963	2	0,11	0,49		19,4	1,1	4,7
1964	1,1	0,01	0,27		10,7	0,1	2,6
1965	1,3	0,03	0,44		12,6	0,3	4,3
1966	4,6	0,05	1,1		44,6	0,5	10,7
1967	3,2	0,02	0,71		31,0	0,2	6,9
1968	3,9	0,03	0,65		37,8	0,3	6,3
1969	3,3	0,01	0,71		32,0	0,1	6,9
1970	6,6	0,03	1		64,0	0,3	9,7
1971	2,9	0,04	0,46		28,1	0,4	4,5
1972	4,6	0,02	0,66		44,6	0,2	6,4
1973	2	0,03	0,45		19,4	0,3	4,4
1974	2,8	0,02	0,83		27,1	0,2	8,0
1975	2	0,02	0,54		19,4	0,2	5,2
1976	1,6	0,04	0,2		15,5	0,4	1,9
1977	4,7	0,05	0,84		45,5	0,5	8,1
1978	3	0,02	0,52		29,1	0,2	5,0
1979	3,6	0,05	0,65		34,9	0,5	6,3
1980	2,3	0,05	0,57		22,3	0,5	5,5
1981	3,1	0,06	0,59		30,0	0,6	5,7
1982	2	0,05	0,34		19,4	0,5	3,3
1983	1,1	0,01	0,2		10,7	0,1	1,9
1984	1,3	0,21	0,65		12,6	2,0	6,3
1985	5	0,22	1		48,4	2,1	9,7
1986	2,3	0,09	0,65		22,3	0,9	6,3
1987	3,7	0,11	0,64		35,9	1,1	6,2
1988	3,7	0,05	0,87		35,9	0,5	8,4
1989	0,57	0,01	0,19		5,5	0,1	1,8
1990	2,2	0,02	0,37		21,3	0,2	3,6
1991	1,3	0,12	0,46		12,6	1,2	4,5
1992	0,81	0,01	0,24		7,8	0,1	2,3
1993	1,4	0,02	0,37		13,6	0,2	3,6
1994	2,7	0,09	0,8		26,2	0,9	7,8
1995	2,7	0,09	0,66		26,2	0,9	6,4
1996	2,6	0,1	0,44		25,2	1,0	4,3
1997	1,5	0,07	0,37		14,5	0,7	3,6
1998	2	0,13	0,8		19,4	1,3	7,8
1999	2,8	0,04	0,59		27,1	0,4	5,7
2000	3,9	0,09	0,72		37,8	0,9	7,0
				Average 1917-1990:	27,8	0,6	5,9
				Average 1991-2000	21,0	0,7	5,3

Table App 2-6. Monthly discharge 1619 Forshultesjön nedre 1955-2000. Maximum and minimum daily mean, long term average and standard deviation.

Month		1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):													
	1955	0,05	0,07	0,07	0,06	0,04	0,02	0,03	0,02	0	0	0,02	0,06
To		0,71	0,73	0,89	1,4	1	0,34	0,16	0,21	0,2	0,25	0,49	0,69
	2000	2,2	2,3	3,4	3,8	3,2	1,1	0,59	1,3	1	2	3,6	3,4
StdMQ		0,6	0,5	0,7	0,9	0,8	0,2	0,1	0,2	0,2	0,3	0,7	0,7
(dm3/s/km2) :													
	1955	0,48	0,68	0,68	0,58	0,39	0,19	0,29	0,19	0	0	0,19	0,58
To		6,9	7,1	8,7	13,7	10	3,3	1,6	2	1,9	2,4	4,7	6,7
	2000	21	22	33	37	31	10,7	5,7	12,6	9,7	19,4	35	33
StdMQ		5,6	4,6	6,8	8,9	7,6	2,2	1,4	2,0	1,7	3,3	6,9	7,2

Table App 2-7. Discharge duration based on daily mean values for 1619 Forshultesjön nedre 1955-2000.

l/s*km2		%
60-65	62,5	0,0
55-60	57,5	0,0
50-55	52,5	0,0
48-50	49,0	0,0
46-48	47,0	0,3
44-46	45,0	0,3
42-44	43,0	0,5
40-42	41,0	0,5
38-40	39,0	0,8
36-38	37,0	0,8
34-36	35,0	1,1
32-34	33,0	1,6
30-32	31,0	2,2
28-30	29,0	2,5
26-28	27,0	3,3
24-26	25,0	3,8
22-24	23,0	4,4
20-22	21,0	5,5
18-20	19,0	7,1
16-18	17,0	8,8
14-16	15,0	10,1
12-14	13,0	12,3
10-12	11,0	16,2
9-10	9,5	19,7
8-9	8,5	22,2
7-8	7,5	25,2
6-7	6,5	29,6
5-6	5,5	34,0
4-5	4,5	40,3
3-4	3,5	50,4
2-3	2,5	63,8
1-2	1,5	83,0
0.8-1	0,9	86,0
0.6-0.8	0,7	89,9
0.4-0.6	0,5	94,2
0.2-0.4	0,3	97,5
0.0-0.2	0,1	100,0

Table App 2-8. Maximum, minimum and average discharge 1053 Näs 1925-1970.
Daily mean values.

m3/s	Max	Min	Medel	l/skm2	Max	Min	Medel
1925	22	1,3	6		18,7	1,1	5,1
1926	29	1,4	7,6		24,7	1,2	6,5
1927	32	1,8	13,2		27,2	1,5	11,2
1928	30	2,2	10,2		25,5	1,9	8,7
1929	33	2	9,8		28,1	1,7	8,3
1930	21	0,69	7,5		17,9	0,6	6,4
1931	45	2	8,8		38,3	1,7	7,5
1932	72	1,3	8,3		61,2	1,1	7,1
1933	12,8	0,43	3,6		10,9	0,4	3,1
1934	66	1	9,5		56,1	0,9	8,1
1935	27	1,4	10,7		23,0	1,2	9,1
1936	34	2,5	10,7		28,9	2,1	9,1
1937	68	2,1	8,8		57,8	1,8	7,5
1938	30	2	8		25,5	1,7	6,8
1939	25	1,2	7,4		21,3	1,0	6,3
1940	35	1,5	7,4		29,8	1,3	6,3
1941	50	1,7	7		42,5	1,4	6,0
1942	57	1	6,1		48,5	0,9	5,2
1943	35	0,55	7,1		29,8	0,5	6,0
1944	59	3,1	13		50,2	2,6	11,1
1945	35	3,1	14,5		29,8	2,6	12,3
1946	29	1,9	9,2		24,7	1,6	7,8
1947	24	0,12	4,7		20,4	0,1	4,0
1948	35	0,62	4,9		29,8	0,5	4,2
1949	25	0,51	5,3		21,3	0,4	4,5
1950	38	1,3	8,8		32,3	1,1	7,5
1951	56	0,47	6,5		47,6	0,4	5,5
1952	23	0,23	5,8		19,6	0,2	4,9
1953	51	0,51	8,1		43,4	0,4	6,9
1954	37	0,83	8,5		31,5	0,7	7,2
1955	26	0,62	8		22,1	0,5	6,8
1956	61	1,8	9,3		51,9	1,5	7,9
1957	60	2,8	15,1		51,0	2,4	12,8
1958	62	1	9,9		52,7	0,9	8,4
1959	103	0,27	11,1		87,6	0,2	9,4
1960	56	2,3	17,4		47,6	2,0	14,8
1961	67	2,6	12,3		57,0	2,2	10,5
1962	60	1,6	10,2		51,0	1,4	8,7
1963	43	0,55	5,3		36,6	0,5	4,5
1964	24	1,3	4,4		20,4	1,1	3,7
1965	43	2,1	9,7		36,6	1,8	8,2
1966	95	1,8	12		80,8	1,5	10,2
1967	88	1,4	13,8		74,8	1,2	11,7
1968	78	0,9	9,8		66,3	0,8	8,3
1969	59	0,9	9,1		50,2	0,8	7,7
1970	69	0,9	8,4		58,7	0,8	7,1

Table App 2-9. Monthly discharge 1053 Näs 1925-1970. Maximum and minimum daily mean, long term average and standard deviation.

Month		1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):													
	1925	1,2	1,1	0,88	4,7	3,7	2	0,66	0,62	0,56	0,57	0,61	1,2
To		9,1	8,4	10	19,2	15,9	6,7	4	4,4	4,8	5,6	9,1	10,5
	1970	31	22	44	40	51	14,4	10,3	23	25	31	31	31
StdMQ		6,2	5,6	8,4	8,3	9,4	3,5	2,2	4,6	5,5	6,2	7,4	7,4
(dm3/s/km2) :													
	1925	1	0,94	0,75	4	3,1	1,7	0,56	0,53	0,48	0,48	0,52	1
To		7,7	7,2	8,5	16,3	13,5	5,7	3,4	3,7	4,1	4,8	7,7	8,9
	1970	26	18,7	37	34	43	12,2	8,8	19,6	21	26	26	26
StdMQ		5,3	4,8	7,2	7,0	8,0	2,9	1,9	3,9	4,6	5,3	6,3	6,3

Table App 2-10. Discharge duration based on daily mean values for 1053 Näs 1925-1970.

l/skm2	%
87	0,0
85	0,0
82	0,0
78	0,0
74	0,0
70	0,0
67	0,3
63	0,3
61	0,5
59	0,5
57	0,5
54	0,8
52	0,8
50	0,8
48	1,1
46	1,4
45	1,4
43	1,6
40	2,5
37,5	3,0
34	3,8
31,5	5,2
28	6,8
24,5	8,8
21,5	12,1
18	15,9
15,5	20,5
12	26,6
10,5	29,6
9	33,7
7,5	37,5
5,8	44,1
4,3	49,6
2,5	58,4
1,6	66,6
1,1	80,3
0,7	95,6
0,5	97,3
0,3	98,6
0,2	99,5
0,1	100,0
0,1	100,0

Table App 2-11. Monthly discharge 910 Uvlunge 1917-1942. Maximum and minimum daily mean, long term average and standard deviation.

Month		1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):													
	1917	0,19	0,12	0,12	0,77	0,43	0,16	0,08	0,12	0,19	0,21	0,28	0,19
To		1,8	1,3	1,3	4,4	3,5	0,86	0,45	0,73	1,6	1,9	2,5	1,9
	1942	7,7	5,4	6	11,3	15,2	2,7	1,8	3,8	9,9	9	11,8	4,4
StdMQ		2,0	1,3	1,4	2,8	3,2	0,7	0,4	1,0	2,6	2,1	2,5	1,3
(dm3/s/km2) :													
	1917	0,72	0,46	0,46	2,9	1,6	0,61	0,3	0,46	0,72	0,8	1,1	0,72
To		6,9	4,9	5,1	16,6	13,4	3,3	1,7	2,8	6,2	7,3	9,6	7,4
	1942	29	21	23	43	58	10,3	6,8	14,4	38	34	45	16,7
StdMQ		7,5	5,0	5,3	10,5	12,1	2,5	1,4	3,8	9,9	7,8	9,4	4,9

Table App 2-12. Monthly discharge 573 Gimo 1923-1931. Maximum and minimum daily mean, long term average and standard deviation.

Month		1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):													
	1923	0,52	0,52	1,5	3,5	2,4	0,54	0,53	0,38	0,27	0,25	0,45	0,41
To		3,5	2,5	3,1	9,2	8,6	2,6	1,9	2,9	4,3	4,8	6	4,6
	1931	6,4	5,6	7	17,2	29	4,6	4,8	10,3	14,5	18,3	15,2	8,8
StdMQ		1,9	1,5	2,2	4,5	8,2	1,5	1,6	3,7	5,3	6,0	5,3	3,0
(dm3/s/km2) :													
	1923	0,89	0,89	2,6	6	4,1	0,92	0,9	0,65	0,46	0,43	0,77	0,7
To		6	4,3	5,2	15,7	14,6	4,5	3,3	5	7,4	8,3	10,2	7,8
	1931	10,9	9,5	11,9	29	49	7,8	8,2	17,5	25	31	26	15
StdMQ		3,3	2,6	3,8	7,7	14,0	2,6	2,8	6,2	9,1	10,2	9,1	5,1

Table App 2-13. Monthly discharge 1256 Fors 1931-1958. Maximum and minimum daily mean, long term average and standard deviation.

Month		1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):													
	1931	1	1,3	0,8	2,2	0,66	0,24	0,15	0,32	0,48	0,41	0,43	1
To		5,4	4,7	4,1	10,1	7	1,6	0,89	1,1	1,9	3	5,5	6,5
	1958	15,3	13,7	11,4	22	22	5,2	5,2	6,1	17,5	24	18,4	18,5
StdMQ		3,4	3,5	3,0	4,6	5,0	1,3	0,9	1,2	3,2	4,5	4,7	4,3
(dm3/s/km2) :													
	1931	1,7	2,3	1,4	3,8	1,1	0,42	0,26	0,55	0,83	0,71	0,75	1,7
To		9,3	8,1	7,2	17,5	12,2	2,8	1,5	1,8	3,3	5,1	9,5	11,2
	1958	27	24	19,8	38	38	9	9	10,6	30	42	32	32
StdMQ		5,9	6,0	5,1	7,9	8,7	2,3	1,6	2,1	5,6	7,7	8,2	7,5

Table App 2-14. Monthly discharge 1260 Odensfors 1931-1950. Maximum and minimum daily mean, long term average and standard deviation.

Month	1	2	3	4	5	6	7	8	9	10	11	12
(m3/s):												
1931	0,46	0,59	0,84	4,4	3,2	1,9	1,2	1,1	0,72	0,73	0,6	0,62
To	6,4	5,3	5,2	7,8	8,2	5,4	3,4	2,7	2,7	3,1	4,9	6,5
1950	22	12,1	11	15,4	14,7	9	5,9	4,3	4,8	5,8	14,6	18,5
StdMQ	4,6	2,8	2,6	3,0	3,4	2,2	1,3	0,9	1,2	1,6	3,4	4,5
(dm3/s/km2) :												
1931	0,6	0,76	1,1	5,7	4,1	2,5	1,6	1,4	0,93	0,95	0,78	0,8
To	8,3	6,8	6,8	10,2	10,6	7	4,5	3,4	3,5	4	6,3	8,4
1950	28	15,7	14,2	19,9	19	11,7	7,6	5,6	6,2	7,5	18,9	24
StdMQ	6,0	3,7	3,4	3,9	4,4	2,8	1,7	1,2	1,5	2,1	4,4	5,8

Table App 2-15. Characteristic water level.

Q-station	Area (km2)	Period	Zero level	LLW50	MLW	MW	MHW	HHW50	HHW100	(m)
563 Vattholma	284,0	1917-1978	20,70		0,21	0,43	0,88	1,42	1,53	
				20,8*	20,91	21,13	21,58	22,12	22,23	
2244 Vattholma 2	293,8	1980-2000	19,00		1,99	2,20	2,56	3,02	3,11	
				20,95	20,99	21,20	21,56	22,02	22,11	
2299 Tärnsjö	13,7	1975-2000								
1619 Forshultesjön nedre	103,2	1955-2000	42,00		0,30	0,53	1,05	1,74	1,89	
				42,00	42,30	42,53	43,05	43,74	43,89	

* Observed minimum

Table App 2-16. Seasonal average discharge.

Q	50110 Vattholma (294 km2)		1619 Forshultesjön (103.2 km2)		1053 Näs (1176 km2)	
Whole period	m3/s	l/s*km2	m3/s	l/s*km2	m3/s	l/skm2
Vernal equinox (March 20)	2,4	8,2	0,9	8,7	9,3	7,9
Autumnal equinox (Sept 23)	1,2	4,1	0,2	1,9	4,9	4,2
High summer (Average Jun-Aug)	0,9	2,9	0,2	2,3	5,0	4,3
Midwinter (Average Dec-Feb)	2,3	7,8	0,7	6,9	7,0	6,0

Q	50110 Vattholma (294 km2)	
1988	m3/s	l/s*km2
Vernal equinox	2,5	8,4
Autumnal equinox	1,0	3,4
High summer	0,36	1,2
Midwinter	2,9	9,9

Q	1619 Forshultesjön (103.2 km2)	
1981	m3/s	l/s*km2
Vernal equinox	1,3	12,6
Autumnal equinox	0,17	1,6
High summer	0,24	2,3
Midwinter	0,69	6,7

Table App 2-17. Seasonal average water level.

W RH00	Zero level: 20.70 m 563 Vattholma		Zero level: 19.00 2244 Vattholma 2		Zero level: 42.00 m 1619 Forshultesjön	
	Level (cm)	Total level (m)	Level (cm)	Total level (m)	Level (cm)	Total level (m)
Vernal equinox (March 20)	46	21,16	225	21,25	65	42,65
Autumnal equinox (Sept 23)	33	21,03	211	21,11	40	42,40
High summer (Average Jun-Aug)	61	21,31	223	21,23	69	42,69
Midwinter (Average Dec-Feb)	78	21,48	251	21,51	107	43,07

Table App 2-18. Ice period.

Norrsjön (Tierp)
Area: 2 km2
Depth average: 4.4 m

Year	Ice freeze-up Date	Ice freeze-up Day No	Ice break-up Date	Ice break-up Day No
1981	00-12-04	36864	01-04-20	37001
1982	00-11-25	36855	01-04-22	37003
1983	00-11-23	36853	01-04-26	37007
1984	00-12-31	36891	01-05-04	37015
1985	00-11-18	36848	01-04-30	37011
1987	00-12-12	36872	01-04-17	36998
1988	00-11-09	36839	01-03-16	36966
1989	00-11-26	36856	01-03-10	36960
1990	00-11-28	36858	01-04-06	36987
1991	00-12-14	36874	01-04-09	36990
1992	00-11-23	36853	01-04-08	36989
1993	00-11-15	36845	01-04-12	36993
1995	00-11-30	36860	01-04-24	37005
1996	00-12-14	36874	01-04-03	36984
1997	00-11-28	36858	01-04-11	36992
1998	00-11-15	36845	01-04-08	36989
2000	00-12-28	36888	01-04-10	36991
Min	00-11-09	36839	01-03-10	36960
Medel	00-12-01	36861	01-04-12	36993
Max	00-12-31	36891	01-05-04	37015
MinPeriod	00-12-31	36891	01-03-10	36960
Minimum	35			
AverPeriod	00-12-01	36861	01-04-12	36993
Average	66			

Gnötteln (Oskarshamn)
Area: 1.8 km2
Depth average: 1.7 m

Year	Ice freeze-up Date	Ice freeze-up Day No	Ice break-up Date	Ice break-up Day No
1918			01-04-13	36994
1928			01-04-19	37000
1957	00-11-30	36860	01-05-01	37012
1958	00-11-30	36860	01-04-28	37009
1959	00-12-07	36867	01-04-15	36996
1960	01-01-13	36904	01-03-09	36959
1961	00-11-17	36847	01-04-22	37003
1963	00-12-09	36869	01-04-13	36994
1964	00-12-20	36880	01-04-14	36995
1965	00-11-16	36846	01-04-30	37011
1966	00-12-23	36883	01-03-22	36972
1967	00-11-25	36855	01-04-04	36985
1968	00-11-13	36843	01-04-17	36998
1969	00-11-25	36855	01-04-28	37009
1970	00-11-08	36838	01-04-12	36993
1971	00-11-19	36849	01-04-04	36985
1972	01-01-01	36892	01-03-22	36972
1973	00-11-26	36856	01-03-27	36977
1974	00-12-31	36891	01-04-08	36989
1975	00-11-22	36852	01-04-07	36988
1976	00-11-19	36849	01-04-23	37004
1977	00-11-27	36857	01-04-08	36989
1978	00-12-05	36865	01-04-20	37001
1979	00-12-10	36870	01-04-19	37000
1980	00-12-01	36861	01-04-08	36989
1981	00-11-27	36857	01-04-04	36985
1982	00-12-08	36868	01-04-03	36984
1983	00-11-20	36850	01-04-10	36991

Maximum	88			
Middle		36927		
1988	00-11-09	36839	01-03-16	36966
Middle		36902		

1986	00-12-20	36880	01-04-23	37004
1987	00-12-03	36863	01-04-10	36991
1989	00-11-25	36855	01-02-06	36928
1990	00-11-22	36852	01-03-25	36975
1991	01-01-20	36911	01-03-19	36969
1992	00-12-21	36881	01-03-21	36971
1993	00-11-22	36852	01-04-04	36985
1994	01-01-03	36894	01-03-21	36971
1995	00-11-11	36841	01-04-23	37004
1996	00-12-14	36874	01-03-16	36966
1997	01-01-25	36916	01-03-27	36977
1998	00-11-08	36838	01-03-27	36977
1999	00-12-05	36865	01-03-20	36970
2000	00-12-25	36885	01-04-11	36992
Min:	00-11-08	36838	01-02-06	36928
Average:	00-12-05	36865	01-04-06	36987
Max:	01-01-25	36916	01-05-01	37012
MinPeriod	01-01-25	36916	01-02-06	36928
Minimum	6			
AverPeriod	00-12-05	36865	01-04-06	36987
Average	61			
MaxPeriod	00-11-08	36838	01-05-01	37012
Maximum	87			
Middle		36925		
1981	00-11-27	36857	01-04-04	36985
Middle		36921		

Tabell alkalinitet station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.5
max	1.6	1.6	1.7	1.6	1.7	1.6	1.6	1.6	1.5	1.6	1.5	1.6
min	1.4	1.5	1.5	1.5	1.4	1.4	1.5	1.4	1.3	1.5	1.1	1.5
s	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0
N	15.0	4.0	11.0	9.0	11.0	13.0	7.0	12.0	10.0	8.0	19.0	7.0
djup 5m												
mv	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5
max	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.5	1.6
min	1.3	1.6	1.5	1.5	1.4	1.4	1.5	1.4	1.3	1.5	1.3	1.5
s	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0
N	13.0	3.0	12.0	9.0	11.0	13.0	7.0	13.0	11.0	6.0	19.0	6.0
djup 10m												
mv	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5
max	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6
min	1.3	1.5	1.5	1.5	1.4	1.4	1.5	1.1	1.3	1.5	1.3	1.5
s	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0
N	15.0	4.0	12.0	9.0	12.0	13.0	7.0	12.0	11.0	8.0	18.0	7.0
djup 15m												
mv	1.5	1.6	1.6	1.6	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5
max	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6
min	1.4	1.5	1.5	1.5	1.4	1.4	1.5	1.4	1.3	1.5	1.3	1.5
s	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0
N	14.0	4.0	12.0	9.0	12.0	13.0	7.0	12.0	11.0	8.0	19.0	7.0
djup 20m												
mv	1.5	1.6	1.5	1.6	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5
max	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6	1.6
min	1.4	1.5	1.1	1.5	1.4	1.4	1.5	1.4	1.4	1.5	1.3	1.5
s	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0
N	15.0	4.0	12.0	9.0	12.0	12.0	7.0	12.0	11.0	7.0	19.0	7.0

Tabell klorofyll station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	0.3	0.3	1.2	9.7	3.7	2.0	4.1	2.6	2.4	3.1	1.6	0.8
max	0.4	0.6	6.3	28.4	21.4	3.9	6.2	4.9	4.4	4.5	3.0	2.0
min	0.1	0.1	0.1	1.1	0.6	0.3	1.3	1.8	0.3	2.3	0.6	0.1
s	0.1	0.2	1.5	9.5	5.5	0.9	1.8	0.9	1.5	0.7	0.7	0.6
N	8.0	5.0	14.0	9.0	13.0	15.0	7.0	13.0	5.0	11.0	19.0	8.0
djup 5m												
mv	0.2	0.3	0.9	10.1	3.1	2.0	3.8	2.9	2.5	3.1	1.6	0.6
max	0.4	0.4	3.7	29.3	8.0	4.2	5.6	4.9	4.1	4.7	3.1	1.2
min	0.1	0.1	0.1	1.2	0.7	0.5	1.5	1.7	0.3	2.0	0.7	0.1
s	0.1	0.1	0.9	10.4	2.2	0.9	1.4	0.9	1.5	0.7	0.7	0.4
N	8.0	5.0	14.0	9.0	13.0	15.0	7.0	13.0	5.0	11.0	20.0	7.0
djup 10m												
mv	0.2	0.3	0.9	6.6	3.6	2.2	3.7	2.8	2.9	2.9	1.6	0.7
max	0.4	0.6	3.8	19.8	6.6	4.6	5.6	5.0	5.9	4.8	2.9	1.3
min	0.1	0.1	0.1	1.2	1.5	1.0	2.1	1.3	0.3	1.8	0.8	0.1
s	0.1	0.2	0.9	5.3	1.6	0.9	1.2	0.9	2.2	0.8	0.7	0.5
N	8.0	5.0	14.0	9.0	13.0	15.0	7.0	13.0	5.0	11.0	20.0	7.0
djup 15m												
mv	0.3	0.3	0.9	5.0	3.2	2.4	3.3	2.6	2.2	2.9	1.5	0.7
max	0.4	0.6	3.8	15.2	9.2	5.0	5.1	4.5	3.7	4.1	2.8	1.3
min	0.1	0.1	0.1	1.1	1.5	1.1	1.7	1.0	0.3	2.0	0.7	0.1
s	0.1	0.2	0.9	4.2	2.1	1.0	1.3	1.1	1.3	0.7	0.6	0.4
N	8.0	5.0	14.0	9.0	13.0	15.0	7.0	13.0	5.0	11.0	20.0	7.0
djup 20m												
mv	0.2	0.3	0.9	3.8	2.4	2.1	1.6	1.8	1.5	2.7	1.4	0.6
max	0.5	0.5	4.0	7.7	4.5	3.4	3.8	3.5	2.5	3.8	2.7	1.2
min	0.1	0.1	0.1	1.1	0.6	0.7	0.8	0.5	0.2	1.7	0.7	0.1
s	0.1	0.2	1.0	2.4	1.2	0.9	1.0	1.1	1.0	0.6	0.6	0.4
N	8.0	5.0	14.0	9.0	13.0	14.0	7.0	13.0	5.0	11.0	20.0	8.0

Tabell NH4 station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	0.3	0.4	0.2	0.2	0.4	0.4	0.2	0.3	0.7	0.9	0.5	0.5
max	1.5	1.6	0.3	0.5	1.7	1.3	0.3	1.5	3.4	5.8	1.2	0.9
min	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
s	0.4	0.6	0.1	0.1	0.4	0.4	0.1	0.4	1.0	1.7	0.3	0.3
N	18.0	8.0	17.0	10.0	14.0	15.0	8.0	21.0	15.0	13.0	15.0	6.0
djup 5m												
mv	0.4	0.6	0.2	0.4	0.4	0.3	0.2	0.4	0.6	0.8	0.5	0.5
max	1.6	2.4	0.5	1.9	2.4	1.3	0.3	2.8	3.4	5.4	1.1	0.9
min	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
s	0.4	0.8	0.1	0.5	0.5	0.3	0.1	0.6	0.9	1.4	0.3	0.3
N	17.0	11.0	19.0	11.0	18.0	15.0	8.0	24.0	17.0	15.0	20.0	4.0
djup 10m												
mv	0.3	0.7	0.2	0.4	0.3	0.4	0.2	0.4	0.6	0.7	0.5	0.5
max	0.8	2.4	0.4	2.0	0.7	1.4	0.3	2.6	2.6	3.6	1.1	0.9
min	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2
s	0.2	0.8	0.1	0.6	0.2	0.4	0.1	0.6	0.7	1.1	0.2	0.3
N	19.0	10.0	19.0	11.0	15.0	16.0	8.0	25.0	17.0	15.0	20.0	5.0
djup 15m												
mv	0.3	0.3	0.2	0.4	0.3	0.3	0.2	0.4	0.6	0.7	0.4	0.5
max	0.7	1.8	1.1	2.0	1.4	1.3	0.3	3.2	3.8	4.8	1.0	0.9
min	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2
s	0.2	0.6	0.2	0.6	0.3	0.4	0.1	0.7	1.0	1.2	0.2	0.3
N	17.0	9.0	19.0	10.0	18.0	15.0	8.0	23.0	14.0	14.0	20.0	5.0
djup 20m												
mv	0.4	0.6	0.1	0.3	0.3	0.3	0.2	0.6	0.6	0.8	0.4	0.5
max	1.9	2.1	0.2	1.9	1.2	0.8	0.3	3.2	2.9	3.8	1.2	0.9
min	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
s	0.4	0.8	0.1	0.5	0.3	0.2	0.1	0.8	0.7	1.0	0.3	0.3
N	20.0	12.0	18.0	12.0	18.0	16.0	8.0	25.0	17.0	15.0	20.0	6.0

Tabell no23 station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	3.7	4.4	4.3	1.8	0.6	0.3	0.1	0.2	0.4	0.4	1.2	2.1
max	5.2	6.3	5.9	4.6	6.8	2.5	0.2	0.9	2.9	2.6	2.2	3.0
min	1.9	2.6	2.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.0
s	0.8	1.1	0.8	1.8	1.7	0.6	0.0	0.2	0.7	0.7	0.5	0.6
N	19.0	8.0	17.0	8.0	16.0	17.0	8.0	24.0	15.0	14.0	20.0	8.0
djup 5m												
mv	3.8	4.3	4.4	2.1	0.5	0.3	0.2	0.2	0.4	0.4	1.3	2.1
max	5.7	6.2	5.6	4.6	5.9	2.4	0.6	0.8	2.6	2.5	2.2	3.0
min	2.5	2.3	2.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.0
s	0.8	1.1	0.8	2.0	1.3	0.6	0.2	0.2	0.6	0.6	0.5	0.6
N	19.0	12.0	19.0	9.0	20.0	17.0	9.0	25.0	17.0	15.0	24.0	7.0
djup 10m												
mv	3.7	4.1	4.4	2.0	0.5	0.3	0.2	0.2	0.4	0.5	1.2	2.2
max	5.8	6.3	5.9	4.6	5.9	2.2	0.7	1.1	2.6	2.5	2.2	3.0
min	1.9	2.3	2.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.9
s	1.0	1.1	0.8	1.8	1.4	0.5	0.2	0.2	0.6	0.6	0.5	0.7
N	19.0	11.0	19.0	10.0	18.0	17.0	9.0	27.0	17.0	15.0	24.0	7.0
djup 15m												
mv	3.9	4.1	4.4	2.2	0.1	0.1	0.2	0.2	0.2	0.3	1.3	2.1
max	5.8	5.4	5.9	5.2	0.5	0.2	0.7	0.4	0.7	0.8	2.4	3.0
min	2.1	2.7	2.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.0
s	1.0	0.8	0.8	1.9	0.1	0.0	0.2	0.1	0.2	0.2	0.6	0.7
N	17.0	9.0	19.0	10.0	19.0	16.0	8.0	24.0	14.0	14.0	24.0	7.0
djup 20m												
mv	3.7	4.4	4.4	2.7	0.5	0.2	0.2	0.2	0.4	0.5	1.3	2.2
max	5.8	5.8	5.9	6.4	5.9	2.1	0.7	1.1	2.6	2.5	2.3	3.1
min	1.8	2.3	2.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.0
s	1.0	1.1	0.8	2.2	1.3	0.5	0.2	0.2	0.7	0.6	0.6	0.6
N	19.0	12.0	19.0	11.0	21.0	17.0	9.0	26.0	17.0	15.0	24.0	8.0

Tabell o2 station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	8.7	8.9	9.0	9.6	9.3	8.1	7.2	6.6	6.9	7.1	7.8	8.0
max	9.6	9.1	9.7	11.5	10.4	9.6	7.7	7.2	7.5	7.7	8.3	8.3
min	8.2	8.7	8.6	8.9	8.5	7.4	6.7	5.9	6.4	6.4	7.3	7.7
s	0.4	0.2	0.3	0.8	0.5	0.6	0.3	0.3	0.3	0.3	0.2	0.2
N	19.0	8.0	16.0	10.0	15.0	17.0	8.0	21.0	13.0	14.0	19.0	7.0
djup 0m												
mv	8.6	8.8	9.0	9.6	9.6	8.1	7.4	6.6	7.0	7.2	7.8	8.1
max	9.7	9.4	9.7	11.6	10.6	9.5	8.1	7.2	7.5	7.7	8.4	8.5
min	7.2	8.5	8.6	8.9	8.5	6.9	6.8	6.0	6.4	6.5	7.3	7.7
s	0.5	0.3	0.3	0.8	0.6	0.7	0.5	0.3	0.3	0.3	0.3	0.2
N	19.0	12.0	17.0	10.0	20.0	17.0	9.0	25.0	16.0	15.0	23.0	7.0
djup 0m												
mv	8.7	8.9	9.0	9.5	9.3	8.2	7.4	6.6	7.0	7.2	7.8	8.1
max	9.3	9.6	9.7	11.3	10.4	9.6	8.0	8.3	7.6	7.8	8.3	8.4
min	8.2	8.5	8.5	9.0	5.7	7.4	6.9	5.9	6.4	6.5	7.3	7.7
s	0.3	0.3	0.3	0.7	1.1	0.6	0.4	0.5	0.3	0.3	0.3	0.2
N	18.0	10.0	18.0	11.0	16.0	17.0	8.0	27.0	16.0	15.0	24.0	7.0
djup 0m												
mv	8.7	8.9	9.0	9.3	9.3	8.3	7.2	6.4	7.0	7.2	7.8	8.1
max	9.2	9.6	9.7	9.9	10.3	9.6	8.0	7.1	7.5	7.7	8.3	8.4
min	8.2	8.5	8.6	8.8	8.5	6.8	6.7	5.8	6.4	6.5	7.3	7.7
s	0.3	0.3	0.3	0.3	0.5	0.8	0.5	0.3	0.3	0.3	0.2	0.2
N	16.0	9.0	19.0	10.0	19.0	16.0	9.0	23.0	12.0	14.0	24.0	7.0
djup 0m												
mv	8.6	8.8	9.0	9.2	9.1	8.2	7.5	6.6	7.1	7.2	7.8	8.1
max	9.1	9.4	9.7	9.8	10.3	9.5	7.9	7.8	8.1	7.7	8.3	8.4
min	7.9	8.5	8.6	8.7	8.3	5.5	6.9	6.1	6.4	6.4	7.3	7.7
s	0.4	0.2	0.3	0.3	0.5	0.9	0.3	0.4	0.4	0.3	0.2	0.2
N	20.0	12.0	19.0	12.0	20.0	17.0	9.0	25.0	16.0	15.0	24.0	7.0

Tabell ph station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	8.1	8.1	8.1	8.3	8.4	8.4	8.5	8.4	8.3	8.1	8.1	8.1
max	8.4	8.2	8.3	8.7	8.7	8.7	8.6	8.6	8.5	8.3	8.4	8.2
min	7.7	8.0	8.0	8.1	8.2	8.3	8.3	8.2	8.1	7.7	7.7	7.9
s	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1
N	17.0	7.0	13.0	9.0	11.0	14.0	7.0	16.0	14.0	9.0	19.0	7.0
djup 5m												
mv	8.1	8.1	8.1	8.3	8.4	8.4	8.5	8.4	8.3	8.1	8.1	8.1
max	8.4	8.2	8.3	8.7	8.7	8.7	8.6	8.6	8.5	8.3	8.4	8.2
min	7.7	8.0	8.0	8.1	8.3	8.3	8.3	8.3	8.1	8.0	7.8	8.0
s	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
N	16.0	6.0	13.0	9.0	11.0	14.0	7.0	17.0	14.0	9.0	19.0	7.0
djup 10m												
mv	8.1	8.1	8.1	8.2	8.4	8.4	8.4	8.4	8.3	8.1	8.1	8.1
max	8.4	8.2	8.3	8.7	8.7	8.7	8.6	8.6	8.5	8.3	8.4	8.2
min	7.7	8.0	8.0	8.1	8.2	8.3	8.3	8.3	8.1	8.0	7.8	7.9
s	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
N	17.0	6.0	13.0	9.0	11.0	14.0	7.0	17.0	14.0	9.0	19.0	7.0
djup 15m												
mv	8.1	8.1	8.1	8.2	8.4	8.4	8.3	8.2	8.2	8.2	8.1	8.1
max	8.4	8.1	8.3	8.3	8.6	8.7	8.5	8.6	8.5	8.3	8.4	8.2
min	8.0	8.0	8.0	8.1	8.2	8.2	8.1	7.9	8.1	8.0	7.8	8.0
s	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1
N	15.0	4.0	13.0	9.0	10.0	13.0	7.0	16.0	12.0	8.0	19.0	7.0
djup 20m												
mv	8.1	8.1	8.1	8.2	8.3	8.3	8.2	8.1	8.2	8.1	8.1	8.1
max	8.4	8.2	8.3	8.3	8.5	8.6	8.6	8.3	8.5	8.3	8.4	8.2
min	7.8	8.0	8.0	8.1	8.2	8.1	8.0	7.9	8.1	8.0	7.8	8.0
s	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
N	17.0	6.0	13.0	9.0	11.0	14.0	7.0	17.0	14.0	9.0	19.0	7.0

Tabell po4 station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	0.6	0.6	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4
max	0.8	0.9	0.7	0.7	0.4	0.5	0.1	0.5	0.1	0.5	0.6	0.5
min	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3
s	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1
N	19.0	8.0	16.0	10.0	16.0	16.0	8.0	24.0	15.0	14.0	20.0	7.0
djup 5m												
mv	0.6	0.7	0.6	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4
max	0.8	1.0	0.8	0.7	0.4	0.6	0.1	0.4	0.2	0.4	0.5	0.5
min	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.3
s	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1
N	18.0	12.0	18.0	11.0	20.0	16.0	9.0	27.0	17.0	15.0	23.0	6.0
djup 10m												
mv	0.6	0.7	0.6	0.5	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4
max	0.8	1.0	0.8	0.7	0.4	0.5	0.1	0.4	0.2	0.5	0.5	0.5
min	0.5	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3
s	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1
N	19.0	11.0	18.0	11.0	18.0	16.0	9.0	28.0	17.0	15.0	24.0	6.0
djup 15m												
mv	0.6	0.7	0.6	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.4
max	0.8	0.9	0.8	0.7	0.4	0.3	0.1	0.4	0.2	0.3	0.5	0.5
min	0.4	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3
s	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1
N	17.0	9.0	18.0	10.0	19.0	15.0	9.0	26.0	14.0	13.0	24.0	6.0
djup 20m												
mv	0.6	0.7	0.6	0.5	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.4
max	0.8	1.0	0.8	0.8	0.6	0.6	0.3	0.7	0.3	0.4	0.5	0.5
min	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.3
s	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1
N	20.0	12.0	18.0	12.0	21.0	16.0	9.0	28.0	17.0	15.0	24.0	7.0

Tabell salt station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	7.1	6.9	7.0	6.9	7.2	7.0	6.7	6.7	6.7	6.7	6.9	6.7
max	7.7	7.1	7.7	7.2	7.6	7.5	7.2	7.1	7.4	7.1	7.5	6.8
min	6.6	6.7	6.7	6.6	6.7	6.5	6.3	5.8	6.2	6.0	6.5	6.6
s	0.3	0.1	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.1
N	19.0	8.0	17.0	9.0	19.0	18.0	8.0	23.0	14.0	14.0	19.0	8.0
djup 5m												
mv	7.1	7.0	7.0	7.0	7.2	7.0	6.7	6.7	6.8	6.7	6.9	6.7
max	7.7	7.3	7.7	7.3	7.6	7.5	7.2	7.2	7.4	7.1	7.5	6.8
min	6.6	6.7	6.7	6.6	6.7	6.5	6.3	5.8	6.2	6.0	6.5	6.6
s	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.1
N	19.0	12.0	19.0	11.0	23.0	19.0	9.0	26.0	17.0	15.0	23.0	8.0
djup 10m												
mv	7.1	7.0	7.0	7.0	7.2	7.0	6.7	6.7	6.8	6.7	6.9	6.7
max	7.7	7.3	7.7	7.3	7.6	7.5	7.2	7.2	7.4	7.1	7.5	6.8
min	6.6	6.7	6.7	6.6	6.7	6.5	6.4	5.8	6.2	6.0	6.5	6.6
s	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.1
N	19.0	11.0	19.0	11.0	21.0	19.0	9.0	28.0	17.0	15.0	23.0	8.0
djup 15m												
mv	7.1	7.0	7.0	7.0	7.1	7.0	6.8	6.8	6.7	6.6	6.9	6.7
max	7.7	7.3	7.7	7.3	7.6	7.5	7.2	7.2	7.4	7.1	7.5	6.8
min	6.6	6.7	6.7	6.6	6.7	6.6	6.5	6.3	6.3	6.0	6.5	6.6
s	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.1
N	17.0	9.0	19.0	11.0	22.0	18.0	9.0	25.0	14.0	14.0	23.0	8.0
djup 20m												
mv	7.1	7.0	7.0	7.0	7.2	7.1	6.8	6.9	6.9	6.7	6.9	6.7
max	7.7	7.3	7.7	7.2	7.6	7.5	7.1	7.3	7.4	7.1	7.5	6.8
min	6.6	6.7	6.7	6.6	6.7	6.6	6.6	6.4	6.4	6.2	6.5	6.6
s	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.1
N	20.0	12.0	19.0	12.0	24.0	19.0	9.0	27.0	17.0	15.0	23.0	8.0

datum	siktd
1980-06-13	10
1980-11-12	14
1981-05-31	11
1981-11-18	10.2
1982-06-03	15
1982-11-16	8
1983-05-26	10
1983-11-17	8.5
1984-05-09	7
1984-09-26	7.2
1984-11-08	9
1985-06-01	9
1985-11-20	9
1986-05-22	9
1986-09-26	6
1986-11-12	10
1987-01-21	6
1987-06-11	8.5
1987-11-04	8.5
1988-06-14	6
1988-11-16	10
1989-05-24	8
1989-11-15	9
1990-05-26	7
1990-09-05	8
1990-11-15	7
1991-06-15	6
1992-01-27	12
1992-05-30	7.5
1993-06-14	5
1993-08-25	6.5
1994-03-21	11
1994-04-15	10
1994-05-20	6.5
1994-08-08	6
1994-08-15	6.5
1994-09-30	6
1994-12-08	11
1995-04-28	9
1995-05-30	7
1995-06-30	4.5
1995-08-17	5
1995-09-29	6
1995-11-28	9
1996-05-23	11
1996-06-28	7.5
1996-07-25	6.5
1996-10-11	8
1996-11-17	8
1997-03-17	11
1997-04-17	8
1997-06-09	8
1997-07-24	6
1997-09-26	6.5
1997-11-15	11
1998-03-18	9
1998-04-22	8
1998-06-26	6
1998-07-24	6
1998-09-25	5
1999-01-22	12

1999-03-25	12
1999-04-23	4
1999-05-20	10
1999-07-09	4
1999-08-06	5.5
2000-04-28	4.5
2000-05-18	9
2000-06-15	10
2000-08-10	5
2001-04-27	8
2001-05-14	10.5
2001-08-02	6
2001-10-05	6.5
2001-12-03	11

Tabell sio3 station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	14.3	12.2	13.8	12.1	11.4	7.3	7.5	7.4	8.0	8.2	10.2	9.4
max	24.9	14.6	18.6	15.8	16.8	11.3	11.1	11.5	11.2	10.3	15.6	11.5
min	8.6	10.1	10.2	9.4	6.3	4.2	5.3	4.4	5.4	6.7	5.9	6.0
s	4.3	1.8	2.3	2.1	2.9	1.8	2.2	1.9	1.6	1.2	2.8	1.8
N	18.0	6.0	17.0	10.0	14.0	14.0	8.0	21.0	14.0	12.0	20.0	8.0
djup 5m												
mv	14.2	14.0	13.8	12.1	12.2	7.0	7.5	7.5	7.6	8.5	9.8	9.2
max	23.5	17.8	18.4	15.8	19.2	11.2	11.0	14.2	10.7	12.1	16.4	11.8
min	9.8	10.1	10.3	9.5	6.4	3.8	4.8	3.5	3.4	6.7	4.8	5.7
s	3.8	2.6	2.1	2.1	3.4	1.9	2.3	2.4	1.8	1.6	3.0	1.9
N	18.0	8.0	19.0	10.0	17.0	15.0	8.0	23.0	15.0	13.0	22.0	7.0
djup 10m												
mv	14.4	13.0	13.9	12.2	11.5	7.2	7.6	7.5	7.6	8.5	10.2	9.3
max	25.3	17.5	18.3	15.8	16.8	11.3	11.1	13.5	11.4	12.8	15.9	11.7
min	9.9	10.1	10.4	9.4	6.2	4.4	4.9	3.6	3.4	6.6	5.8	6.1
s	4.1	2.6	2.1	2.1	3.1	1.8	2.2	2.3	2.0	1.8	2.8	1.8
N	18.0	7.0	19.0	10.0	15.0	15.0	8.0	23.0	15.0	13.0	20.0	7.0
djup 15m												
mv	13.9	13.4	13.9	12.5	12.1	7.3	7.9	8.2	7.5	8.4	9.8	9.3
max	21.9	17.5	18.4	15.8	17.5	11.2	11.0	15.3	11.4	12.1	15.5	11.7
min	9.5	10.2	10.4	9.5	6.6	4.3	5.4	3.0	4.6	6.6	4.8	6.0
s	3.4	2.3	2.2	2.0	3.3	1.6	2.2	2.7	2.0	1.6	2.6	1.9
N	16.0	7.0	19.0	9.0	18.0	15.0	8.0	23.0	14.0	13.0	21.0	7.0
djup 20m												
mv	14.4	13.5	13.9	12.8	12.2	8.2	8.9	9.5	8.0	8.4	9.9	9.5
max	28.1	17.3	18.5	18.4	20.7	12.6	12.2	21.4	13.6	11.8	15.6	12.0
min	9.1	10.3	10.3	10.1	6.7	4.5	7.0	4.6	3.3	6.3	4.9	5.9
s	4.6	2.7	2.2	2.6	3.8	2.2	2.1	3.4	2.7	1.6	2.9	1.9
N	19.0	8.0	19.0	11.0	16.0	15.0	8.0	23.0	15.0	13.0	21.0	8.0

Tabell temp station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	3.0	2.3	2.1	3.1	7.5	10.6	16.6	17.4	13.5	11.6	7.2	5.9
max	5.3	3.0	3.5	5.7	13.9	16.8	19.9	22.3	16.2	15.9	10.1	7.7
min	0.4	1.5	-0.1	1.1	3.2	5.0	13.4	12.9	10.5	8.5	4.9	4.5
s	1.1	0.6	0.9	1.3	2.5	3.2	2.5	2.4	1.6	1.8	1.4	0.9
N	19.0	8.0	17.0	10.0	19.0	19.0	8.0	23.0	14.0	14.0	20.0	8.0
djup 5m												
mv	3.0	2.7	2.1	3.2	7.6	10.3	15.1	17.4	13.7	11.5	7.3	5.9
max	5.3	3.5	3.5	5.9	12.0	15.6	19.5	22.3	17.3	15.9	10.1	7.7
min	0.4	1.5	-0.2	1.1	3.3	4.7	9.5	13.1	10.5	8.5	4.9	4.6
s	1.1	0.6	0.9	1.3	2.3	3.0	2.8	2.1	1.7	1.8	1.3	0.9
N	19.0	12.0	19.0	11.0	23.0	19.0	9.0	26.0	17.0	15.0	24.0	8.0
djup 10m												
mv	3.0	2.7	2.1	3.1	6.8	9.7	14.2	16.8	13.7	11.5	7.4	5.9
max	5.4	3.5	3.5	5.4	11.0	15.2	18.3	22.0	17.3	15.9	10.2	7.8
min	0.4	1.5	-0.2	1.1	3.2	4.6	9.2	10.4	10.5	8.5	4.9	4.6
s	1.1	0.6	0.9	1.2	2.0	2.9	2.5	2.3	1.7	1.8	1.4	0.9
N	19.0	10.0	19.0	11.0	21.0	19.0	9.0	28.0	17.0	15.0	24.0	8.0
djup 15m												
mv	3.0	2.6	2.1	2.8	6.2	8.5	12.6	14.3	13.5	11.5	7.4	5.9
max	5.3	3.5	3.4	4.2	8.9	13.2	16.6	17.6	16.6	15.8	10.2	7.7
min	0.4	1.4	-0.1	1.1	3.2	4.5	9.2	7.1	10.6	8.5	4.8	4.6
s	1.1	0.7	0.9	1.0	1.6	2.4	2.3	2.9	1.7	1.9	1.4	0.9
N	17.0	9.0	19.0	10.0	22.0	18.0	9.0	25.0	14.0	14.0	24.0	8.0
djup 20m												
mv	3.0	2.7	2.1	2.8	5.4	7.3	8.4	10.6	13.2	11.4	7.3	5.8
max	5.3	3.5	3.5	4.1	8.4	10.7	14.1	15.5	16.2	15.4	10.1	7.0
min	0.4	1.5	-0.1	1.2	3.0	4.1	4.0	3.1	7.1	8.5	4.8	4.6
s	1.1	0.6	0.9	0.9	1.5	2.0	2.9	3.4	2.2	1.7	1.3	0.7
N	20.0	11.0	19.0	12.0	23.0	19.0	9.0	27.0	17.0	15.0	24.0	8.0

Tabell totn station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	23.4	22.3	22.6	23.0	21.0	19.5	22.6	21.3	20.1	20.6	19.2	21.8
max	80.0	24.8	28.3	27.8	25.6	23.3	25.5	26.8	23.4	24.3	24.2	28.9
min	16.9	19.2	17.3	18.2	16.5	14.1	19.3	17.5	17.5	17.8	11.7	17.9
s	13.9	2.4	3.2	3.4	2.5	2.4	2.1	2.5	2.1	2.1	2.7	3.4
N	19.0	6.0	16.0	8.0	13.0	14.0	7.0	20.0	11.0	12.0	19.0	8.0
djup 5m												
mv	22.4	21.3	22.6	23.0	21.4	19.4	22.8	21.4	20.2	20.4	18.2	21.7
max	55.0	23.0	30.2	28.3	38.6	24.6	27.0	25.8	23.4	22.5	23.0	25.8
min	15.2	19.2	16.7	17.1	17.1	12.3	20.1	17.8	17.4	17.5	11.5	18.4
s	8.5	1.5	3.6	4.0	5.4	3.0	2.4	2.4	2.4	1.5	2.3	2.4
N	18.0	5.0	16.0	8.0	13.0	14.0	7.0	21.0	11.0	12.0	19.0	7.0
djup 10m												
mv	22.7	21.9	22.1	22.1	22.1	19.3	22.5	20.9	19.9	20.1	18.1	22.8
max	67.1	23.7	26.3	27.7	29.1	25.3	27.0	24.5	25.6	22.5	23.1	33.5
min	13.4	20.2	17.3	17.6	19.1	14.9	19.5	17.6	16.6	18.1	10.3	17.8
s	11.4	1.3	3.1	3.6	2.8	2.9	3.0	2.0	2.7	1.4	2.5	5.0
N	18.0	6.0	16.0	8.0	13.0	14.0	7.0	21.0	11.0	12.0	19.0	7.0
djup 15m												
mv	20.6	21.7	21.8	21.3	20.3	19.3	21.0	20.5	20.1	19.8	18.6	22.4
max	25.0	23.5	27.4	27.2	24.3	24.6	24.4	24.1	23.1	21.8	21.8	27.3
min	13.3	19.4	18.3	17.0	16.7	15.8	18.1	16.7	16.0	18.0	12.7	19.4
s	3.0	1.5	2.8	3.9	2.2	2.3	2.3	2.1	2.2	1.4	2.1	2.6
N	17.0	5.0	16.0	8.0	13.0	14.0	7.0	21.0	11.0	12.0	19.0	6.0
djup 20m												
mv	22.3	22.3	21.6	20.7	20.1	18.5	18.7	18.7	19.2	20.9	18.7	21.5
max	60.7	24.3	24.6	29.0	24.5	25.3	22.8	22.4	22.0	26.2	24.1	27.3
min	13.5	21.3	18.0	16.8	13.4	13.5	16.5	14.8	17.0	18.3	13.0	18.4
s	9.6	1.4	2.2	4.4	2.9	2.6	2.2	1.9	1.6	2.1	2.3	3.0
N	19.0	5.0	16.0	8.0	13.0	14.0	7.0	20.0	11.0	12.0	19.0	7.0

Tabell totp station oskarshamn BY38. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 0m												
mv	0.8	0.9	0.9	0.9	0.7	0.6	0.4	0.4	0.6	0.5	0.7	0.6
max	1.1	1.3	1.2	1.3	0.9	0.9	0.7	1.1	1.3	0.9	1.8	0.8
min	0.5	0.8	0.6	0.7	0.4	0.3	0.3	0.2	0.4	0.3	0.4	0.6
s	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.3	0.1
N	16.0	8.0	16.0	8.0	15.0	16.0	7.0	22.0	14.0	14.0	19.0	8.0
djup 5m												
mv	0.8	0.9	1.0	1.0	0.7	0.6	0.5	0.4	0.5	0.5	0.6	0.6
max	1.1	1.2	3.1	1.4	1.9	0.8	0.7	0.8	1.7	0.9	0.8	0.7
min	0.5	0.8	0.6	0.6	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.4
s	0.2	0.2	0.6	0.2	0.3	0.2	0.1	0.1	0.3	0.2	0.1	0.1
N	16.0	9.0	18.0	9.0	17.0	16.0	8.0	25.0	16.0	15.0	20.0	7.0
djup 10m												
mv	0.8	0.9	0.9	0.9	0.8	0.6	0.5	0.4	0.5	0.5	0.6	0.7
max	1.1	1.2	2.1	1.2	1.2	0.8	0.8	0.9	1.4	0.9	1.1	1.0
min	0.5	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.5
s	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2
N	17.0	10.0	18.0	9.0	17.0	16.0	8.0	25.0	16.0	15.0	20.0	7.0
djup 15m												
mv	0.8	0.9	0.9	0.9	0.7	0.5	0.5	0.4	0.5	0.5	0.6	0.6
max	1.1	1.1	1.4	1.3	0.9	0.9	0.6	0.6	1.4	0.9	0.8	0.8
min	0.5	0.8	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.5
s	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.1
N	16.0	7.0	18.0	9.0	15.0	15.0	8.0	23.0	13.0	14.0	20.0	6.0
djup 20m												
mv	0.8	0.9	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.6	0.6
max	1.1	1.2	1.3	1.3	1.1	1.0	0.7	0.9	1.2	1.0	0.8	0.7
min	0.5	0.8	0.6	0.4	0.4	0.4	0.2	0.2	0.3	0.3	0.4	0.5
s	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1
N	17.0	10.0	18.0	9.0	17.0	16.0	8.0	24.0	16.0	15.0	20.0	7.0

Tabell temp station oskarshamn K1. Medelvärde, månadsmax, månadsmin, standardavvikelse och antal observationer

månad	1	2	3	4	5	6	7	8	9	10	11	12
djup 1m												
mv	1.3	0.8	1.8	4.0	6.6	11.0	13.7	16.5	12.4	9.6	6.2	2.9
max	4.8	4.4	4.9	6.7	13.5	18.4	22.0	23.1	18.3	13.7	10.5	7.0
min	-0.5	-0.5	-0.5	0.4	3.1	5.8	6.9	9.2	5.9	5.6	2.4	-0.7
s	1.2	1.2	1.6	1.2	1.7	2.5	3.0	3.0	3.1	1.5	1.4	1.6
N	345.0	279.0	838.0	1600.0	1150.0	1447.0	714.0	291.0	342.0	330.0	342.0	557.0
djup 3m												
mv	1.4	0.8	1.8	4.1	6.6	10.6	13.3	16.3	12.2	9.5	6.2	3.0
max	4.8	4.3	4.9	6.4	12.7	16.4	21.7	22.6	18.2	13.6	9.7	6.6
min	-0.4	-0.4	-0.4	0.3	3.1	5.9	6.4	8.6	5.8	5.6	2.4	-0.7
s	1.3	1.1	1.5	1.2	1.5	2.4	2.9	2.9	3.2	1.4	1.4	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 5m												
mv	1.5	0.8	1.8	4.3	6.6	10.0	12.8	15.8	11.9	9.4	6.2	3.0
max	4.8	4.2	4.7	6.7	10.6	15.4	19.4	21.7	18.2	13.6	9.5	6.3
min	-0.5	-1.9	-0.5	0.4	3.1	5.5	6.1	7.6	5.7	5.5	2.4	-0.7
s	1.3	1.2	1.4	1.2	1.2	2.3	2.9	3.1	3.3	1.5	1.3	1.6
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 7m												
mv	1.4	0.8	1.8	4.3	6.7	9.9	12.5	15.3	11.6	9.3	6.1	2.9
max	4.9	4.1	4.2	7.1	10.3	15.2	19.1	20.0	18.2	13.6	9.5	6.2
min	-0.5	-0.6	-0.5	0.3	3.0	5.1	5.5	6.6	5.5	5.0	2.4	-0.7
s	1.3	1.1	1.4	1.3	1.2	2.3	2.8	3.4	3.5	1.6	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 9m												
mv	1.5	0.9	1.8	4.4	6.6	9.7	12.1	14.8	11.2	9.1	6.1	2.9
max	4.8	3.8	4.0	7.1	10.2	15.0	19.0	19.9	18.2	13.6	9.5	6.1
min	-0.5	-0.6	-0.6	0.3	3.0	4.7	4.3	6.0	4.5	4.4	2.4	-0.6
s	1.2	1.1	1.4	1.3	1.1	2.3	2.9	3.6	3.7	1.7	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0

djup 11m												
mv	1.5	0.9	1.8	4.1	6.2	9.3	11.6	14.4	10.9	8.9	6.0	2.9
max	4.9	3.5	4.0	7.0	9.9	14.8	18.9	19.6	18.2	13.5	9.5	5.6
min	-0.6	-0.6	-0.6	0.3	2.9	4.3	4.0	5.6	4.2	4.2	2.5	-0.7
s	1.3	1.1	1.4	1.2	1.1	2.3	3.0	3.8	3.9	1.8	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 13m												
mv	1.6	0.9	1.7	3.9	6.0	8.5	10.9	14.0	10.6	8.7	5.9	2.9
max	6.0	3.7	4.0	6.4	9.5	14.6	18.8	19.5	18.1	13.5	9.4	6.1
min	-0.6	-0.6	-0.6	0.3	2.9	4.1	3.8	5.3	4.0	4.1	2.4	-0.6
s	1.3	1.1	1.3	1.1	1.0	2.4	3.2	3.9	4.0	1.9	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 15m												
mv	1.6	1.0	1.7	3.8	5.8	7.9	10.4	13.6	10.4	8.5	5.9	2.9
max	6.4	3.9	4.0	6.0	9.2	14.5	18.6	19.3	18.1	13.4	9.4	5.7
min	-0.5	-0.6	-0.6	0.3	2.9	4.0	3.7	5.2	3.9	4.1	2.5	-0.7
s	1.3	1.1	1.3	1.1	1.0	2.4	3.2	4.0	4.1	1.9	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 17m												
mv	1.7	1.1	1.8	3.8	5.9	7.2	10.0	13.0	10.2	8.3	5.8	2.9
max	5.1	3.9	3.9	5.8	9.2	14.2	18.1	18.9	18.1	13.4	9.4	6.2
min	-0.4	-0.6	-0.6	0.3	2.9	3.9	3.6	5.1	3.9	4.1	2.5	-0.6
s	1.3	1.1	1.3	1.1	0.9	1.9	3.1	3.9	4.1	1.9	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 19m												
mv	1.9	1.3	1.9	4.4	6.4	6.6	9.4	12.1	9.9	8.1	5.8	3.0
max	5.6	4.2	4.1	6.9	9.3	13.0	15.0	18.7	17.9	13.4	9.0	5.5
min	-0.4	-0.6	-0.6	0.3	2.9	3.9	3.6	5.0	3.8	4.1	2.5	-0.7
s	1.4	1.1	1.3	1.4	1.0	1.6	2.8	3.5	4.0	1.9	1.3	1.5
N	363.0	308.0	904.0	1662.0	1184.0	1493.0	728.0	292.0	342.0	330.0	344.0	589.0
djup 20m												
mv	1.8	1.3	1.9	4.2	6.2	6.5	9.1	11.0	9.7	7.9	5.7	2.8
max	6.0	4.8	3.9	6.4	9.2	12.7	14.0	18.2	17.8	13.3	9.0	5.6
min	-0.5	-0.7	-0.7	0.3	2.8	3.7	3.4	4.9	3.8	4.0	2.4	-0.7
s	1.4	1.2	1.3	1.3	0.9	1.4	2.3	3.0	4.0	2.0	1.3	1.5
N	345.0	279.0	838.0	1600.0	1150.0	1447.0	714.0	291.0	342.0	330.0	342.0	557.0