Science Series
Data Report no. 43

The coastal temperature network and ferry route programme: long-term temperature and salinity observations

A.E. Joyce

Cefas

Science Series
Data Report no. 43

The coastal temperature network and ferry route programme: long-term temperature and salinity observations

A.E. Joyce

This report should be cited as: Joyce, A.E., 2006. The coastal temperature network and ferry route programme: long-term temperature and salinity observations. Sci. Ser. Data Rep., Cefas Lowestoft, 43: 129pp.

This publication is also available at
www.cefas.co.uk/data/seatempandsal

Contents

1. Introduction

This report updates that of Jones and Jeffs (1991) and Norris (2001). The latter author presented monthly mean sea surface temperature data in tabular format for stations around the English and Welsh coast, up to 2001. This publication, available both as a hard copy and annually updated on a website (www.cefas.co.uk/data/seatempandsal), summarises the temperature condition of coastal surface waters around the coast of England and Wales and the salinity and temperature condition across the Southern Bight of the North Sea. It describes the climatology as time series trends up to 2004 and puts it in the context of the last three decades.

Where appropriate, data in this report are presented as anomalies in order to show how the values compare to the average or 'normal' conditions. Observations for each station are presented in the context of the previous three decades. For each station the base period is defined as, from 1971 to 2000.

2. Data sets

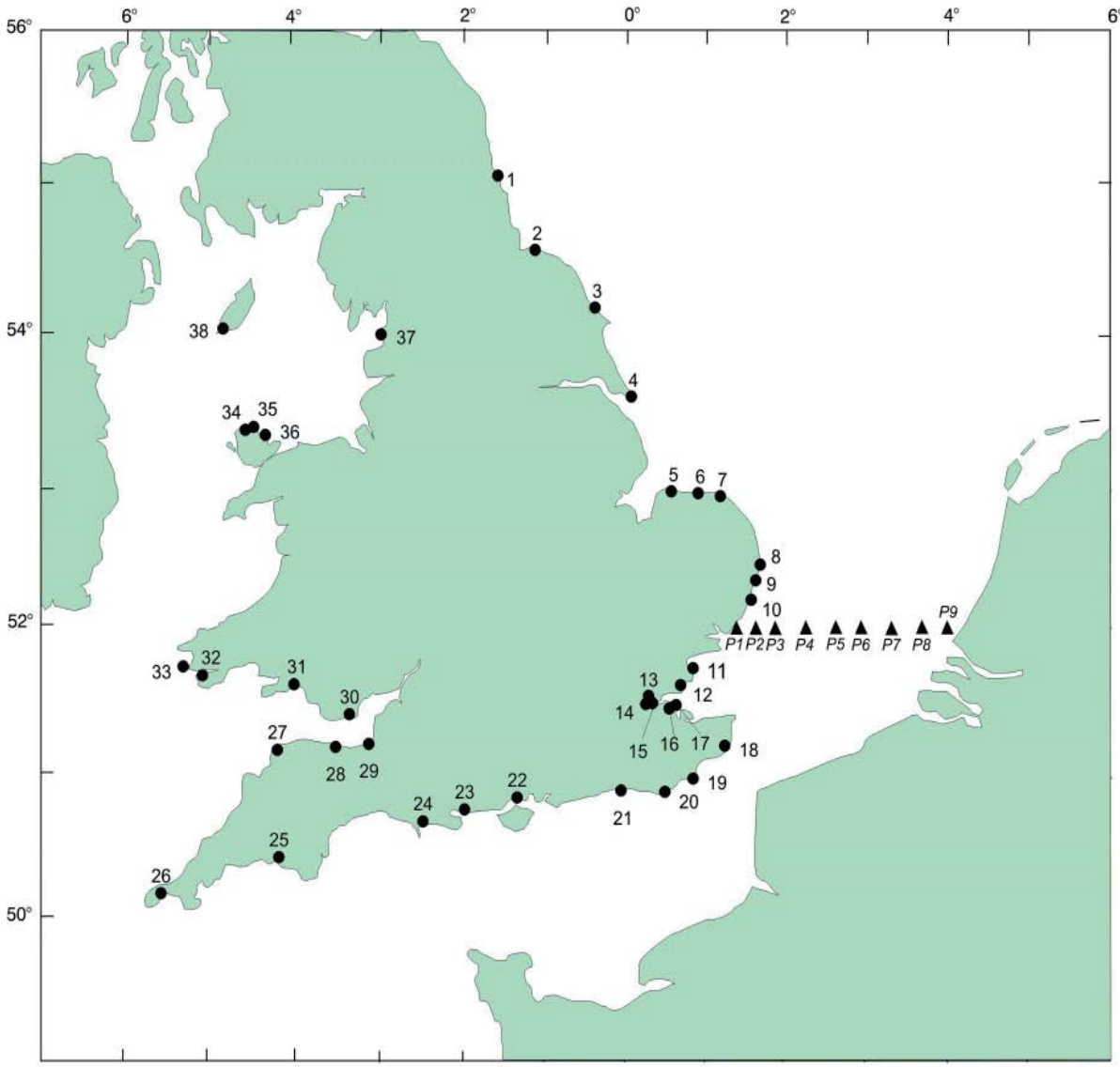
2.1 Coastal temperature network

Individuals on behalf of Cefas, councils, companies and other organisations have obtained records of coastal sea surface temperatures, for some stations, of more than 100 years duration. Approximately half of the stations started recording coastal temperatures in the mid 1960s. There are 30 stations in England and 8 stations in Wales and the Isle of Man where 25 out of 38 are still in operation (2004). Figure 1 shows the coastal sea temperature station positions (1 – 38). The time span of each data set is illustrated in Figure 2. Table 1 describes each data set in detail and contains additional information about each time series included in Figure 2.

2.2 Ferry Route 52°N: salinity and temperature

Near surface temperature and salinity samples have been collected by ferries, the most recent, the *Stena Partner*, along 52°N between Harwich (formerly Felixstowe) and Rotterdam, from August 1970 onwards. Throughout the year, at weekly intervals, temperature data are recorded and water samples are taken at 9 standard station positions across the Southern Bight of the North Sea. These are sent back to Cefas to be analysed for salinity and nutrients[1]. This provides an insight to the seasonal, inter-annual and decadal variability of surface water in this area. Figure 1 shows the offshore sea temperature and salinity station positions (P1 – P9). The time span of each data set is illustrated in Figure 2. Table 1 describes each data set in detail and contains additional information about each time series included in Figure 2.

[1] from 6/2006.



1	Blyth PS	20	Eastbourne
2	Redcar	21	Shoreham
3	Scarborough	22	Fawley PS
4	Spurn Point	23	Bournemouth
5	Brancaster	24	Weymouth
6	Blakeney	25	Plymouth
7	Cromer	26	Newlyn
8	Lowestoft	27	Ilfracombe
9	Southwold	28	Minehead
10	Sizewell PS	29	Hinkley Point PS
11	Bradwell PS	30	Barry
12	Leigh on Sea	31	Swansea
13	Littlebrook PS	32	Angle
14	West Thurrock PS	33	Skomer Island
15	Tilbury PS	34	Wylfa PS
16	Kingsnorth PS	35	Amlwch
17	Grain PS	36	Moelfre
18	Dover	37	Heysham PS
19	Dungeness PS	38	Port Erin
		P1-P9	Harwich to Rotterdam

Figure 1. Coastal and offshore station positions.

Table 1. Data index.

Name of dataset	Type of observation	Where	Status of dataset	Depth	Observations commenced
Coastal temperature network	Sea water temperature	Coastal, England and Wales	38 stations, 25 ongoing	Surface	Most 1960s, Eastbourne 1892

Appendix A Table no.	Figures	Location/ description	Source	Latitude	Longitude	Start Month/ Year	End Month/ Year (if applicable)	Status of station	Observations available	Page
4	a	Blyth PS	National Power and CEGB	55.133°N	1.533°W	1/1978	2/2000	Ended	Monthly Means	22
5	a,b,c	Redcar	Cefas	54.633°N	1.083°W	1/1966	4/2000	Ended	Daily	24
6	a,b,c	Scarborough	Cefas	54.283°N	0.366°W	3/1970		On-going	Daily	26
7	a,b,c	Spurn Point	Cefas	53.583°N	0.116°E	1/1966		On-going	Daily	28
8	a,b,c	Brancaster	Cefas	52.966°N	0.633°E	1/1966		On-going	Daily	30
9	a,b,c	Blakeney	Cefas	52.966°N	1.000°E	1/1966		On-going	Daily	32
10	a,b,c	Cromer	Cefas	52.933°N	1.300°E	1/1966		On-going	Daily	34
11	a	Lowestoft	Cefas	52.450°N	1.750°E	1/1966	7/1992	Ended	Daily	36
12	a,b,c	Southwold	Cefas	52.316°N	1.683°E	1/1966		On-going	Daily	38
13	a,b,c	Sizewell PS	British Energy Generation UK Ltd., BNFL, CEGB	52.216°N	1.633°E	1/1967		On-going	Monthly Means	40
14	a,b,c	Bradwell PS	BNFL, CEGB	51.750°N	0.900°E	1/1964	3/2002	Ended	Monthly Means	42
15	a,b,c	Leigh on Sea	Cefas	51.533°N	0.650°E	1/1966		On-going	Daily	44
16	a,b,c	Littlebrook PS	National PC	51.466°N	0.250°E	4/1964		On-going	Monthly Means	46
17	a	West Thurrock PS	CEGB	51.466°N	0.300°E	1/1964	3/1993	Ended	Monthly Means	48
18	a,b,c	Tilbury PS	National PC	51.450°N	0.400°E	1/1964		On-going	Monthly Means	50
19	a,b,c	Kingsnorth PS	Powergen UK, CEGB	51.416°N	0.600°E	1/1971		On-going	Monthly Means	52
20	a	Grain PS	Powergen UK, CEGB	51.433°N	0.716°E	8/1979	12/1996	Ended	Monthly Means	54
21	a,b,c	Dover	District Council and Cefas	51.116°N	1.350°E	5/1926		On-going	Daily	56
22	a,b,c	Dungeness PS	British Energy Generation UK Ltd., BNFL	50.916°N	0.966°E	1/1968		On-going	Monthly Means	60
23	a,b,c	Eastbourne	Borough Council	50.766°N	0.300°E	1/1892		On-going	Daily	62
24	a	Shoreham	Cefas	50.833°N	0.250°W	5/1966	7/1999	Ended	Daily	66
25	a	Fawley PS	National PC	50.833°N	1.333°W	1/1984		On-going	Monthly Means	68
26	a,b,c	Bournemouth	Borough Council	50.733°N	1.866°W	7/1970		On-going	Daily	70
27	a,b,c	Weymouth	Cefas	50.616°N	2.450°W	5/1966		On-going	Daily	72
28	a	Plymouth	Plymouth City Council	50.366°N	4.166°W	1/1957	12/1993	Ended	Monthly Means	74

Table 1. Data index: continued.

Appendix A Table no.	Figures	Location/ description	Source	Latitude	Longitude	Start Month/ Year	End Month/ Year (if applicable)	Status of station	Observations available	Page
29	a	Newlyn	IOS Proudman Laboratory	50.100°N	5.533°W	1/1984	9/1994	Ended	Daily	76
30	a	Ilfracombe	Cefas	51.200°N	4.133°W	4/1992		On-going	Daily	78
31	a	Minehead	Cefas	51.216°N	3.466°W	8/1972	4/1998	Ended	Daily	80
32	a	Hinkley Point PS	BNFL, CEGB	51.216°N	3.116°W	10/1976		On-going	Monthly Means	82
33	a	Barry	Cefas	51.400°N	3.250°W	4/1978	1/1999	Ended	Daily	84
34	a	Swansea	Cefas	51.600°N	3.933°W	3/1976	4/2000	Ended	Daily	86
35	a	Angle	Cefas	51.683°N	5.083°W	11/1990		On-going	Daily	88
36	a	Skomer	Cefas and The Wildlife Trust, West Wales	51.733°N	5.283°W	4/1985		On-going	Daily	90
37	a,b,c	Wylfa PS	BNFL, CEGB	53.416°N	4.483°W	8/1967		On-going	Monthly Means	92
38	a,b,c	Amlwch	Great Lakes UK Ltd., The Associated Octel Co. Ltd.	53.416°N	4.333°W	1/1964	1/2004	Ended	Monthly Means	94
39	a,b,c	Moelfre	Cefas	53.350°N	4.233°W	1/1966		On-going	Daily	96
40	a,b,c	Heysham PS	British Energy Generation UK Ltd., NW and N Wales SFC	54.033°N	2.833°W	1/1955		On-going	Monthly Means	98
41	a,b,c	Port Erin	University of Liverpool	54.083°N	4.766°W	1/1903		On-going	Monthly Means	100

Name of dataset	Type of observation	Where	Status of dataset	Depth	Observations commenced
Ferry route 52°N	Sea water temperature and salinity	Offshore, open ocean Southern Bight of North Sea	On-going	Surface	1970

Appendix B Table no.	Figures	Location/ Description	Source	Latitude	Longitude	Start Month/ Year	End Month/ Year (if applicable)	Status of station	Daily obs. available	Page
42, 43	a,b,c	Harwich to Rotterdam	Cefas	52°N	1.416° - 3.916°E	8/70		On-going	Weekly	106

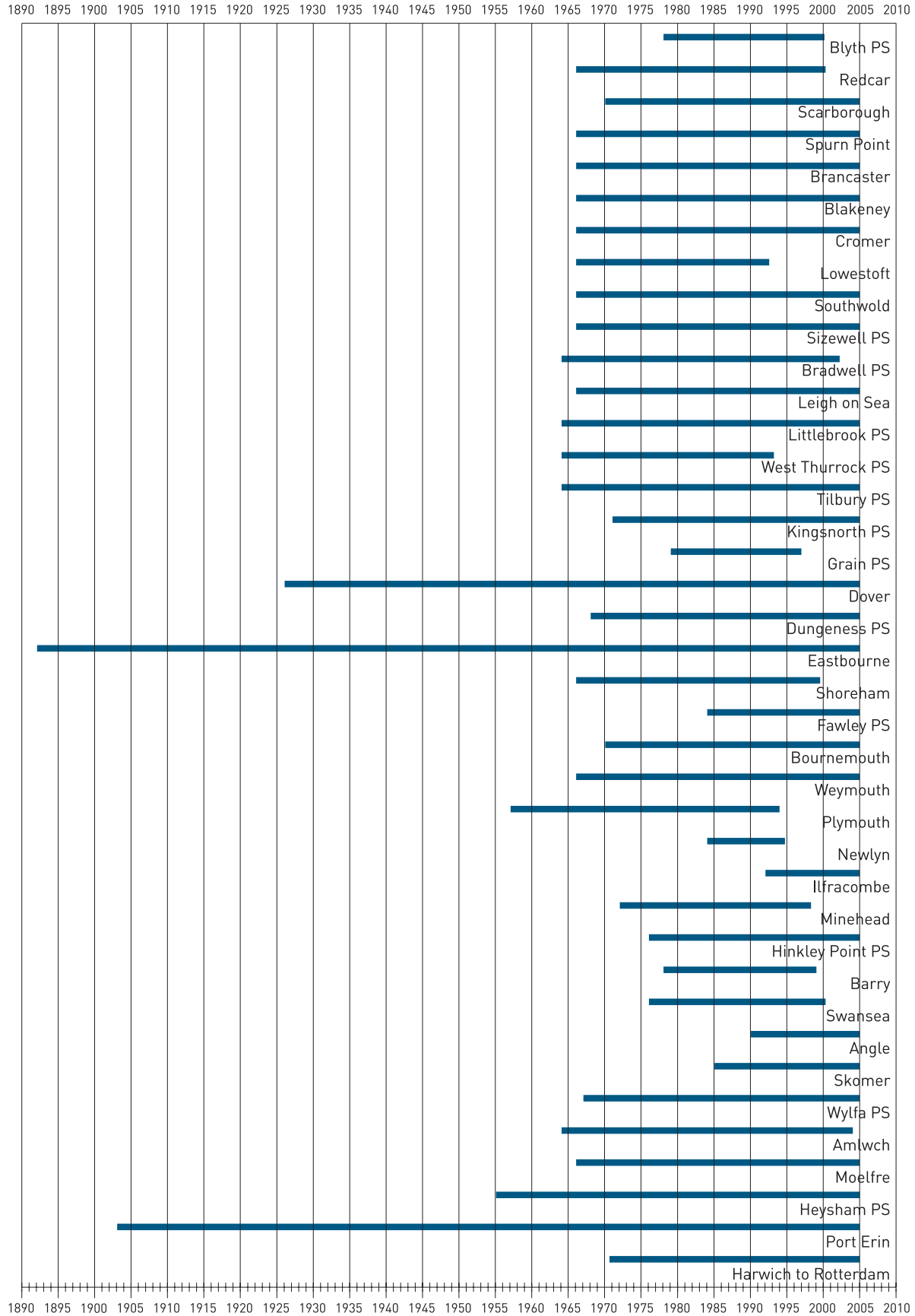


Figure 2. Time span of the coastal temperature network and Ferry route datasets

3. Data collection and quality assurance

Cefas observers record coastal sea surface temperatures using calibrated thermometers approximately 6 – 14 times per month, usually close to the time of high water. Other organisations record sea surface temperature ranging from daily values to monthly means. The Cefas instruments are calibrated at Lowestoft to an accuracy of ±0.1°C. The accuracy of other instruments is not known , but is thought to be at least to an accuracy of ±0.2°C. The ferry route observers record offshore sea surface temperature from the ships main seawater pipe using a calibrated thermometer 4 times a month. The temperatures are recorded to at least an accuracy of ±0.2°C. The seawater samples are taken from the sea water main pipe to the harbour pump about 1.5 metres inboard.

Quality assurance checks are applied to the data for each station by comparing the current dataset with either a 5 or 10 year running mean for each month. The data is first tested to see whether it is normally distributed i.e. whether all the data are close to average. The standard deviation is calculated to see how tightly the data are clustered around the mean; three standard deviations are then calculated to account for 99% of the data. If the data is outside of this range (3 stdev) then the value is flagged and removed from subsequent analysis.

Yearly averages are only derived from those years which have a complete set of monthly values.

4. Presentation of results

For each inshore temperature station, there is a Figure 'a': Monthly mean surface temperature for the entire duration of the record at the station which are derived from simple averaging of all the monthly data.

For those stations with records from 1971 – 2000, there is a Figure 'b' and Figure 'c':

Figure 'b': Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term mean (1971 – 2000).

Figure 'c': Yearly anomaly from the base period. Where the average base period temperature (1971 – 2000) has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

For the three stations with long records; Eastbourne, Dover and Port Erin, two trend lines are presented, one covering the period from 1965 – 2004, to match the figures above (a, b and c) and the other over the entire record.

For the ferry route temperature and salinity data there is a figure 'a', 'b' and 'c'.

Data are presented from three of the ferry route stations namely P2, P4 and P7. These stations have been selected from a group analysis as being indicative of the trends in three separate regions across the channel. Thus P2 represents stations P1, P2 and P3; P4 represents P4, P5 and P6 and station 7 is indicative of P7, P8 and P9.

Appendix A (Tables 4 – 41) presents the monthly mean sea surface temperatures and standard deviation for 38 stations around the English and Welsh coast in tabular format for all of the stations. For stations whose record covers the base period of 1971 – 2000, the mean, count and stdev from 1971 – 2000 is also presented.

Appendix B (Tables 42 and 43) presents the ferry route data for monthly mean sea surface temperatures and salinity for 9 positions across the Southern Bight of the North Sea in tabular format.

Adjacent to Appendices A and B there is a Figure a for all stations and Figures b and c for stations with records from 1971 – 2000.

5. Area groupings

In order to describe the climatology of an area, stations that display similar trends have been grouped together. Thus for stations that include the base period, the groupings are: English East Coast (stations 3-10), Thames region (stations 12-16), Eastern Channel (stations 18-22), Western Channel (stations 23-24) and Eastern Irish Sea (stations 34–38). Figures 3 – 7 show the annual temperature anomaly from the base period (1971 – 2000) for 1970 – 2004. A trend line has been included from 1985 to 2004 to show the trend in temperature in the last 20 years.

Despite the number of stations included here, there is a significant spatial gap in the South West coastal region. There is no climatic grouping for the remainder of the Irish Sea because there are an insufficient number of stations that run for the base period of 1971 – 2000.

Comparisons have also been made between the temperatures recorded from the ferry route (Position 2) and the most appropriate inshore temperature network station (Figure 8).

Table 2. presents the annual temperature anomalies for selected stations for 1994–2004 from the base period (1971-2000), colour coded by the range in temperature.

For all 9 sampling positions from the ferry route, Table 3. presents annual salinity anomalies for 1994–2004 from the base period (1971-2000), colour coded by the range in salinity.

Figure 3. Annual average temperature anomaly from the base period (1971 – 2000) for 1970 – 2004 for the East coast area.

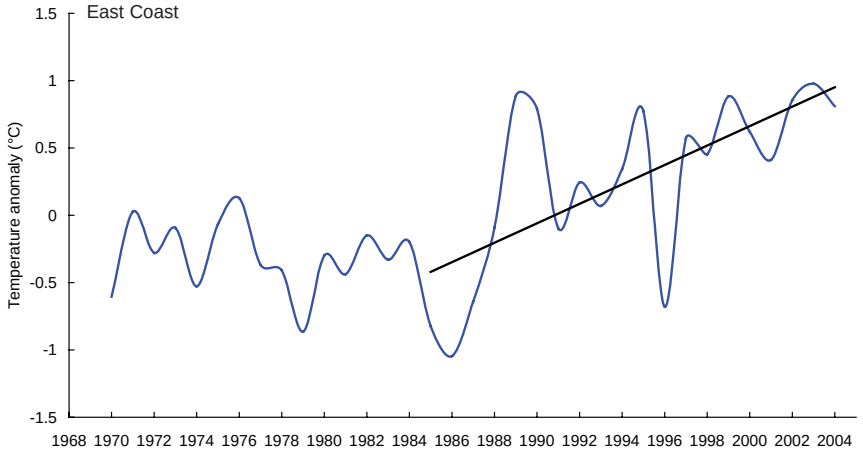


Figure 4. Annual average temperature anomaly from the base period (1971 – 2000) for 1970 – 2004 for the Thames area.

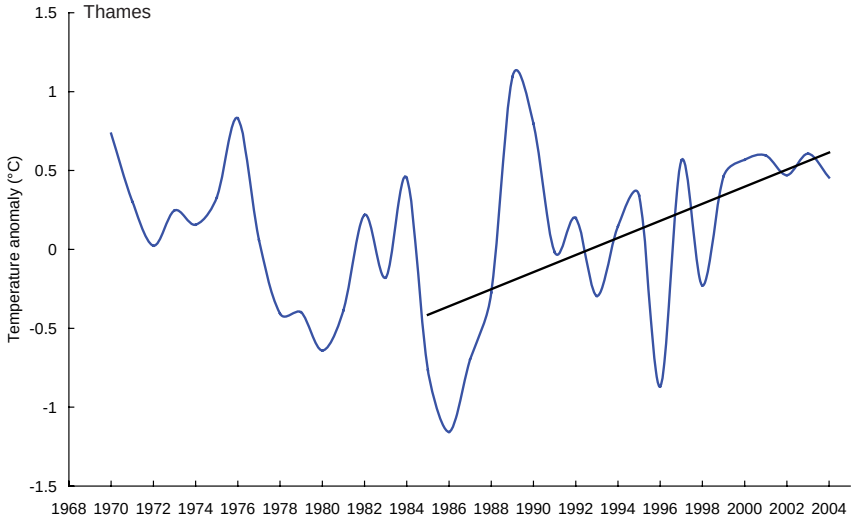


Figure 5. Annual average temperature anomaly from the base period (1971 – 2000) for 1970 – 2004 for the Eastern Channel area.

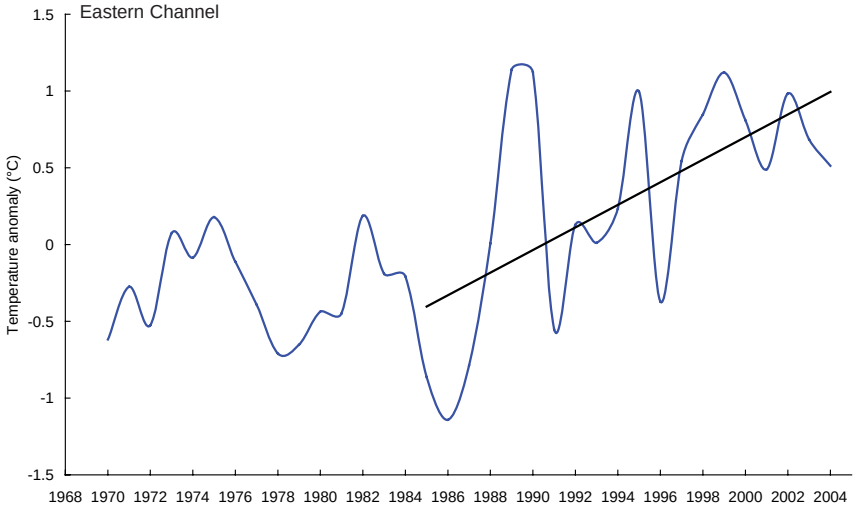


Figure 6. Annual average temperature anomaly from the base period (1971 – 2000) for 1970 – 2004 for the Western Channel area.

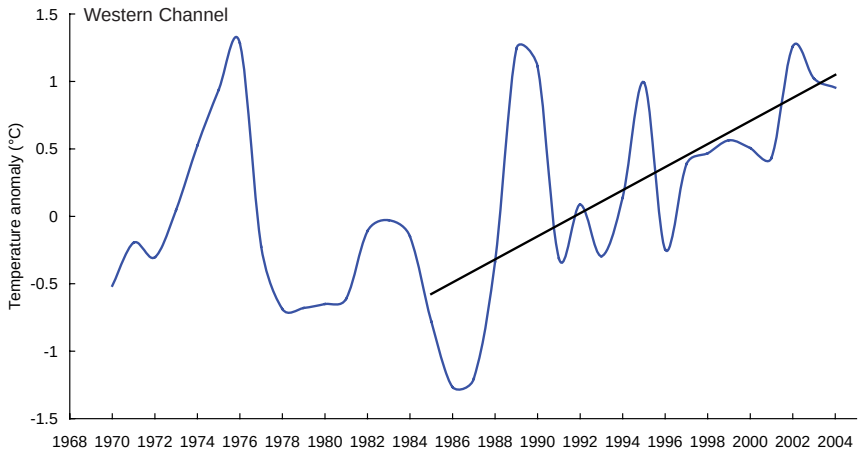


Figure 7. Annual average temperature anomaly from the base period (1971 – 2000) for 1970 – 2004 for the Irish Sea area.

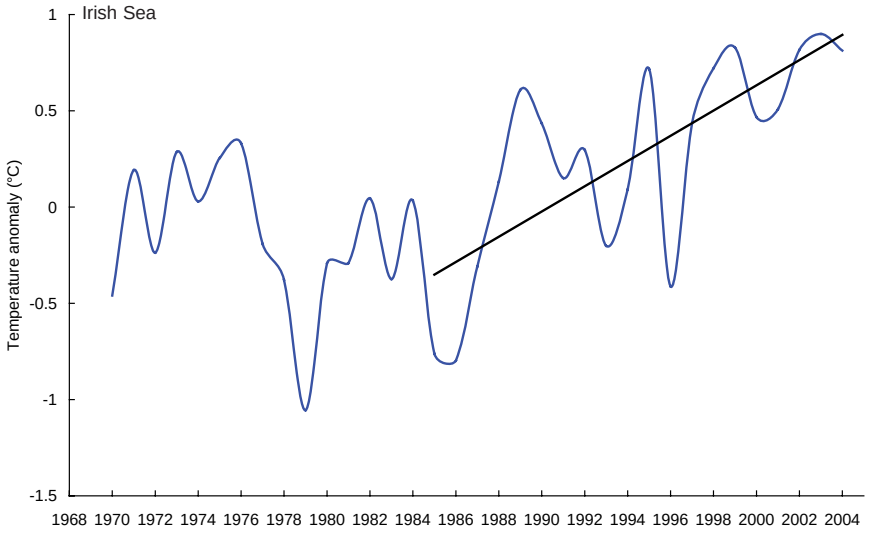


Figure 8. Comparison between Ferry route position 2 and coastal temperature station Bradwell.

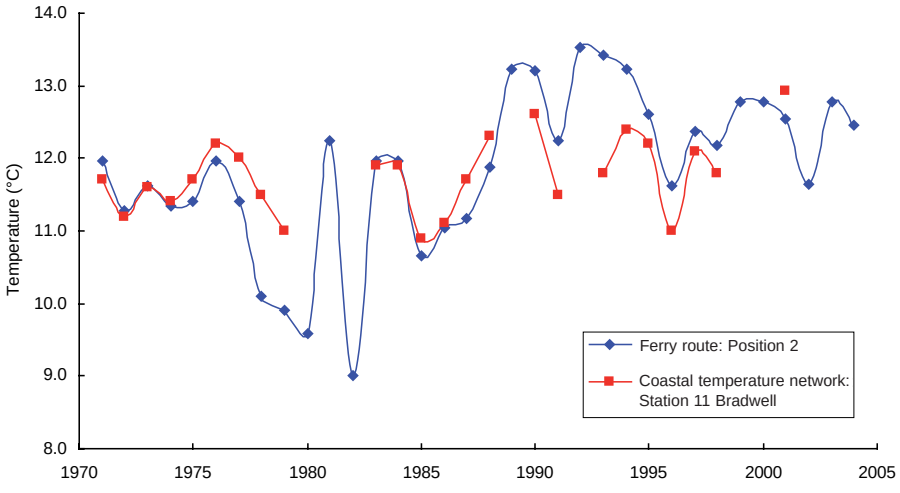


Table 2. Trends in temperature around the UK coast over the last decade. To allow comparisons between datasets, anomalies are presented.

Station	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
2	0.5	0.8	-0.4	0.5	0.4	0.3	0.0	~	~	~	~
3	-0.1	0.8	-0.1	0.7	0.7	0.5	0.9	1.0	1.0	1.0	0.9
4	0.3	0.7	-0.8	0.5	0.2	0.7	0.5	0.2	0.8	0.0	0.7
5	0.5	0.2	-1.2	-0.1	-0.2	0.5	0.0	-0.2	0.1	0.4	0.3
6	0.4	0.8	-0.8	0.5	0.3	0.8	0.6	0.1	0.9	0.9	0.8
7	0.2	0.5	-1.3	0.9	0.5	1.0	0.2	-0.3	0.0	0.9	-0.4
9	0.5	1.1	-0.4	1.0	0.8	1.1	0.7	0.4	1.2	1.5	1.1
10	0.4	1.3	-0.5	~	0.9	2.1	2.0	1.6	2.0	2.1	2.2
11	0.6	0.4	-0.8	0.3	0.0	-0.1	0.5	0.4	0.8	~	~
12	0.8	0.7	-1.0	0.6	-0.4	0.7	1.7	2.1	2.3	2.1	2.3
13	-0.7	-0.3	-1.1	~	-0.8	0.0	-0.3	0.8	-0.1	-0.4	-0.9
15	-0.8	0.0	-1.2	~	-0.5	~	0.0	-0.7	-1.2	-0.8	0.1
16	0.7	0.9	-0.3	0.7	0.7	1.2	1.0	0.4	0.6	1.6	0.4
18	0.7	0.9	-0.2	0.6	1.0	1.3	1.2	0.6	1.1	0.7	0.8
19	0.0	0.8	-0.6	~	0.9	1.1	0.5	0.5	0.9	0.6	0.2
20	0.0	1.2	-0.3	0.5	0.7	0.9	0.7	0.4	0.9	0.7	0.5
23	0.3	1.4	0.5	0.9	0.7	1.0	0.4	0.8	1.5	1.3	0.8
24	0.0	0.6	-1.0	-0.1	0.2	0.1	0.6	0.1	1.0	0.8	1.1
34	-0.2	0.5	-0.6	0.4	0.4	0.4	-0.1	0.0	0.3	0.7	0.3
35	0.1	0.9	-0.3	~	0.9	0.7	0.4	0.2	0.5	0.5	~
36	0.2	0.8	-0.4	0.5	0.8	1.5	0.8	1.1	1.3	1.1	1.0
37	0.6	1.0	-0.5	~	0.6	0.9	0.7	0.7	1.1	1.4	1.2
38	-0.2	0.5	-0.2	0.5	0.9	0.7	0.5	0.5	0.8	0.8	0.7

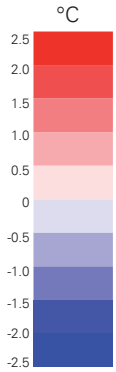
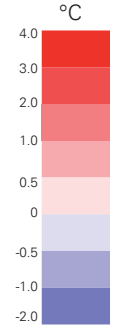


Table 3. Trends in salinity across the Southern Bight of the North Sea over the last decade. To allow comparisons between datasets, anomalies are presented.

Position	1994	1995	1997	1998	1999	2000	2001	2002	2003	2004
1	-0.2	-0.2	0.5	0.4	-0.3	-0.2	-0.6	0.0	0.0	0.3
2	-0.2	-0.2	0.2	0.2	-0.1	0.0	-0.5	-0.1	-0.3	0.1
3	-0.2	-0.2	0.2	0.3	0.0	0.0	-0.4	0.0	-0.2	0.1
4	-0.1	-0.3	0.2	0.2	0.1	0.0	-0.3	-0.1	-0.2	0.1
5	-0.1	-0.3	0.1	0.3	0.2	0.0	-0.2	-0.1	0.0	0.1
6	-0.1	-0.5	0.2	0.4	0.3	0.0	-0.2	-0.2	0.1	0.2
7	0.1	-0.8	0.3	0.5	0.3	0.0	-0.2	-0.2	0.3	0.3
8	-0.1	-1.9	0.8	0.7	0.5	0.3	-0.1	0.1	0.8	0.9
9	2.0	-0.6	3.7	2.9	3.3	2.2	0.4	1.6	4.2	3.8



6. Findings

This data set has quantified the inter-annual variability in the near coastal temperatures in the seas around the UK. The evidence is that the long-term change is distinguishable from the inter-annual variability.

All of the coastal sea areas show an overall increase in temperature during the last 20 years (Figures 3 – 7). Combining a group of twenty coastal stations which have similar statistical characteristics, the average temperature rise in inshore waters is 0.3°C per decade since 1966 but with a greater rate of warming (0.5 to 0.75°C) in the last twenty years.

In Figures 3, 4 and 7, for the East coast, the Thames and the Irish Sea, 1979, 1986 and 1996 show colder periods with 1986 and 1996 showing the most abrupt changes. The Eastern and Western Channel areas (Figure 5 and 6) show the same trend apart from experiencing a more abrupt colder period in 1991 than in 1996. Although the very cold year of 1979 was most pronounced in the Irish Sea, in other regions, the western channel, eastern channel and Thames region, this cold period extended for three years from 1978 – 1980. The extremely cold period in 1986 was evident in all of the sea regions.

Following this, was a dramatic shift in all sea areas (1988 – 1990), with a sharp rise in temperature leading to two very warm years of 1989 and 1990 with continued temperature rise since that time, with all areas showing similar trends. Previous to this warm period, a short warming period occurred, starting in 1973 and reaching a maximum in 1976. It was most pronounced in the western Channel but was also evident in the other regions.

The stations offshore in the Southern Bight show an overall increase in temperature from 1971 to present (Figure c: P2, P4 and P7). The high temperatures of 1990 are also evident in all the coastal regions, while the 1982 peak was only evident in the English Channel region. The high temperatures in 2002 and 2003 are not evident in the other regions.

The seasonal cycle of salinity is evident from Figure b, positions 2, 4 and 7. The lowest salinity is consistent across the transect, occurring in May to June, but with greater variability in the time of maximum salinity, usually in the winter months. Variability in all the salinity records is high but especially large in the summer months. It is postulated that this variability is dominated by flow through from the English channel (Dickson *et al.*, 2003).

In most areas of the North Sea low salinities were observed in 1994, 1995, 2001 and 2002 and returning to near normal values in 2004 after a period of very high salinity that persisted in 1997 and 1998. This trend is clear in the salinity time-series figures for Position 2, 4 and 7 (Figures a, b and c) and Positions 1 – 9 (Table 3).

7. Acknowledgements and references

7.1 Acknowledgements

The author wishes to thank the following Cefas observers for their dedication over the years:

- Mr M Eynon
- Mr S Billing
- Mr A Putt
- Mr P Jackson
- Mr P Henneker
- Mr D Knapp
- Mr B Bevan
- Mr H Philcox
- Mr M Hellyer
- Mr C Fisk
- Mr T Wright
- Mr W Browning
- Mr E Jones
- Mr G Bullimore
- Mr A Barclay
- Mrs J Stannard
- Mr J Powell
- Capt. P Tambling
- Mr R Roch
- Capt. M Kenyon

In addition, measurements have been obtained from other sources, such as National Power, CEGB, British Energy Generation UK Ltd., BNFL, National PC, Powergen UK, Eastbourne Borough Council, Bournemouth Borough Council, Scarborough Borough Council, Skomer Island National Nature Reserve and the University of Liverpool.

Grateful thanks to all these establishments who have freely given permission for their data to be included in this report.

7.2 References

Jones, S.R. and Jeffs, T.M., 1991. Near-surface sea temperatures in coastal waters of the North Sea, English Channel and Irish Sea. Data Rep., Maff Directorate of Fisheries Research, Lowestoft, 24: 70pp.

Norris, S.W., 2001. Near-surface sea temperatures in coastal waters of the North Sea, English Channel and Irish Sea – Volume II. Data Rep., Cefas Lowestoft, 40: 31pp.

Dickson, R.R., Dye S. and Meincke J., 2001. The NAO in winter 2001: early indications of a sharp return to NAO-Negative conditions. ICES WGOH, Reykjavik, Iceland, 19-21 March 2001.

8. Sources and links

Coastal temperatures

Coastal Temperature Network – Temperature data
http://www.cefas.co.uk/data/seatempandsal
http://www.cefas.co.uk/isea

Offshore ferry route data

Ferry Route Programme – Temperature and salinity data
http://www.cefas.co.uk/data/seatempandsal
http://www.cefas.co.uk/isea

The Coastal Temperature Network and Ferry Route Programme is prepared and managed by:–

Ms A Joyce,
Cefas Lowestoft Laboratory,
Pakefield Road,
Lowestoft,
Suffolk,
NR33 0HT, UK
Tel: +44 (0)1502 562244
Fax: +44 (0)1502 513865

Website enquiries: -
marketing@cefas.co.uk
lowlibrary@cefas.co.uk

Appendix A. Monthly mean sea surface temperatures - coastal temperature network

Table 4. Monthly mean sea temperature for Blyth Power Station at 55° 8' N, 1° 32' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1978	6.2	5.1	5.8	7.1	8.7	10.4	13.1	13.2	13.8	12.6	11.6	7.9	9.6
1979	5.7	4.4	4.9	5.4	7.7	10.0	12.1	12.6	12.9	11.6	9.3	8.7	8.8
1980	6.0	3.7	4.0	4.9	7.4	12.0	13.7	14.1	13.7	11.9	9.6	8.3	9.1
1981	6.3	6.2	5.4	7.7	8.5	10.4	13.3	15.2	15.0	11.8	10.0	7.9	9.8
1982	4.3	6.0	6.6	7.9	9.6	12.2	13.9	13.1	11.3	10.0	9.8	7.1	9.3
1983	5.5	5.0	5.5	6.5	8.4	11.0	12.8	13.9	13.4	11.2	9.0	7.1	9.1
1984	5.6	5.9	5.4	7.0	9.5	11.6	13.2	14.6	14.1	11.6	9.9	7.7	9.7
1985	5.7	5.7	5.6	6.6	8.2	10.8	12.5	13.5	12.0	11.5	9.0	6.5	9.0
1986	6.5	5.1	6.0	6.5	7.5	11.7	13.5	12.5	11.5	11.0	9.0	6.9	9.0
1987	6.0	6.1	6.8	7.0	9.7	11.2	14.0	13.5	13.0	10.5	10.0	8.9	9.7
1988	9.0	7.2	6.5	8.9	10.0	12.0	14.5	13.3	13.0	11.5	9.0	8.5	10.3
1989	8.0	7.5	7.1	8.5	10.5	11.5	15.1	14.5	14.0	11.5	8.1	7.8	10.3
1990	7.0	6.5	7.9	9.2	11.5	12.2	13.8	16.1	13.5	12.0	8.5	9.0	10.6
1991	7.3	6.5	7.0	8.9	9.7	12.4	14.2	14.9	14.0	12.0	9.3	8.6	10.4
1992	8.0	6.5	8.2	8.2	11.1	14.5	14.9	14.5	13.5	10.8	9.0	8.5	10.6
1993	7.0	7.5	7.5	8.8	9.8	10.5	16.5	13.5	14.0	12.5	10.0	7.0	10.4
1994	6.3	5.6	5.9	6.5	8.4	10.5	13.3	14.2	12.3	11.7	10.2	8.8	9.5
1995	6.6	6.7	6.3	6.9	7.4	10.3	13.3	15.2	14.6	13.1	10.9	8.7	10.0
1996	6.2	5.2	4.7	7.7	6.7	10.6	11.9	13.2	13.2	11.1	10.9	8.4	9.2
1997													
1998	8.0	9.0	8.5	9.0	10.0	11.7	14.4	13.9	13.3	11.3		6.9	
1999	7.0	5.2	5.2				12.6	12.5	12.8		8.5	7.9	
2000	5.7	5.4											
mean	6.5	6.0	6.2	7.5	9.0	11.4	13.6	13.9	13.3	11.6	9.6	8.0	
count	22	22	21	20	20	20	21	21	21	20	20	21	
sd	1.06	1.17	1.19	1.22	1.32	1.05	1.07	0.97	0.94	0.72	0.89	0.77	

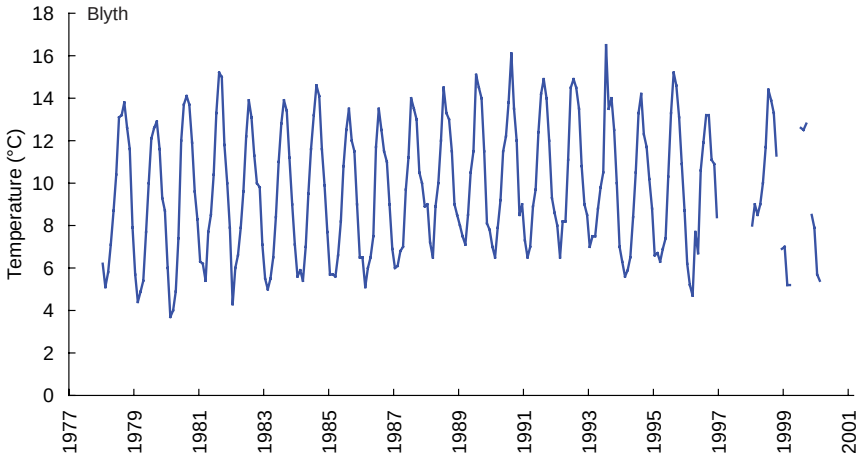


Figure (a). Monthly mean surface temperature for the entire duration of the record at Blyth Power Station which are derived from simple averaging of all the monthly data.

Table 5. Monthly mean sea temperature for Redcar at 54° 38' N, 1° 5' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	4.6	4.8	5.7	5.4	7.6	11.0	13.1	13.9	13.6	12.3	8.5	6.5	8.9
1967	5.5	5.7	5.9	6.8	9.1	11.5	12.8	13.0	12.5	11.6	8.7	7.0	9.2
1968	5.2	4.9	5.5	6.8	8.2	11.4	12.2	14.5	13.4	11.8	9.2	7.6	9.2
1969	6.0	4.2	4.4	6.1	7.3	9.7	12.6	13.5	13.3	12.5	8.9	6.0	8.7
1970	5.0	4.4	5.0	5.8	8.5	12.2	12.6	13.2	12.5	11.9	8.9	6.9	8.9
1971	5.8	6.2	6.1	6.7	9.0	12.2	14.9	14.1	13.4	11.8	7.9	7.2	9.6
1972	6.1	6.0	6.2	7.4	9.2	11.0	13.6	13.8	12.8	11.6	8.5	7.1	9.4
1973	6.4	6.1	6.0	7.4	9.8	11.3	13.4	13.8	14.0	11.2	9.4	6.7	9.6
1974	5.9	5.9	5.9	6.9	9.2	10.9	12.9	13.9	12.6	10.4	8.2	7.8	9.2
1975						11.7	14.1	15.2	13.1	11.3	9.8	7.0	
1976	6.1	5.5	5.9	7.4	8.4	11.8	13.0	15.6	13.4	12.1	8.3	7.1	9.6
1977	5.2	5.2	5.8	6.4	8.8	11.2	13.0	14.4	13.0	11.4			
1978					9.5	12.5	13.6	14.3	13.4	12.0	9.6	7.5	
1979	4.4	4.0	4.6	6.7	8.1	11.1	13.5	13.5	13.1	11.6	8.5	8.0	8.9
1980	5.1	5.7	5.8										
1981													
1982													
1983													
1984													
1985					9.3	11.8	12.8	13.1	12.3	11.5	8.1	7.0	
1986	4.7	3.1	3.9	5.2	7.5	10.7	12.7	12.7	11.9	11.0	8.6	7.3	8.3
1987	4.7	4.5	4.6	6.3	8.5	10.3	13.1	13.8	13.3	11.5	9.6	7.5	9.0
1988	7.4	6.4	6.5	8.2	9.6	12.1	13.6	13.5	13.1	11.4	8.5	8.1	9.9
1989	7.6	7.2	6.6	7.4	10.2	12.4	14.6	13.6	13.7	11.5	9.6	6.8	10.1
1990	6.3	6.9	7.2	8.1	10.7	12.1	13.6	14.7	13.9	12.0	9.5	7.0	10.2
1991	5.6	4.8	7.1	8.0	9.9	12.6	14.1	14.7	13.7	11.0	9.5	7.5	9.9
1992	6.9	7.3	7.2	7.9	10.9	13.3	14.6	14.4	13.3	11.6	7.7	6.2	10.1
1993	5.7	6.5	6.3	7.6	9.3	12.0	13.9	14.2	13.5	12.1			
1994							15.0	15.4	13.2	11.6	9.6	7.6	
1995	5.8	7.0	7.3	7.7	9.0	12.4	14.9	16.2	14.8	12.9	9.6	7.1	10.4
1996	6.1	4.8	5.1	6.1	8.8	11.3	13.4	14.8	14.0	11.9	8.3	6.4	9.3
1997	5.1	5.5	7.1	8.4	10.1	12.7	13.2	15.6	13.6	11.9	10.2	7.7	10.1
1998	6.8	6.9	7.2	8.0	10.6	12.6	14.1	14.1	13.1	11.5	8.0	6.8	10.0
1999	5.8	5.5	6.9	7.8	9.8	12.0	14.2	14.6	14.1	12.0	9.2	7.2	9.9
2000	5.7	5.7	6.9	6.8									
Whole data set													
mean	5.8	5.6	6.0	7.1	9.1	11.7	13.6	14.2	13.3	11.7	8.9	7.1	
count	27	27	27	26	27	28	29	29	29	29	27	27	
sd	0.81	1.06	0.96	0.88	0.95	0.80	0.77	0.84	0.60	0.49	0.68	0.52	
1971 - 2000													
mean	5.9	5.8	6.2	7.3	9.4	11.8	13.7	14.3	13.3	11.6	8.9	7.2	
count	22	22	22	21	22	23	24	24	24	24	22	22	
sd	0.83	1.07	0.96	0.81	0.86	0.75	0.70	0.85	0.61	0.49	0.75	0.48	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Redcar which are derived from simple averaging of all the monthly data.

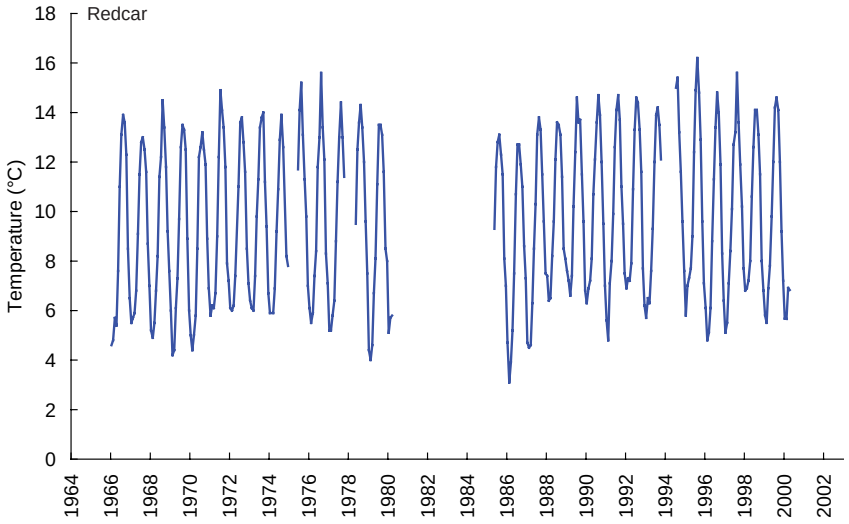


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

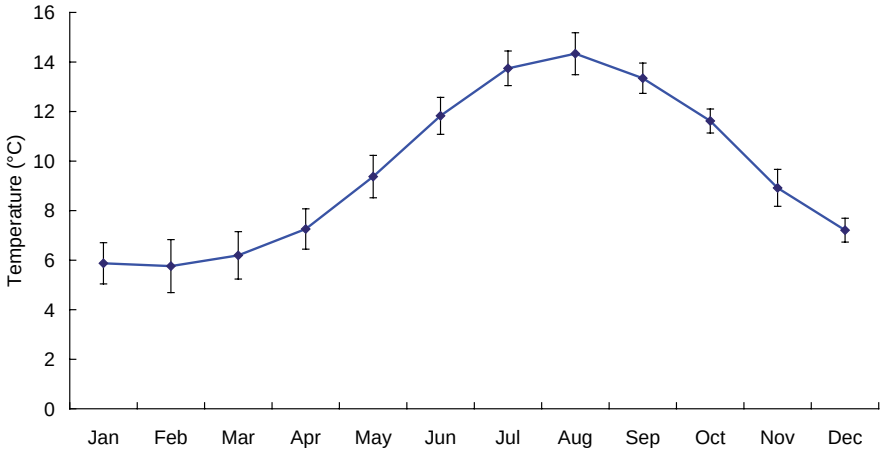


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

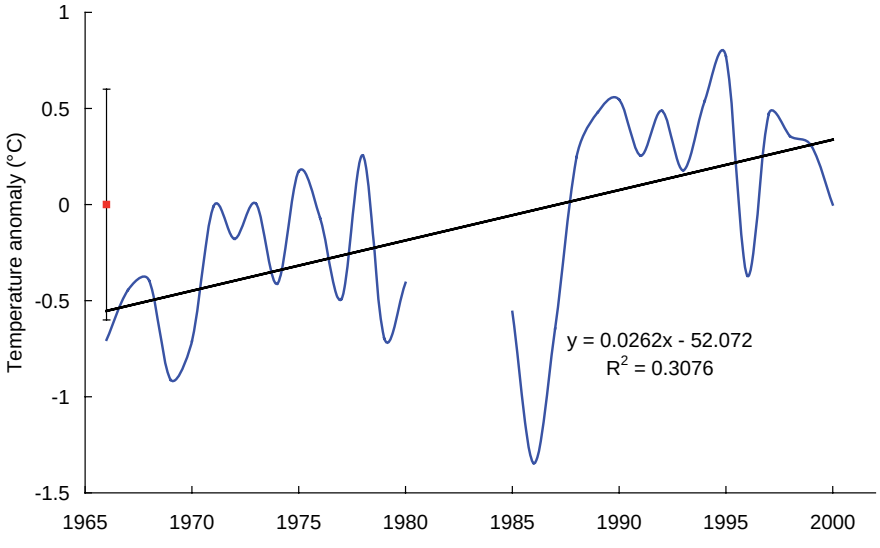


Table 6. Monthly mean sea temperature for Scarborough at 54° 17' N, 0° 22' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1970			5.0	6.1	8.2	10.8	11.9	12.9	12.4	11.5	10.1	6.9	
1971	6.1	6.0	5.9	6.8	8.1	9.9	12.7	13.9	14.1	12.2	8.8	6.5	9.3
1972	6.0	5.1	5.5	7.2		10.7	11.8	12.4	11.0	10.5	10.0	8.4	
1973	7.6	6.8	6.9	8.0	9.9	11.2	11.4	13.3	14.2	11.9	9.5	5.3	9.7
1974	3.9	4.0									7.8	7.4	
1975	6.7	5.9	6.6	6.4	8.3	10.2	12.6	13.2	13.4	11.8	9.8	6.8	9.3
1976	6.7	4.8	5.5	6.9	8.8	10.5	11.2						
1977	5.0	5.3	5.7	6.5	8.4	10.6	12.9	14.2	13.4	11.9	9.3	6.9	9.2
1978	5.6	4.7	6.0	6.1	7.9	11.2	12.5	13.3					
1979	3.6	3.4	4.0	5.1	6.9	9.4	12.5	12.5	11.4	11.0	8.2	6.9	7.9
1980	5.0	5.3	5.2	6.4	8.2	10.9	12.1	14.0	13.8	11.2	9.0		
1981		4.5	5.0	6.0	9.2	10.4	13.0	14.5	13.6	10.7	9.0	5.8	
1982	4.4	5.2	5.6	7.1	8.8	10.7	13.2	14.2	13.4	11.4	9.4	6.4	9.2
1983	5.9	4.5	5.5	6.2	7.6	10.1	12.6	13.9	12.5	10.7	8.6	7.2	8.8
1984	5.9	5.0	5.2	6.5	8.6	10.8	13.7	14.4	14.4	12.2	10.5	8.0	9.6
1985	5.7	5.4						12.7	12.2	11.7	8.1	6.9	
1986	5.1	3.5	4.0	5.4	7.4	9.2	12.3	12.0	11.4	10.9	8.9	6.8	8.1
1987	4.6	4.6	4.5	5.9		10.3	12.4	13.6	13.9				
1988	6.4	5.7	5.6	7.1	8.4	12.4	13.4	13.7	13.1	11.7	9.2	7.6	9.5
1989	6.8	6.5	6.4	7.2	9.6	11.9	14.1	14.7	13.8	12.6	10.3	8.3	10.2
1990	6.9	6.0	6.9	7.5	9.7	11.6	13.3	14.1	13.6	12.2	9.7	7.1	9.9
1991	5.4	4.7	6.2	7.2	9.4	10.4	12.7	13.8	13.8	11.1	7.7	6.7	9.1
1992	6.3	6.1	6.7	7.2	10.0	12.3	13.8	13.8	12.9	9.9	7.5	7.0	9.5
1993	5.5	5.8	5.7	7.2	9.4	11.3	13.2	13.2	12.6	10.4	8.7	6.8	9.2
1994	5.8	4.6	5.8	6.6	8.3	11.0	12.7	13.3	13.0	10.8	10.3	8.2	9.2
1995	6.3	6.2	5.9	7.2	9.4	11.1	13.3	14.4	15.0	13.5	10.6	7.9	10.1
1996	6.2	4.7	4.8	6.2	8.2	11.1	13.4	14.0	13.9	12.4	9.4	6.4	9.2
1997	4.8	5.9	7.3	8.2	9.6	11.6	13.1	14.4	13.3	12.2	10.5	8.9	10.0
1998	7.8	6.8	6.9	7.5	9.6	11.8	13.3	14.5	13.9	11.9	8.6	7.1	10.0
1999	6.6	5.6	6.8	7.9	9.1	10.8	13.0	14.7	14.2	11.7	9.6		
2000	6.2	6.3	7.3	8.1	9.9	11.2	13.2	14.7		12.5	9.9	8.3	
2001		6.5	6.4		9.9	12.1	13.9	15.0	14.3	13.6	10.3	7.2	
2002	6.5	6.7	6.6				14.2	15.5	14.4	12.5	10.0	7.8	
2003	6.6	5.7	6.9	7.5	10.0	11.4	13.8	15.1	15.3	12.2	10.4	8.3	10.3
2004	6.8	6.4	6.1	7.9	10.0	12.2	14.4	14.3	14.0			7.6	
Whole data set													
mean	5.9	5.4	5.9	6.9	8.9	11.0	13.0	13.9	13.4	11.7	9.3	7.2	
count	32	34	33	31	30	32	33	33	31	30	31	30	
sd	0.98	0.91	0.88	0.79	0.87	0.79	0.77	0.82	1.01	0.87	0.89	0.81	
1971 - 2000													
mean	5.8	5.3	5.8	6.8	8.8	10.9	12.8	13.8	13.3	11.6	9.2	7.2	
count	29	30	28	28	26	28	28	28	26	26	27	25	
sd	1.00	0.89	0.90	0.78	0.84	0.77	0.68	0.74	0.97	0.82	0.89	0.85	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Scarborough which are derived from simple averaging of all the monthly data.

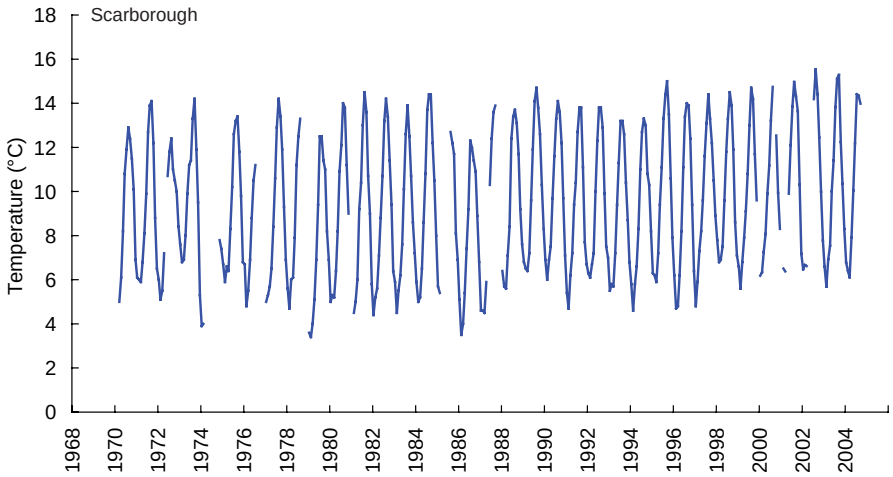


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

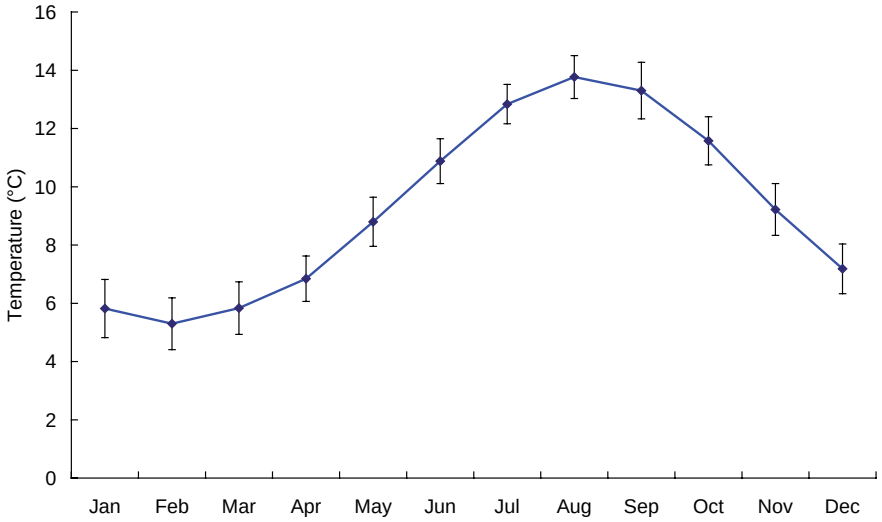


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

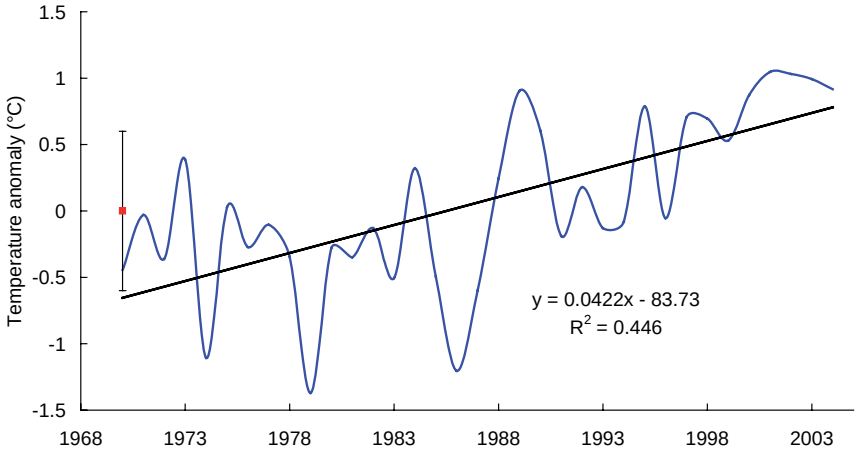


Table 7. Monthly mean sea temperature for Spurn Point at 53° 35' N, 0° 7' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	3.1	4.2	6.2	6.8	11.1	13.7	14.8	15.4	15.0	12.9	8.0	5.3	9.7
1967	3.9	5.4	6.3	7.1	10.0	13.8	16.5	15.9	14.4	11.5	7.8	4.8	9.8
1968	3.9	4.1	4.6	8.1	11.3	14.2	14.9	15.4	14.9	12.7	8.9	5.6	9.9
1969	4.8	2.6	3.0	6.9	9.5	13.2	15.7	16.4	14.0	13.2	7.8	4.7	9.3
1970	3.7	3.4	3.6	6.6	10.1	15.1	15.3	15.3	14.7	11.3	8.4	6.0	9.5
1971	4.4	4.8	5.5	7.7	11.0	13.3	16.1	16.4	15.7	12.6	7.5	6.0	10.1
1972	4.8	4.1	5.6	7.8	10.8	12.7	14.7	16.3	14.5	11.6	7.9	6.6	9.8
1973	5.5	5.1	5.9	6.8	10.2	14.9	16.3	16.9	15.6	11.4	6.1	3.7	9.9
1974	6.0	6.4	6.1	7.7	12.7	12.0		18.1	13.0				
1975				7.4	9.9	13.7	17.1	18.2	14.8	11.2	8.3	5.4	
1976	5.2	4.0	5.2	8.1	10.6	14.9	18.7	18.1	14.9	13.0	8.9	4.6	10.5
1977	3.5	4.7	6.4	7.7				15.9	14.5	12.7	7.7	5.8	
1978	4.6	3.4	6.1	7.4	10.7	14.1	15.0	16.5	14.8	11.6	9.9	6.6	10.1
1979	3.0	2.5	4.4	7.2	9.4	13.6	15.8	16.0	14.8	12.9	8.0	7.1	9.6
1980	4.3	5.8	6.1	7.7	11.5	14.1	15.4	16.4	15.5	11.6	7.9	5.3	10.1
1981	4.5	4.6	6.0	7.5	10.4	14.7	16.5	17.4	15.6	10.8	8.2	4.5	10.1
1982	3.4	4.9	5.7	8.4	11.5	14.6	16.2	16.6	14.9			5.2	
1983	4.9	3.6	5.0	6.7	9.4	13.3	16.7	18.3	14.5	11.3	7.8	5.7	9.8
1984	4.3	4.1	4.8	7.4	10.8	13.2	16.8	17.7	14.9	11.9	9.9	6.9	10.2
1985	2.9	2.4	4.5	7.6	8.8	13.3	16.2	15.4	14.5	12.5	7.1	6.1	9.3
1986	4.4	1.5	3.0	5.8	9.7	13.7	15.6	15.1	12.9	11.2	8.1	6.4	9.0
1987	3.3	3.5	4.4	7.4	10.9	13.6	15.4	15.3	14.9	12.0	8.8	5.8	9.6
1988	5.7	5.5	5.0	7.4	11.2	13.9	15.6	15.1	13.7	11.4	8.2	6.3	9.9
1989	6.3	5.9	6.6	7.5	11.1	14.7	17.5	17.3	15.4	12.7	9.1	6.3	10.9
1990	6.3	5.9		8.4	12.7	13.9	16.2	17.8	14.5	12.1	8.2	6.2	
1991	3.4	2.8	5.9	7.6	9.9	13.4	16.5	17.1	15.4	11.4	7.2	5.8	9.7
1992	5.4	5.0	6.5	7.8	12.0	15.5	17.1	16.5	13.7	10.4	7.3	5.9	10.3
1993	4.9	5.4	5.2	8.4	10.8	15.1	16.0	15.1	13.5	10.9	7.5	5.0	9.8
1994	4.0	3.9	5.2	7.7	11.0	14.3	17.9	17.2	14.0	11.0	10.2	7.7	10.3
1995	5.1	5.3	5.5	7.6	10.7	15.5	17.9	18.5	15.2		9.9	5.7	
1996	4.0	2.3	4.2	6.4	9.8	13.7	15.7	17.1	14.5	12.0	6.4	4.7	9.2
1997	2.6	4.6	7.5	9.1	10.6	14.4	16.4		15.4	12.4	9.1	7.2	
1998	5.5	5.9	7.2	8.3	11.5	14.1	15.5	16.3	15.0	11.7	7.3	5.5	10.3
1999	5.5	4.5	6.3	9.8	12.4	14.5	16.4	16.6	16.2	12.1	9.1	5.5	10.7
2000	4.5	5.4	7.1	7.9	11.8	13.8	15.3	16.9	15.6	13.0	8.6	6.7	10.6
2001	4.6	4.7	5.4	7.3	10.1	13.2	16.4	17.6	14.6	12.6	10.0	7.3	10.3
2002	4.6	6.3	6.5	8.6	11.1	14.9	16.3	18.2	16.7	10.9	9.4	6.8	10.8
2003	5.3	4.7	7.1	9.4	11.0	14.3		15.9	13.4	10.0	7.2	6.0	
2004				9.4	12.1	15.2	15.7	17.1	14.4	12.1	9.3	6.9	
Whole data set													
mean	4.5	4.4	5.5	7.7	10.8	14.1	16.2	16.7	14.7	11.8	8.3	5.9	
count	37	37	36	39	38	38	36	38	39	36	37	38	
sd	0.96	1.22	1.11	0.83	0.93	0.79	0.91	1.02	0.81	0.80	1.01	0.88	
1971 - 2000													
mean	4.6	4.4	5.6	7.7	10.8	14.0	16.3	16.8	14.7	11.8	8.2	5.9	
count	29	29	28	30	29	29	28	29	30	27	28	29	
sd	1.02	1.26	1.00	0.75	0.97	0.80	0.93	1.01	0.80	0.72	1.04	0.89	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Spurn Point which are derived from simple averaging of all the monthly data.

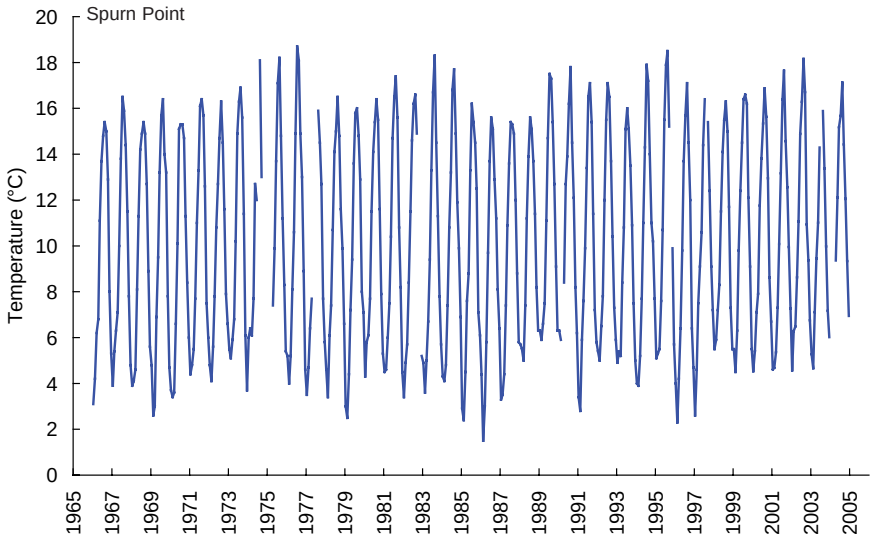


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

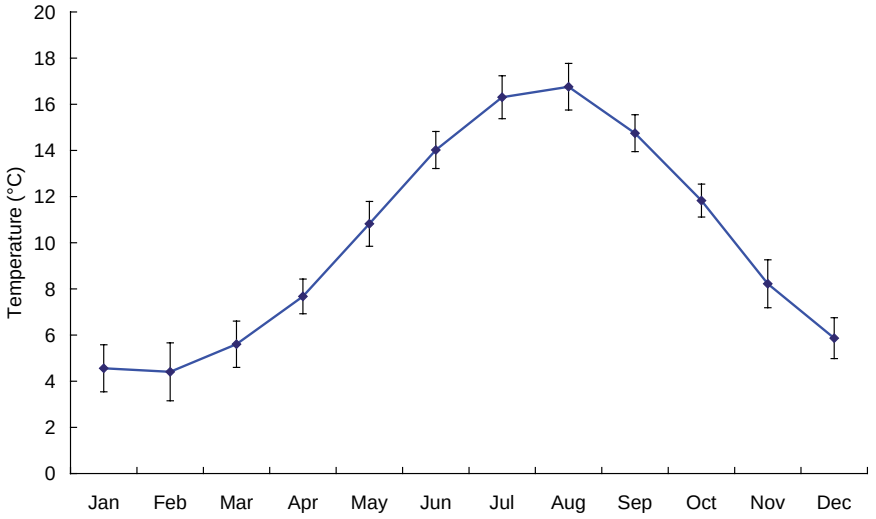


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

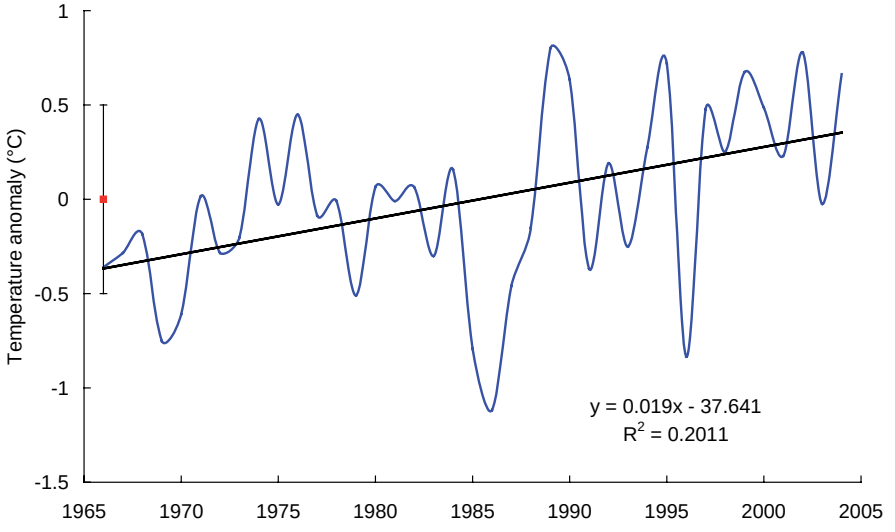


Table 8. Monthly mean sea temperature for Brancaster at 52° 58' N, 0° 38' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	2.7	4.4	5.7	7.1	12.9	16.1	16.5	16.4	15.6	12.7	7.8	5.1	10.3
1967	3.7	5.0	6.7	7.2	11.1	15.0	18.9	17.9	15.2	11.8	7.4	4.2	10.3
1968	3.5	3.5	4.9	8.4	11.0	15.7	16.5	16.2	15.2	12.7	8.4	5.1	10.1
1969	4.6	2.6	2.9	6.4	11.5	14.9	17.9	18.5	15.9	13.5	7.4	3.4	10.0
1970	3.8	2.5	4.3	7.4	11.7	16.1	16.2	17.3	14.7	11.7	7.6	5.4	9.9
1971	4.3	4.7	5.2	8.2	12.3	14.3	17.7	17.6	16.2	13.0	7.4	6.3	10.6
1972	4.6	3.9	5.9	8.7	12.0	14.3	16.4	16.6	14.5	11.6	7.6	6.0	10.2
1973	4.6	3.8	6.0	7.5	11.6	16.8	17.9	17.7	17.0	10.8	5.9	4.1	10.3
1974	4.9	5.2	6.0	8.0	12.1	15.2	16.4	17.6	13.8	9.5	6.8	5.9	10.1
1975	5.9	4.8	5.6	7.5	11.2	15.1	18.1	20.4	15.6	11.7	7.9	5.1	10.7
1976	5.4	3.8	5.0	8.6	12.0	17.6	20.3	19.2	16.0	12.9	8.0	3.7	11.0
1977	3.1	4.4	6.5	6.9	11.3	13.3	15.8	17.0	15.1	12.2	7.9	5.8	9.9
1978	3.4	2.2	5.6	6.6	10.7	15.1	15.7	16.8	14.4	12.3	9.8	4.9	9.8
1979	1.7	1.8	3.7	7.4	10.5	15.1	17.0	17.1	15.0	13.0	7.4	5.7	9.6
1980	2.9	5.0	5.3	8.6	11.5	15.6	14.8	17.5	15.7	10.4	7.9	4.8	10.0
1981	3.9	3.5	6.8	8.2	11.5	14.6	16.6	18.0	16.7	10.7	8.0	3.5	10.2
1982	2.3	4.4	5.5	8.4	12.7		18.8	17.6	15.4	11.1	8.3	5.2	
1983	4.5	2.5	5.5	7.6	10.9	15.6	18.0	19.7	13.9	11.0	7.4	5.4	10.2
1984	2.9	3.1	4.6	8.3	10.9	15.4	17.7	18.7	14.7	11.9	9.4	6.0	10.3
1985	2.9	2.1	4.1	8.7	11.1	13.9	18.1	15.9	15.4	11.4	6.4	6.2	9.7
1986	3.8	1.1	3.8	7.4	11.6	15.1	18.3	16.0	15.6	11.4	7.5	5.9	9.8
1987	1.3	3.0	4.6	8.5	11.7	14.7	16.9	16.8	15.4	11.1	8.1	6.1	9.9
1988	3.0	3.6	5.8		13.4	15.6	17.2	17.1	14.4	11.6	7.7	6.0	
1989	5.9	5.0	7.3	8.4	13.8	16.6	19.5	19.1	16.7	16.9	12.2	10.5	12.7
1990	9.5	11.2	11.7	13.1	19.9	20.2	23.0	23.4	19.7	16.2	12.3	9.4	15.8
1991	7.6	6.7	11.8	12.6	14.8	17.9	22.7	24.5	20.7	15.7	11.0	8.6	14.6
1992	8.5	8.9	11.1	12.3	17.9	21.4	22.0	21.8	18.4	13.8	10.5	8.6	14.6
1993	7.6	8.1	7.2	11.4	11.5	17.0	19.3	19.2		10.2	7.3	5.0	
1994	4.9	3.5	6.9	9.7	13.3	15.5	20.6					6.1	
1995	4.0	6.1	5.3	10.4	12.7	14.2	18.8	19.8	14.7	13.3	9.4	5.5	11.2
1996	4.2	1.7	3.7	8.6	11.5	14.9	16.4	17.4	14.7	12.3	8.1	3.5	9.8
1997	2.8	5.3	6.7	8.6	11.2	15.6	18.3	19.9	15.4	11.9	8.5	6.3	10.9
1998	5.4	6.5	7.4	9.2	12.3	15.4	16.6	18.4	14.8	11.7	6.4	5.3	10.8
1999	4.7	5.1	7.6	10.8	14.1	16.2	18.2	17.5	17.1	12.4	9.6	4.4	11.5
2000	4.5	5.2	7.8	9.5	11.5	17.1	18.0			11.3	7.4	5.4	
2001	4.1	4.6	5.5	8.4	12.6	16.1	17.8	18.2	13.8	13.2	8.8	5.7	10.7
2002	4.9	6.1	7.1	8.7	12.2	15.4	16.5	19.9	15.6	11.4	8.2	6.2	11.0
2003	5.0	3.3	6.9	9.1	13.4	17.4	18.4	19.9	16.9	11.5	9.2	5.7	11.4
2004	4.4	5.4	6.0	9.1	11.9	18.1	18.0	19.2	16.7	11.6	8.9	6.2	11.3
Whole data set													
mean	4.4	4.5	6.2	8.7	12.4	15.9	18.0	18.4	15.7	12.2	8.3	5.7	
count	39	39	39	38	39	38	39	37	36	38	38	39	
sd	1.72	2.02	1.97	1.58	1.84	1.61	1.82	1.91	1.50	1.53	1.43	1.49	
1971 - 2000													
mean	4.5	4.5	6.3	9.0	12.5	15.8	18.2	18.5	15.8	12.2	8.3	5.8	
count	30	30	30	29	30	29	30	28	27	29	29	30	
sd	1.91	2.21	2.10	1.68	2.05	1.76	1.99	2.07	1.65	1.71	1.60	1.61	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Brancaster which are derived from simple averaging of all the monthly data.

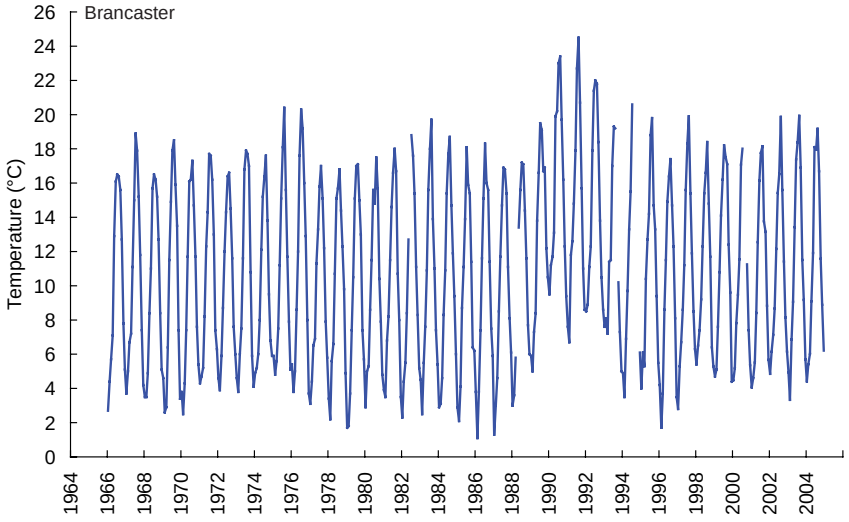


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

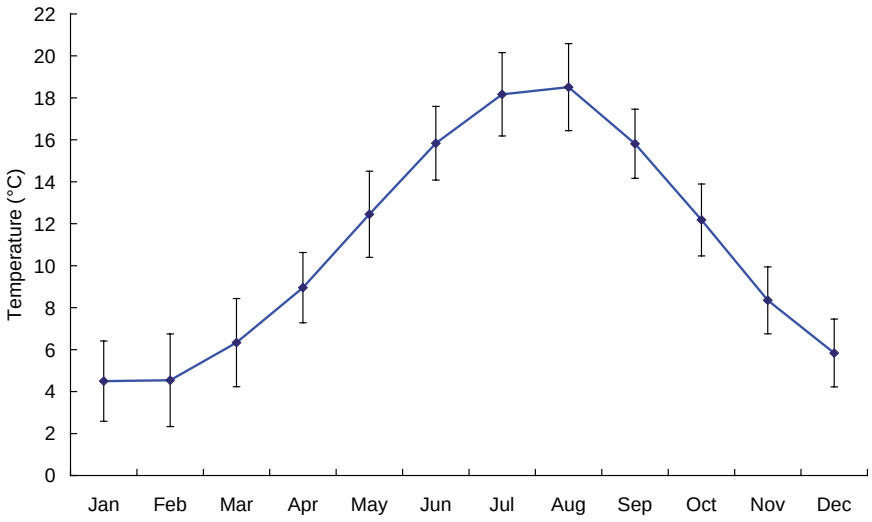


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

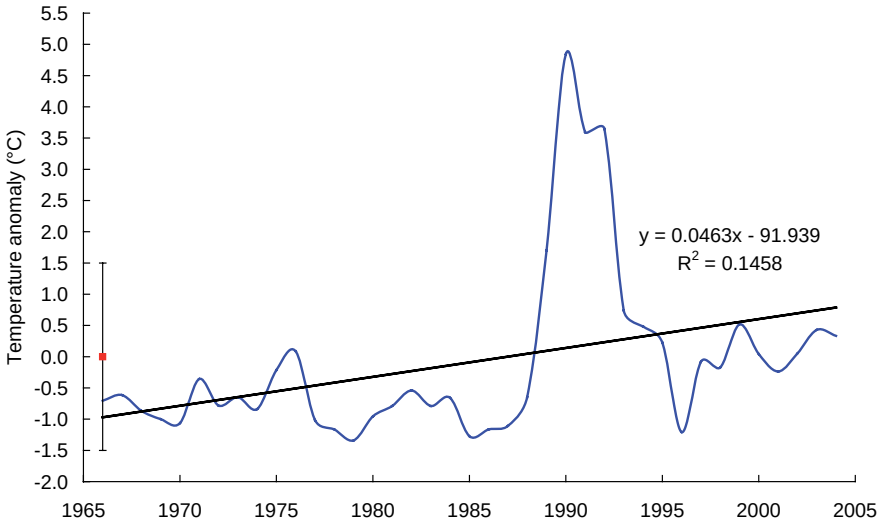


Table 9. Monthly mean sea temperature for Blakeney at 52° 58' N, 1° 0' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	3.2	5.5	5.9	7.0	12.5	16.4	17.0	16.9	15.5	12.3	7.2	4.9	10.4
1967	6.9	6.9	8.1	8.5	10.6	13.6	16.2	17.9	15.6	12.1	7.6	4.6	10.7
1968	4.2	3.4	4.7	8.7	11.6	15.5	16.4	15.3	14.6	12.3	7.3	6.0	10.0
1969	5.7	2.7	4.3	6.5	11.1	14.4	17.6	18.0	15.5	11.7	7.6	4.2	9.9
1970	4.8	3.9	4.6	5.9	12.1	16.5	16.7	17.1	14.5	11.8	8.6	6.9	10.3
1971	5.0	5.6	5.6	8.1	11.7	15.0	17.7	17.4	16.1	13.4	9.6	7.9	11.1
1972	6.3	3.7	6.4	9.1	10.9	14.4	16.7	17.7	15.9	14.2	11.7	6.4	11.1
1973	5.4	5.1	6.6	7.3	11.9	14.9	17.3	18.3	16.9	10.8	8.0	4.4	10.6
1974	5.1	4.9	6.4	8.2	11.0	13.9	16.4	17.3	14.9	9.5	5.9	5.3	9.9
1975	6.2	5.8	5.0	7.5	10.4	13.7	17.8	19.1	16.7	12.0	8.7	6.6	10.8
1976	5.5	3.6	5.3	7.8	11.1	16.4	18.6	18.3	15.9	13.5	8.7	4.6	10.8
1977	4.6	5.2	7.1	8.0	11.4	12.6	14.8	17.1	14.8	13.6	10.3	7.6	10.6
1978	5.8	5.0	7.9	8.2	11.1	14.9	15.7	16.6	14.4				
1979	2.5	2.9	5.1	7.6	11.8	14.1	16.8		13.4	13.1	8.1	6.0	
1980	3.8	6.2	6.4	8.1	11.6	15.6	15.9	17.6	16.0	10.9	6.7	4.8	10.3
1981	4.9	4.7	7.7	8.0	10.4	14.6	15.9	17.6	15.6	8.4	8.5	3.3	10.0
1982	3.5	4.9	7.0	9.2	11.9	16.8	17.0	17.7	15.3	12.2	8.7	4.6	10.7
1983	5.5	3.3	5.2	8.2	11.3	14.8	18.4	19.2	14.7	11.3	8.6	6.0	10.5
1984	4.1	4.1	4.6	9.3	10.8	14.3	18.0	18.3	14.5	12.3	9.6	5.9	10.5
1985	2.3	2.2	5.4	9.8	12.0	14.5	18.0	16.3	14.5	13.1	6.3	6.1	10.0
1986	3.5	1.8	6.0	6.5	12.2	14.3	18.4	16.3	13.7	11.8	8.4	6.0	9.9
1987	2.1	4.5	5.5	10.4	11.1	15.1	18.0	17.2	15.4	11.8	7.9	6.7	10.5
1988	5.4	4.7	6.3	9.5	13.0	15.3	16.9	17.8	14.5	11.8	7.0	6.3	10.7
1989	5.7	4.9	7.8	7.7	14.5	17.4	19.5	17.7	16.5	12.5	7.4	6.4	11.5
1990	5.8	6.0	7.7	9.2	15.0	16.1	19.0	18.7	14.7	12.5	7.9	5.4	11.5
1991	3.8	3.4	7.9	9.4	12.4	14.0	18.5	19.6	16.6	11.6	7.6	4.7	10.8
1992	4.9	5.5	7.3	9.2	14.9	18.2	18.8	17.7	14.3	9.4	7.0	5.5	11.1
1993	5.3	5.7	6.4	11.2	13.4	17.5	18.3	17.2	14.7	11.0	6.5	5.1	11.0
1994	5.0	4.2	7.7	8.8	13.0	15.8	19.9	18.7	14.2	10.8	9.5	6.4	11.2
1995	4.7	6.2	6.2	11.1	13.4	14.8	19.4	19.8	16.2	13.3	8.8	5.0	11.6
1996	4.4	2.4	4.4	7.7	11.3	16.3	17.4	17.1	14.8	12.2	6.9	4.2	9.9
1997	3.0	5.3	7.6	9.8	13.7	15.7	18.2	19.0	15.9	11.4	8.8	6.7	11.3
1998	5.3	6.7	7.5	9.6	13.8	15.8	16.6	18.2	15.7	11.4	6.1	5.4	11.0
1999	5.9	4.8	7.6	10.9	14.9	15.6	19.1	17.3	16.9	12.0	8.6	4.9	11.5
2000	4.4	5.7	7.6	9.0	13.9	17.1	16.1	19.2	17.3	11.4	7.4	7.2	11.4
2001	4.3	5.5	6.0	8.8	12.8	15.4	18.3	18.9	14.8	13.2	7.6	5.1	10.9
2002	4.1	6.9	7.7	10.7	13.6	15.9	17.7	19.2	16.8	12.1	9.0	6.4	11.7
2003	4.6	5.4	8.0	10.0	13.8	17.8	18.0	19.5	16.6	10.6	9.2	5.8	11.6
2004	5.7	6.3	7.7	11.1	13.9	16.9	17.1	18.6	15.2	11.9	8.4	5.8	11.6
Whole data set													
mean	4.7	4.8	6.5	8.8	12.4	15.4	17.5	17.9	15.4	11.9	8.1	5.7	
count	39	39	39	39	39	39	39	38	39	38	38	38	
sd	1.13	1.31	1.20	1.33	1.35	1.27	1.17	1.02	0.97	1.19	1.20	1.01	
1971 - 2000													
mean	4.7	4.6	6.5	8.8	12.3	15.3	17.6	17.9	15.4	11.8	8.1	5.7	
count	30	30	30	30	30	30	30	29	30	29	29	29	
sd	1.15	1.25	1.09	1.17	1.41	1.27	1.27	0.94	1.02	1.32	1.32	1.06	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Blakeney which are derived from simple averaging of all the monthly data.

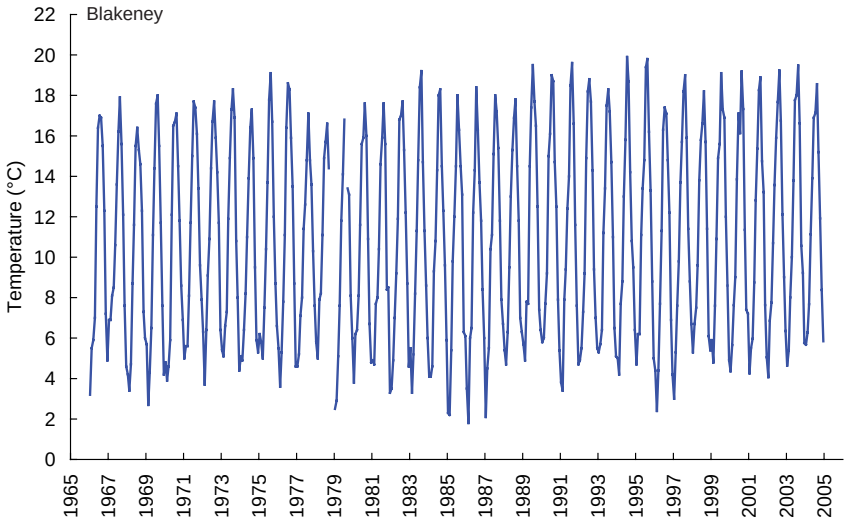


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

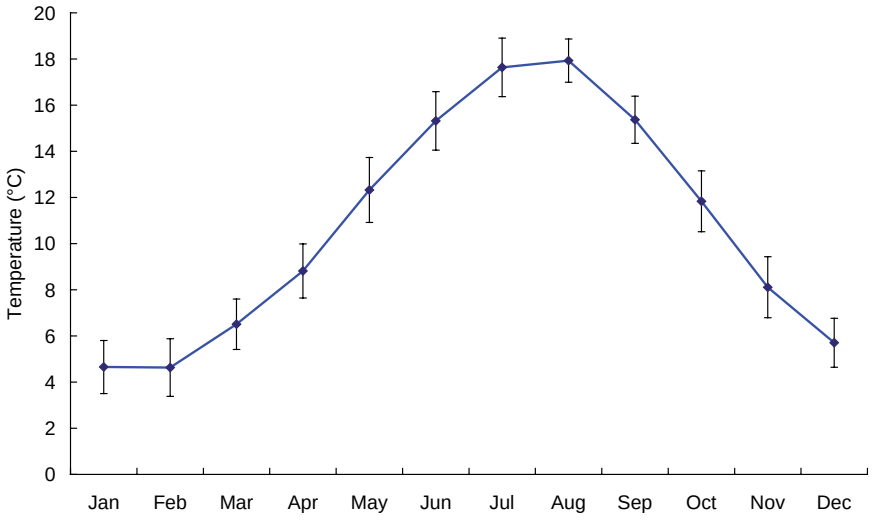


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

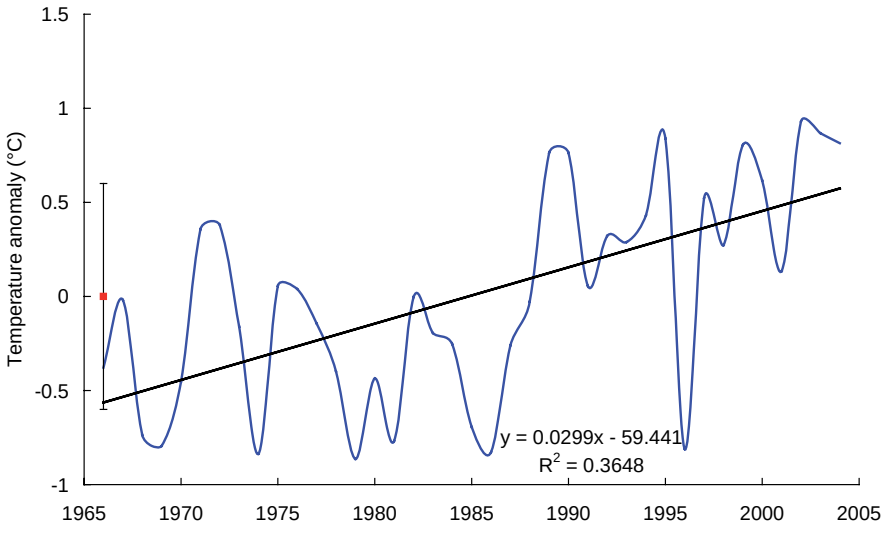


Table 10. Monthly mean sea temperature for Cromer at 52° 56' N, 1° 18' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	3.1	3.8	6.2	6.9	10.5	13.4	15.9	16.4	15.4	12.2	7.6	5.9	9.8
1967	4.6	5.3	6.4	7.4	11.0	14.6	17.3	18.3	15.6	12.3	7.7	4.7	10.4
1968	3.6	3.7	4.9	7.7	10.9	15.1	16.1	15.7	15.2	13.1	8.3	5.0	9.9
1969	5.3	3.6	3.4	6.1	10.7	14.8	16.4	16.6	15.7	13.3	7.9	4.1	9.8
1970	3.5	4.0	3.9	5.9	11.6	15.7	17.4	18.9	13.9	13.5	9.3	6.6	10.4
1971	4.4	5.1	5.5	8.6	12.7	14.4	17.3	17.3	15.1	14.3	7.9	5.9	10.7
1972	4.0	3.5	6.9	8.7	10.7	13.4	16.0	16.6	14.6	12.0	9.9	9.2	10.5
1973	7.0	6.9	7.3	7.0	10.9	15.8	17.6	17.1	15.6	11.7	7.4	4.3	10.7
1974	4.4	5.7	6.6	7.4	10.9	15.4	16.5	17.5	14.8	9.9	7.3	5.4	10.2
1975	6.2	5.2	5.4	6.7	9.6	15.6	17.8	19.9	12.7	12.1	8.3	5.1	10.4
1976	3.7	5.3	4.6	6.3	10.8	17.3	19.1	19.2	16.5	13.7	7.5	4.2	10.7
1977	3.0	4.3	5.7	7.0	11.1	13.2	15.2	16.5	14.9	12.4	9.9	6.4	10.0
1978	4.5	3.2	5.1	6.9	10.7	15.4	16.1	15.8	14.3	14.2	9.0	7.8	10.3
1979	2.7	2.5	4.5	5.6	9.3	15.8	19.0	17.5	14.5	13.5	8.7		
1980		4.4	5.6	9.4	9.3	15.8	16.5	19.5	17.2	16.8	7.7	5.7	
1981	3.7	4.5	6.4	8.7	10.6	16.6	17.0	18.1	16.5	10.7	7.3	4.7	10.4
1982	3.1	4.3	5.6	8.0	10.6	16.3	17.4	16.6	14.3	12.2	9.3	6.4	10.3
1983	7.2	4.9	5.4	7.3	10.4	15.0	17.8	18.0	13.8	11.1	7.6	5.2	10.3
1984	3.9	3.2	4.7		10.3	13.1	16.8	17.2	16.2	14.4	10.7	5.3	
1985	2.8	1.9	4.4	7.5	9.7	13.2	16.1	15.7	16.5	14.5	7.7	6.9	9.7
1986	3.8	3.3	5.0	6.6	10.8	13.6	16.7	17.3	14.1	11.7	8.2	6.3	9.8
1987	3.9	2.5	3.2	6.3	10.5	13.5	16.6	16.2	15.7	12.8	10.0	9.5	10.1
1988	7.2	5.4	5.4	8.0	11.8	14.9	15.6	16.4	14.0	10.6	7.8	6.2	10.3
1989	5.2	5.7	6.6	7.2	12.2	15.3	18.6	18.4	16.3	13.3	9.7	6.9	11.3
1990	5.9	6.1	7.5	10.8	13.8	15.0	17.3	19.3	17.0	11.4	7.7	5.2	11.4
1991	3.7	3.5	6.3	8.7	10.1	13.3	16.7	19.2	16.8	11.3	7.5	6.3	10.3
1992	5.8	4.8	6.3	8.1	12.5	16.4	17.7	17.1	13.3	9.1	7.4	5.3	10.3
1993	4.4	4.5	5.6	8.2	11.9	15.5	16.8	16.8	13.6	10.3	8.3	5.0	10.1
1994	4.1	3.7	4.1	7.9	12.2	14.1	18.6	19.5	15.9	11.5	9.6	6.7	10.7
1995	4.6	5.3	5.4	8.2	11.8	14.7	17.7	19.3	15.1	13.4	10.4	6.2	11.0
1996	3.2	1.9	2.9	6.4	9.8	13.8	15.3	17.5	15.8	12.1	7.6	4.2	9.2
1997	3.5	4.2	7.8	9.8	12.5	16.3	17.9	18.1	16.8	13.1	9.4	7.4	11.4
1998	5.2	5.5	7.8	10.0	13.4	16.3	17.2	16.5	15.2	12.4	7.2	5.6	11.0
1999	5.2	5.5	7.3	10.7	13.8	15.9	18.2	19.2	15.7	11.5	9.0	6.0	11.5
2000	4.7	5.4	6.6	9.7	12.8	15.0	17.2	17.3	15.6	11.0	8.1	5.4	10.7
2001	3.9	4.0	5.5	8.1	11.2	14.1	16.2	17.4	14.2	11.2	9.8	6.1	10.1
2002	5.8	6.7	7.5		11.1	14.4	16.6	17.4	15.7	10.1	7.2	5.1	
2003	5.2	6.1	6.8	9.1	11.2	16.1	18.2	19.7	16.2	12.1			
2004	5.2	5.9	6.5	8.1	10.0	11.6	14.9	17.9	16.0	12.3	7.9	5.0	10.1
Whole data set													
mean	4.5	4.5	5.7	7.9	11.2	14.9	17.0	17.7	15.3	12.3	8.4	5.9	
count	38	39	39	37	39	39	39	39	39	39	38	37	
sd	1.20	1.24	1.26	1.31	1.16	1.23	1.03	1.22	1.10	1.50	1.03	1.23	
1971 - 2000													
mean	4.5	4.4	5.7	8.0	11.2	15.0	17.1	17.7	15.3	12.3	8.5	6.0	
count	29	30	30	29	30	30	30	30	30	30	30	29	
sd	1.27	1.26	1.25	1.36	1.29	1.19	1.01	1.22	1.19	1.62	1.07	1.29	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Cromer which are derived from simple averaging of all the monthly data.

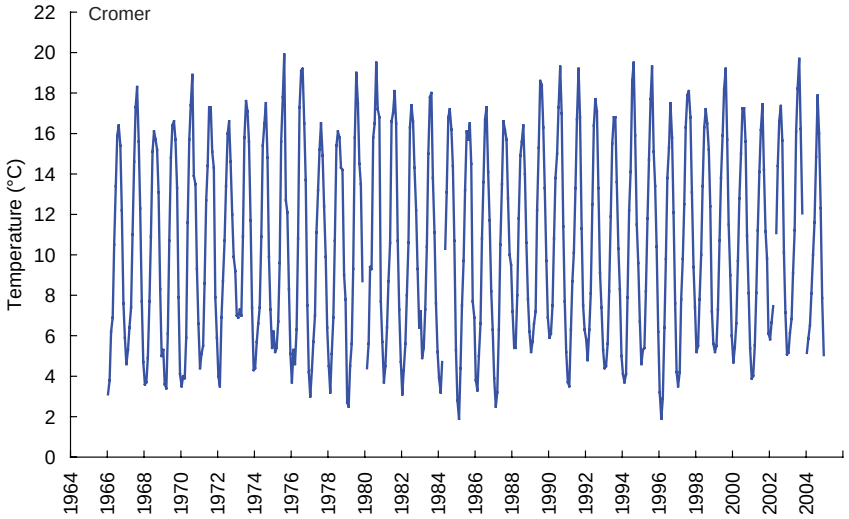


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

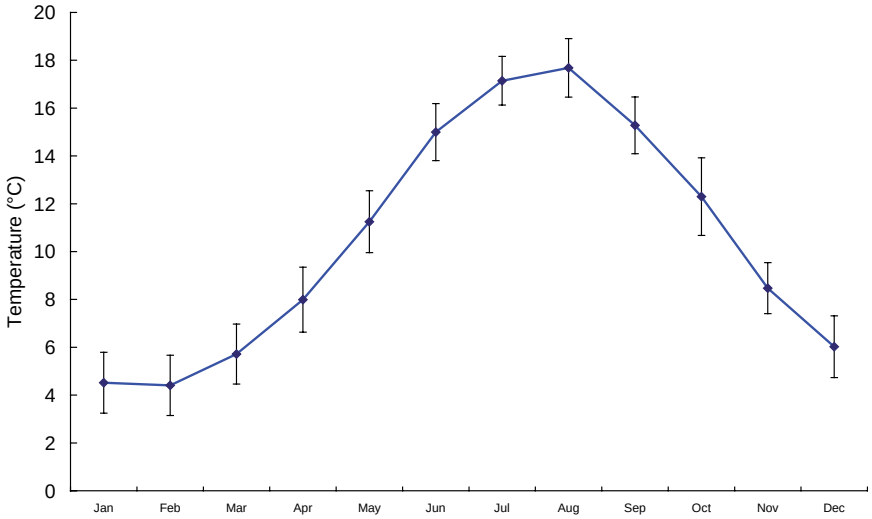


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

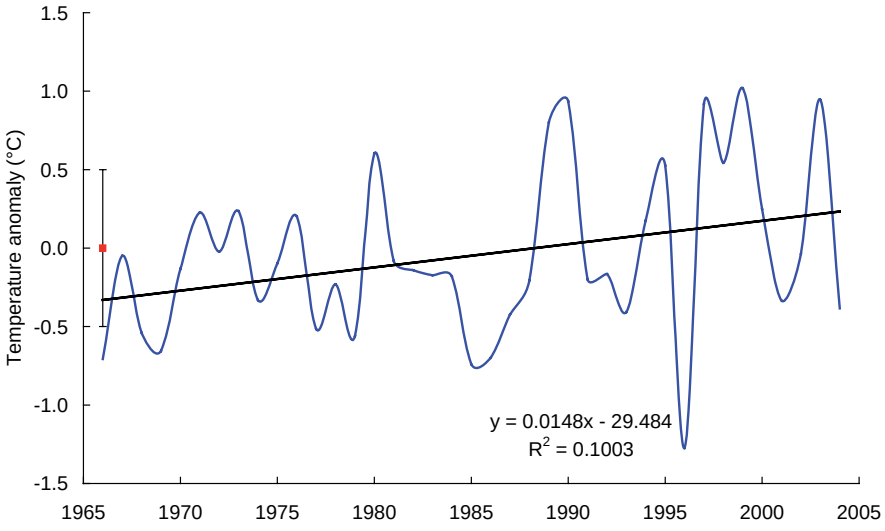


Table 11. Monthly mean sea temperature for Lowestoft at 52° 27' N, 1° 45' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	3.2	4.1	5.6	6.8	10.5	14.7	16.2	16.4	16.0	14.2	8.6	5.6	10.2
1967	4.0	4.7	6.3	7.6	11.6	14.7	17.8	18.4	16.1	13.9			
1968		3.7	4.1										
1969					10.5	13.9	17.8	18.6	16.5	14.3	8.7	4.8	
1970	3.0	3.4	4.9	5.2	11.3	14.7							
1971	4.5	5.3	5.5	8.0	12.3	14.9	18.0	18.5	17.4	13.8	8.4	6.6	11.1
1972	5.3	4.7	6.4	8.3	11.7	14.0	16.9	17.1	15.1	11.8	8.7	6.6	10.6
1973	4.4	4.7	6.2	7.7	11.8	16.0	18.2	18.7	18.0	12.1	8.0	4.5	10.9
1974	4.7	6.4	6.4	8.8	12.0	15.2	16.3	17.6	15.6	10.5	8.1	6.6	10.7
1975	6.5	5.6	5.9	7.5	10.7	14.9	17.8	20.5	17.5	12.6	9.0	5.9	11.2
1976	5.8	4.1	5.0	8.3	12.1	16.8	20.5	19.8	16.5	14.5	9.8	5.4	11.6
1977	4.1	5.1	6.9	7.6	11.2	13.9	16.0	17.1	15.8	13.6	9.4	6.5	10.6
1978	4.3	3.0	5.4	7.4	10.7	14.5	15.7	17.1	15.7				
1979	2.2	2.2	4.3	7.4	10.7	15.0	17.1	17.6	16.2	13.7	9.0	7.0	10.2
1980	4.0	5.2	5.7	8.4	11.6	15.6	16.0	17.8	16.6	12.4	8.2	5.6	10.6
1981	4.3	4.2	6.3	8.5	11.6	15.0	16.7	17.8	17.2	12.0	8.8	4.0	10.5
1982	3.1	4.4	6.2	8.8	12.6	16.2	18.0	18.4	17.1	13.4	10.3	6.3	11.2
1983	5.7	3.9	6.2	7.9	12.1	14.9	18.8	19.2	16.0	13.2	9.3	6.5	11.1
1984	4.7	4.3	5.7	8.1	11.3	14.3	16.8	19.0	16.4	13.5	10.8	7.5	11.0
1985	3.1	2.8	5.0	7.8	10.5	13.6	17.5	17.2	16.2	14.1	7.8	6.6	10.2
1986	4.2	1.9	3.7	6.4	11.8	15.5	18.4	17.3	14.6	13.0	9.6	7.1	10.3
1987	3.4	3.5	3.8	8.3	11.4	14.2	17.8	17.4	16.1	12.9	9.5	6.5	10.4
1988	6.3	5.3	5.7	8.2	12.7	15.0	16.7	17.7	15.5	12.8	8.5	6.7	10.9
1989	6.0	5.8	7.0	8.0	13.0	16.0	19.0	18.9	17.3	13.8	9.6	6.9	11.8
1990	6.7	6.9	7.7	9.3	13.7	15.6	17.8	19.4	15.8	13.2	9.4	6.0	11.8
1991	4.6	2.6	6.4	8.9	11.2	13.6	17.9	19.4	17.3	12.9	8.7	5.8	10.8
1992	4.8	4.9	6.5	8.6	13.3	16.8	18.1						
mean	4.5	4.3	5.7	7.9	11.7	15.0	17.5	18.2	16.4	13.1	9.0	6.1	
count	25	26	26	25	26	26	25	24	24	23	22	22	
sd	1.18	1.24	0.99	0.86	0.87	0.89	1.10	1.02	0.83	0.95	0.75	0.87	

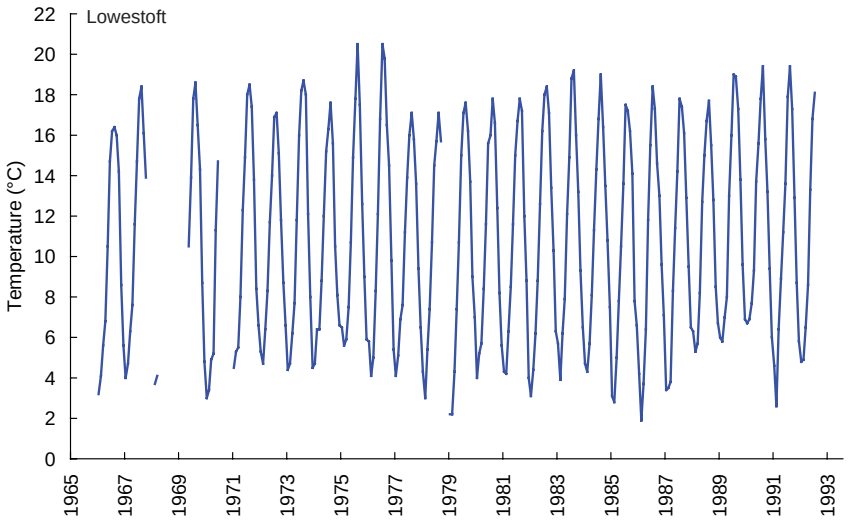


Figure (a). Monthly mean surface temperature for the entire duration of the record at Lowestoft which are derived from simple averaging of all the monthly data.

Table 12. Monthly mean sea temperature for Southwold at 52° 19' N, 1° 41' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	3.1	4.5	5.5	6.8	10.9	15.1	16.1	16.7	16.3	14.0	8.5	5.7	10.3
1967	3.6	5.2	6.5	7.5	11.6	14.5	17.7	18.2	16.4	13.7	8.9	5.5	10.8
1968	3.8	3.7	5.0	7.9	11.2	14.8	16.3	16.2	16.3	14.3	10.0	6.1	10.5
1969	4.8	3.7	3.4	6.3	10.8	14.5	17.0	19.4	16.3	14.5	9.3	5.0	10.4
1970	4.0	3.7	3.6	5.7	10.0	14.8	16.5	17.4	16.3	13.1	9.8	7.0	10.2
1971	4.7	5.0	4.7	7.4	11.5	13.7	16.7	17.9	16.7	13.8	9.2	6.7	10.7
1972	5.8	4.6	5.5	7.9	10.9	13.5	16.2	16.7	15.1	12.0	9.0	7.1	10.4
1973	5.5	4.7	5.9	7.3	11.0	16.2	17.8	18.2	16.9	12.0	8.4	5.0	10.7
1974	5.2	6.4	5.9	7.9	11.1	14.6	15.8	17.3	15.8	10.7	7.8	7.1	10.5
1975	6.4	5.4	5.7	5.9	9.0	14.9	16.2	18.6	16.3	12.9	8.3	5.9	10.5
1976	5.8	4.2	4.7	6.5	11.1	15.8	18.8	18.5	16.0	13.6	9.4	5.6	10.8
1977	5.1	5.3	7.0	7.8	11.4	14.0	15.0	16.3	15.2	13.2	9.2	7.1	10.6
1978	4.1	3.0	5.2	6.6	10.7	14.2	15.1	16.6	14.5	13.5	11.2	5.6	10.0
1979	2.2	2.2	4.4	6.7	10.5	15.0	16.9	17.1	15.0	13.3	8.5	7.2	9.9
1980	4.2	5.4	5.7	8.1	11.0	14.9	15.4	16.8	16.3	12.4	8.6	5.5	10.4
1981	4.0	4.6	5.7	7.7	11.0	14.3	16.5	17.3	16.8	12.4	9.7	4.5	10.4
1982	3.3	4.2	5.4	7.4	11.5	16.3	18.0	17.5	16.1	13.3	10.4	5.5	10.7
1983	5.4	3.8	4.9	6.6	11.1	14.1	18.5	18.6	14.9	13.0	10.3	6.0	10.6
1984	5.2	4.3	5.0	7.4	10.3	13.8	16.3	18.5	16.0	13.1	10.7	7.9	10.7
1985	3.1	3.6	3.9	7.5	9.8	13.2	16.9	16.7	15.9	14.1	7.8	6.7	9.9
1986	4.5	1.6	3.6	6.3	11.0	14.1	17.2	16.8	14.0	13.1	9.7	7.1	9.9
1987	3.3	3.7	3.7	7.5	10.3	13.4	16.5	16.3	15.7	12.9	9.8	6.5	10.0
1988	6.6	5.4	5.7	7.9	11.9	14.4	16.5	17.1	15.5	12.9	8.7	6.8	10.8
1989	6.4	6.2	7.2	7.7	12.0	15.0	18.0	18.7	17.2	13.9	10.1	7.3	11.6
1990	7.0	7.0	7.7	9.1	13.2	15.2	17.4	19.0	16.3	13.4	9.2	6.0	11.7
1991	5.2	2.6	6.3	8.4	10.6	13.3	17.2	19.0	17.3	13.0	9.1	6.3	10.7
1992	5.9	5.3	6.8	8.3	12.8	16.4	18.4	18.3	15.3	11.5	8.7	6.8	11.2
1993	5.9	5.5	6.2	9.3	12.1	15.6	17.1	17.2	15.4	12.3	8.5	6.1	10.9
1994	5.3	4.1	6.0	8.1	11.6	14.9	18.8	18.8	15.4	12.5	11.2	8.7	11.3
1995	5.2	6.3	7.4	8.9	12.1	14.2	18.7	19.9	16.8	15.0	11.4	6.4	11.9
1996	5.2	3.3	4.4	7.3	10.3	14.7	16.7	18.2	15.5	13.7	9.6	5.7	10.4
1997	3.2	5.9	7.9	9.4	12.6	15.6	17.9	20.4	17.3	13.1	10.4	7.7	11.8
1998	6.4	6.1	7.9	9.7	13.3	15.6	17.0	18.1	16.3	13.3	8.9	6.1	11.6
1999	6.6	4.7	6.4	9.4	13.5	16.0	18.9	18.7	18.3	13.8	10.0	6.4	11.9
2000	5.6	5.9	7.1	9.1	12.7	15.9	16.1	18.4	17.4	13.7	9.8	6.1	11.5
2001	5.3	5.6	5.4	7.9	11.3	14.7	17.9	18.9	15.5	15.0	10.0	6.8	11.2
2002	5.6	7.4	7.7	9.6	12.1	15.8	17.3	19.3	16.9	13.3	11.0	7.7	12.0
2003	6.4	4.9	7.0	9.9	13.4	17.0	19.5	20.5	17.8	12.2	10.5	8.2	12.3
2004	5.8	7.5	7.7	10.2	12.1	15.8	17.3	19.3	17.1	13.4	10.0	7.0	11.9
Whole data set													
mean	5.0	4.8	5.8	7.9	11.4	14.9	17.1	18.0	16.2	13.2	9.5	6.5	
count	39	39	39	39	39	39	39	39	39	39	39	39	
sd	1.18	1.34	1.30	1.15	1.03	0.94	1.09	1.14	0.92	0.88	0.93	0.92	
1971 - 2000													
mean	5.1	4.7	5.8	7.8	11.4	14.8	17.1	17.9	16.0	13.0	9.5	6.4	
count	30	30	30	30	30	30	30	30	30	30	30	30	
sd	1.20	1.31	1.22	1.00	1.07	0.95	1.11	1.05	0.96	0.84	0.97	0.89	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Southwold which are derived from simple averaging of all the monthly data.

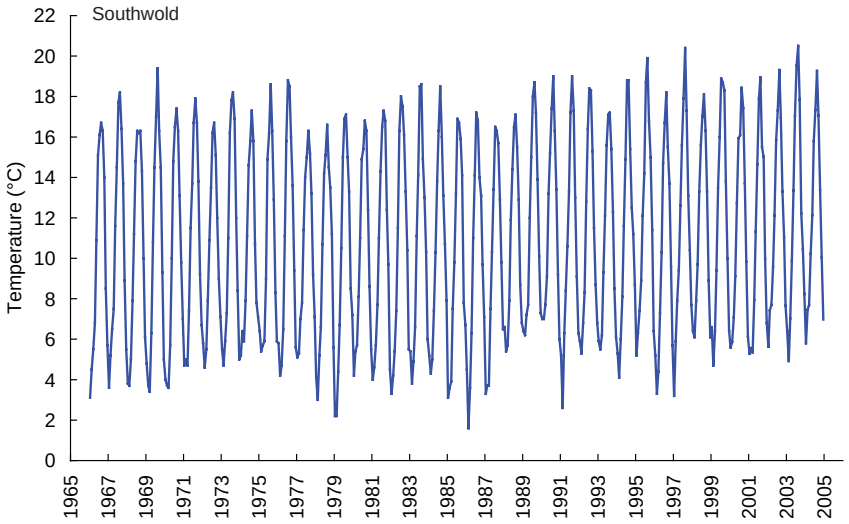


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

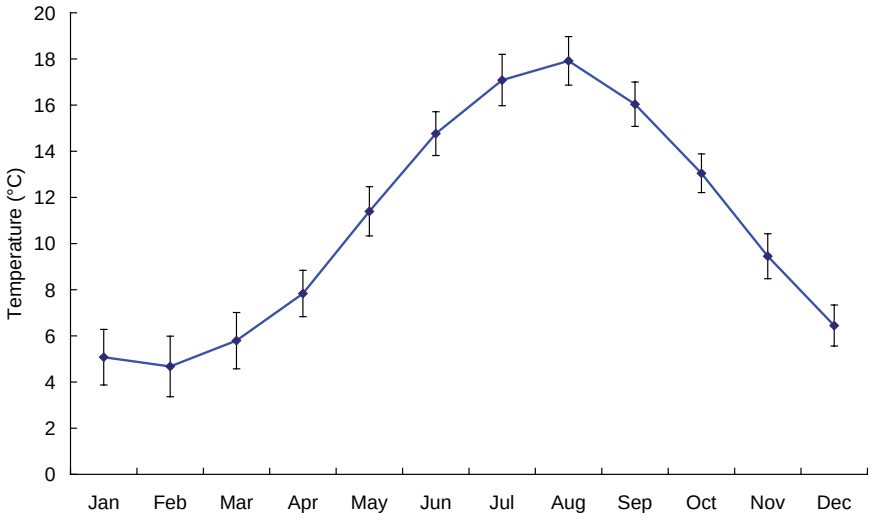


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

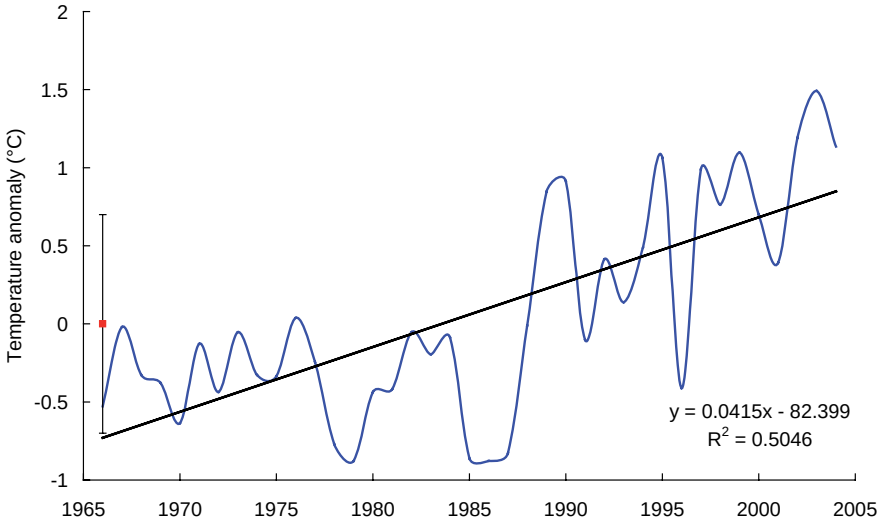


Table 13. Monthly mean sea temperature for Sizewell Power Station at 52° 13' N, 1° 38' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1967	4.0	4.7	5.2	7.0	10.0	13.5	16.0	17.0	16.0	13.5	8.3	5.6	10.1
1968	3.2	3.1	4.3	7.9	10.7	14.7	16.5	16.5	16.4	14.4	9.5	6.7	10.3
1969	4.3	3.0	3.0	6.5	11.0	14.2	17.0	17.0	16.3	15.2	10.1	5.5	10.3
1970	4.5	4.3	4.1	6.0	10.5	15.5	16.5	17.6	15.8	14.0	10.4	7.2	10.5
1971	5.5	5.6	5.7	8.5	12.0	15.6	18.3	18.7	17.6	14.2	10.0	7.1	11.6
1972	5.6	4.9	6.2	9.0	11.2	13.9	17.0	17.7	15.6	12.8	9.8	6.8	10.9
1973	6.3	6.0	6.0	7.4	10.3	15.4	18.0	18.0	17.9	13.6	9.5	4.9	11.1
1974	5.1	6.9	6.3	8.4	10.7	14.1	15.9	17.0	15.7	12.2	8.4	6.9	10.6
1975	5.9	6.2	6.1	7.0	9.9	13.2	17.4	19.5	18.4	14.1	10.9	7.3	11.3
1976	7.0	4.7	5.6	8.1	11.1	14.7	19.9	19.6	18.0	15.5	12.1	7.3	12.0
1977	4.7	5.5	7.2	7.9	11.3	14.0	16.7	17.6	16.4	14.2	10.6	7.0	11.1
1978	5.1	3.7	5.6	7.2	10.0	13.9	16.1	17.8	16.6	14.0	12.4	7.4	10.8
1979	4.0	3.0	4.3	7.0	9.8	14.9	17.2	18.0	17.2	14.4	10.7	8.2	10.7
1980	5.1	5.8	6.1	7.6	10.8	14.3	15.8	18.1	17.1	13.9	9.5	6.4	10.9
1981	5.1	5.0	5.5	8.1	9.9	14.1	16.0	17.7	17.6	13.5	10.5	6.4	10.8
1982	3.1	4.3	5.8	8.0	11.0	15.7	17.8	18.5	16.9	14.2	11.4	7.5	11.2
1983	6.4	3.9	5.4	7.2	11.2	14.6	18.8	19.3	16.9	14.0	10.3	7.3	11.3
1984	5.6	4.5	4.6	7.1	10.0	11.1	16.7	18.6	16.8	13.5	11.6	8.7	10.7
1985	3.8	2.8	4.0	7.6	9.3	13.1	16.6	16.8	16.4	15.5	9.9	7.2	10.3
1986	5.0	2.8	2.9	5.6	10.4	14.0	17.6	17.9	15.4	14.0	10.2	7.7	10.3
1987	4.4	4.0	4.0	7.5	10.1	13.0	17.1	16.8	17.1	14.1	11.7	7.5	10.6
1988	6.7	5.6	5.5	7.9	12.1	14.8	16.9	17.9	16.4	13.6	10.2	7.4	11.3
1989	7.0	6.5	6.9	8.1	12.3	15.5	18.8	19.2	17.9	14.9	11.6	8.0	12.2
1990	7.6	7.4	8.2	9.3	13.3	15.2	17.8	19.4	19.7	14.3	11.3	7.3	12.6
1991	5.6	3.4	6.2	8.7	10.1	13.8	17.4	19.6	18.7	14.3	10.3	7.4	11.3
1992	6.3	5.5	6.8	8.6	11.9	16.6	18.5	19.6	16.5	13.2	9.5	7.4	11.7
1993	6.1	6.0	6.2	9.4	13.3	16.4	17.9	18.1	16.5	12.2	8.7	6.3	11.4
1994	5.8	4.8	6.1	8.1	11.7	15.0	19.4	19.6	16.5	13.4	12.1	9.7	11.9
1995	5.8	6.4	6.7	8.9	12.0	14.9	19.4	21.9	18.6	16.5	13.1	8.0	12.7
1996	5.7	3.7	4.7	7.4	9.9	14.7	17.1	18.4	16.7	14.8	11.4	7.0	11.0
1997													
1998	7.4	6.4	8.0	10.0	12.8	15.4	17.7	19.0	17.6	14.7	11.2	7.9	12.3
1999	7.3	6.6	8.3	9.8	13.2	17.0	20.1	20.7	20.1	17.1	13.2	9.1	13.5
2000	6.7	6.9	8.5	10.5	14.1	17.6	18.6	20.3	19.6	15.7	12.1	10.5	13.4
2001	7.5	7.8	7.3	8.9	10.2	15.4	19.6	21.1	18.9	17.0	13.4	9.8	13.1
2002	5.4	6.8	7.5	11.3	13.0	17.6	19.1	21.6	20.4	16.3	13.0		
2003	7.9	6.7	8.3	10.9	13.3	17.3	18.4	22.5	20.0	15.3	11.9	10.3	13.6
2004	7.9	7.6	7.6	10.5	13.3	16.8	18.6	21.4	20.0	16.1	13.5	10.1	13.6
Whole data set													
mean	5.7	5.2	6.0	8.2	11.3	14.9	17.7	18.8	17.5	14.4	10.9	7.6	
count	37	37	37	37	37	37	37	37	37	37	37	36	
sd	1.28	1.46	1.47	1.32	1.30	1.39	1.20	1.55	1.41	1.19	1.38	1.30	
1971 - 2000													
mean	5.7	5.1	6.0	8.1	11.2	14.7	17.7	18.7	17.3	14.2	10.8	7.5	
count	29	29	29	29	29	29	29	29	29	29	29	29	
sd	1.10	1.33	1.33	1.05	1.28	1.32	1.17	1.18	1.20	1.10	1.21	1.06	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Sizewell Power Station which are derived from simple averaging of all the monthly data.

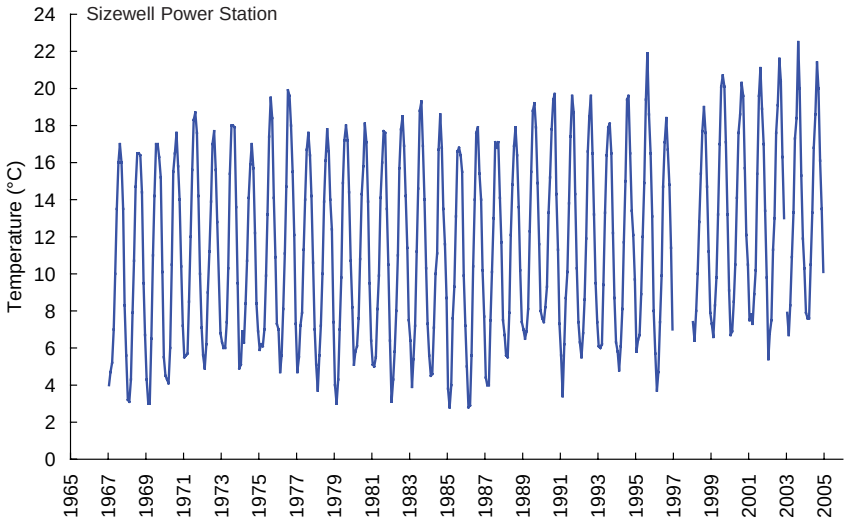


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

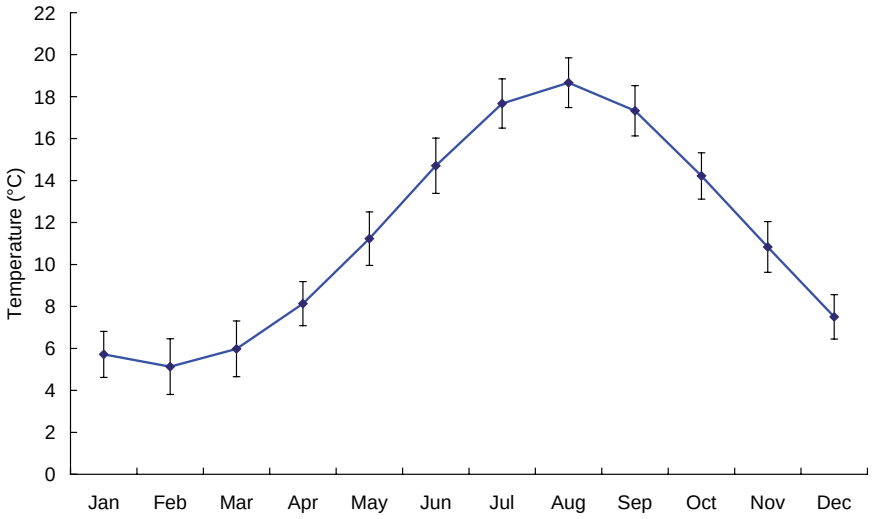


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

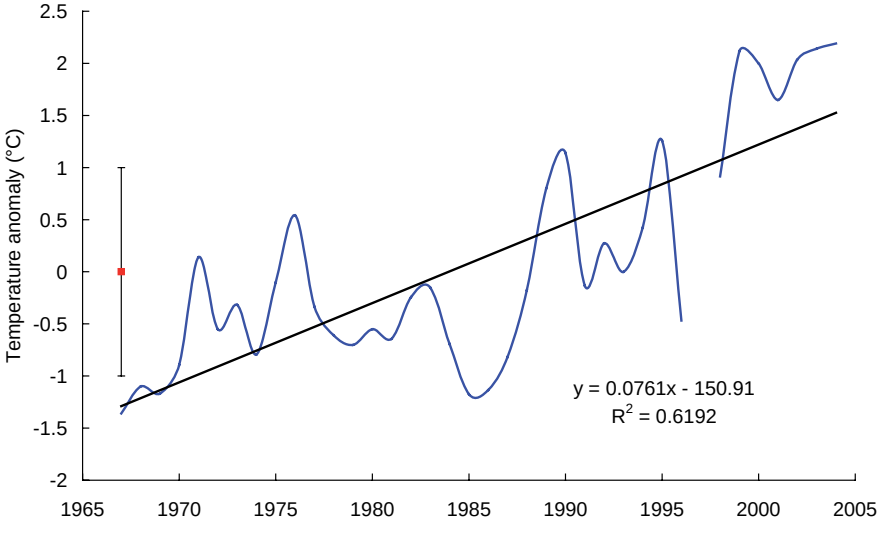


Table 14. Monthly mean sea temperature for Bradwell Power Station at 51° 45' N, 0° 54' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1964	4.0	4.5	5.0	8.5	15.0	17.5	19.5	19.5	16.5	12.5	9.5	6.5	11.5
1965	4.0	4.5	5.5	10.5	14.0	16.0	17.0	17.5	16.0	14.0	8.5	5.5	11.1
1966	4.3	5.7	7.8	8.5	13.4	18.5	18.0	18.0	18.0	14.0	8.5	6.0	11.7
1967	4.0	5.5	7.5	9.0	13.0	17.5	20.5	19.5	17.5	13.5	8.5	5.5	11.8
1968	4.5	4.5	6.5	10.6	13.8	16.7	17.8	17.6	16.4	14.8	9.7	6.8	11.6
1969	5.5	3.7	4.7	8.6	13.5	16.8	20.3	20.2	17.2	15.2	9.9	3.7	11.6
1970	3.2	4.5	4.4	6.5	13.6	18.2	18.5	19.1	16.9	13.5	9.4	7.0	11.2
1971	4.8	6.3	6.5	9.2	12.3	15.8	19.5	18.9	17.2	13.5	9.1	6.8	11.7
1972	5.5	4.7	6.5	9.6	12.5	15.0	18.6	17.8	15.0	12.5	9.3	7.0	11.2
1973	5.8	5.4	7.2	8.4	12.3	18.0	19.0	19.5	17.5	12.1	9.4	4.8	11.6
1974	6.0	7.0	6.9	10.2	12.8	16.3	18.5	18.7	15.6	10.4	7.5	6.5	11.4
1975	6.7	5.5	5.9	7.8	11.9	15.7	18.5	21.1	17.8	13.2	9.9	6.2	11.7
1976	6.8	3.5	5.9	9.7	12.6	17.6	21.8	19.6	17.4	15.3	10.9	5.5	12.2
1977	5.0	6.5	9.0	9.1	13.0	15.7	19.0	18.5	17.0	14.0	10.0	7.0	12.0
1978	4.5	3.7	7.5	8.4	12.1	17.4	17.1	18.5	16.7	13.2	12.1	6.5	11.5
1979	2.3	2.6	6.0	9.2	11.5	16.4	18.4	18.4	16.6	14.4	9.1	7.3	11.0
1980	3.3	4.4											
1981													
1982		6.3	8.2	11.7	14.7	19.1	19.5	19.5	17.2	13.7	11.1	6.4	
1983	6.4	3.5	6.9	8.5	13.3	17.4	21.5	20.5	15.7	12.6	9.3	6.9	11.9
1984	5.5	5.0	5.8	9.3	12.2	16.5	18.8	21.2	16.9	13.4	10.9	7.7	11.9
1985	3.3	2.5	3.8	9.4	11.4	15.5	19.2	17.6	16.7	15.5	8.6	7.0	10.9
1986	4.5	2.6	3.9	7.4	12.8	16.0	20.2	18.8	14.9	14.1	10.2	8.2	11.1
1987	2.6	3.2	4.9	10.2	13.6	15.7	20.3	18.3	18.6	14.0	11.1	7.5	11.7
1988	7.6	6.2	7.5	9.7	14.4	16.9	18.2	18.9	16.6	14.1	9.6	7.4	12.3
1989	7.8	7.6	8.2	9.4	15.3	17.4	19.9					8.0	
1990	6.8	7.1	8.4	10.1	15.7	16.8	18.5	20.6	16.8	13.9	10.4	6.2	12.6
1991	5.0	2.4	7.7	9.8	11.8	14.5	19.2	20.7	17.9	13.1	9.5	6.9	11.5
1992	6.9	5.7	8.5	10.4	10.0		21.0	18.9	16.5	13.5	9.2	7.5	
1993	7.0	5.5	7.2	11.1	14.5	18.0	18.6	18.4	16.7	11.9	7.2	5.7	11.8
1994	5.4	4.4	7.3	9.3	14.1	17.0	21.9	20.6	16.0	12.7	11.4	9.1	12.4
1995	4.9	7.0	7.1	10.9	13.4	16.4	20.7	22.3	13.7	14.7	10.2	5.4	12.2
1996	4.7	2.3	4.7	8.8	11.5	17.4	18.4	19.7	15.7	13.6	9.8	5.0	11.0
1997	2.1	4.8	8.6	11.0	13.7	17.2	19.1	20.0	17.9	14.2	9.8	6.9	12.1
1998	6.3	4.9	7.8	10.0	14.2	16.7	17.7	19.6	16.5	13.3	9.1	5.4	11.8
1999	6.3	5.4	8.0	10.7	11.0	15.0	17.5	20.1					
2000							18.4	17.3	19.7	13.1	11.8	7.9	
2001	4.1	5.9	6.0	9.4	13.1	17.4	20.0	20.9	17.2	15.3	10.6	6.7	12.2
2002	3.7	7.8	8.0										
Whole data set													
mean	5.0	4.9	6.7	9.5	13.1	16.8	19.2	19.3	16.8	13.6	9.7	6.6	
count	36	37	36	35	35	34	36	35	34	34	34	35	
sd	1.48	1.51	1.41	1.10	1.27	1.05	1.25	1.21	1.11	1.07	1.11	1.08	
1971 - 2000													
mean	5.3	4.9	6.9	9.6	12.9	16.6	19.3	19.4	16.7	13.5	9.9	6.8	
count	27	28	27	27	27	26	28	27	26	26	26	27	
sd	1.57	1.60	1.40	1.02	1.37	1.07	1.26	1.21	1.22	1.07	1.17	1.03	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Bradwell Power Station which are derived from simple averaging of all the monthly data.

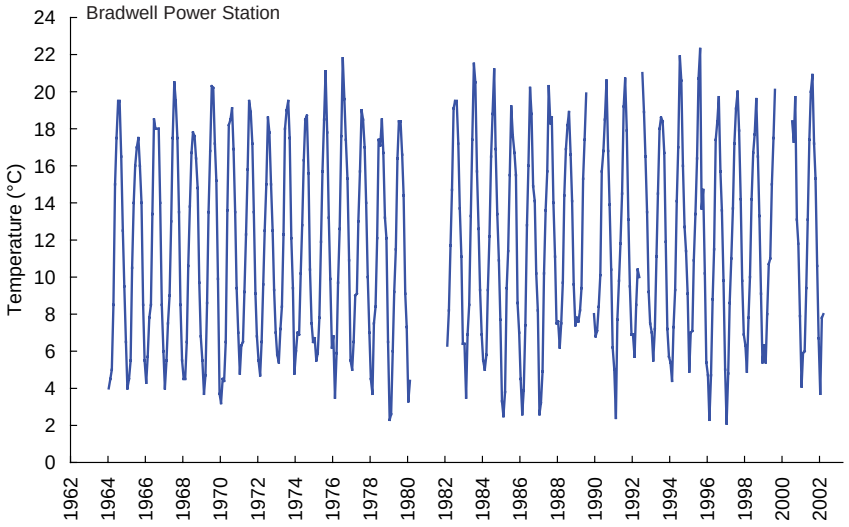


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

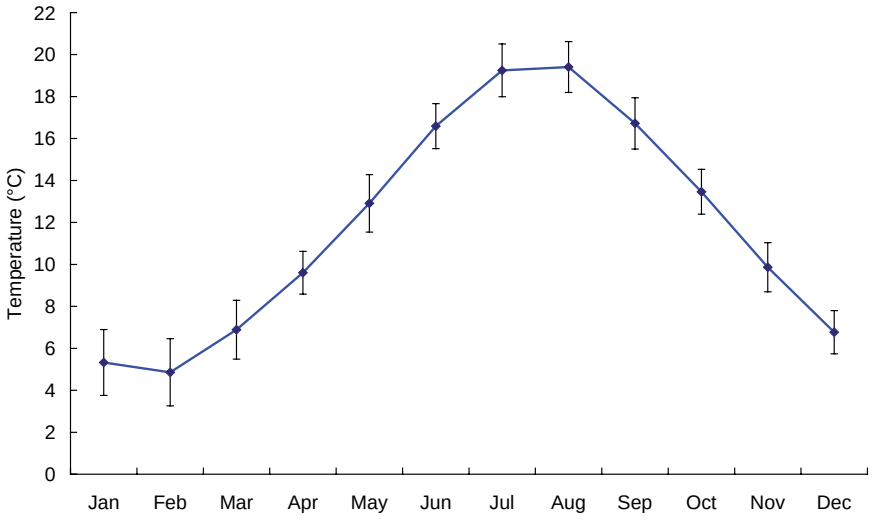


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

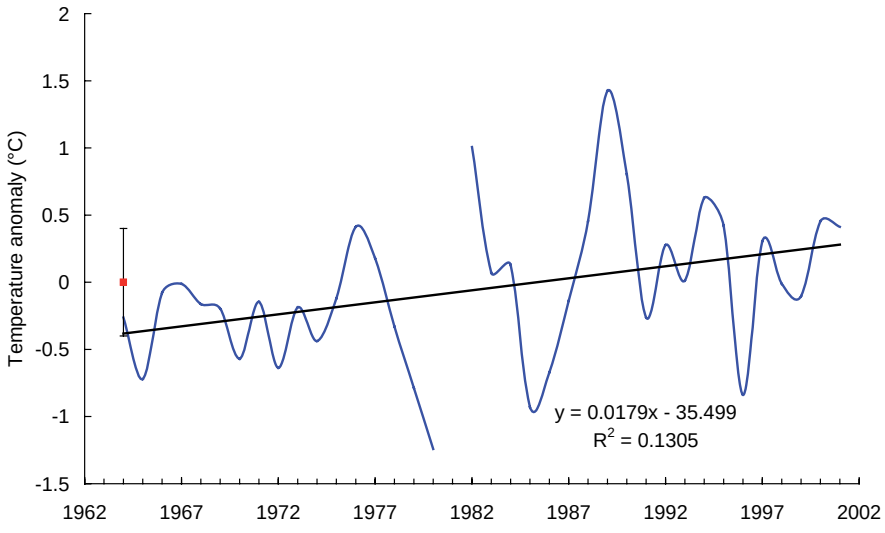


Table 15. Monthly mean sea temperature for Leigh on Sea at 51° 32' N, 0° 39' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	4.9	5.9	7.4	9.2	13.2	17.3	18.8	18.2	17.0	14.1	8.1	5.5	11.6
1967	3.9	5.6	7.3	8.9	13.0	15.9	19.5	19.1	15.4	12.2	8.8	8.1	11.5
1968	4.6	3.7	5.1	10.4	12.8	17.2	18.2	17.6	16.5	14.6			
1969	6.2	3.9	4.9	8.7	14.4	17.3	20.0	18.7	17.4	15.1	9.4	4.6	11.7
1970	4.1	4.8	5.0	8.6	14.9	18.6	18.6	18.7	16.7	13.1	8.9	6.4	11.5
1971	4.7	6.2	6.1	9.4	14.4	16.7	18.4	17.6	17.2	14.5	8.4	7.0	11.7
1972	6.2	5.2	7.5	9.8	13.4	15.1	18.5	17.8	14.6	12.3	8.9	6.9	11.4
1973	5.8	6.6	8.0	9.8	13.4	18.1	20.3	19.5	16.0	12.3	8.1	5.6	12.0
1974	6.8	7.6	7.8	10.4	12.2	14.3	16.8	18.9	15.3		8.3	6.8	
1975	7.2	7.3	5.9	7.5	13.4	16.0	18.7	21.4	17.1	12.0	9.8	6.5	11.9
1976	7.3	4.9	5.8	10.5	14.6	17.1	18.5	20.0	17.8	14.1	13.3	6.0	12.5
1977	4.4	6.1	8.1	8.1	12.1	15.7		18.3	15.1	12.6	7.2	6.3	
1978	3.8	3.9	6.8	8.5	12.9	15.0	15.9	17.3	16.3	13.1	8.9	6.5	10.7
1979	2.2	4.2	6.5	10.1	11.7	16.3	18.8	18.5	16.7	13.8	6.9		
1980	3.7	5.5	7.3	9.9	12.9	16.5	16.0	19.7	17.4	12.5	7.4	5.1	11.2
1981	4.9	7.2	8.8	9.3	11.4	15.5	17.7	17.5	17.0	11.5	9.5	3.4	11.1
1982	2.6	5.4		9.8	14.8	16.1	19.4	19.3	18.2	13.5	7.5	6.5	
1983	6.5	3.8		7.4	13.1	16.1	21.6	19.8	15.7	12.1	7.0	5.8	
1984	4.9		5.5	9.2	12.4	17.4	19.2	20.3	16.7	12.6	11.7	7.8	
1985	2.7	4.5	6.7	11.1	13.8	16.0	20.5	18.0	17.0	14.9	7.0	6.8	
1986	4.3		3.3	7.6	12.5	15.9	19.8	18.1	14.7	14.1	9.7	6.5	
1987	2.6	2.2	5.0	8.5	13.1	14.2	19.2	19.7	18.7	12.7	9.1	7.5	11.0
1988	7.0	6.0	8.2	9.0	13.6	17.5	18.2	17.7	16.0	12.9	4.2	6.4	11.4
1989	7.2	6.9	8.0	10.1	16.3	19.2	20.2	20.5	17.3	16.2	10.3	7.1	13.3
1990	8.2	9.4	10.7						15.8	14.0	8.7	4.7	
1991	4.5		8.2	9.3	13.2	13.9	19.3	21.6	19.5	13.5	8.7	7.0	
1992	5.8	4.0	7.9	9.2	15.4	18.8	19.5	18.0	14.7	11.7	8.5	6.3	11.7
1993	6.7	7.1	8.1	10.3	15.1	17.3	17.1	17.2	14.9	11.0			
1994					13.0	17.5	21.5	18.9	16.0	12.7	11.7	8.2	
1995	4.9	7.2	8.3	10.7		16.9	21.6	21.8	16.5	14.6	8.1	4.3	
1996	4.4	2.3	5.0	8.4	12.0	17.5	18.8	18.5	15.8	13.5	8.6	4.3	10.8
1997	1.7	4.7	11.4	12.0	14.1	14.9	18.2	21.9	18.8	14.3	9.1	7.2	12.4
1998	6.4	5.9		9.4	14.4	16.2	17.6	17.7	15.3	12.2	7.8	5.6	
1999	5.0	5.0		12.6	15.0	16.4							
2000	5.7	7.7	8.8	11.3	16.1	19.4	18.6	21.5	18.0	14.8	9.5	9.2	13.4
2001	8.3	7.9	7.5	12.0	12.3	19.2	21.2	22.9	18.5	16.4	10.4	9.9	13.9
2002	7.4	10.6	10.1	12.2	14.9	18.2	19.9	21.3	18.9	15.0	11.7	8.3	14.0
2003	7.9	6.1	9.3	11.4	14.4	19.7	21.4	23.2	19.7	12.1	11.8	8.8	13.8
2004	8.1	8.9	9.6	14.2	15.3	18.4	20.7	22.2	17.0	12.9	12.4	8.7	14.0
Whole data set													
mean	5.4	5.8	7.3	9.9	13.7	16.8	19.1	19.4	16.8	13.4	9.0	6.6	
count	38	35	34	37	37	38	36	37	38	37	36	35	
sd	1.77	1.87	1.81	1.50	1.24	1.49	1.47	1.71	1.36	1.29	1.81	1.46	
1971 - 2000													
mean	5.1	5.6	7.3	9.6	13.6	16.5	18.9	19.2	16.6	13.2	8.7	6.3	
count	29	26	25	28	28	29	27	28	29	28	28	27	
sd	1.72	1.71	1.77	1.28	1.29	1.40	1.51	1.49	1.32	1.20	1.74	1.25	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Leigh on Sea which are derived from simple averaging of all the monthly data.

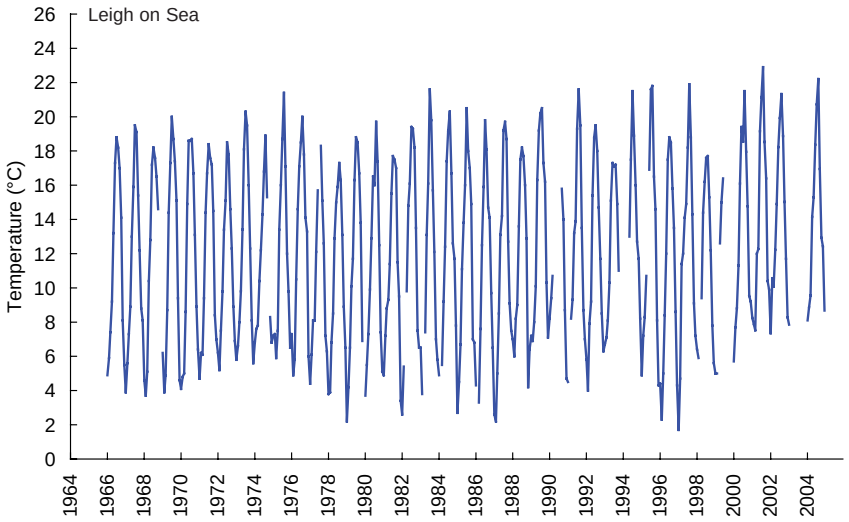


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

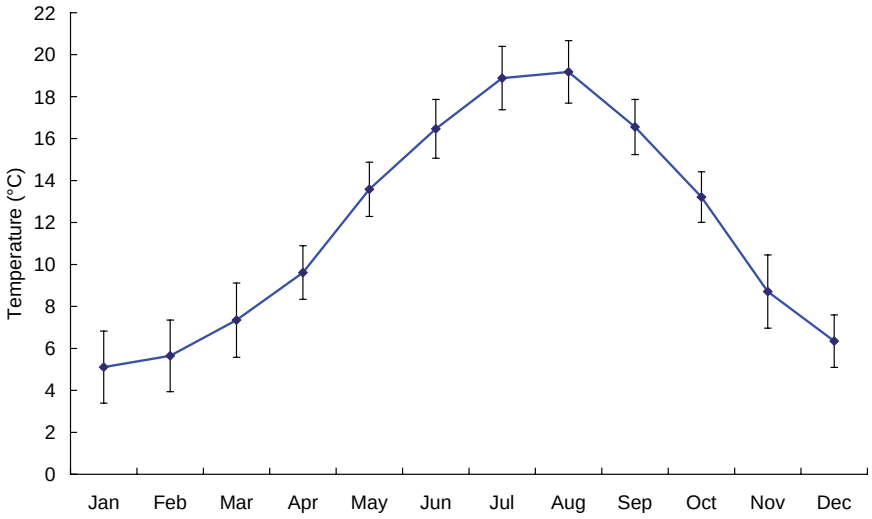


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

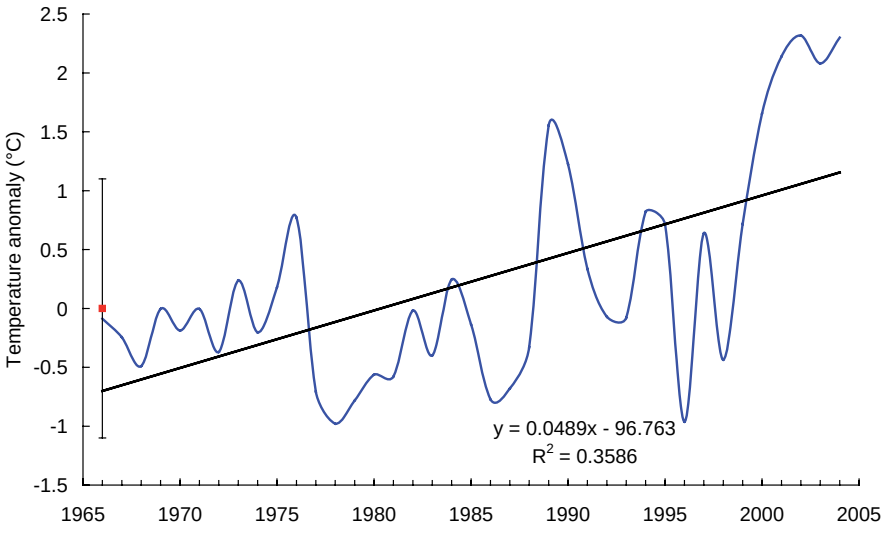


Table 16. Monthly mean sea temperature for Littlebrook Power Station at 51° 28' N, 0° 15' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1964				11.0		19.7	21.8	21.5	20.3	17.0	14.3	11.8	
1965	10.0	9.4	9.8	12.9	15.8	18.9	19.3	19.9	18.7	17.8	13.1	9.6	14.6
1966	8.5	10.6	11.5	11.7	15.5	19.5	19.0	20.3	20.0	19.0	13.0	10.5	14.9
1967	9.6	9.8	10.8	12.3	15.7	19.7	21.2	20.9	19.2	17.3	12.6	10.9	15.0
1968	8.3	9.8	9.6	12.2	16.8	20.2	21.0	20.0	19.7	17.7	13.0	12.0	15.0
1969	9.3	8.7	10.1	12.2	16.0	16.2	22.5	23.0	20.2	19.6	15.2	13.2	15.5
1970	11.8	11.0	10.9	12.2	18.0	22.0	22.8	22.4	20.4	17.8	14.7	11.4	16.3
1971	9.8	10.2	10.6	12.7	16.8	18.0	20.5	20.5	19.6	18.1	13.8	11.6	15.2
1972	10.8	9.9	12.1	14.2	16.1		21.1	21.6	19.0	15.7	14.4	10.9	
1973	10.4	10.6	11.4	12.9	14.8	19.5	21.5	21.5	20.1	16.4	13.2	8.9	15.1
1974	10.4	10.5	11.4	13.2	13.4	18.9	20.9	20.8	20.2	14.3	12.0	11.4	14.8
1975	11.1	9.8	9.6	9.7					18.5	15.8	12.8	12.0	
1976	12.7	10.0							19.6		15.4	11.7	
1977	9.5	10.9	11.2	10.2	13.8	17.3	20.2		17.6	18.5	13.7	11.0	
1978	9.6	8.7	10.3	9.9	12.0				16.9	12.1	14.4	11.0	
1979	8.0	9.4	9.6	10.1	12.8				18.0	18.0	16.2		
1980													
1981													
1982				10.8	14.1	20.0	20.5	20.5	18.7	14.9	12.2	8.0	
1983	8.2	6.1	8.4	10.3	13.8	17.5	22.3	22.1	17.7	15.1	12.8	7.8	13.5
1984	6.6	6.3	7.1	10.7	15.2	18.7	21.7	22.8	20.8	16.8	15.6	11.3	14.5
1985	6.2	6.7	8.1	10.5	12.5	16.7	20.2	19.5	19.0	17.8	12.1	9.3	13.2
1986	6.3	4.6	4.3	8.2	12.4	16.0	20.5	19.1	16.4	15.6	11.9	9.2	12.0
1987	5.1	5.2	6.3	9.2	14.2	16.0	20.5	19.7	19.6	15.2	12.1	8.6	12.6
1988	8.3	6.9	8.6	11.0	14.8	17.1	18.5	19.3	17.0	14.2	11.6	8.7	13.0
1989	9.1	8.9	9.2	10.9	14.4	20.0	21.7	21.2	19.3	16.4	13.3	10.4	14.6
1990	9.1	8.3	10.6	11.6	16.2	18.9	19.7	21.7	19.5	15.6	12.8	9.7	14.5
1991	7.7	6.0	9.2	11.8	12.7	15.8	19.4	21.2	19.9	15.4	10.5	9.7	13.3
1992	8.9	8.0	9.8	10.6	14.1	20.2	21.0	21.0	18.3	14.4	11.1	9.1	13.9
1993	7.9	8.9	7.9	10.4	14.2	17.9	19.9	19.4	17.5	13.9	10.7	7.6	13.0
1994	6.4	6.7	6.5	9.4		15.2	21.3	21.4	18.0	15.3	13.1	11.7	
1995	7.1	8.2	8.2	8.9	13.5	15.8	21.1		20.4	16.6	12.8	9.2	
1996	6.5	5.7	6.4	8.4			20.8	21.0	18.6	15.5	12.2	8.3	
1997													
1998	8.0	7.4	8.8	10.1	14.2		18.9	20.2			11.8	7.2	
1999	8.0	7.5	7.8	12.0		18.4	21.1	21.6	19.6	15.4	12.2	8.9	
2000	7.2	7.5	8.7	10.3		19.2	18.6	20.7	19.7	16.2	11.4	9.7	
2001	7.0	8.2	10.9	13.1	17.8	17.8	20.4	21.5	19.3	16.4	12.9	10.2	14.6
2002	5.8	9.2	9.0		15.0	16.6	20.1	21.8	20.5	15.0	11.9	9.2	
2003	6.0	8.3	8.1	11.4		20.1	21.4	22.7	17.3	12.4	10.8	8.7	
2004	7.0		5.8			15.4	17.9	22.4	19.3	15.2	12.7	9.7	
Whole data set													
mean	8.4	8.4	9.1	11.1	14.7	18.2	20.6	21.0	19.0	16.1	12.9	10.0	
count	36	35	35	35	29	31	34	32	37	36	38	37	
sd	1.80	1.74	1.84	1.43	1.58	1.76	1.17	1.06	1.14	1.70	1.38	1.46	
1971 - 2000													
mean	8.4	8.0	8.9	10.7	14.1	17.9	20.5	20.8	18.8	15.7	12.8	9.7	
count	26	26	25	26	21	20	23	21	26	25	27	26	
sd	1.80	1.81	1.88	1.46	1.28	1.58	1.00	0.99	1.17	1.45	1.44	1.43	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Littlebrook Power Station which are derived from simple averaging of all the monthly data.

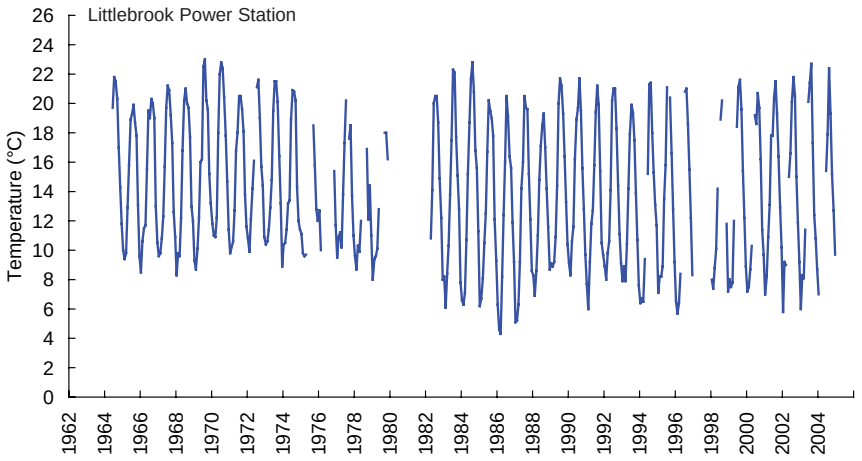


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

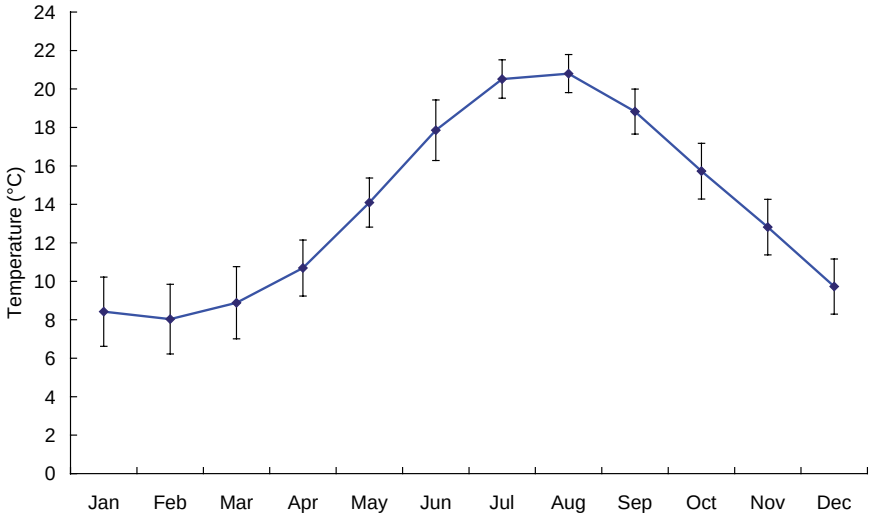


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

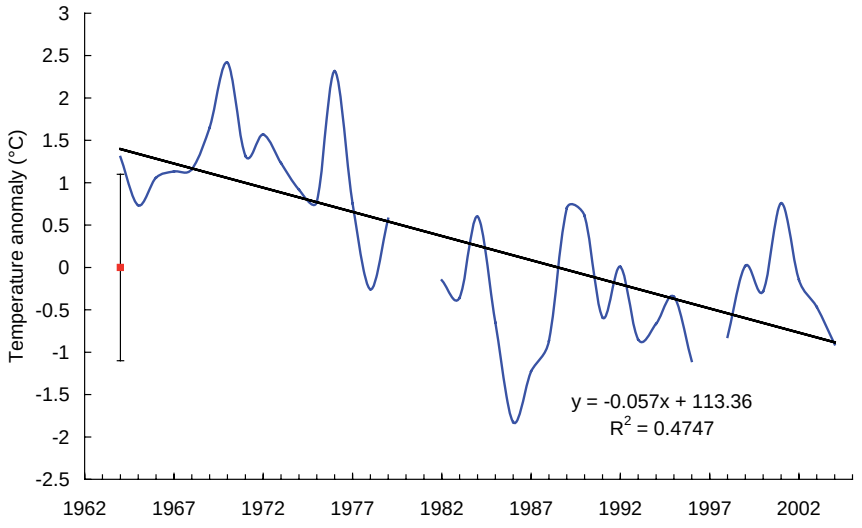


Table 17. Monthly mean sea temperature for West Thurrock Power Station at 51° 28' N, 0° 18' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1964	8.4	9.5	11.2	12.7	17.1	18.9			18.3	14.4	12.2	9.4	
1965	8.2	7.2	7.2	10.9	15.0	17.4	19.0	18.6	17.7	17.0	10.6	9.2	13.2
1966	7.1	9.7	10.2	11.4	15.0	17.0	19.4	19.1	19.6	18.0	12.3	9.4	14.0
1967	8.5	10.0	10.1	12.0		18.2	23.1	22.0	20.0	17.1	12.1	10.7	
1968	9.9	10.6	9.8	12.4	16.1	18.9	19.6	19.7	19.0	17.1	13.7	9.2	14.7
1969	8.1	6.8	7.0	9.3	13.7	17.4	20.9	20.5	19.6	17.7	13.1	9.5	13.6
1970	8.5	8.6	8.6	10.7	14.8	20.1	20.1	20.0	19.0	16.9	13.8	11.6	14.4
1971	9.3	9.7	10.1	11.6	16.6	17.8	20.3	21.2	19.5	15.8	11.6	9.6	14.4
1972	8.9	12.0	12.7	13.2	15.2	16.0	21.9	21.4	20.1	17.8	15.0	12.0	15.5
1973	10.6	10.6	9.7	12.5	14.4	20.0	21.7	21.1	20.7	16.3	14.1	9.6	15.1
1974	10.0	9.6	10.6	13.7		19.5	20.5	21.7	19.3	12.9	9.6	9.7	
1975	10.3	9.9	9.6	10.5	14.2	17.0	21.5	23.4	20.5	15.8	13.2	9.3	14.6
1976	9.3	7.6	8.9	11.5	14.7	19.1	24.3	22.0	19.1	17.5	13.6	8.1	14.6
1977	7.1	8.1	9.8	10.1	13.6	16.6	19.2	19.9	17.8	15.7	13.6	9.4	13.4
1978	7.6	6.0	8.9	10.3	13.5	17.9	18.2	19.6	18.6	15.8	14.0	9.1	13.3
1979	5.5	5.0	6.9	10.2	13.3	16.8	19.7	19.5	18.0	16.2	11.2	7.8	12.5
1980	5.8	7.7	8.8	10.8	13.7	17.4	17.5	19.8	18.8	16.0	10.9	8.6	13.0
1981	6.7	6.7	7.9	10.8	12.2	15.7	17.7	19.4	19.5	15.2	11.2	7.3	12.5
1982	5.6	8.5	8.8	11.6	14.3	19.6	20.6	20.7	19.2	15.6	12.5	8.1	13.8
1983	7.9	6.4	7.8	9.5	13.5	17.3	21.7	21.3	17.4	14.9	11.5	8.6	13.2
1984	6.9	6.5	7.0	9.5	14.3	18.5	21.2	22.1	20.8	16.7	15.6	11.5	14.2
1985	6.9	6.4	8.3	10.6	12.8	17.2	20.2	19.8	18.8	17.9	12.2	9.0	13.3
1986	5.8	5.0	5.0	7.9	11.8	16.8	20.6	19.3	16.0	15.7	11.6	9.5	12.1
1987	5.3	5.0	6.4	9.5	13.3	15.6	19.8	19.3	18.9	14.9	11.9	8.4	12.4
1988	8.1	6.7	8.0	10.9	14.5	16.9	18.3	19.4	17.1	14.4	12.2	8.2	12.9
1989	8.5	8.2	9.0	10.5	14.7	18.4	21.1	21.2	19.1	15.6	12.5	9.7	14.0
1990	8.0	8.0	9.0	11.0	15.6	17.3	20.0	21.0	18.6	15.9	13.1	9.0	13.9
1991	7.1	5.6	9.0	11.2	12.3	15.5	19.6	19.7	19.8	14.8	11.3	9.3	12.9
1992	8.7	7.4	9.0	10.8	14.1	19.9	20.7	20.7	17.8	14.7	11.0	9.2	13.7
1993	7.2	8.4	7.9										
mean	7.9	7.9	8.8	11.0	14.2	17.7	20.3	20.5	18.9	16.0	12.5	9.3	
count	30	30	30	29	27	29	28	28	29	29	29	29	
sd	1.45	1.84	1.55	1.25	1.27	1.34	1.52	1.15	1.10	1.23	1.37	1.08	

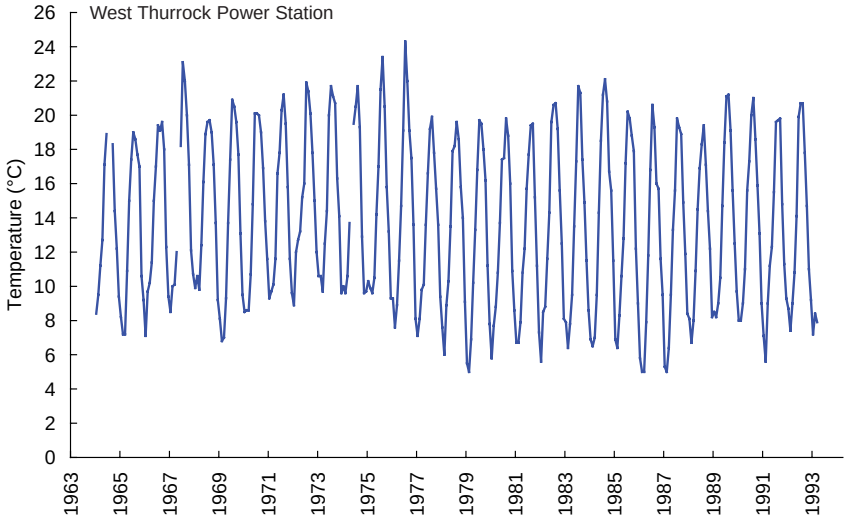


Figure (a). Monthly mean surface temperature for the entire duration of the record at West Thurrock Power Station which are derived from simple averaging of all the monthly data.

Table 18. Monthly mean sea temperature for Tilbury Power Station at 51° 27' N, 0° 24' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1964	7.9	8.5	8.6	11.3	16.4	19.3	20.9	21.1	19.6	15.9	13.1	10.8	14.5
1965	8.6	8.2	8.7	10.3	15.4	18.2	19.3	19.8	17.4	16.0	10.8	8.3	13.4
1966	6.7	9.1	9.9	10.9	14.7	18.0	19.0	18.9	18.5	17.2	11.2	9.4	13.6
1967	8.3	9.8	10.2	10.9	14.4	18.0	21.3	21.1	19.0	16.6	12.2	9.7	14.3
1968	8.0	8.4	9.2	12.1	15.5	18.3	19.5	19.0	19.0	17.4	13.3	10.5	14.2
1969	8.6	7.2	8.2	11.0	15.7	18.6	21.9	22.3	19.7	18.7	14.3	10.0	14.7
1970	9.3	7.4	8.3	10.6	16.6	20.8	21.0	21.7	20.0	16.6	13.6	10.7	14.7
1971	9.4	9.7	9.9	11.4	16.3	17.9	21.1	21.2	19.0	17.7	12.4	10.4	14.7
1972	9.7	8.2	11.5	13.2	14.6	16.9	19.7	20.8	18.3	15.6	13.2	10.9	14.4
1973	10.1	9.7	10.1	11.3	14.7	16.9	21.3	20.6	20.7	15.5	12.8	8.4	14.3
1974	8.5	9.8	10.7	12.2	14.7	18.1	20.5	21.2	18.9	13.7	11.4	10.2	14.2
1975	10.5	9.2	8.8	8.9	14.4	17.6	20.6	23.6	20.3	16.2	13.3	10.1	14.5
1976	9.1	7.4	8.9	11.6	14.0	19.1	23.4		18.1	17.0	13.0	8.8	
1977	7.4	7.9	10.4	10.7	12.9	16.4	19.7	20.2	19.0	15.9	13.3	9.0	13.6
1978	7.4	5.6	8.2	10.2	13.1	17.8	18.1	19.5	18.4	16.5	14.5	9.2	13.2
1979	5.4	5.0	6.9	10.8	14.1	16.5	19.5	19.6	18.2	16.4	12.1	10.3	12.9
1980	6.0	7.3	8.5	10.5	13.5	17.4	17.5	20.0	18.7	15.2	10.0	8.3	12.7
1981	6.6	6.7	8.3	11.3	12.3	16.3	18.7	20.3	20.3	15.7	12.1	7.1	13.0
1982	5.2	7.5	8.0	11.1	14.2	19.2	19.9	19.4	18.6	14.8	12.4	8.4	13.2
1983	8.2	6.0	7.3	9.7	13.3	17.4	22.0	21.6	17.6	14.7	11.1	8.6	13.1
1984	7.0	6.7	7.1	9.7	15.2	18.7	21.1	22.2	19.7	16.1	15.2	11.9	14.2
1985	7.1	6.6	7.4	10.7	12.8	16.7	20.3	19.5	18.6	17.4	12.0	9.0	13.2
1986	6.4	5.2	3.9	7.9	11.5	15.8	20.7	19.1	16.5	15.6	11.9	9.8	12.0
1987	5.5	5.2	6.1	8.6	12.7	15.8	19.5	19.2	18.8	15.1	12.1	8.6	12.3
1988	8.7	6.9	8.0	11.2	15.0	16.9	18.6	19.6	17.3	14.4	10.3	9.0	13.0
1989	8.7	8.7	9.2	10.4	14.7	18.4	21.3	20.8	19.7	15.7	12.1	10.2	14.2
1990	9.0	9.0	9.6	11.2	15.6	17.5	19.5	21.4	19.1	15.6	12.1	9.1	14.1
1991	9.0	9.0	9.6	11.2	15.6	17.5	19.5	21.4	19.1	15.6	12.1	9.2	14.1
1992	8.5	8.0	8.2	10.2	14.8	19.7	20.8	20.6	19.6	14.4	10.8	9.0	13.7
1993	8.0	8.2	7.7	10.2	14.0	17.8	19.9	19.1	17.5	14.0	10.2	7.1	12.8
1994	6.1	5.8	6.6	8.6	12.8	14.7	20.0	21.3	17.2	14.8	12.7	11.6	12.7
1995	7.0	8.1	8.2	10.4	13.1	15.5	19.9	22.1	19.0	15.9	13.5	9.0	13.5
1996	6.0	4.9	6.1	8.7	12.1	18.1	19.1	20.3	17.8	15.0	11.3	8.0	12.3
1997													
1998	7.9	6.6	9.0	10.9	13.8	17.2	18.0	19.6	17.8	14.8	11.7	7.6	12.9
1999													
2000	10.4		9.5		14.7	18.0	18.0	20.0	19.1	15.0	11.3	7.2	
2001	5.9	7.6	6.9	8.7		16.0	19.4	20.4	18.3	16.1	10.8	9.1	
2002	6.3	9.1	8.3						16.5	12.5	10.3	7.4	
2003	5.1	5.2	8.0	9.0	13.6	18.5	20.4	22.7	17.4	11.9	11.5	8.3	12.6
2004	7.4	7.4	7.5	11.4	15.2	18.7	19.2	21.7	18.9	13.9	11.6	9.0	13.5
Whole data set													
mean	7.7	7.5	8.4	10.5	14.3	17.6	20.0	20.6	18.6	15.6	12.1	9.2	
count	39	38	39	37	37	38	38	37	39	39	39	39	
sd	1.48	1.46	1.45	1.14	1.25	1.25	1.24	1.16	1.01	1.35	1.22	1.19	
1971 - 2000													
mean	7.8	7.4	8.3	10.5	13.9	17.4	19.9	20.5	18.7	15.5	12.2	9.1	
count	28	27	28	27	28	28	28	27	28	28	28	28	
sd	1.56	1.53	1.62	1.19	1.17	1.16	1.31	1.10	1.00	0.95	1.20	1.24	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Tilbury Power Station which are derived from simple averaging of all the monthly data.

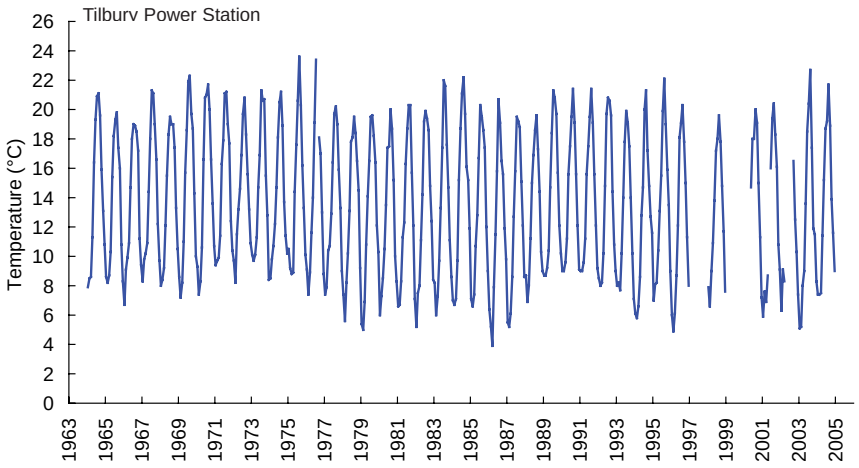


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

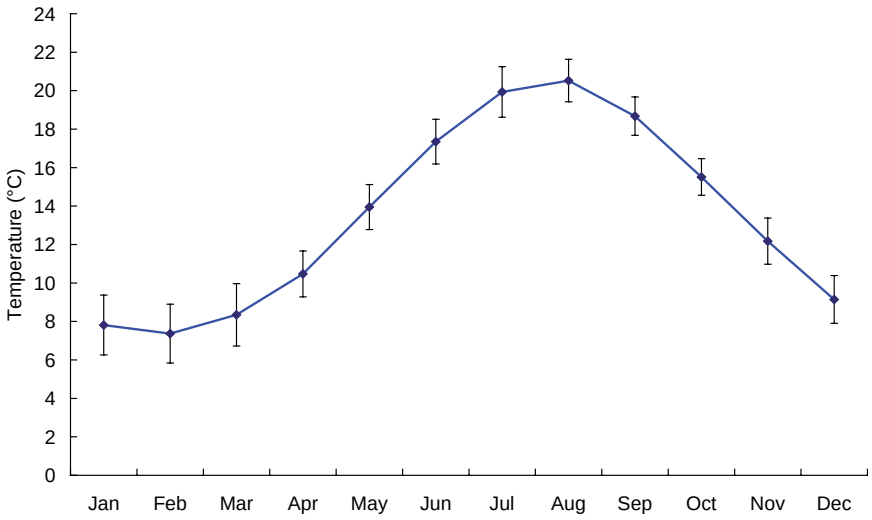


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

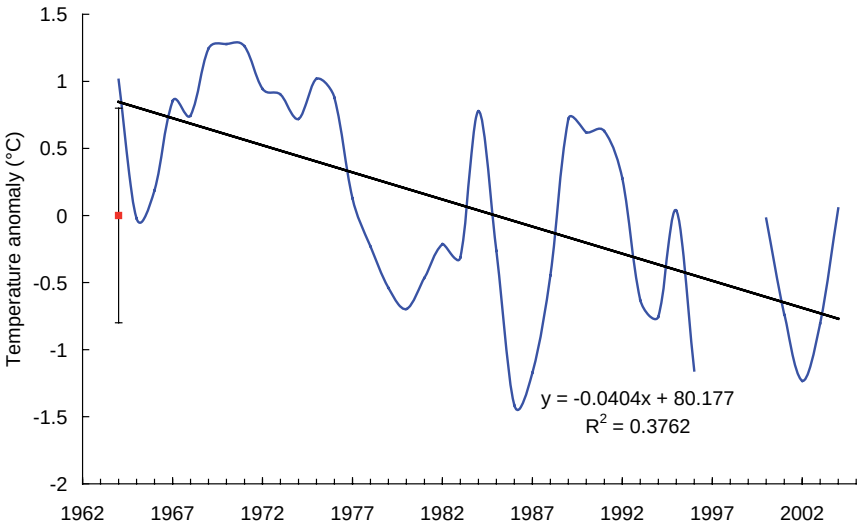


Table 19. Monthly mean sea temperature for Kingsnorth Power Station at 51° 25' N, 0° 36' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1971	8.0	6.2	6.2	8.2	13.4	15.0	19.4	18.8	17.3	14.1	7.6	7.2	11.8
1972	5.5	5.5	8.0	10.3	12.2	14.3	17.9	17.7	15.7	12.1	9.3	7.1	11.3
1973	6.4	6.6	7.1	8.6	12.6	17.8	20.4	19.1	15.6	11.6	9.4	5.6	11.7
1974	7.6	8.2	8.3	11.6	13.3	16.5	18.2	20.2	16.9	12.1	8.7	8.1	12.5
1975	8.1	7.3	7.2	8.5	12.6	15.2	18.8	22.4	18.3	13.3	11.0	7.1	12.5
1976	7.1	3.9	6.3	10.3	12.7	17.5	22.1	19.5	17.5	15.2	11.1	6.4	12.5
1977	6.0	8.2	10.0	10.3	14.0	16.3	19.4	19.1	16.7	14.2	10.6	6.7	12.6
1978	5.5	4.3	7.2	9.6	12.8	18.2	18.3	19.7	17.5	15.0	13.3	8.0	12.5
1979	3.6	3.6	5.5	9.6	13.1	17.7	20.3	19.7	18.0	16.0	10.6	9.0	12.2
1980	5.0	6.9	7.9	10.5	14.4	17.5	17.8	20.9	18.8	14.7	9.7	7.4	12.6
1981	5.7	6.5	7.7	11.4	12.8	16.4	18.6	20.7	19.6	14.0	11.0	6.4	12.6
1982	5.6	6.7	6.8	11.0	14.8	19.8	20.6	20.5	18.7	14.3	11.8	7.3	13.2
1983	7.5	4.5	6.9	9.2	13.5	17.5	22.6	21.8	17.3	14.3	11.2	7.2	12.8
1984	5.6	5.6	6.4	9.7	13.9	18.0	21.2	22.1	19.1	14.8	12.6	9.4	13.2
1985	4.1	4.0	6.3	9.2	10.9	14.9	19.2	16.8	16.5	15.3	8.2	4.7	10.8
1986	4.0	3.4	3.5	7.5	11.6	16.3	21.5	19.5	15.9	15.1	12.1	8.6	11.6
1987	4.7	4.8	6.7	8.4	15.2	15.9	21.0	19.2	18.8	14.1	12.0	8.2	12.4
1988	7.5	6.6	7.8	10.8	14.7	17.0	18.1	18.7	16.4	14.1	10.5	7.9	12.5
1989	8.2	8.1	9.0	10.5	15.5	18.8	21.8	20.8	18.6	14.8	11.5	7.5	13.8
1990	7.0	8.0	8.4	11.0	17.5	16.8	19.8	22.6	17.5	14.5	11.0	6.9	13.4
1991	6.3	5.0	8.4	10.6	12.4	15.3	19.3	21.4	19.2	14.0	10.0	8.0	12.5
1992	7.3	6.4	8.7	10.5	14.4	20.1	20.6	20.6	17.3	14.3	10.3	7.8	13.2
1993	7.6	7.5	7.9	12.0	14.9	19.3	20.0	19.1	16.7	12.8	8.9	6.4	12.8
1994	6.5	6.1	8.8	10.3	14.5	18.9	22.2	21.3	16.4	13.4	12.4	9.9	13.4
1995	6.4	8.2	8.1	11.9	14.1	16.6	22.7	23.2	18.1	15.7	10.9	7.0	13.6
1996	6.5	3.7	6.3	10.2	12.3	18.6	19.9	21.0	17.5	14.8	11.1	6.9	12.4
1997	3.6	6.1	9.9	11.9	14.8	18.1	20.0	23.2	19.9	14.7	10.5	8.5	13.4
1998	7.8	6.5	9.2	11.3	15.2	18.1	19.2	20.8	18.6	15.0	10.8	7.6	13.3
1999	7.9	6.9	9.6	12.6	15.3	17.9	22.4	21.7	19.9	14.5	10.6	7.6	13.9
2000	6.9	7.7	9.9	11.0	16.0	18.6	19.1	21.2	19.6	15.2	11.1	8.4	13.7
2001	6.3	7.3	7.5	10.5	14.6	18.5	21.0	21.1	17.0	15.6	10.4	7.3	13.1
2002	6.3	8.7	7.8	11.6	14.7	17.8	19.7	21.0	18.6	13.1	11.6	8.6	13.3
2003	7.4	6.6	9.9	12.6	15.8	20.1	21.9	23.1	19.7	12.7	12.1	9.7	14.3
2004	7.5	8.5	9	13.4	17.6	20.1	14.7	16.6	13.9	13.9	11.6	10.0	13.1
Whole data set													
mean	6.4	6.3	7.8	10.5	14.1	17.5	20.0	20.4	17.7	14.2	10.8	7.7	
count	34	34	34	34	34	34	34	34	34	34	34	34	
sd	1.32	1.56	1.44	1.35	1.53	1.56	1.71	1.67	1.42	1.06	1.25	1.17	
1971 - 2000													
mean	6.3	6.1	7.7	10.3	13.8	17.3	20.1	20.4	17.8	14.3	10.7	7.5	
count	30	30	30	30	30	30	30	30	30	30	30	30	
sd	1.38	1.52	1.46	1.24	1.44	1.49	1.48	1.55	1.26	1.04	1.29	1.07	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Kingsnorth Power Station which are derived from simple averaging of all the monthly data.

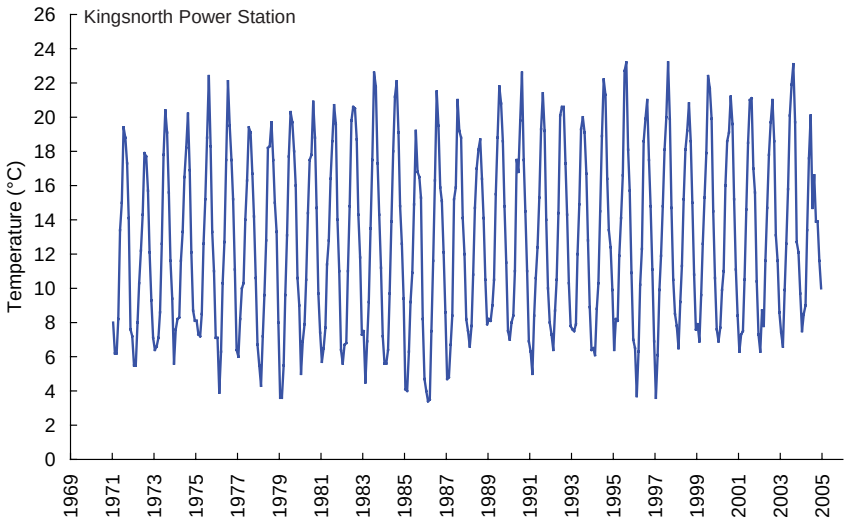


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

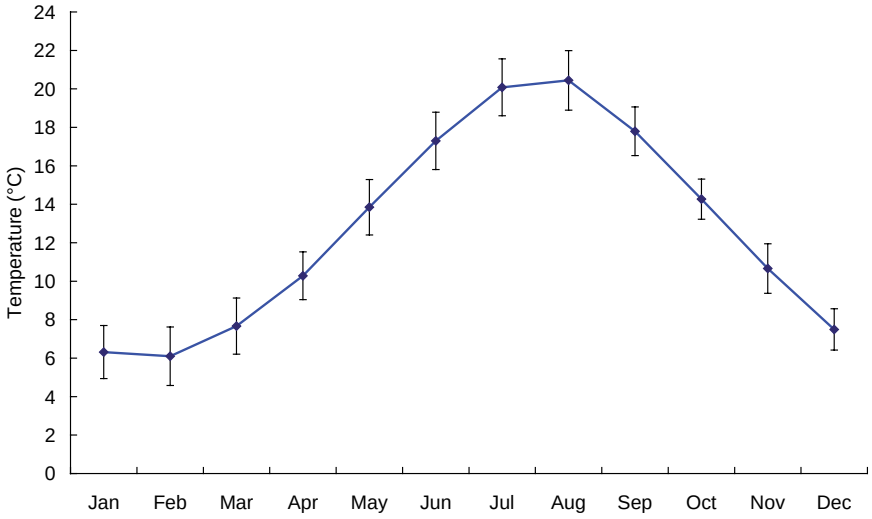


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

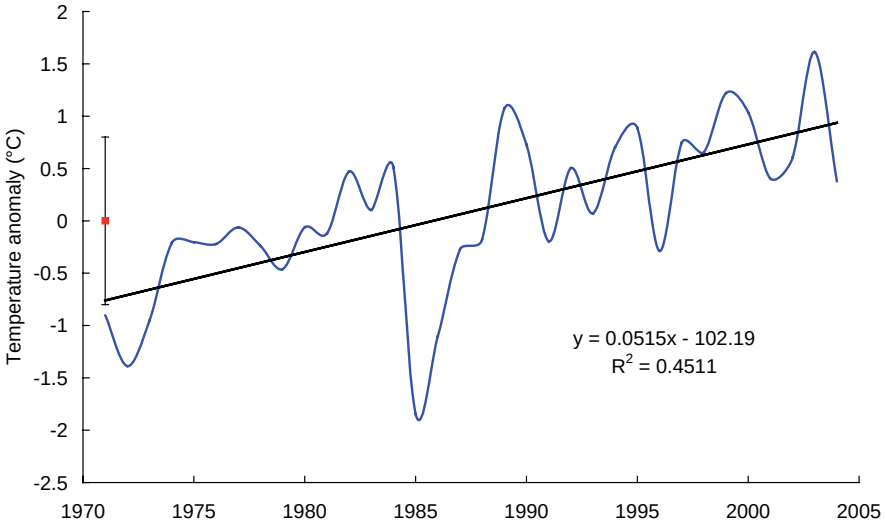


Figure 20. Monthly mean sea temperature for Grain Power Station at 51° 26' N, 0° 43' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1979								18.5	17.2	15.8	8.8	9.4	
1980	4.7	6.0	7.0	8.6	11.8	15.4			16.9	13.5	8.2	6.2	
1981	4.7	5.7	6.1	10.1	10.7	15.7		19.2	18.6	10.5	10.3	3.2	
1982	4.2	6.0	6.9	9.9	13.8	18.3	19.2	20.1	17.6	14.3	11.8	7.6	12.5
1983	7.3	4.4	6.4	8.1	12.2	17.5	20.9	21.0	15.2	11.9	9.4	7.7	11.8
1984	4.6	5.0	5.1	9.7	12.4	16.1	19.0	20.1	17.8	14.1	12.5	9.2	12.1
1985	4.2	3.7	5.5	9.3	10.3	15.0	18.7	17.2	16.1	15.5	9.7	6.4	11.0
1986	4.5	2.4	2.5	6.0	11.5	14.3	19.2	18.1	14.0	14.0	10.1	8.3	10.4
1987	2.2	3.4	3.7		11.2	14.4	18.5	18.0	17.5	12.8	10.1	6.3	
1988	6.0	5.4	4.6	8.3	12.8	15.3	16.1	16.3	14.8	12.9	8.3	6.1	10.6
1989	6.3	6.2	6.7	8.1	14.7	17.4	19.6	19.6	18.0	14.1	10.9	7.1	12.4
1990	7.0	6.8	8.4	10.3	14.4	16.1	17.5	20.1	20.0	13.8	11.3	6.0	12.6
1991	5.4	3.7	6.7	9.4	10.9	14.3	18.4	20.1	18.7	13.3	9.3	7.1	11.4
1992	6.6	4.9	6.8	8.6		17.3	18.8	19.0	15.6	13.6	9.0	7.9	
1993	5.7	6.5	6.5	9.8	13.2	17.9	18.2	18.3	15.4	11.6	7.2	5.9	11.4
1994	5.8	4.8	5.8	9.5	13.3	19.0		19.0		12.8	11.9	10.1	
1995	5.3	7.5	7.3		12.4		17.1	21.5		14.3	10.9	5.8	
1996	3.5	2.3	5.0	5.0		17.4	19.1	19.4	15.3	13.6	11.9	6.7	
mean	5.2	5.0	5.9	8.7	12.4	16.3	18.6	19.1	16.8	13.5	10.1	7.1	
count	17	17	17	15	15	16	14	17	16	18	18	18	
sd	1.31	1.50	1.43	1.50	1.34	1.51	1.16	1.33	1.66	1.29	1.48	1.61	

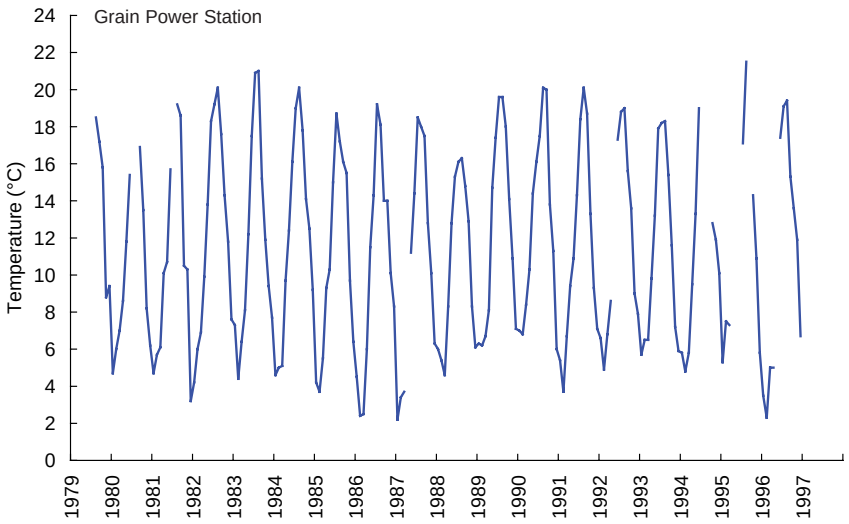


Figure (a). Monthly mean surface temperature for the entire duration of the record at Grain Power Station which are derived from simple averaging of all the monthly data.

Table 21. Monthly mean sea temperature for Dover at 51° 7' N, 1° 21' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1926					10.7	10.8	16.2	17.1	17.6	14.3	10.7	7.4	
1927	6.1	6.6	7.5	9.2	11.7	13.6	15.9	16.7	16.2	13.7	11.4	7.6	11.4
1928	6.1	7.1	7.5	8.8	10.7	13.7	16.3	17.4	16.8	14.1	11.6	8.5	11.6
1929	4.8	4.1	4.1	6.3	9.7	13.1	16.0	17.1	17.7	14.1	10.4	9.0	10.5
1930	8.2	6.3	6.3	8.6	10.7	14.2	15.9	16.6	16.6	14.2	10.9	9.1	11.5
1931	7.2	6.1	5.5	7.4	10.3	13.3	15.8	16.6	15.4	13.3	10.8	8.5	10.9
1932	7.4	5.4	5.0	7.7	10.1	13.2	15.8	17.3	16.8	13.5	9.8	7.3	10.8
1933	6.2	5.2	7.4	9.2	11.9	14.3	16.8	18.3	17.7	15.1	10.2	5.4	11.5
1934	5.6	4.9	5.4	7.7	10.4	14.3	17.2	17.3	17.3	14.7	11.0	10.3	11.3
1935	8.0	6.2	6.7	8.6	10.7	13.3	17.0	18.6	16.8	13.7	10.8	7.3	11.5
1936	7.3	5.9	7.1	8.3	10.8	13.7	16.0	17.1	17.2	13.2	9.7	7.8	11.2
1937	7.7	7.7	7.1	9.6	11.8	14.4	16.3	17.8	17.1	14.5	11.0	8.0	11.9
1938	6.7	6.2	6.7	8.5	10.4	13.3	15.4	17.3	16.6	14.3	12.3	7.9	11.3
1939	6.7	6.3	6.7	8.3	10.7	14.1	15.7	17.4	17.6	13.3	11.2	8.3	11.4
1940	4.2	3.7	6.4	7.6	10.9	14.5	16.3	16.9	16.2		10.4	7.2	
1941	3.8	5.0	6.4	7.3	9.3	12.3							
1942													
1943													
1944													
1945													
1946													
1947					10.9	13.9		18.7	19.1	15.4	12.0		
1948					12.1	14.2	15.3	17.1	16.5	15.0	12.0	10.2	
1949	7.1	6.3	5.6			13.9	16.8	17.8	18.5	16.9	13.2		
1950		6.8	7.8	8.9	11.1	14.5	16.6	17.7	16.7	14.3	10.5	8.1	
1951													
1952	6.9	5.2	6.4	8.0	11.2	13.9	16.9	17.3	16.0	13.0	9.7	5.9	10.9
1953	5.8	4.4	4.7	7.2	10.6	13.1	15.6	17.2	16.7	15.0	12.2	11.1	11.1
1954	6.2		6.1	8.1	10.4	12.8	14.9	15.8	15.8	13.9	11.9	9.4	
1955	5.6	5.6	4.4	6.1	9.4	12.3	15.6	17.8	17.2	14.4	10.6	8.3	10.6
1956	6.9			6.6	9.9	12.4	14.7	15.9	15.7	14.1	9.4	8.1	
1957	7.2	7.8	8.3	9.4	11.1	14.4	16.7	17.2	16.1	13.9	11.1	7.8	11.8
1958	6.7	6.7	5.6	6.7	10.0	13.3	15.6	16.7	16.7	14.4	11.7	8.3	11.0
1959	7.1	5.8	7.1	9.0	11.7	14.4	17.4	18.4	18.4	16.4	12.6	9.7	12.3
1960	6.9	6.5	7.1	8.9	11.1	14.1	16.3	17.3	17.1	13.9	11.8	9.6	11.7
1961	7.3	7.7	8.6	9.9	12.4	14.7	16.9	17.1	17.4	15.8	10.8	8.2	12.2
1962	6.2	5.9		6.7	9.5	12.6	14.8	16.1	16.1	14.6	10.8	7.3	
1963	1.7	0.9	3.4	6.1	9.2	12.8	14.5	16.4	15.9	14.3	12.2	7.9	9.6
1964	5.6	4.7	4.5	6.7	10.8		16.4	17.7	16.6	14.2	10.8	7.7	
1965	6.0	4.4	4.4	7.5	10.5	13.1	15.1	16.4	15.6	14.1	10.1	7.6	10.4
1966	5.0	6.7	7.6	8.4	11.3	14.2	15.9	16.4	16.3	16.0			
1967				8.3	10.7	13.7	16.5	17.2	16.2	14.4	10.8	6.9	
1968	4.8	5.1	5.3	7.7	10.1	13.0	15.2	16.4	16.5	15.1	11.2	8.7	10.8
1969	6.7	5.1	5.5		11.2	13.5	16.1	17.8	17.0	15.7	12.4		
1970	6.4	5.9	5.2	6.9	10.3	14.1	15.6	16.8	16.4	14.2	11.6	8.5	11.0
1971	6.2	6.9	6.0	7.5	10.5	13.3	16.1	17.0	16.6	14.7	10.3	7.9	11.1
1972	6.6	6.5	6.9	8.8	10.9	13.0	15.5	16.4	15.3	13.1	10.6	9.0	11.1
1973	7.7	6.9	6.5	7.6	10.9	13.9	16.4	17.2	17.0	13.4	10.2	6.2	11.2
1974	7.4	7.5	7.3	9.1	11.1	14.0	15.8	17.1	15.6	11.4	9.4	8.9	11.2

Table 21. continued: Monthly mean sea temperature for Dover at 51° 7' N, 1° 21' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1975	8.4	7.1	6.9	7.4	10.4	13.0	15.8	18.0	16.8	13.5	10.3	7.4	11.3
1976	6.7	5.1	5.9	8.0									
1977							15.5	16.5	15.8	14.3	11.2	8.3	
1978	6.5	5.0	6.8	7.4	9.9	13.6	14.9	16.5	16.5	14.3	12.0	8.8	11.0
1979	5.2	3.8	4.9		10.4	12.9	15.4	16.2	16.1	14.7	11.6	9.7	
1980	6.0	7.2	6.9		10.8	13.3	14.7	16.9	16.9	13.9	9.5	6.8	
1981	5.7	5.1	7.0	8.8	10.7	13.1	15.2	16.8	17.0	13.7	11.6	6.9	11.0
1982	5.4	6.2	6.7	8.3	10.8	14.5	16.9	17.8	17.1	14.6	12.1	9.1	11.6
1983	7.9	4.5	6.1	7.7	10.5	13.7	16.7	18.3	16.9	14.4	10.9	9.1	11.4
1984	7.5	6.4	5.7	7.5	10.0	12.7	15.3	16.8	16.3	14.2	12.5	9.9	11.2
1985	4.8	4.3	5.4	8.0	9.9	13.2	15.5	16.2	16.3	15.1	9.4	9.0	10.6
1986	7.2	3.2	3.3	6.1	9.8	13.1	16.0	16.3	14.8	14.0	11.4	8.6	10.3
1987	4.2	3.7	4.6	7.4	10.5	12.9	15.7	16.7	16.7	14.1	11.4	7.4	10.4
1988	8.2	6.8	6.1	8.2	11.0	13.2	15.2	16.7	15.8	14.0	9.8	8.1	11.1
1989	8.0	7.4	8.1	8.9	12.2	14.9	17.6	18.3	17.8	14.9	9.9	8.9	12.2
1990	8.5	8.3	8.5	9.4	12.6	14.3	15.7	18.0	16.7	14.5	11.5	7.0	12.1
1991	6.7	4.4	7.0	8.5	9.8	12.0	14.7	17.7	17.9	14.4	11.1	8.6	11.1
1992	6.8	6.0	7.2	8.5	11.9	15.2	17.2	17.8	16.4	13.4	10.6	8.7	11.6
1993	7.6	7.2	6.0	8.9	11.6	15.0	16.5	17.0	16.3	13.0	9.5	8.1	11.4
1994	7.3	6.6	7.8	8.5	11.6	13.8	17.0	18.8	16.3	14.0	12.9	10.8	12.1
1995	7.5	8.2	8.0	9.3	11.4	14.1	16.6	19.5	17.4	15.4	11.9	8.8	12.3
1996	7.7	5.3	5.4	7.6	10.2	13.7	16.1	17.6	16.2	14.7	11.8	8.2	11.2
1997	3.6	6.1	8.1	9.4	11.8	14.8	16.5	18.6	17.5	14.9	12.1	10.2	12.0
1998	8.7	7.3	8.4	9.8	13.0	14.8	16.7	18.0	17.1	15.3	11.0	8.3	12.4
1999	8.4	7.0	7.9	9.9	12.7	15.3	17.9	19.1	18.8	15.4	11.4	9.0	12.7
2000	8.0	7.9	9.0	9.6	12.4	15.1	17.1	18.2	17.4	14.9	11.7	10.4	12.6
2001		7.2	7.1	8.9	11.2	14.8	16.8	18.3	17.0	15.6	11.7	8.1	12.4
2002	6.8	8.3	8.4	10.1	12.1	14.6	16.4	18.4	17.8	14.9	12.7	10.0	12.5
2003	7.6	5.8	7.4	8.7	11.6	15.1	17.4	18.8	18.5	13.8	11.9	9.2	12.2
2004	8.2	7.1	6.6	9.6	12.2	15.2	16.5	18.3	17.1	14.5	12.0	9.2	12.2
Whole data set													
mean	6.6	6.0	6.5	8.2	10.9	13.7	16.1	17.4	16.8	14.4	11.1	8.4	
count	66	66	66	65	70	70	70	71	71	70	70	67	
sd	1.34	1.38	1.30	1.03	0.86	0.87	0.78	0.83	0.83	0.86	0.93	1.13	
1971 - 2000													
mean	6.9	6.1	6.7	8.4	11.0	13.8	16.1	17.4	16.7	14.2	11.0	8.6	
count	29	29	29	27	28	28	29	29	29	29	29	29	
sd	1.32	1.41	1.29	0.92	0.94	0.88	0.85	0.92	0.83	0.85	0.98	1.09	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Dover which are derived from simple averaging of all the monthly data.

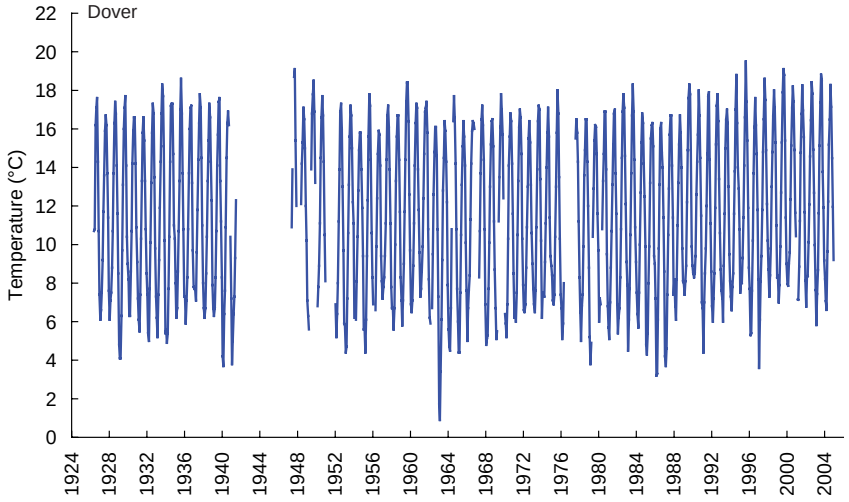


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

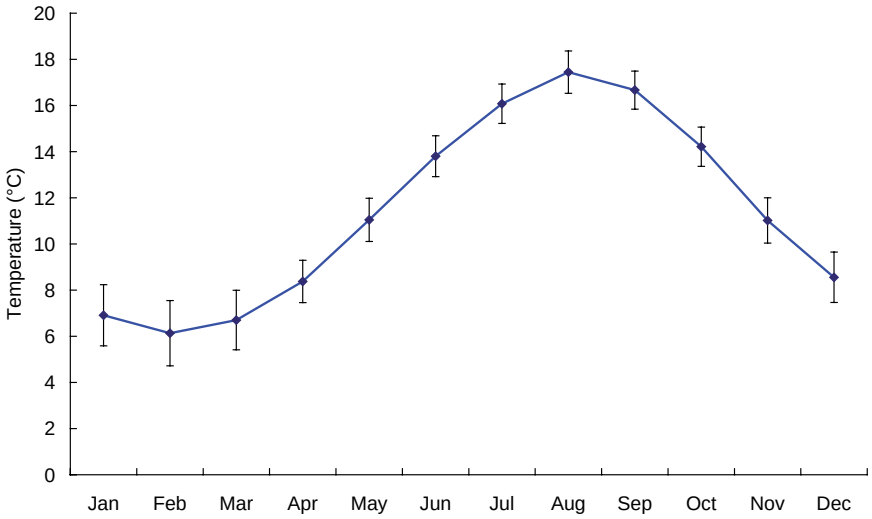


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

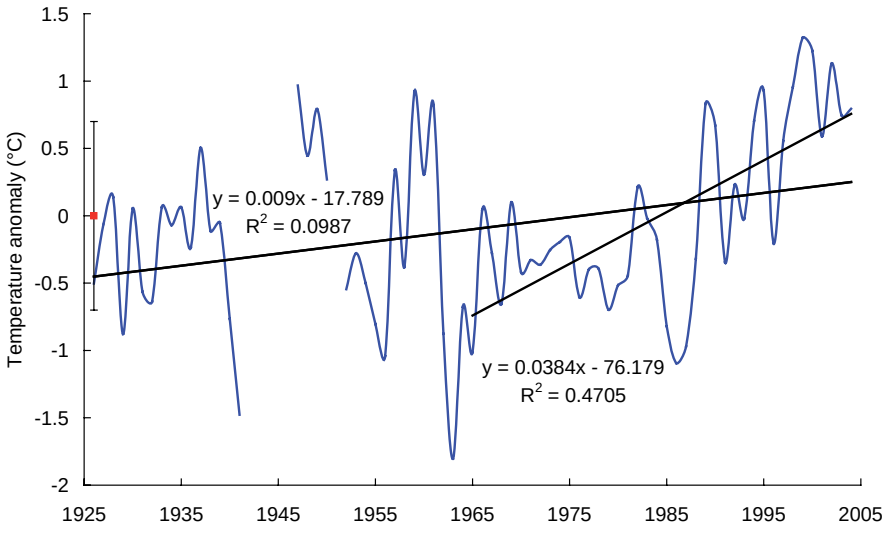


Table 22. Monthly mean sea temperature for Dungeness Power Station at 50° 55' N, 0° 58' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1968	8.0	8.0	7.0	9.5	11.9	14.0	16.2	16.9	17.5	14.7	10.9	8.6	11.9
1969	8.4	7.3	6.7	7.6	8.9	12.8	15.9	18.0	17.7	16.4	12.2	7.7	11.6
1970	6.6	6.4	5.9	6.6	8.8	12.4	15.1	16.3	16.0	13.9	11.3	8.5	10.7
1971	6.6	7.2	6.7	7.7	9.9	13.4	16.6	17.5	17.8	15.1	10.6	8.2	11.4
1972	7.0	6.7	7.2	9.2	9.8	12.2	14.5	16.3	16.6	13.6	11.2	9.6	11.2
1973	8.6	7.9	8.3	9.4	11.4	15.2	17.5	18.8	18.4	14.3	11.5	7.1	12.4
1974	7.4	7.7	7.8	9.9	11.0	14.6	15.9	17.4	16.8	12.9	10.1	8.8	11.7
1975	8.8	8.1	7.7	9.7	9.7	14.2	17.1	19.2	18.6	15.5	12.5	8.3	12.5
1976	7.8	5.6	6.9	8.8	10.7	13.7	16.3	17.8	17.0	15.3	12.1	7.9	11.7
1977	6.0	6.4	7.3	7.7	10.0	13.0	15.8	16.4	15.9	14.5	11.5	8.2	11.1
1978	6.3	4.5	4.4	4.6	8.6	12.1	14.7	16.2	16.3	14.5	13.0	9.4	10.4
1979	5.7	4.6	5.4	7.3		12.4	15.8	16.9	16.9	15.8	11.8	9.9	
1980													
1981													
1982	5.6	6.7	6.8	9.1	11.1	14.5	16.8	18.3	17.4	14.5	12.1	8.8	11.8
1983	7.8	5.1	6.2	7.5	10.1	13.2	16.3	18.1	16.7	14.2	10.9	8.8	11.2
1984	7.2	6.4	5.8	7.9	10.1	12.2	15.6	16.7	16.5	14.1	12.6	10.1	11.3
1985	5.4	4.9	5.5	7.7	9.6	12.7	15.3	16.6	16.5	15.5	11.2	8.9	10.8
1986	6.9	4.2	3.3	6.3	9.0	12.3	15.3	16.5	15.4	14.2	11.9	9.4	10.4
1987	5.1	3.8	4.7	7.5	10.5	12.4	15.4	16.7	17.3	15.2	12.6	8.2	10.8
1988	8.3	7.2	6.5	8.5	11.0	13.9	15.8	17.3	16.4	14.4	11.6	9.0	11.7
1989	8.8	8.3	8.4	9.3	11.8	14.9	17.6	18.9	18.4	16.4	13.8	10.6	13.1
1990	9.7	9.3	9.6	10.6	13.3	15.3	17.4	19.0	18.1	15.6	11.7	7.5	13.1
1991	6.7	4.0	6.6	8.6	10.0	12.2	14.6	16.8	17.8	15.6	12.4	9.9	11.3
1992	8.3	6.4	7.4	8.8	10.9	14.4	16.6	17.8	16.8	14.1	11.1	9.1	11.8
1993	7.9	8.0	6.7	9.3	12.3	14.5	16.9	17.7	16.8	14.0	10.6	8.6	11.9
1994	7.4	7.0	7.9	9.0	9.0	13.7	13.7	18.7	16.7	14.4	12.3	10.9	11.7
1995	7.8	8.5	8.3	10.0	11.8	13.5	15.8	18.9	17.6	15.8	13.1	8.9	12.5
1996	7.4	5.3	5.3	7.5	10.0	13.6	15.3	16.9	16.4	14.5	12.2	8.2	11.1
1997													
1998	9.1	7.4	8.7	10.0	12.1	14.6	16.6	18.2	17.9	15.4	12.1	9.1	12.6
1999	8.9	8.0	8.0	10.0	11.8	14.6	17.1	18.9	18.7	15.9	12.6	9.2	12.8
2000	8.0	7.0	8.4	9.0	11.8	14.0	15.5	17.4	17.7	15.0		10.0	
2001	7.5	7.5	7.4	9.0	10.2	14.9	16.4	18.3	17.5	16.0	12.6	8.9	12.2
2002	6.4	8.5	8.6	10.0	12.1	14.7	16.2	18.0	18.4	15.8	12.1	10.3	12.6
2003	8.3	6.5	7.5	8.6	10.3	14.0	17.0	18.5	18.7	15.2	11.8	10.6	12.3
2004	8.2	7.7	6.5	9.1	11.1	13.7	15.2	17.4	17.3	14.6	12.1	9.6	11.9
Whole data set													
mean	7.5	6.7	6.9	8.6	10.6	13.6	16.0	17.6	17.3	14.9	11.9	9.0	
count	34	34	34	34	33	34	34	34	34	34	33	34	
sd	1.14	1.45	1.36	1.27	1.17	0.99	0.92	0.92	0.86	0.83	0.80	0.92	
1971 - 2000													
mean	7.4	6.5	6.9	8.6	10.7	13.6	16.0	17.6	17.2	14.8	11.9	9.0	
count	27	27	27	27	26	27	27	27	27	27	26	27	
sd	1.22	1.53	1.47	1.31	1.15	1.02	0.99	0.96	0.85	0.81	0.86	0.90	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Dungeness Power Station which are derived from simple averaging of all the monthly data.

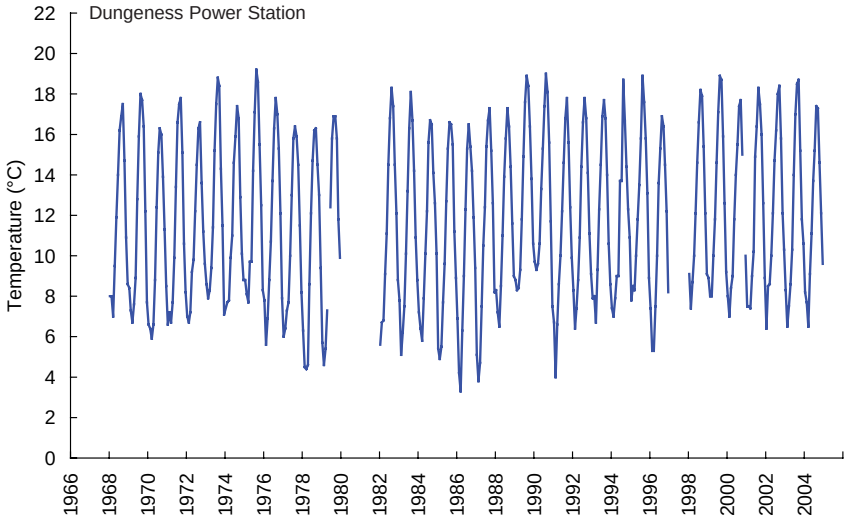


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

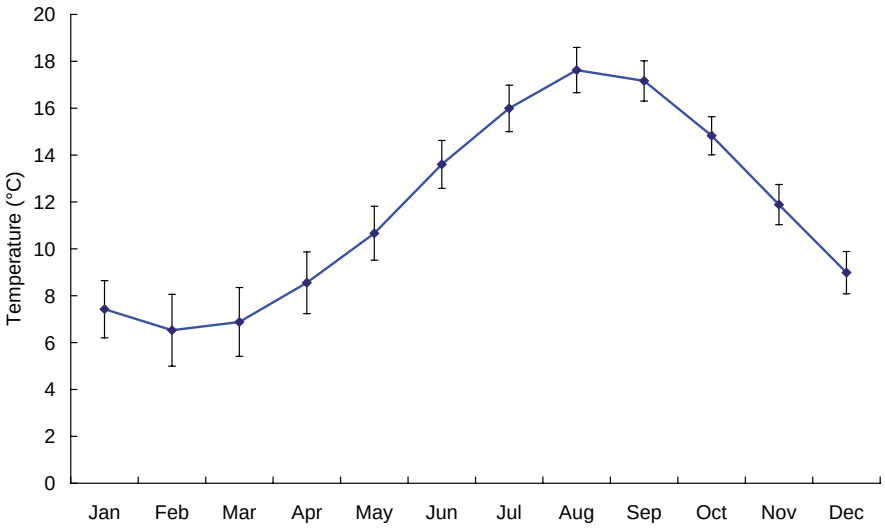


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

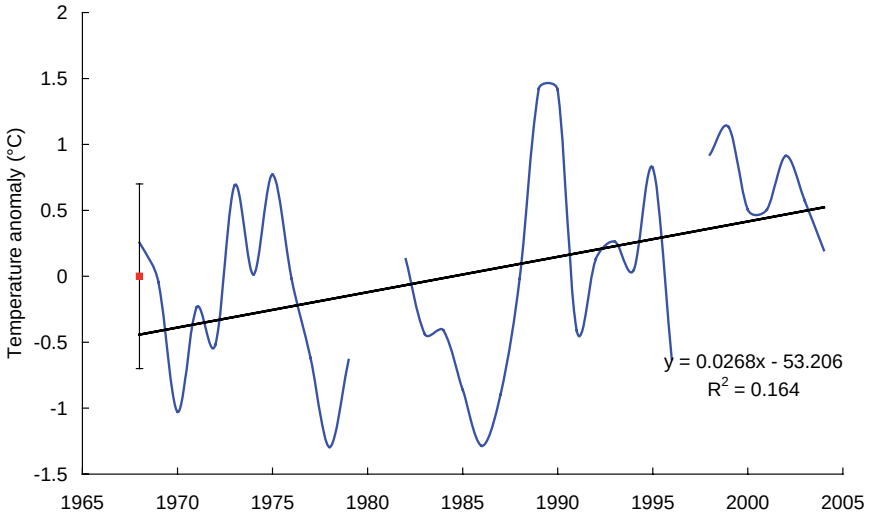


Table 23. Monthly mean sea temperature for Eastbourne at 50° 46' N, 0° 18' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1892	4.6	4.4	4.3	7.7	11.3	14.3	16.8	17.5	16.3	12.2	9.2	6.6	10.4
1893	4.6	5.7	7.2	10.0	13.2	15.9	17.9	18.8	16.1	13.7	8.3	6.8	11.5
1894	4.3	5.6	6.9	10.3	11.6	14.3	17.3	16.8	14.9	12.2	10.9	7.9	11.1
1895	4.1	0.4	3.3	7.0	11.5	14.8	16.7	17.8	17.6	13.3	10.8	7.5	10.4
1896	6.4	5.8	7.7	9.4	12.4	15.8	17.7	17.3	16.1	11.9	7.6	6.3	11.2
1897	4.7	4.8	6.8	8.4	11.4	15.0	17.6	18.1	15.2	13.3	10.7	8.0	11.2
1898	7.9	6.7	5.6	8.2	11.2	14.2	16.7	18.2	17.8	14.3	11.6	9.7	11.8
1899	7.6	6.5	6.4	8.9	11.9	15.6	18.1	19.7	17.4	13.1	11.3	7.1	12.0
1900	6.8	5.4	6.2	8.1	11.1	14.7	17.7	17.7	16.8	13.6	10.8	9.1	11.5
1901	6.2	3.8	5.0	8.1	12.4	15.1	17.8	18.4	16.3	13.8	9.6	7.4	11.2
1902	6.7	3.0	6.4	8.3	10.2	13.9	16.8	17.1	16.6	12.4	10.2	7.2	10.7
1903	6.0	6.7	7.7	8.1	11.5	14.0	16.6	16.7	15.7	13.9	9.8	7.0	11.1
1904	5.3	5.7	5.5	8.5	11.4	14.5	17.7	18.1	15.7	13.0	9.7	8.2	11.1
1905	5.7	5.9	7.0	8.7	11.8	15.0	17.9	17.9	15.1	10.7	8.9	7.1	11.0
1906	6.4	5.1	5.7	7.3	10.6	14.0	17.1	18.0	16.7	14.6	11.1	6.6	11.1
1907	4.6	2.7	5.3	8.2	10.8	13.9	16.0	16.8	16.4	13.9	10.9	8.0	10.6
1908	4.6	5.0	5.6	7.5	11.2	15.3	17.2	17.4	15.3	14.5	10.3	8.0	11.0
1909	5.2	3.9	3.8	8.1	11.6	13.8	15.9	17.8	15.4	14.2	8.6	6.5	10.4
1910	6.2	5.6	6.9	8.2	11.5	15.1	15.9	17.4	15.2	13.9	8.9	8.2	11.1
1911	5.3	4.6	6.7	6.6	11.9	15.3	18.2	19.4	18.1	13.4	10.2	8.2	11.5
1912	7.2	5.9	7.8	9.6	12.9	15.4	18.1	16.1	13.8	11.8	9.2	8.2	11.3
1913	7.5	6.2	6.8	8.4	11.9	15.2	16.6	17.1	16.6	14.7	12.1	8.1	11.8
1914	3.7	6.0	7.2	9.8	12.2	15.4	17.4	18.2	16.7	13.2	10.0	8.1	11.5
1915	6.2	6.2	6.1	7.8	11.6	14.4	16.2	17.2	15.9	12.6	8.2	8.2	10.9
1916	7.8	6.5	5.6	8.2	12.3	13.6	16.1	18.1	15.9	13.9	10.1	6.5	11.2
1917	4.6	1.7	3.6	5.4	10.9	14.5	16.2	16.7	16.2	12.5	9.7	5.7	9.8
1918	3.6	5.7	5.9	7.7	11.7	14.6	16.4	17.8	15.8	12.4	9.6	9.2	10.9
1919	6.7	4.2	5.9	7.3	11.8	14.7	15.2	17.2	16.6	11.4	6.9	7.1	10.4
1920	6.6	6.8	7.5	9.7	12.3	15.3	16.4	16.3	15.3	13.6	10.1	6.8	11.4
1921	8.3	6.2	7.7	9.4	13.0	15.3	18.0	18.2	16.9	15.7	9.6	8.2	12.2
1922	6.4	6.2	6.7	6.9	11.3	15.0	15.4	16.3	14.9	11.7	7.8	6.8	10.5
1923	5.8	6.8	7.2	9.3	11.3	13.0	16.7	17.4	15.4	13.0	8.4	6.2	10.9
1924	6.1	4.9	5.0	6.6	11.2	14.3	16.7	16.7	15.5	13.4	10.1	8.8	10.8
1925	7.4	7.2	6.3	8.1	11.6	15.4	17.4	17.8	14.8	13.0	8.9	4.9	11.1
1926	5.8	6.9	7.1	8.9	11.0	14.0	16.9	17.6	17.7	13.1	10.1	6.4	11.3
1927	5.2	5.4	7.4	9.1	12.5	14.4	16.3	17.3	15.9	12.9	9.8	5.8	11.0
1928	5.8	6.4	6.7	8.7	11.6	14.4	17.7	17.8	16.4	13.7	10.9	7.5	11.5
1929	3.8	2.6	4.3	7.1	10.7	14.0	16.6	17.4	17.9	13.9	10.3	9.1	10.6
1930	7.9	5.4	6.0	8.4	11.6	15.3	16.9	17.1	16.7	13.2	10.2	8.3	11.4
1931	6.1	5.6	4.9	7.7	10.9	14.4	16.4	16.7	14.5	12.6	10.6	7.9	10.7
1932	7.7	4.9	4.7	7.4	10.6	14.1	16.4	18.2	16.5	12.9	9.6	6.6	10.8
1933	5.8	4.9	6.8	9.3	12.5	15.7	18.1	18.8	17.3	14.3	9.2	3.8	11.4
1934	5.1	3.9	5.2	7.9	11.7	15.1	18.2	17.8	17.3	13.9	9.6		
1935	7.0	5.9	6.4	8.7	10.9	14.4	18.0	18.7	16.6	13.3	10.8	6.8	11.5
1936	6.8	4.9	6.6	7.8	11.9	14.8	16.8	17.6	17.1	12.1	9.7	7.3	11.1
1937	7.2	6.9	6.1	8.8	11.6	15.1	16.8	18.2	16.7	13.8	9.9	7.1	11.5
1938	6.7	5.3	6.9	8.5	10.4	14.1	16.3	18.1	16.3	13.3	11.8	7.4	11.3
1939	6.3	5.9	6.6	8.5	11.6	15.1	16.5	17.9	17.2	12.3	10.7	7.2	11.3
1940	2.1	3.4	5.4	7.9	12.3	15.9	17.0	17.4	16.1	12.8	10.4	6.1	10.6

Table 23. continued: Monthly mean sea temperature for Eastbourne at 50° 46' N, 0° 18' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1941	2.8	3.4	6.6	7.6	10.1	14.3	17.9	16.7	16.3	13.7	9.2	7.9	10.5
1942													
1943													
1944													
1945													
1946													
1947	5.2	1.7	3.9	7.7	11.3	15.0	17.1	19.4	18.0	14.1	10.9	7.6	11.0
1948	7.8	5.9	6.7	9.6	13.2	15.2	16.1	17.5	16.2	13.9	10.7	8.5	11.8
1949	7.1	6.3	6.1	9.7	12.1	15.6	18.2	19.0	18.8	16.0	10.8	8.6	12.4
1950	6.9	6.7	7.8	9.2	12.2	16.3	17.9	18.2	16.4	13.1	9.7	5.8	11.7
1951	5.7	5.4	6.1	7.9	10.9	14.5	17.2	17.4	16.2	13.2	11.4	8.6	11.2
1952	6.2	4.4	6.4	8.6	12.8	15.6	17.6	17.8	14.8	12.0	8.1	5.4	10.8
1953	4.7	4.3	5.4	8.4	12.3	14.7	16.8	18.1	16.3	13.8	11.4	9.8	11.3
1954	4.9	3.1	6.6	8.5	11.3	14.2	15.8	16.5	15.9	13.9	11.2	8.9	10.9
1955	5.2	4.9	3.6	7.3	10.4	14.2	16.9	18.5	17.1	13.3	9.7	7.9	10.8
1956	6.6	2.3	4.4	7.6	11.6	13.9	16.4	16.3	15.8	12.9	8.2	7.6	10.3
1957	6.8	7.2	8.2	9.8	11.6	15.5	17.6	17.7	15.6	13.5	9.8	7.1	11.7
1958	6.2	6.4	5.3	7.3	11.5	14.9	16.7	17.4	17.3	14.3	10.4	8.1	11.3
1959	6.4	5.1	7.2	9.9	13.1	16.0	18.6	19.4	17.8	15.6	11.2	8.8	12.4
1960	6.3	5.9	7.1	9.0	12.4	15.8	16.8	17.9	16.3	13.3	11.1	8.3	11.7
1961	6.4	7.2	8.2	10.6	13.1	15.6	17.5	17.5	17.7	14.6	9.8	7.4	12.1
1962	6.2	5.6	3.9	7.6	10.3	13.8	16.1	16.9	15.6	13.6	9.5	5.9	10.4
1963	0.6	0.6	3.4	6.7	10.2	14.2	16.2	16.9	15.7	13.6	11.7	5.9	9.6
1964	5.2	5.0	4.6	7.4	12.2	14.9	17.2	17.9	16.6	12.7	10.1	7.4	10.9
1965	5.6	4.1	4.4	8.1	11.4	14.0	16.1	17.1	15.3	13.3	9.1	7.3	10.5
1966	4.7	6.6	9.7	8.4	11.7	15.4	16.9	17.1	16.6	14.6	9.2	7.5	11.5
1967	5.6	6.4	7.6	8.8	11.6	14.9	17.5	17.8	16.2	14.2	9.5	6.7	11.4
1968	5.3	5.1	5.6	8.4	11.2	14.7	16.6	17.0	16.7	14.8	10.2	7.1	11.1
1969	6.5	4.2	5.0	7.7	11.5	14.2	17.3	18.1	16.9	14.9	10.8	6.3	11.1
1970	5.9	5.6	5.3	7.1	11.8	15.7	16.2	17.4	16.3	13.7	11.1	7.6	11.1
1971	5.2	6.5	5.8	8.3	11.9	14.2	17.4	17.6	16.7	14.6	9.7	7.6	11.3
1972	5.9	6.0	6.8	8.9	9.7	13.8	16.4	17.0	15.0	12.5	9.8	8.4	10.9
1973	6.4	6.0	6.7	8.0	11.2	15.6	17.5	18.3	17.0	12.7	10.1	6.5	11.3
1974	7.3	7.2	7.0	9.9	12.0	14.8	16.6	17.7	16.0	11.4	9.4	8.4	11.5
1975	8.3	7.3	6.9	7.6	11.1	14.7	17.0	18.6	16.9	12.8	9.9	6.6	11.5
1976	7.1	4.6	5.8	8.7	12.2	16.1	19.3	19.4	16.5	14.9	10.4	7.1	11.8
1977	6.1	6.7	8.0	8.3	11.5	14.0	16.7	17.8	15.5	14.0	10.5	7.6	11.4
1978	6.2	4.6	6.3	7.5	11.0	14.9	16.0	17.4	16.4	13.9	12.3	6.8	11.1
1979	4.4	4.1	5.5	7.8	10.8	14.2	16.9	16.9	16.3	14.4	11.0	8.8	10.9
1980	5.4	6.7	6.8	9.2	11.7	14.7	16.0	17.8	16.8	13.4	8.9	6.9	11.2
1981	5.7	5.0	6.6	9.7	11.5	14.2	16.2	18.1	17.1	13.0	10.2	5.9	11.1
1982	4.6	5.8	6.7	9.3	12.1	16.2	18.1	18.6	17.0	14.0	11.6	7.2	11.8
1983	7.6	4.5	5.4	7.7	11.2	14.6	18.4	19.1	17.3	14.4	10.1	6.9	11.4
1984	7.0	6.0	4.9	7.9	11.5	14.3	16.8	18.2	16.9	13.4	12.0	9.3	11.5
1985	3.7	3.8	4.9	8.0	10.7	13.9	17.1	16.8	16.3	14.8	9.5	8.2	10.6
1986	7.0	3.4	2.8	6.5	10.2	14.2	16.7	16.6	14.5	13.9	11.1	9.2	10.5
1987	5.3	3.4	4.5	7.4	11.4	14.5	17.0	17.4	17.0	14.1	11.4	9.2	11.1
1988	8.0	6.8	6.9	8.6	11.7	14.8	15.9	17.8	16.7	14.9	12.6	8.2	11.9
1989	8.0	7.7	7.8	8.6	11.2	15.3	17.7	19.4	18.1	15.6	13.2	10.0	12.7

Table 23. continued: Monthly mean sea temperature for Eastbourne at 50° 46' N, 0° 18' E.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1990	8.2	7.7	8.7	9.4	14.0	15.4	16.7	19.9	17.8	15.2	12.0	9.0	12.8
1991	6.2	3.4	5.6	7.7	9.2	12.0	15.3	18.1	18.5	14.8	9.9	7.1	10.7
1992	5.4	4.3	5.5	9.0	12.1	15.8	17.7	19.1	17.7	13.6	10.3	8.4	11.6
1993	7.0	6.2	6.5	8.7	12.6	15.6	17.8	17.5	16.1	13.6	8.5	6.0	11.3
1994	5.7	6.0	6.5	8.1	11.2	14.9	17.6	18.9	16.4	14.1	9.9	8.7	11.5
1995	7.8	7.5	8.6	9.3	12.9	15.0	18.9	20.4	17.4	15.8	12.0	7.8	12.8
1996	6.9	4.8	5.7	8.4	10.6	15.2	17.2	18.8	15.9	13.8	10.6	7.3	11.3
1997	3.0	5.6	8.2	10.3	13.2	15.8	17.5	19.3	17.6	14.4	11.4	8.7	12.1
1998	7.8	6.1	8.3	10.2	13.9	16.1	17.4	18.6	16.9	14.2	9.9	7.2	12.2
1999	7.5	6.2	8.1	10.2	13.3	16.3	18.5	19.2	18.5	13.7	10.3	7.7	12.5
2000	6.7	7.4	8.3	9.1	12.8	15.2	16.8	18.3	17.5	14.3	11.0	9.5	12.2
2001	6.4	6.5	6.4	8.9	11.7	15.3	18.0	19.0	16.6	15.7	11.1	7.5	11.9
2002	5.9	8.3	8.4	10.1	12.7	15.3	17.5	19.3	17.4	14.2	12.2	8.2	12.5
2003	6.7	5.4	7.3	9.6	12.7	16.4	18.5	19.9	17.7	13.8	11.1	8.3	12.3
2004	7.3	6.9	6.4	9.7	12.8	16.0	17.2	19.1	17.0	13.8	10.8	8.1	12.1
Whole data set													
mean	6.0	5.4	6.2	8.4	11.7	14.8	17.1	17.9	16.5	13.6	10.2	7.5	
count	108	108	108	108	108	108	108	108	108	108	108	107	
sd	1.37	1.50	1.33	0.98	0.87	0.76	0.81	0.90	0.95	1.00	1.12	1.10	
1971 - 2000													
mean	6.4	5.7	6.5	8.6	11.7	14.9	17.2	18.3	16.8	14.0	10.7	7.9	
count	30	30	30	30	30	30	30	30	30	30	30	30	
sd	1.36	1.35	1.37	0.94	1.13	0.91	0.91	0.95	0.92	0.94	1.12	1.08	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Eastbourne which are derived from simple averaging of all the monthly data.

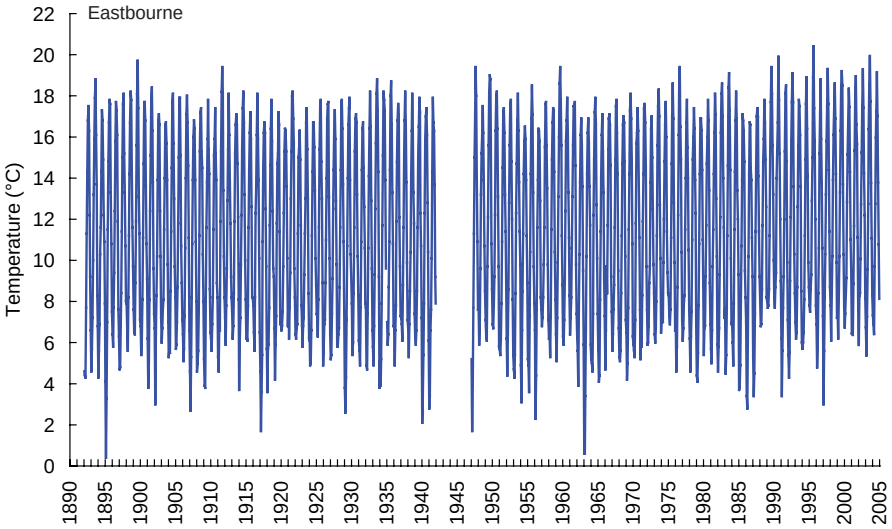


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

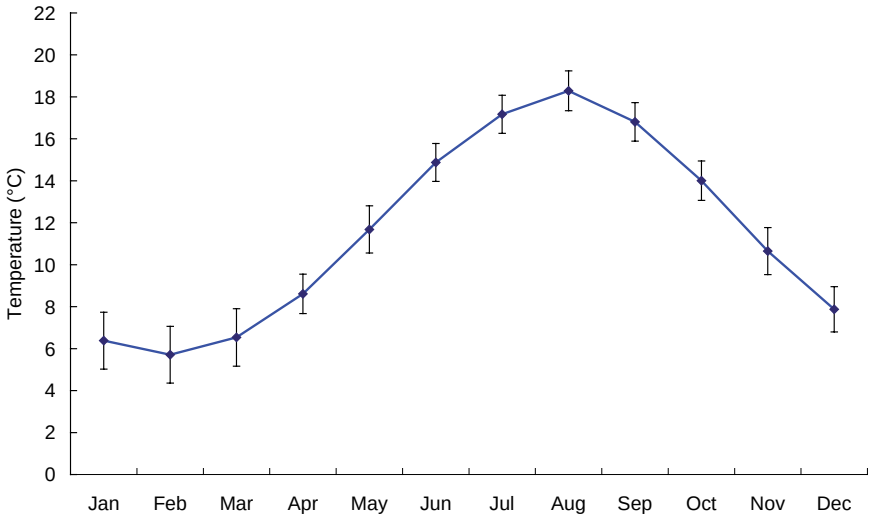


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

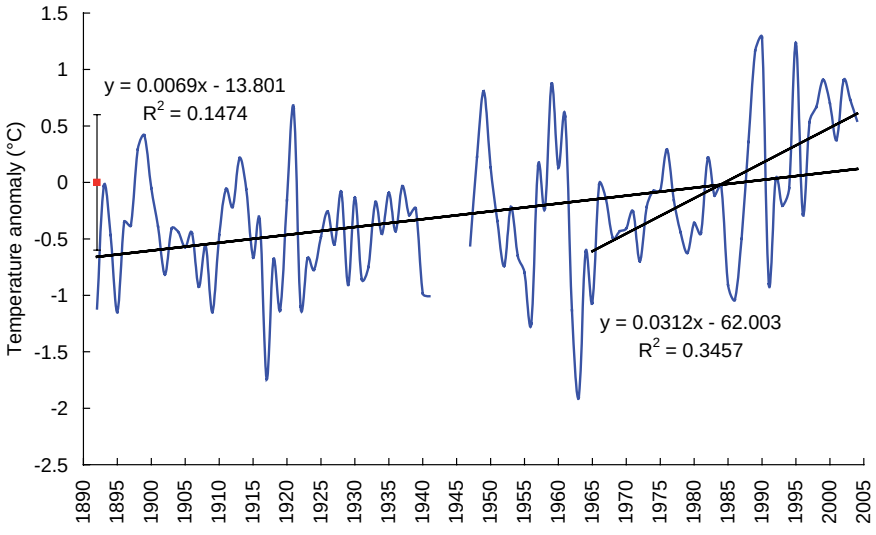


Table 24. Monthly mean sea temperature for Shoreham by Sea at 50° 50' N, 0° 15' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966					12.6	16.3	17.3	17.1	16.9	15.8	13.6	7.2	
1967	5.5	7.3	8.3	9.7	12.6	15.7	17.7	18.6	16.7	14.2	9.9	6.9	11.9
1968	5.4	5.3	6.5	9.4	12.1	15.8	17.9	17.5	17.3	14.9	10.8	7.5	11.7
1969	6.5	4.8	5.7	8.6	13.0	15.6	18.2	18.7	17.4	15.8	10.3	6.7	11.8
1970	6.3	5.3	5.7	8.0	12.3	16.5	17.3	18.2	16.8	14.5	10.7	8.1	11.6
1971	5.9	6.5	6.8	8.9	12.4	14.6	18.5	18.5	17.2	16.1	9.2	8.5	11.9
1972	6.6	6.7	7.8	9.4	12.0	15.0	16.7	17.6	15.2	13.1	9.8	8.2	11.5
1973	6.8	6.2	7.2	8.1	12.0	16.3	18.1	18.7	17.2	12.5	9.5	7.0	11.6
1974	6.8	6.8	7.4	9.5	12.2	15.3	17.1	18.1	15.6	11.4	9.6	8.3	11.5
1975	7.9	7.0	7.2	8.5	10.7	14.0	17.7	19.8	15.8	12.8	10.4	6.8	11.6
1976	6.8	5.1	6.3	8.7	14.3	17.4	19.8	19.5	17.4	15.5	10.5	7.3	12.4
1977	6.1	6.5	8.1	9.0	13.0	15.2	16.9	17.3	17.1	15.5	11.3	7.7	12.0
1978	6.1	5.0	7.3	8.3	11.8	15.4	17.1	17.5	16.3	13.2	11.4	6.8	11.4
1979	2.7	2.8	4.6	7.9	11.3	14.9	16.3	17.2	15.9	12.4	7.3	5.9	9.9
1980	2.6	5.3	5.3	6.9	10.1	13.2	14.3	17.6	13.9	8.0	6.1	3.5	8.9
1981	4.0	4.3	6.2	9.6	11.9	15.2	17.1	18.5	18.1	12.5	10.0	5.4	11.1
1982	5.4	6.5	7.4	9.9	14.7	17.8	19.3	19.1	18.0	13.8	11.2	7.8	12.6
1983	7.6	5.0	6.3	8.5	13.0	16.1	20.1	20.1	16.4	13.9	10.7	8.3	12.2
1984	7.0	6.6	7.1		12.6	13.6	15.9	16.3	13.3	11.8	7.5	5.6	
1985	3.6	4.8	6.8	10.4	12.7	15.8	20.0	17.4	17.3	15.0	9.3	9.2	11.9
1986	6.0	3.3	4.7	8.0	12.7	15.6	19.8	18.0	16.0	14.8	10.8	8.0	11.5
1987	4.8	4.2	5.9	10.8	12.8	12.7	15.9	18.7	17.5	13.1	10.4	7.3	11.2
1988	6.8	5.0	6.6	9.5	13.4	15.2	16.9	16.7	13.5	13.3	8.8	8.5	11.2
1989	8.1	7.1	8.7	11.3	15.4	17.5	19.6	19.7	17.5	14.6	10.6	8.0	13.2
1990	7.9	7.8	10.0	10.4	14.9	15.9	17.5	19.5	16.3	13.7	10.0	6.3	12.5
1991	5.1	4.4	7.7	9.1	11.5	15.0	18.2	19.5	18.0	12.7	9.2	6.5	11.4
1992	6.4	5.8	8.1	9.9	14.2	16.2	17.8	17.3	15.7	12.5	9.0	7.8	11.7
1993	6.8	6.8	6.8	10.3	12.8	16.6	16.9	17.4	15.9	12.8	9.0	6.0	11.5
1994	6.0	5.6	8.1	9.3	13.9	18.5	21.3	20.3	17.4	14.6	13.7	10.3	13.3
1995	7.6	8.4	8.3	12.5	14.7	17.5	20.1	20.5	17.3	16.4	12.1	8.6	13.7
1996	7.5	5.3	6.5	10.4	12.3	18.5	19.2	20.2	17.0	14.8	11.0	8.0	12.6
1997	5.1	6.7	9.1	11.1	14.5	16.3	18.2	19.5	17.8	13.5	10.8	8.1	12.6
1998	6.5	6.3	7.4	10.2	14.6	15.4	16.7	17.8	16.3	12.6	9.0	7.8	11.7
1999	8.2	6.1	8.5	10.0	12.5	14.7	20.3						
mean	6.1	5.8	7.1	9.4	12.9	15.7	18.0	18.4	16.5	13.7	10.1	7.4	
count	33	33	33	32	34	34	34	33	33	33	33	33	
sd	1.42	1.25	1.22	1.16	1.24	1.35	1.54	1.14	1.22	1.67	1.54	1.26	

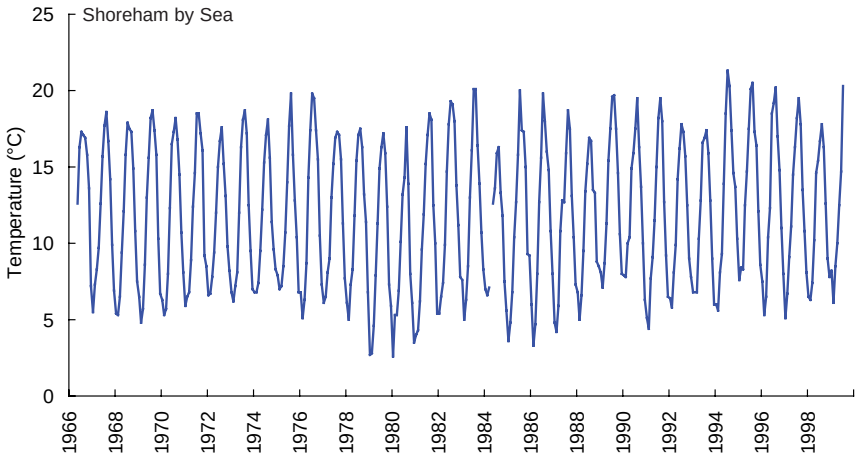


Figure (a). Monthly mean surface temperature for the entire duration of the record at Shoreham by Sea which are derived from simple averaging of all the monthly data.

Table 25. Monthly Mean Sea Temperature for Fawley Power Station at 50° 50' N, 1° 20' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1984	7.5	6.3	6.4	9.4	12.4	16.3	19.3	20.3	18.0	14.6	12.4	9.9	12.7
1985	5.0	4.5	5.5	8.8	11.1	14.9	18.1	17.2	16.8	15.6	10.2	7.9	11.3
1986	6.6	3.9	3.7	7.0	10.8	14.9	18.7	17.9	16.0	14.5	11.8	9.2	11.3
1987	5.0	4.5	5.3	8.6	11.9	15.1	18.6	18.6	18.2	14.6	11.1	6.8	11.5
1988	7.5	6.7	7.0	10.1	14.3	16.6	17.4	17.8	16.1	14.0	10.6	8.6	12.2
1989	8.3	7.9	8.7	9.5	13.8	17.8	20.9	20.1	18.3	15.2	12.3	8.4	13.4
1990	8.6	9.0	9.3	10.2	15.5	16.0	18.6	20.0	18.2	15.2	11.4	7.4	13.3
1991	7.1	3.7	7.8	9.5	11.0	14.5	18.3	19.9		13.7	10.8	7.3	
1992	6.6	6.3	8.0	8.3			18.4	18.8		16.5			
1993	7.9	7.7	7.1	8.6	13.5	16.9	18.4	17.8	16.7	12.7	9.5	7.3	12.0
1994	6.7	5.7	7.2	9.5	11.8	15.3	20.2	20.7	18.4		13.5	11.3	
1995	7.6	8.5	8.3			16.1	19.8			16.8	13.5	8.3	
1996	4.7	4.8	6.8			17.8	19.3	20.3	16.9	15.3	11.6	8.0	
1997													
1998	9.2	6.4					17.7			14.7	13.8	8.6	
1999	8.5	6.7	7.2	10.8	13.4	17.2	20.0	21.0	18.6	15.1	11.3	10.4	13.4
2000	10.4		9.5		14.7	18.0	18.0	20.0	19.1	15.0	11.3	7.2	
2001	5.9	7.6	6.9	8.7		16.0	19.4	20.4	18.3	16.1	10.8	9.1	
2002	6.3	9.1	8.3						16.5	12.5	10.3	7.4	
2003	5.1	5.2	8.0	9.0	13.6	18.5	20.4	22.7	17.4	11.9	11.5	8.3	12.6
2004	7.2	8.0	6.5	11.4	13.2	17.9	19.2	19.6	16.8	14.2	11.7	8.8	12.9
mean	7.1	6.4	7.2	9.3	12.9	16.5	19.0	19.6	17.5	14.6	11.5	8.4	
count	20	19	19	15	14	17	19	17	16	19	19	19	
sd	1.51	1.70	1.42	1.08	1.46	1.26	0.96	1.41	0.98	1.29	1.15	1.18	

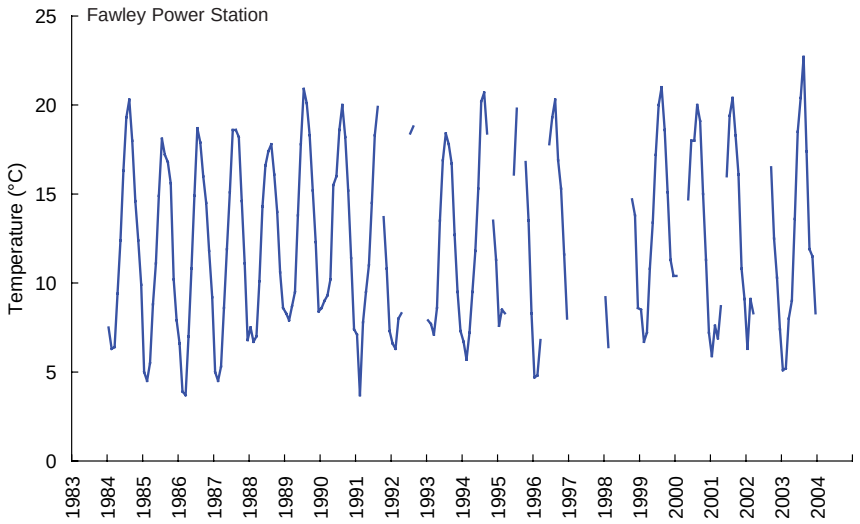


Figure (a). Monthly mean surface temperature for the entire duration of the record at Fawley Power Station which are derived from simple averaging of all the monthly data.

Table 26. Monthly mean sea temperature for Bournemouth at 50° 44' N, 1° 52' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1970							16.6	17.2	16.0	13.5	11.4	8.6	
1971	6.5	6.9	6.4	8.5	11.9	13.9	17.8	18.2	16.3	14.3	10.2	8.3	11.6
1972	7.3	6.4	6.9	9.0	11.0	13.2	15.7	17.2	15.3	12.7	10.8	9.1	11.2
1973	6.2	6.4	7.5	8.8	11.5	15.2	17.3	17.8	16.8	13.5	11.0	8.6	11.7
1974	9.2	9.4	9.2	10.3	12.8	16.6	18.4	18.6	15.9	12.6	11.7	10.9	13.0
1975	10.7	9.6	9.3	10.1	13.0	16.2	19.6	21.4	19.1	15.6	12.7	9.7	13.9
1976	10.4	9.2	10.7	12.8	15.3	17.9	21.4	21.3	19.0	16.9	13.3	10.2	14.9
1977	8.8	9.8	10.8	10.3	10.6	12.2	15.6	16.6	15.2	13.8	10.4	7.6	11.8
1978	6.4	4.7	6.2	7.5	10.4	14.1	15.4	16.8	15.8	13.6	12.0	8.2	10.9
1979	4.7	4.3	5.7	7.5	10.3	13.6	16.7	16.4	15.5	13.9	10.5	9.7	10.7
1980	5.6	7.1	6.7	8.4	11.0	14.0	15.2	17.1	16.3	12.9	9.8	7.8	11.0
1981	6.6	5.7	7.7	9.1	10.5	13.0	15.3	17.2	17.0	12.9	10.5	6.9	11.0
1982	5.5	6.1	7.2	9.0	11.9	15.9	17.4	18.2	16.9	14.1	11.7	8.6	11.9
1983	8.3	5.5	6.2	7.8	11.1	15.5	19.4	20.2	16.7	13.8	10.9	8.6	12.0
1984	7.1	5.7	5.6	8.2	10.7	14.9	17.3	18.6	16.5	13.7	11.3	9.2	11.6
1985	4.6	4.0	4.6	7.6	10.7	13.3	16.3	15.7	15.6	14.0	9.2	8.0	10.3
1986	6.3	3.4	3.2	5.8	10.1	13.3	16.4	15.6	13.7	12.8	9.6	6.9	9.8
1987	3.0	2.6	3.1	5.9	10.0	13.1	16.5	17.3	16.7	12.8	9.2	5.7	9.7
1988	6.3	5.3	4.7	8.8	12.6	14.9	16.2	16.8	15.7	13.7	10.2	8.2	11.1
1989	8.5	8.4	9.9	9.6	13.0	16.2	19.1	19.0	17.8	15.2	12.6	9.7	13.3
1990	9.7	9.7	9.6	10.2	14.5	15.5	18.0	19.8	17.9	13.9	12.0	7.9	13.2
1991	7.7	4.8	7.3	9.0	11.0	13.4	16.9	18.5	18.4	14.5	11.5	8.8	11.8
1992	8.1	7.6	8.0	9.0	13.1	16.7	18.0	18.3	16.1	13.1	11.3	9.3	12.4
1993	8.1	7.9	7.8	9.7	12.3	15.6	17.8	17.9	15.3	13.2	9.4	8.3	11.9
1994	7.8	6.4	7.6	8.7	11.4	14.2	17.8	18.9	16.6	14.0	13.0	10.7	12.3
1995	8.1	8.8	8.0	10.8	13.3	15.8	19.2	21.3	18.2	16.5	12.5	8.4	13.4
1996	7.2	6.4	7.0	9.4	12.0	15.8	17.9	19.4	17.8	16.0	12.4	9.2	12.5
1997	5.5	7.0	9.4	9.3	11.3	14.7	18.5	20.5	18.3	16.5	12.8	10.7	12.9
1998	10.0	7.8	7.1	7.9	12.4	16.3	17.2	19.2	18.2	15.7	11.8	8.6	12.7
1999	9.3	8.4	9.3	8.4	12.2	16.0	18.5	19.5	18.6	14.9	11.7	8.9	13.0
2000	7.9	8.0	9.5	9.6	12.1	14.5	16.6	18.0	17.1	14.3	11.2	9.3	12.4
2001	7.6	7.9	8.6	9.7	11.4	14.3	18.9	19.8	18.0	16.0	12.2	8.9	12.8
2002	6.5	10.0	10.7	11.0	13.4	15.4	17.1	19.3	18.6	15.8	13.4	10.5	13.5
2003	8.9	6.3	8.7	10.7	12.8	16.6	19.1	20.4	18.9	15.3	11.9	9.7	13.3
2004	8.4	8.7	7.3	9.8	12.5	16.1	17.4	19.4	17.8	15.0	12.2	9.2	12.8
Whole data set													
mean	7.4	6.9	7.6	9.1	11.9	14.9	17.5	18.5	17.0	14.3	11.4	8.8	
count	34	34	34	34	34	34	35	35	35	35	35	35	
sd	1.74	1.95	1.98	1.39	1.25	1.35	1.40	1.55	1.32	1.22	1.16	1.13	
1971 - 2000													
mean	7.4	6.8	7.4	8.9	11.8	14.9	17.4	18.4	16.8	14.2	11.2	8.7	
count	30	30	30	30	30	30	30	30	30	30	30	30	
sd	1.82	1.95	2.00	1.39	1.28	1.37	1.45	1.59	1.31	1.22	1.17	1.16	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Bournemouth which are derived from simple averaging of all the monthly data.

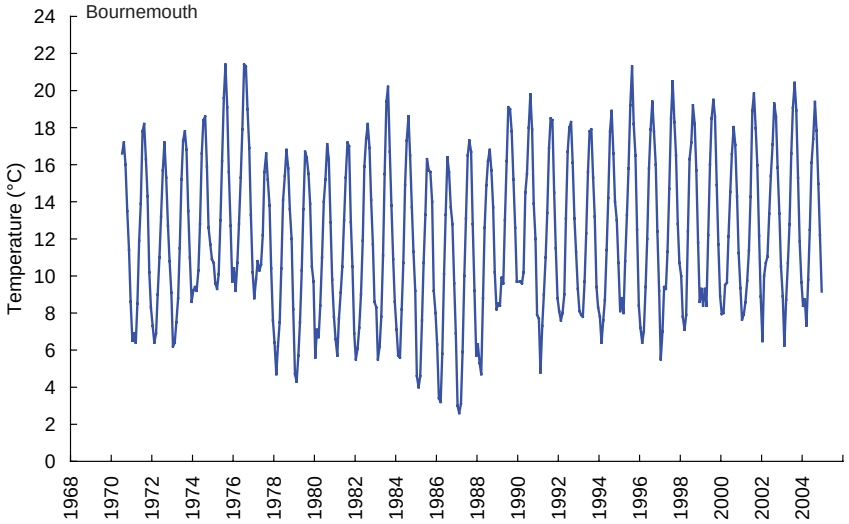


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

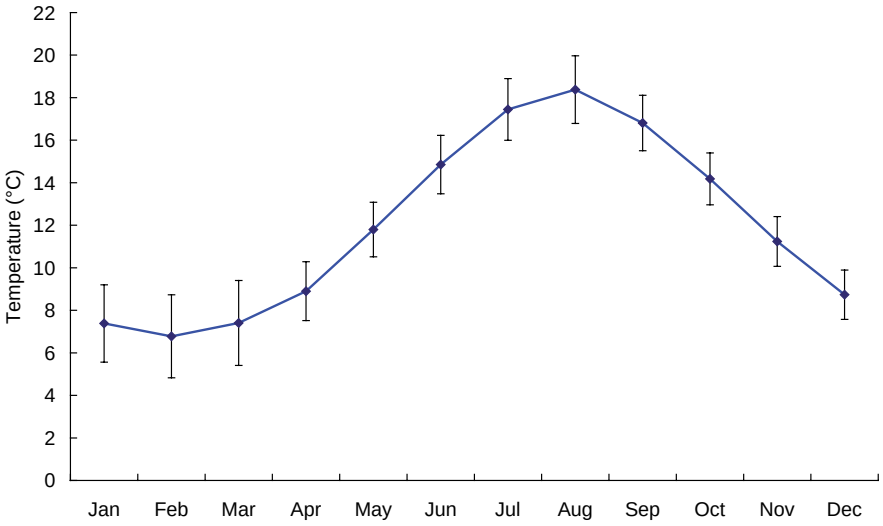


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

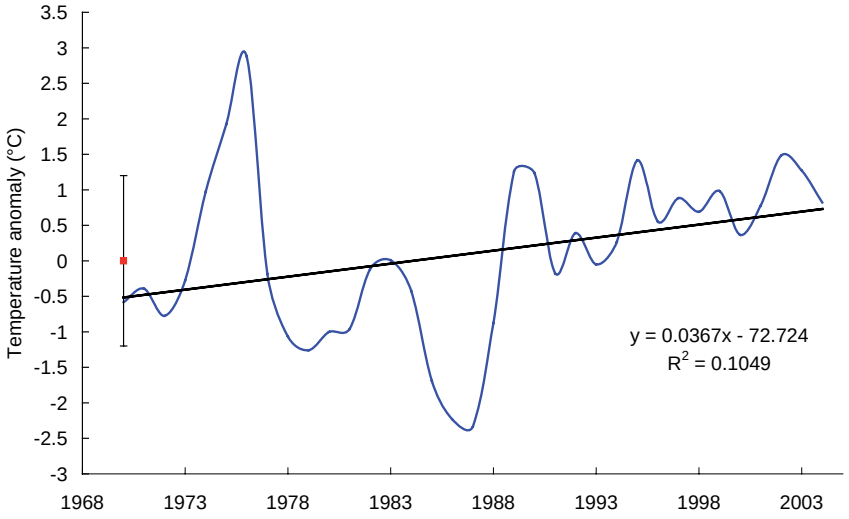


Table 27. Monthly mean sea temperature for Weymouth at 50° 37' N, 2° 27' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966					12.0	14.2	16.3	17.3	16.8	15.9	13.4	9.8	
1967	8.1	6.6	7.7	9.7	11.0	13.4	16.1	17.2	16.7	14.7	12.0		
1968	7.2	7.1	6.2	7.8	10.9	13.9	16.0	16.6	16.9	15.7	13.4	9.9	11.8
1969	7.1	6.5	6.5	7.8	9.0	11.2	15.3	16.4	16.5	15.6	13.1	8.8	11.2
1970	6.4	6.7	7.2	7.7	8.9	10.3					14.1	12.3	
1971	6.7	7.2	7.4	8.4	10.8	13.3	15.2	17.2	17.6	15.7	12.0	9.5	11.8
1972	9.0	8.3	8.7	9.4	11.3	13.1	15.0	16.5	16.0	13.9	11.9	9.9	11.9
1973	8.6	8.5	8.1	8.6	10.9	13.1	16.4	17.5	17.6	15.3	11.8	9.0	12.1
1974	8.4	8.0	8.1	8.9	10.3	12.9	16.0	17.5	16.0	13.5	11.5	10.8	11.8
1975	8.5	6.6	7.3	8.6	10.6	13.1	15.4	17.0	16.5	14.4	12.0	10.4	11.7
1976	7.5	6.2	6.9	8.2	10.4	12.7	15.2	16.6	16.2	14.7	12.3	10.4	11.4
1977	7.6	5.8	6.8	7.9	10.3	12.9	15.6	16.8	16.4	14.8	12.9	10.0	11.5
1978	7.5	6.2	6.8	8.2	11.1	12.7	14.9	16.5	16.6	14.5	12.4	9.9	11.4
1979	7.3	5.9	6.7	8.8	11.1			17.1	16.8	14.6	12.4	10.4	
1980	7.4	6.0	6.6	7.9	10.2	13.3	15.3	16.4	16.6	14.8	12.7	10.2	11.5
1981	7.0	6.0	7.1	8.8	10.6	12.8	15.2	16.4	16.2	14.6	12.9	10.2	11.5
1982	7.3	5.8	7.1	8.9	10.6		15.1	16.9	16.8	15.1	12.9	10.1	
1983	7.9	6.2	7.1	8.7	10.7	13.0	15.2	16.9	17.0	15.0	12.3	10.2	11.7
1984	7.6	6.3	7.1		10.8	13.5	15.6	16.9	16.9	15.3	13.0	10.6	
1985	8.0	6.1	6.8	9.1	10.9	13.5	15.5	17.3	16.8	15.0	13.0	10.6	11.9
1986	7.8	6.2	7.2	8.5	10.9	12.8	14.9		15.5	14.1	12.1	10.6	
1987	8.2	6.8	7.3	8.7	10.4	12.9	15.0	16.5	16.8	15.0	12.4	10.1	11.7
1988	8.9	8.0	7.7	8.9	11.1	13.4	15.1	15.9	15.8	14.9	12.7	11.0	12.0
1989				9.8	13.3	15.3	17.9	18.3	17.3	15.4	14.3	8.2	
1990		9.1	9.3	10.2	13.4	14.6	16.9	18.4	16.9	15.2	11.4	8.7	
1991	9.0	5.6	7.2	8.6	10.3	12.1	14.7	16.8	17.3	14.1	11.1	8.8	11.3
1992	7.2	6.8	7.9	8.7	11.7	14.6	16.1	17.2	15.5	12.8	10.9	9.0	11.5
1993	7.9	7.3	7.3	9.1	11.5	13.8	15.4	16.3	15.6	12.3	9.7	8.3	11.2
1994	7.8	7.2	7.9	8.4	10.9	12.8	16.0	17.5	15.8	13.6	12.8	10.4	11.8
1995	8.7	8.8	8.3	9.3	11.2	13.4	16.2	18.6	17.0	15.5	12.2	8.6	12.3
1996	7.4	5.2	6.1	7.6	9.2	12.5	14.9	17.0	15.6	14.2	10.8	8.0	10.7
1997	4.5	6.2	8.0	9.7	11.6	13.7	15.5	17.1	16.1	14.9	12.2	10.2	11.6
1998	8.9	7.8	8.9	8.9	12.2	13.3	15.6	17.3	16.4	14.6	10.8	9.2	12.0
1999	8.1	7.2	7.9	9.3	11.7		16.5	17.7	17.3	13.4	11.1	9.1	
2000	7.9	8.4	8.9	9.3	11.8		16.6	17.7	17.7	15.0	11.5	10.0	
2001	7.4	7.4	7.0	8.4	11.3	13.8	16.2	17.4	16.5	15.6	11.6	9.6	11.8
2002	8.3	9.3	9.5	10.6	12.2	14.7	16.1	17.8	17.4	14.7	13.2	10.0	12.8
2003	8.5	7.3	7.9	9.4	11.2	14.5	17.2	19.2	18.1	14.3	12.9	9.7	12.5
2004	9.9	7.7	7.3	10.6	12.4	15.7	16.7	18.7	17.6	15.0	12.2	10.2	12.8
Whole data set													
mean	7.8	7.0	7.5	8.8	11.0	13.3	15.8	17.2	16.7	14.7	12.3	9.8	
count	36	37	37	37	39	35	37	37	38	38	39	38	
sd	0.93	1.04	0.82	0.75	0.95	1.03	0.73	0.73	0.66	0.80	0.94	0.87	
1971 - 2000													
mean	7.8	6.9	7.5	8.8	11.1	13.3	15.6	17.1	16.6	14.5	12.1	9.7	
count	28	29	29	29	30	26	29	29	30	30	30	30	
sd	0.90	1.07	0.78	0.58	0.86	0.70	0.72	0.64	0.65	0.80	0.91	0.84	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Weymouth which are derived from simple averaging of all the monthly data.

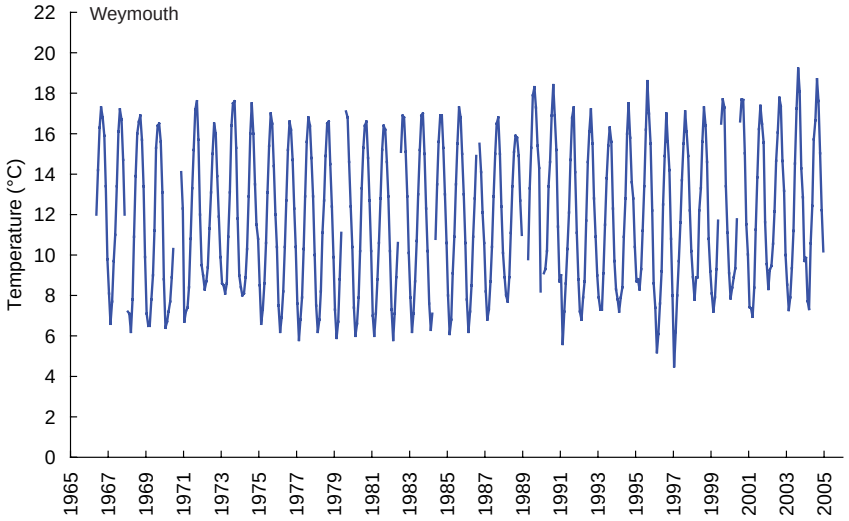


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

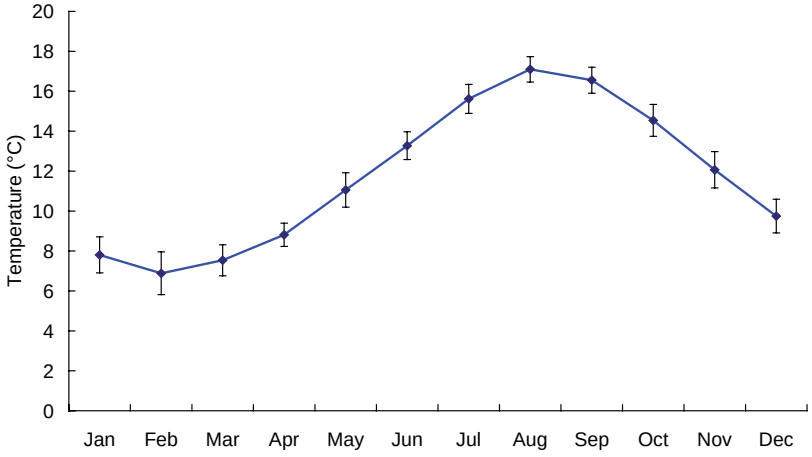


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

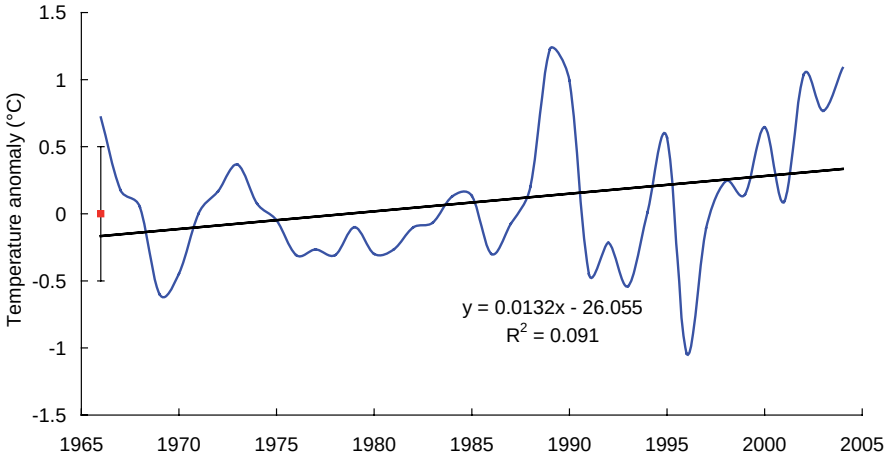


Table 28. Monthly mean sea temperature for Plymouth at 50° 22' N, 4° 10' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1957	9.3	9.2	10.1	11.0	12.3	14.7	15.8	15.6	15.2	14.4	11.7	9.9	12.4
1958	9.0	8.7	7.9	8.6	11.3	13.5	15.1	15.5	16.2	14.2	12.9	10.4	11.9
1959	9.2	8.2	9.0	10.2	12.4	14.4	15.9	17.1	17.4	15.6	13.7	10.9	12.8
1960	9.4	8.4	8.0	9.6	12.7	15.2	15.5	16.0	15.7	14.4	12.1	10.3	12.3
1961	8.7	9.2	10.0	11.2	12.3	14.7	16.3	16.1	16.4	15.0	12.1	9.7	12.6
1962	8.1	8.8	6.9	8.7	10.5	13.2	15.1	15.1	15.0	14.2	11.4	9.6	11.4
1963	5.4	4.7	6.4	8.3	10.2	13.3	14.5	15.0	14.3	13.4	12.0	9.4	10.6
1964	8.1	8.0	7.9	9.1	12.1	14.9	15.6	15.8	16.1	14.1	11.8	8.9	11.9
1965	8.2	7.2	7.4	9.2	11.5	13.9	15.2	15.3	14.4	14.2	11.1	9.7	11.4
1966	8.5	9.1	9.5	10.0	11.6	14.8	15.2	15.6	16.3	14.8	11.8	9.2	12.2
1967	9.0	8.6	9.1	9.5	11.1	13.8	16.0	15.8	15.1	13.9	10.5	9.4	11.8
1968	8.3	7.1	7.0	8.7	10.5	13.7	15.0	15.6	15.2	14.3	10.4	9.6	11.3
1969	9.4	7.4	6.9	9.2	10.0	14.1	15.5	15.9	15.5	15.3	12.2	9.5	11.7
1970	8.3	7.4	7.8	8.9	10.8	14.7	14.7	15.5	15.1	13.7	11.9	10.0	11.6
1971	8.2	8.0	8.3	9.6	11.1	13.3	16.0	16.0	15.7	15.1	11.7	10.9	12.0
1972	9.4	8.8	8.4	9.2	11.1	12.1	14.1	15.4	14.8	13.6	12.1	10.5	11.6
1973	9.4	8.9	8.6	9.3	10.8	13.4	15.2	15.7	15.3	13.9	12.3	9.7	11.9
1974	9.1	8.3	8.0	9.7	11.1	13.0	15.5	16.3	15.3	12.5	10.2	10.2	11.6
1975	9.4	8.6	8.9		10.0	14.9	16.2	17.5	15.5	13.5	11.8	10.9	
1976	9.4	7.5	7.8	9.4	11.3	14.3	16.8	17.4	15.6	14.1	11.0	9.3	12.0
1977	6.6	7.5	8.3	9.3	11.6	14.3	15.3	16.1	15.1	14.3	11.8	9.8	11.7
1978	9.0	7.0	7.4	8.0	10.8	13.3	14.1	15.3	15.4	13.9	12.7	10.2	11.4
1979	7.4	6.7	7.1	8.3	10.3	12.9	15.1	15.5	14.5	14.5	11.4	10.8	11.2
1980	8.6	8.7	8.9	9.6	11.5	13.4	14.1	15.1	13.5	13.0	10.8	9.6	11.4
1981	8.3	7.7	8.8	10.1	10.8	11.9	14.1	15.7	16.5	13.0	11.7	9.8	11.5
1982	7.8	8.2	8.5	9.9	11.5	14.2	15.6	16.3	15.6	14.0	12.2	9.8	12.0
1983	9.3	7.6	7.2	8.3	10.7	12.9	16.0	17.2	15.7	13.8	12.0	9.9	11.7
1984	8.9	8.1	7.7	8.8	10.5	12.8	15.0	16.7	15.6	13.6	12.0	10.3	11.7
1985	10.3	8.2	7.8	9.7	11.2	13.7	15.7	14.9	14.8	14.5	11.4		
1986	7.1	4.4	4.3	5.8	8.4	11.3	13.3	14.0	13.6	13.1	10.6	9.0	9.6
1987	6.6	5.0	6.3	9.0	10.2	12.3	16.0	16.4	15.3	13.4	10.6	8.0	10.8
1988	7.0	7.6	7.2	9.1	11.1	13.7	14.7	15.2	14.8	13.1	11.3	10.9	11.3
1989	9.6	9.1	9.1	9.9	12.4	14.8	17.0	17.8	16.7	15.0	11.9	9.7	12.8
1990	9.2	8.9	9.3	9.8	12.3	13.6	15.2	17.0	15.5	14.7	11.8	9.5	12.2
1991	8.1	7.0	8.8	9.8	11.4	13.0	14.5	15.4	17.0	14.2	11.8	10.3	11.8
1992	9.5	9.5	10.1	10.7	13.2	15.5	16.8	17.0	15.9	13.8	12.2	10.4	12.9
1993	9.8	9.9	9.7	11.0	13.1	14.8	16.2	16.7	16.5	14.4	11.7	10.2	12.8
mean	8.6	7.9	8.1	9.3	11.2	13.7	15.3	16.0	15.5	14.1	11.7	9.9	
count	37	37	37	36	37	37	37	37	37	37	37	36	
sd	1.04	1.24	1.20	0.98	0.97	0.97	0.83	0.83	0.84	0.69	0.71	0.63	

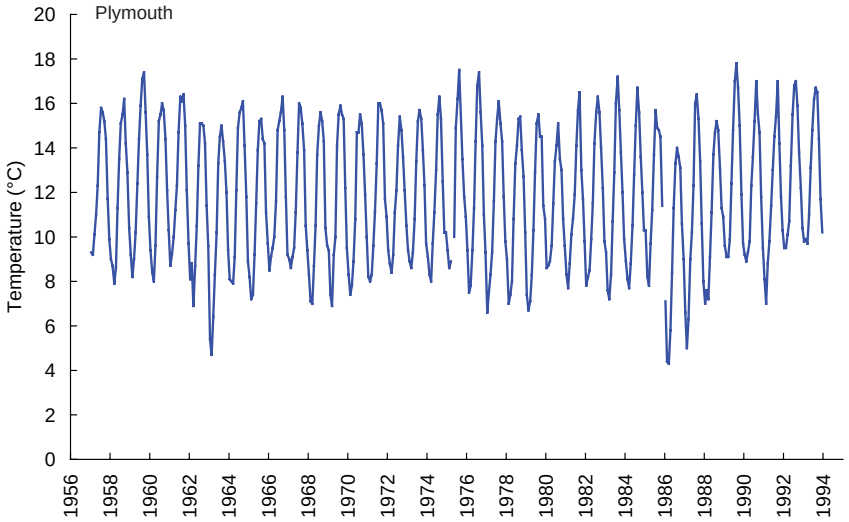


Figure (a). Monthly mean surface temperature for the entire duration of the record at Plymouth which are derived from simple averaging of all the monthly data.

Table 29. Monthly mean sea temperature for Newlyn at 50° 6' N, 5° 32' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1984	10.1	8.2	8.1	9.4	11.1	12.5	14.0		14.6	12.9	11.6	10.5	
1985	7.9	7.6	7.6	9.9	10.9	12.3	13.3	13.1	13.9	13.9	11.3	10.7	11.0
1986	9.5	6.0	6.5	7.4	9.6	11.5	13.3	13.7	13.6	13.7	11.9	10.6	10.6
1987	7.6	7.2	7.6	9.4	10.9	11.9	14.0	14.1	14.9	13.0	11.1	8.9	10.9
1988	9.4	8.4	8.1	9.2	10.5	12.7	12.8	14.3	14.1	13.3	11.7	11.2	11.3
1989	10.2	9.9	9.8	10.0	12.2	14.1	15.3	14.6	14.6	13.5	10.2	8.8	11.9
1990	9.3	9.5	9.0	9.5	12.1	13.1	14.6	16.0	14.8	13.5	11.2	9.3	11.8
1991	7.9	6.9	8.2	9.1	10.4	11.3	12.6	14.6	16.2	13.1	10.9	8.8	10.8
1992	7.2	7.6	8.3	8.6	10.5	13.5	13.7	13.4	12.7	11.6	10.8	10.2	10.7
1993	9.6	9.2	8.6	9.8	11.3	12.4	13.0	14.4	15.3	13.1	10.8	10.3	11.5
1994	9.2	8.5	9.2	9.5	11.5	12.3	14.2	16.5	14.9				
mean	8.9	8.1	8.3	9.3	11.0	12.5	13.7	14.5	14.5	13.2	11.2	9.9	
count	11	11	11	11	11	11	11	10	11	10	10	10	
sd	1.05	1.18	0.89	0.73	0.76	0.83	0.81	1.07	0.92	0.63	0.51	0.89	

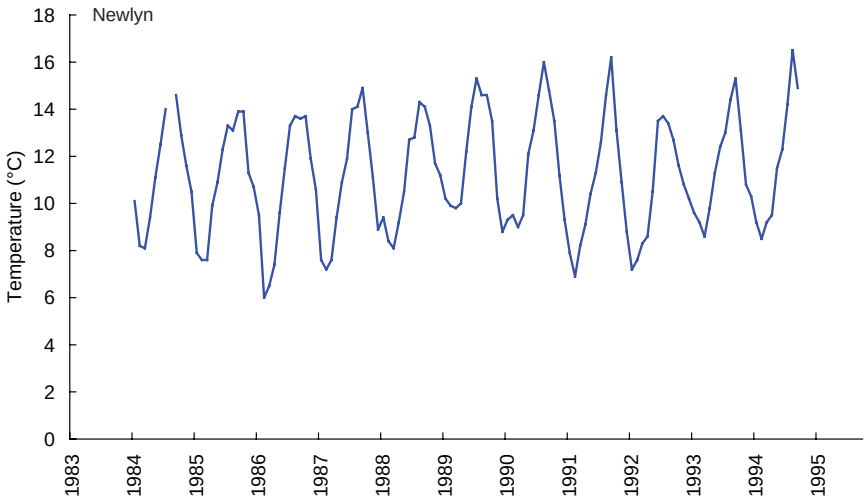


Figure (a). Monthly mean surface temperature for the entire duration of the record at Newlyn which are derived from simple averaging of all the monthly data.

Table 30. Monthly mean sea temperature for Ilfracombe at 51° 12' N, 4° 8' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1992				8.5	11.5	13.2	15.0	16.7	15.5	13.5	10.9	9.1	
1993	7.6	8.1	7.9	8.8	11.0	13.5	15.7	16.8	16.1	13.3	10.6	8.4	11.5
1994													
1995	8.9	8.6	8.3	9.0	10.6	12.9	15.8	17.8			13.3	10.0	
1996	8.2	6.7		8.5	10.5	13.7	15.7			14.4	11.9	9.3	
1997	6.2	7.5	8.7	9.6	11.7	14.4	14.2	14.2	13.4	11.6		9.2	
1998	7.0	7.2	7.7	8.0	8.8	12.0	14.0	15.9	15.5	11.5	9.5	8.9	10.5
1999	8.2		8.7	10.1	12.2	14.4	16.5	17.7	17.2	14.6	12.7	10.2	
2000	10.0	8.4	8.8	8.9	11.5	13.8	15.9		17.1	14.5	11.6	10.0	
2001	7.5	8.1	8.3	10.1	11.8	14.4	17.1	17.6	16.8	15.1	13.3	10.3	12.5
2002	8.9	9.1	10.2	10.2			16.0	17.1	16.5				
2003	8.0	7.6	9.0	9.7	12.1	14.6	16.9	17.9	17.6	14.8	12.3	10.1	12.5
2004		8.5	8.3	10.2	12.2	15.3		17.7	16.7	14.9	12.9	11.4	
mean	8.0	8.0	8.6	9.3	11.3	13.8	15.7	16.9	16.2	13.8	11.9	9.7	
count	10	10	10	12	11	11	11	10	10	10	10	11	
sd	1.08	0.73	0.70	0.77	1.02	0.92	1.00	1.15	1.22	1.32	1.26	0.83	

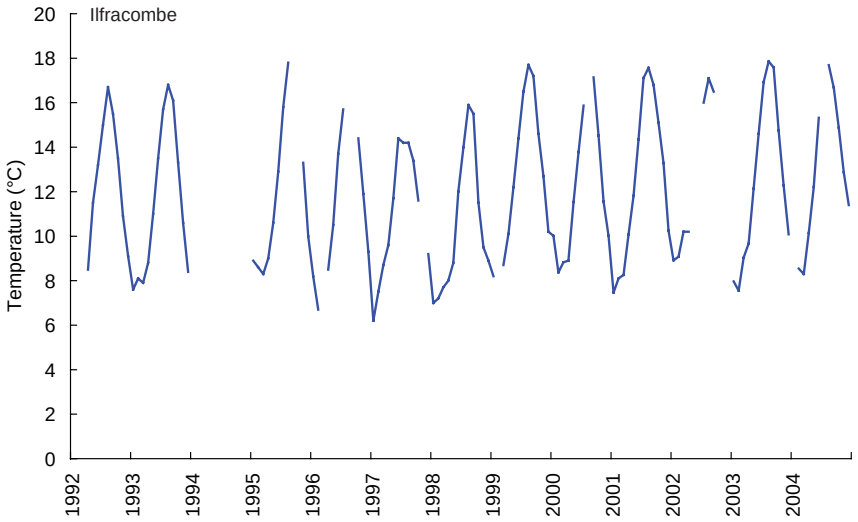


Figure (a). Monthly mean surface temperature for the entire duration of the record at Ilfracombe which are derived from simple averaging of all the monthly data.

Table 31. Monthly mean sea temperature for Minehead at 51° 13' N, 3° 28' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1972								16.9	15.7	13.2	10.8	8.8	
1973	7.7	7.2	7.4	8.6	11.4	14.7	16.9	17.9	17.4	12.0	10.5	7.9	11.6
1974	7.4	7.5	7.6	9.2	11.8	15.9	16.5	17.3	15.2	11.9	9.7	8.9	11.6
1975	8.2	7.2	7.2	8.2	11.3	15.2	17.1	19.0	16.9	14.2	10.6	8.1	11.9
1976	7.4	5.4	6.4	8.4	12.5	16.4	18.5	19.1	16.7	14.2	9.8	6.7	11.8
1977	5.3	6.8		8.9	11.7	15.6	17.0	17.9	15.2	14.4	9.6	7.6	
1978	6.7	4.9	6.8	10.1	11.1	15.6	16.7	17.9	16.6	14.4	12.2		
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988	7.7	6.9	7.4	9.0	12.1	14.6	15.9	16.5	15.7	13.6	11.5	10.0	11.7
1989	8.3	7.7	7.9	9.0	12.1	15.6	18.4	18.5	17.3	14.6	11.2	8.0	12.4
1990	7.6	7.6	8.9	9.3	12.6	15.1	17.2	18.7	17.1	14.7	11.0	7.3	12.3
1991	5.6	4.5	7.9	9.8	11.2	12.8	16.2	17.9	18.0	14.8	11.9	9.3	11.7
1992	7.5	6.8	8.0	8.8	12.0	16.4	18.2	17.9	15.8	13.3	11.3	8.9	12.1
1993	7.4	7.9	8.1	8.9	11.0	14.6	17.3	17.9	17.1	13.1	10.6	8.8	11.9
1994	8.0	8.0	8.1	9.2	11.7	15.0	18.1	18.7	16.4	13.4	12.1	9.9	12.4
1995	7.5	8.2	8.2	8.7	10.7	13.8	17.9	19.9	17.1	15.1	12.2	8.9	12.4
1996	6.6	5.5	6.5	8.3	9.9	14.0	17.0	18.1	17.1	15.4	12.1	8.3	11.6
1997	5.3	6.2	8.1	9.6	10.9	12.7	16.1	19.6	18.2	15.0	12.4	8.7	11.9
1998	7.5	7.3	9.5	9.9									
mean	7.2	6.8	7.8	9.1	11.5	14.9	17.2	18.2	16.7	14.0	11.1	8.5	
count	17	17	16	17	16	16	16	17	17	17	17	16	
sd	0.94	1.12	0.81	0.56	0.71	1.11	0.83	0.90	0.90	1.03	0.93	0.89	

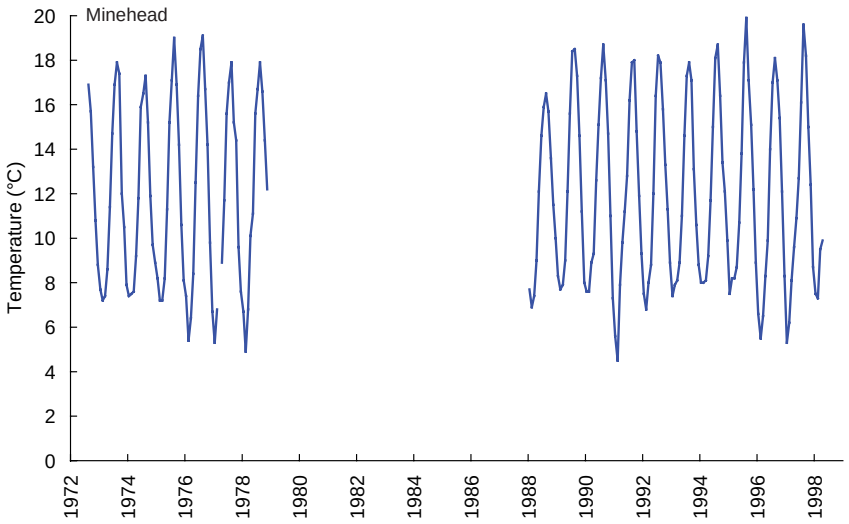


Figure (a). Monthly mean surface temperature for the entire duration of the record at Minehead which are derived from simple averaging of all the monthly data.

Table 32. Monthly mean sea temperature for Hinkley Point Power Station at 51° 13' N, 3° 7' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1976										15.2	11.0	7.7	
1977	5.7	7.4	8.3	10.9	13.7	15.7	18.5	18.5	16.9	14.5	11.0	8.8	12.5
1978	7.1	7.2	5.2	7.3	8.5	12.2	15.6	16.4	18.4	17.5	14.8	12.8	11.9
1979	4.4	3.6	5.7	8.9	11.4	14.9	18.5	17.7	17.6	15.9	11.7	8.7	11.6
1980	6.3	7.2	8.3	11.1	12.5	16.5	16.7	18.4	18.3	13.0	8.9	7.8	12.1
1981	7.6	7.5	9.7	10.8	12.8	17.0	18.1	19.8	19.0	16.3	11.0	8.1	13.1
1982	5.5	7.1	8.3	10.1	12.5	17.5	19.4	19.6	17.6	13.7	12.5	8.2	12.7
1983	7.6	5.3	6.4	7.9	11.5	15.5	21.3	21.1	16.9	14.3	11.3	9.6	12.4
1984	7.9	7.7	6.7	8.9	12.7	17.2	20.0	21.2	18.3	14.7	11.9	9.2	13.0
1985	5.4	4.3	5.7	8.9	12.4	15.8	18.9	18.1	17.1	15.9	9.9	8.4	11.7
1986	6.3	4.9	5.0	7.2	9.1	15.3	19.2	18.2	15.5	15.3	11.3	9.1	11.4
1987	5.9	4.5	6.2	9.4	13.3	15.4	18.1	18.8	18.4	14.6	11.8	7.7	12.0
1988	7.6	6.8	8.1	10.6	15.7	17.2	17.7	17.7	16.6	14.8	11.3	9.6	12.8
1989	9.7	8.0	9.5	10.5	14.0	17.5	20.5	20.8	18.8	16.0	12.0	8.0	13.8
1990	8.5	8.5	9.4	10.6	15.0	16.5	18.8	20.4	18.4	15.5	11.6	7.6	13.4
1991	6.6	4.8	7.7	9.6	13.1	15.0	18.0	20.0	19.8	14.7	10.9	8.3	12.4
1992	7.1	6.3	8.4	9.9	13.8	18.6	19.7	19.7	17.0	13.4	10.0	8.2	12.7
1993	7.4	7.9	8.1	10.6	12.9	16.9	19.1	18.8	16.6	12.8	9.5	7.0	12.3
1994	6.5	6.2	8.5	9.0	12.8	15.9	20.0	19.7	16.8	14.3	12.9	11.0	12.8
1995	8.1	8.3	8.0	11.0	13.4	16.7	20.4	22.6	18.8	16.5			
1996	6.7	3.9	5.0	9.7	12.2	16.3	19.2	19.9					
1997													
1998	6.5	6.0	7.5	10.3	13.8	16.5	18.3	19.5	18.3	15.3	11.5	9.0	12.7
1999	8.0	8.3	9.0										
2000	7.0	7.4	9.2	9.8	13.6	16.7	18.7	19.4	18.5	13.7	11.0	9.8	12.9
2001	6.3	7.0	7.1	9.8	13.4	17.4	19.5	20.0	17.5	15.8	12.1	8.4	12.9
2002	6.1	8.1	8.3	10.6	12.9	15.9	17.7	19.5	17.8	13.7	10.9	7.6	12.4
2003	6.2	5.5	7.6	10.3	13.0	17.1	19.3	21.0	18.6	13.3	10.7	8.4	12.6
2004	7.0	7.1	7.6	10.2	14.3	18.1	18.1	20.0	17.6	13.5	11.4	9.0	12.8
mean	6.9	6.5	7.6	9.8	12.9	16.4	18.8	19.5	17.8	14.8	11.3	8.7	
count	27	27	27	26	26	26	26	26	25	26	25	25	
sd	1.10	1.46	1.40	1.08	1.52	1.26	1.21	1.32	0.97	1.20	1.15	1.21	

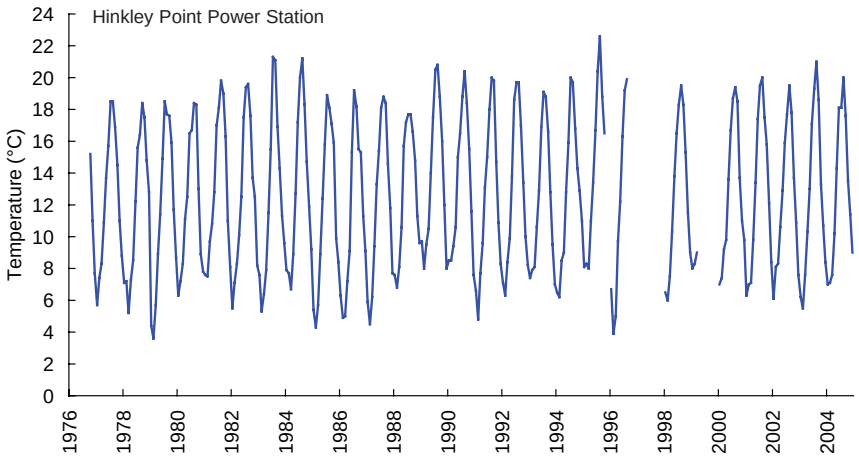


Figure (a). Monthly mean surface temperature for the entire duration of the record at Hinkley Point Power Station which are derived from simple averaging of all the monthly data.

Table 33. Monthly mean sea temperature for Barry at 51° 24' N, 3° 15' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1978				7.9	11.1	15.1	15.9	17.3	16.8	14.2	12.5	8.2	
1979	4.2	3.1	5.0	8.8	10.9	13.8	16.6	17.2	15.5	15.3	11.0	8.7	10.8
1980	5.7	6.6	7.1	8.8	11.5	14.4	15.8	17.4	17.2	13.1	9.5	7.6	11.2
1981	6.6	6.1	7.4	9.6	11.2	14.3	16.1	18.0	17.6	13.2	10.4	6.8	11.4
1982	4.2	5.9	7.1	9.4	12.5	16.3	17.7	18.0	16.8	14.0	11.3	7.8	11.8
1983	7.8	5.5	6.6	8.4	11.4	14.6	18.4	20.2	16.9	14.2	11.3	8.9	12.0
1984	6.8	6.3	6.8	8.3	11.7	15.5	18.2	19.2	17.4	14.3	11.2	8.8	12.0
1985	5.5	4.0	5.5	8.7	11.7	14.7	17.1	17.3	16.5	15.0	10.2	8.6	11.2
1986	6.5	3.5	4.7	7.7	11.3	15.1	17.7	16.8	14.9	13.4	10.6	8.6	10.9
1987	5.3	5.0	5.8	8.7	12.4	14.8	17.9	18.3	17.4	13.8	10.3	6.8	11.4
1988	7.3	6.7	7.5	9.8	12.8	16.1	17.0	17.3	16.2	13.7	10.6	9.2	12.0
1989	8.6	8.4	8.1	9.4	13.4	16.5	19.9	20.5	18.0	15.2	11.6	7.9	13.1
1990	7.8	7.8							16.0	15.1	11.2	7.9	
1991	6.4	4.1	6.8	9.1	11.8	14.0	17.1	18.7	17.7	13.1	8.6	6.5	11.2
1992		6.1	7.3	8.9	12.5	17.4	18.8	18.4	15.8	13.6	9.8	8.2	
1993	6.2	6.9	6.8	9.3	12.3	15.2	17.3	18.5	16.5	12.5	8.9	7.1	11.5
1994	6.1	5.6	7.3	8.6	11.9	15.0	18.0	18.4	15.6	12.9	11.9	8.9	11.7
1995	7.2	7.4	6.7	9.3	12.0	14.5	18.3	20.3	17.6	15.1	11.9	7.3	12.3
1996	5.0	3.6	5.0	7.9	10.5	14.8	17.3	18.7	16.6	14.2	9.6	6.7	10.8
1997	3.5	4.8	7.5	10.2	12.3	15.0	17.1	19.0	17.7	14.8	11.5	8.2	11.8
1998	7.3	7.9	8.6	9.7		14.4		17.4	17.0	14.4	10.7	8.1	
1999	7.7												
mean	6.3	5.8	6.7	8.9	11.9	15.1	17.5	18.3	16.7	14.1	10.7	7.9	
count	20	20	19	20	19	20	19	20	21	21	21	21	
sd	1.36	1.56	1.07	0.68	0.72	0.90	1.02	1.08	0.84	0.83	1.01	0.82	

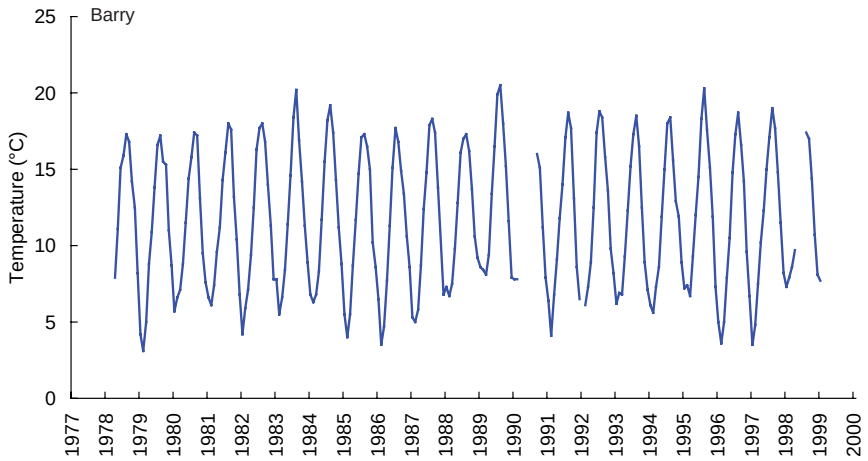


Figure (a). Monthly mean surface temperature for the entire duration of the record at Barry which are derived from simple averaging of all the monthly data.

Table 34. Monthly mean sea temperature for Swansea at 51° 36' N, 3° 56' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1976			6.5	9.0	12.3	16.1	19.3	19.3	16.4	13.8	10.6	7.3	
1977	5.5	6.4	7.6	8.6	12.0	14.4	17.0	17.8	16.0	13.9			
1978	5.9	4.9	5.8	8.2	11.8	14.9	15.5	17.1	16.3	14.1	12.1	8.3	11.2
1979	4.9	3.9	5.6	7.7	10.8	14.7	17.2	16.9	16.1	15.1	11.1	8.6	11.1
1980	5.4	7.0	6.8	9.4	12.1	14.4	15.5		16.1	13.4	10.3	8.1	
1981	7.0	6.2	7.3	9.7	11.5	14.7	17.0	18.1	17.1	12.4	9.8	5.8	11.4
1982	3.4	4.9	6.3	8.9	11.7	15.9	17.4	17.5	16.2	12.9	10.2	6.6	11.0
1983	6.4	3.8	5.1	7.4	10.7	13.9	18.5	19.7	16.6	14.0	11.4	8.8	11.4
1984	6.9	5.8	6.4	8.8	12.1	15.5	18.8	19.8	17.5	14.1	11.6	9.1	12.2
1985	5.6	4.4	5.8	8.3	11.7	14.5	17.2	16.6	16.4	14.7	9.7	8.7	11.1
1986	6.8	3.4	4.7	7.0	10.9	14.3	17.2	16.7	15.2	13.9	11.1	9.0	10.9
1987	5.5	5.3	5.8	9.0	12.2	14.1	17.0	17.7	16.8	13.1	10.1	6.9	11.1
1988	7.4	6.4	7.2	9.8	12.3	15.0	16.1	16.5	15.8				
1989		8.0	7.9	9.1	13.1	15.9	18.8	19.1	17.2	14.5	11.0	7.4	
1990	7.3	7.4	8.3	9.6	14.2	15.4	17.8	19.4	17.2	14.1	10.3	7.3	12.4
1991	5.7	3.4	6.6	8.9	11.6	14.0	16.8	18.3	18.2	13.1	9.6	7.6	11.2
1992	6.7	6.2	7.7	9.3	13.3	17.1	18.5	18.0	16.0	12.7	10.1	8.2	12.0
1993	8.4	8.1	8.5	10.8	13.7	16.7	18.3	18.5	17.2	13.6	9.8	8.2	12.7
1994	7.7	7.0	8.7	9.8	12.1	14.7	18.3	18.4	15.9	13.5	12.0	9.7	12.3
1995	7.7	7.7	7.3	9.7	12.5	15.3	19.0	21.0	17.6	15.3	11.9	7.5	12.7
1996	5.7	4.4	5.3	7.9	10.8	14.9	17.6	18.6	16.7	14.1	10.5	6.9	11.1
1997	3.8	5.4	7.8	10.3	12.4	15.4	17.9	19.6	17.3	14.6	10.9	8.7	12.0
1998	7.3	7.1	8.3	9.3	13.3	15.3	16.7	18.0	17.0	14.1	10.2	8.1	12.1
1999	6.9	6.8	7.7	9.9	13.3	15.4	18.5	18.6	18.0	14.2	11.1	8.3	12.4
2000	6.9	7.1	8.3	9.0									
mean	6.3	5.9	6.9	9.0	12.2	15.1	17.6	18.3	16.7	13.9	10.7	8.0	
count	23	24	25	25	24	24	24	23	24	23	22	22	
sd	1.24	1.47	1.16	0.90	0.94	0.82	1.05	1.16	0.74	0.73	0.77	0.93	

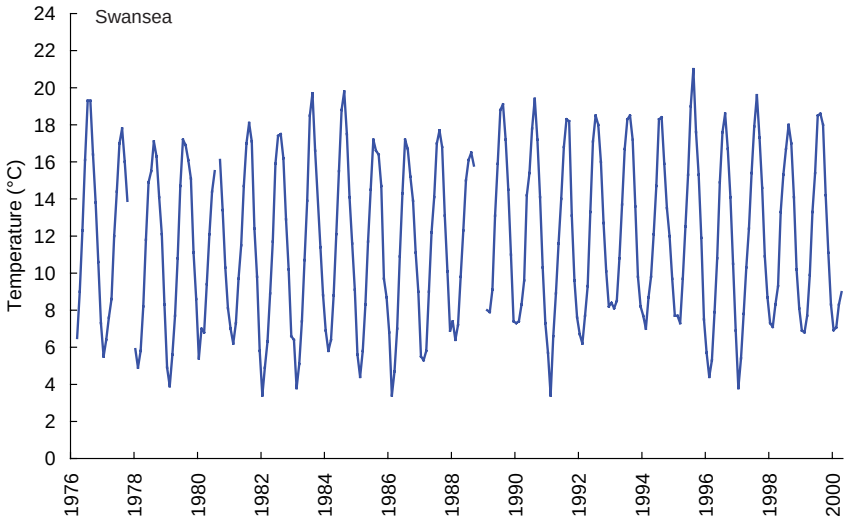


Figure (a). Monthly mean surface temperature for the entire duration of the record at Swansea which are derived from simple averaging of all the monthly data.

Table 35. Monthly mean sea temperature for Angle at 51° 41' N, 5° 5' W

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1990											11.3	9.2	
1991	7.9	6.0	7.5	8.5	10.6	12.4	14.8	16.1	16.2	13.3	10.8	9.4	11.1
1992	8.9	8.2	8.6	9.2	11.8	13.9	15.2	15.8	14.8	12.5	10.7	8.9	11.5
1993	8.1	8.1	7.6	9.3	11.3	13.7	15.1	15.5	14.8	12.5	10.4	9.1	11.3
1994	8.2	6.8	8.1	8.4	10.7	12.9	15.1	16.1	14.9	13.2	12.6	11.0	11.5
1995	9.1	8.7	8.1	9.8	11.3	13.4	16.2	17.8	16.0	14.8	12.5	9.5	12.3
1996	8.1	6.7	7.0	8.5	10.3	12.9	15.2	16.0	15.4	13.6	11.3	8.4	11.1
1997	6.5	7.4	8.5	10.0	11.7	13.8	15.2	16.8	16.0	14.5	12.5	10.6	12.0
1998	9.2	9.2	9.1	9.1	11.8	13.2	14.8	15.6	15.2	13.4	10.9	8.5	11.7
1999	7.2	7.2	7.5	8.9	11.6	12.6	14.9	15.7	13.8	12.5	10.5	8.3	10.9
2000	8.5	8.3	8.5	8.9	11.7	13.3	15.1	16.3	16.1	13.8	10.7	9.5	11.7
2001	7.2	7.3	6.8	8.9	11.6	13.7	15.5	16.3	15.3	14.7	12.2	9.0	11.6
2002	7.7	8.1	8.6	9.4	11.2	12.8	14.0	15.3	14.7	12.5	10.7	7.9	11.1
2003	7.0	5.9	5.5	7.4		11.8	13.3	15.7	15.5	14.5	12.2	9.8	10.8
2004	8.7	7.2	8.5	10.0	8.8			12.3	11.4	11.9	12.1	8.8	
mean	8.0	7.5	7.9	9.0	11.1	13.1	15.0	15.8	15.0	13.4	11.4	9.2	
count	14	14	14	14	13	13	13	14	14	14	15	15	
sd	0.82	0.97	0.96	0.69	0.84	0.62	0.68	1.19	1.23	0.95	0.83	0.83	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Angle which are derived from simple averaging of all the monthly data.

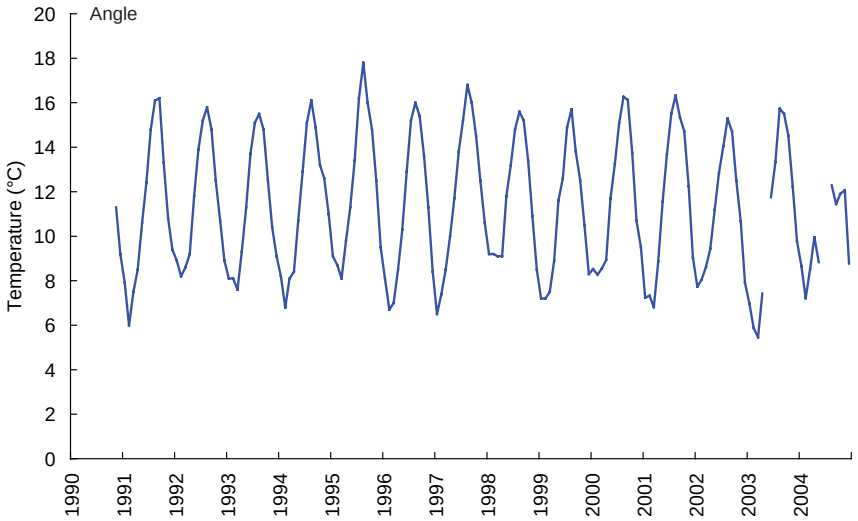


Table 36. Monthly mean sea temperature for Skomer Island at 51° 44' N, 5° 17' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1985				8.2	10.0	12.5	13.9	15.0	15.0	14.3			
1986			6.2	6.8	8.8	11.6	13.5	14.4	13.8	13.1	11.4		
1987				8.4	10.0	11.5	13.8		14.9	14.0	12.2	9.8	
1988			8.1	9.3	10.8	12.7	13.9	15.1	14.9	13.7	12.3		
1989			9.1	9.0	11.0	12.5	14.2	15.8	15.6	14.8	12.4		
1990			9.2	9.2	11.1	12.8	14.4	16.1	15.6	14.3	12.6		
1991			7.7	8.5	10.1	11.7	14.1	15.3	16.0	14.1	12.0		
1992			8.7	8.9	10.9	12.9	14.0	15.3	14.9	13.3	11.1		
1993			7.9		10.8	12.9	14.4	15.1	15.1	13.7	11.7		
1994			8.2	8.6	10.3	12.2	14.1	15.3	14.8	13.8	13.1		
1995			8.7	9.5	10.8	12.5	14.5	16.4	15.8	15.0	13.9		
1996				8.3	9.7	12.0	14.0	15.5	15.4	14.3	12.4		
1997			8.6	9.6	11.1	12.8	14.4	15.8	16.1	15.9	12.4	11.6	
1998							13.7	15.6	15.5	14.3	14.1		
1999						8.1		8.9		10.9		13.2	
2000													
2001				9.2	11.2	13.2	14.5	15.8	14.8		12.0		
2002				9.4	10.4	13.4	14.3	14.6	15.1	14.7			
2003				8.6	9.9	13.6	15.0	16.5	16.3	14.1			
2004				8.9	10.6	13.3	14.5	16.1	15.7	14.8			
mean			8.2	8.8	10.4	12.3	14.2	15.1	15.3	14.1	12.4	11.5	
count			10	16	17	18	18	18	18	18	14	3	
sd			0.87	0.68	0.64	1.22	0.36	1.66	0.60	1.02	0.84	1.70	

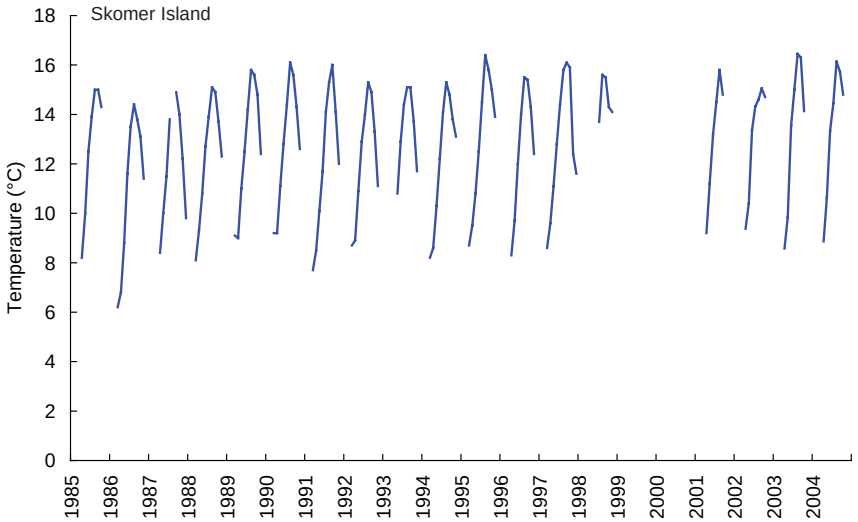


Figure (a). Monthly mean surface temperature for the entire duration of the record at Skomer Island which are derived from simple averaging of all the monthly data.

Table 37. Monthly mean sea temperature for Wylfa Power Station at 53° 25' N, 4° 29' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1967								13.9	16.0	10.9	11.0		
1968	7.0	6.3	6.6	7.3	9.2	12.3	14.0		14.2	13.2	10.8	9.6	
1969	7.2	5.2	5.1	7.2	9.4	11.5	13.8	15.1	15.4	14.6	10.8	8.3	10.3
1970	7.2	6.5	6.5	7.2	10.2	12.8	13.8	14.9	14.6	13.4	11.0	8.9	10.6
1971	7.8	6.9	7.1	9.0	11.1	13.2	14.8	15.4	16.5	13.5	11.3	9.9	11.4
1972	8.1	7.2	7.9	9.1	10.3	12.6	14.1	15.3	15.2	13.8	11.6	9.3	11.2
1973	8.6	8.1	8.1	8.6	10.1	12.6	14.9	15.9	15.7	13.5	11.3	9.3	11.4
1974	8.6	8.4	8.2	9.4	10.8	13.2	14.9	15.8	15.0	12.5	10.3	9.5	11.4
1975	9.1	8.2	8.4	8.2	10.3	13.0	14.6	16.2	14.8	12.6	11.3	9.9	11.4
1976	9.3	6.9	7.7	9.3	11.0	13.6	16.0	16.9	15.6	14.3	11.5	8.9	11.8
1977	6.8	7.3	7.6	8.6	10.9	13.1	15.2	16.1	15.5	14.4	10.6	9.5	11.3
1978	8.3	6.9	8.0	8.3	10.5	12.9	13.9	14.8	14.8	14.0	12.8	10.1	11.3
1979	7.1	5.6	6.3	7.5	9.0	11.9	13.6	14.8	14.9	13.9	11.3	9.4	10.4
1980	7.3	7.2	7.6	9.1	11.1	13.3	14.3	15.2	15.3	13.8	10.6	8.5	11.1
1981	8.1	7.6	7.7	9.3	10.2	12.8	14.4	16.0	15.6	13.3	11.1	9.0	11.3
1982	6.3	7.3	8.0	9.1	10.6	13.1	14.6	16.2	15.8	14.5	12.2	9.4	11.4
1983	8.8	7.4	7.7	8.3	9.8	11.0	14.2	15.6	14.9	13.6	11.4	9.8	11.0
1984	8.3	7.2	7.0	8.4	10.4	12.6	14.7	16.3	15.6	14.1	11.7	9.2	11.3
1985	7.3	5.9	6.3	7.4	8.9	12.0	14.0	14.2	14.4	13.6	10.7	9.2	10.3
1986	7.6	5.8	5.7	6.8	9.9	12.2	14.3	14.8	13.7	13.8	11.1	9.7	10.5
1987	7.1	7.0	7.1	9.0	10.9	12.9	14.9	15.8	16.0	13.9	12.0	9.9	11.4
1988	8.9	7.3	8.0	9.0	10.8	13.3	14.8	15.7	15.2	14.1	13.2	10.7	11.8
1989	8.8	8.0	7.8	8.4	10.4	12.9	15.0	15.9	15.2	14.2	11.5	9.1	11.4
1990	8.8	7.9	7.5	8.0	10.4	12.4	14.3	15.7	15.6	13.7	11.5	8.8	11.2
1991	6.9	5.8	6.9	8.2	10.1	11.5	15.0	15.9	16.0	14.1	11.5	9.6	11.0
1992	8.8	7.9	8.0	8.5	11.0	12.8	14.9	15.7	14.8	13.2	10.8	9.6	11.3
1993	7.8	7.3	7.3	8.5	10.9	13.0	14.5	15.3	14.6	11.6	9.9	8.0	10.7
1994	7.5	5.9	7.5	8.5	10.0	13.0	15.0	15.5	14.0	13.0	12.0	9.8	11.0
1995	7.9	7.8	8.0	8.5	11.0	14.0	16.0	16.9	16.0	14.0	12.0	8.0	11.7
1996	6.0	6.0	6.5	8.0	11.5	12.5	15.5	15.6	14.5	13.5	9.5		
1997	6.5	7.8	8.2	10.0	12.0	13.5	15.5	16.5	14.5	13.0	11.5	10.0	11.6
1998	8.5	8.5	9.0	11.0	12.0	12.0	15.0	16.0	15.0	13.0	11.0	9.0	11.7
1999	8.0	7.0	8.5	10.5	11.0	14.0	15.0	16.5	16.0	13.0	11.0	9.0	11.6
2000	8.0	7.5	8.0	9.0	10.5	12.5	14.5	16.5	14.5	12.5	11.5	8.5	11.1
2001	8.0	7.0	7.5	8.5	11.0	14.0	15.5	16.0	15.0	10.5	12.0	10.0	11.3
2002	8.5	8.0	8.0	9.0	11.0	13.0	14.0	16.0	15.5	15.0	11.0	9.5	11.5
2003	8.0	7.0	8.0	9.0	11.0	14.0	15.0	17.0	17.0	14.0	13.0	10.0	11.9
2004	8.0	7.0	7.5	8.5	10.0	13.0	14.5	16.5	15.5	14.0	13.0	11.0	11.5
whole data set													
mean	7.9	7.1	7.5	8.6	10.5	12.8	14.7	15.7	15.2	13.5	11.4	9.4	
count	37	37	37	37	37	37	37	37	38	38	38	36	
sd	0.82	0.83	0.81	0.87	0.71	0.71	0.59	0.71	0.70	0.94	0.80	0.66	
1971 - 2000													
mean	7.9	7.2	7.6	8.7	10.6	12.8	14.7	15.8	15.2	13.5	11.3	9.3	
count	30	30	30	30	30	30	30	30	30	30	30	29	
sd	0.87	0.81	0.72	0.85	0.70	0.67	0.56	0.63	0.66	0.66	0.76	0.61	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Wylfa Power Station which are derived from simple averaging of all the monthly data.

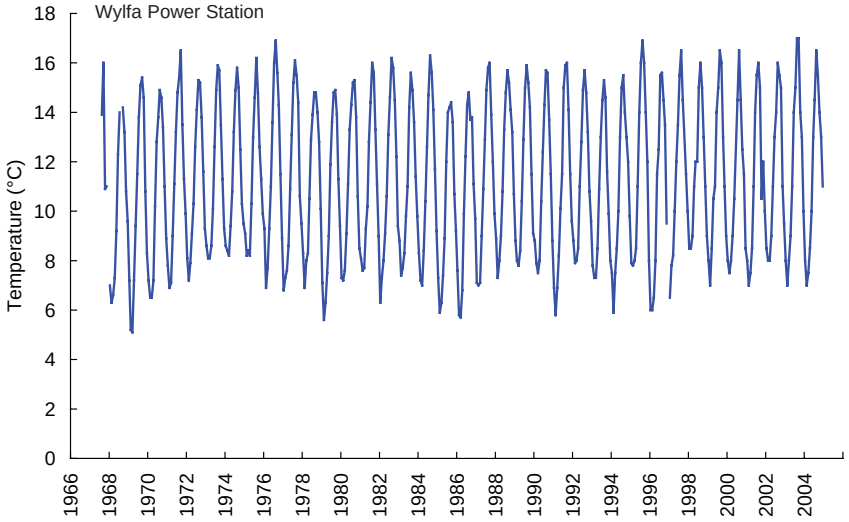


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

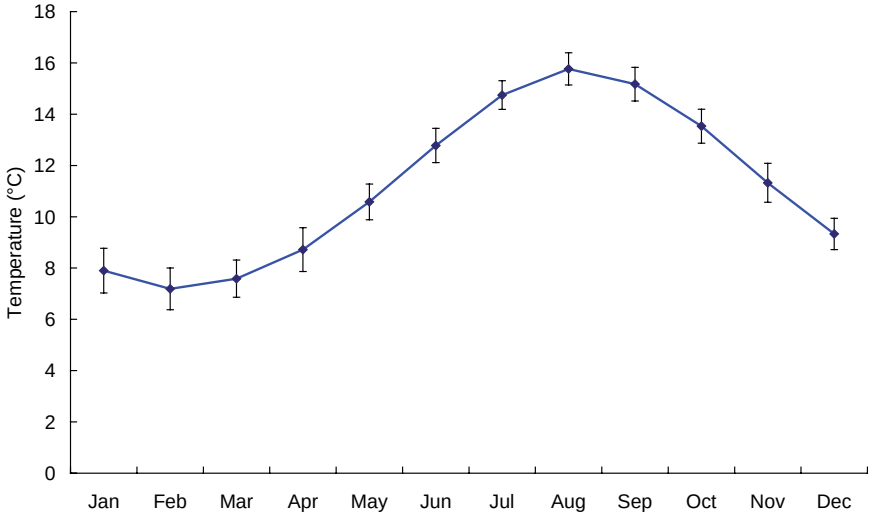


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

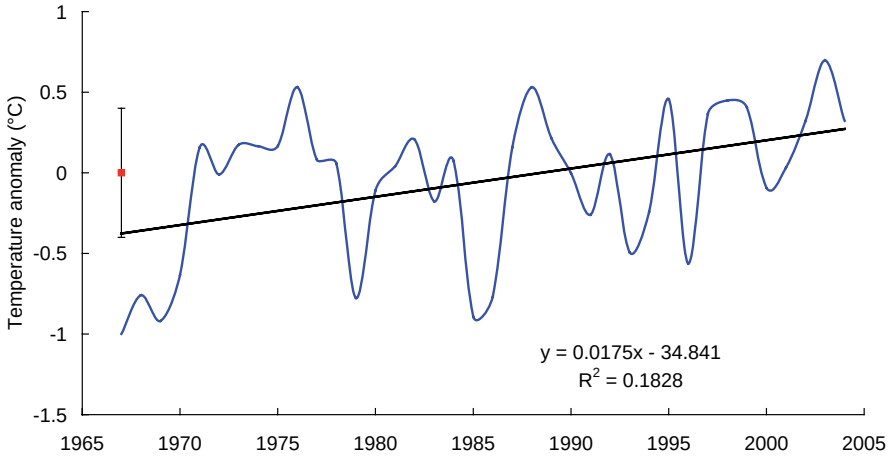


Table 38. Monthly mean sea temperature for Amlwch at 53° 25' N, 4° 20' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1964	6.8	6.5	5.9	7.0	9.9	12.1	14.0	15.4	15.0	13.2	11.0	9.0	10.5
1965	7.0	5.6	5.4	7.3	9.3	11.8	13.7	14.8	14.2	13.4	10.0	8.1	10.1
1966	6.3	6.1	6.9	7.0	8.9	12.0	14.2	15.0	15.0	13.6	10.0	8.0	10.3
1967	6.6	7.0	7.3	7.5	9.1	11.6	13.8	15.0	14.8	13.3	10.5	8.3	10.4
1968	7.0	6.3	6.5	7.3	9.4	11.7	13.8	15.3	15.2	14.0	10.9	8.8	10.5
1969	7.0	5.5	4.8	6.3	8.6	11.2	13.7	15.2	15.3	14.4	11.3	7.9	10.1
1970	6.6	6.3	5.9	6.7	9.0	11.9	13.4	14.6	14.5	13.2	11.0	9.1	10.2
1971	7.5	6.9	6.8	7.8	10.0	11.8	14.0	15.1	15.7	14.6	11.2	9.4	10.9
1972	7.8	6.7	6.6	8.2	9.7	11.4	13.3	14.8	15.0	13.6	11.3	9.3	10.6
1973	8.1	7.6	7.3	7.9	10.0	12.0	14.2	15.3	15.4	13.2	10.9	8.5	10.9
1974	8.0	7.5	7.1	8.4	9.8	12.2	14.1	15.2	14.6	12.9	9.0	8.8	10.6
1975	8.2	7.1	6.9	7.1	9.3	12.5	14.2	15.7	15.3	13.2	11.1	8.8	10.8
1976	8.2	6.0	6.5	8.0	9.9	12.4	15.0	16.3	15.5	13.7	11.2	8.5	10.9
1977	6.3	6.5	6.5	7.7	9.6	11.9	13.9	15.3	15.1	13.7	12.3	8.2	10.6
1978	6.9	5.6	6.3	7.2	8.9	11.6	13.0	14.4	14.6	13.5	12.3	9.1	10.3
1979	5.9	4.4	5.3	6.5	8.4	10.8	13.2	14.4	14.4	13.4	11.0	9.4	9.8
1980	6.8	6.9	6.9	7.8	9.9	12.0	13.6	15.0	15.0	12.7	10.8	8.5	10.5
1981	7.2	6.6	6.9	8.5	9.6	11.7	13.7	15.1	15.4	12.8	10.7	8.0	10.5
1982	6.0	6.7	6.9	8.0	9.6	12.3	14.4	15.3	15.1	13.4	11.5	8.8	10.7
1983	7.9	5.5	6.1	6.9	8.8	11.1	13.8	15.7	15.0	13.5	11.3	9.6	10.4
1984	7.8	6.5	6.1	7.4	9.7	11.9	14.3	16.1	15.9	13.8	11.9	10.0	11.0
1985	7.1	5.5	6.0	7.3	8.9	11.4	13.5	14.3	14.5	14.0	10.4	8.9	10.2
1986			5.3	6.6	10.0	13.0	14.5	14.3	13.0	12.5	11.4	9.2	
1987	6.1	5.8	5.9	7.3	9.4	11.2	13.5	14.8	14.9	13.0	10.9	8.2	10.1
1988	7.8	6.7	6.3	7.7	9.7	12.2	13.9	14.7	14.4	12.8	10.9	9.5	10.6
1989	8.5	8.0	7.6	8.3	10.7	13.0	15.3	16.3	15.9	14.6	11.9	9.2	11.6
1990	8.6	8.0	7.7	8.2	10.4	12.5	14.5	16.1	15.7	14.0	11.4	8.8	11.3
1991	7.0	5.8	6.8	8.3	9.7	11.6	13.9	15.4	16.0	13.6	10.8	9.2	10.7
1992	8.5	7.8	7.8	8.3	10.4	12.9	14.8	15.4	14.4	12.5	10.4	8.6	11.0
1993	7.3	7.0	6.4	8.0	10.1	11.9	14.0	14.9	14.7	12.6	10.4	9.0	10.5
1994	7.6	6.3	6.6	7.6	9.8	11.8	14.8	15.4	14.0	13.4	12.2	10.6	10.8
1995	8.5	7.8	7.3	8.5	10.1	12.2	14.8	16.9	16.6	15.0	12.7	8.9	11.6
1996	6.8	5.4	5.7	7.2	9.4	12.0	14.2	15.7	15.7	14.1	11.3	8.0	10.5
1997													
1998	8.8	8.3	8.4	9.0	11.0	12.9	14.6	15.8	15.7	14.0	11.3	9.6	11.6
1999	8.3	7.4	7.1	8.6	10.7	12.6	14.8	16.1	16.1	14.0	11.9	9.4	11.4
2000	7.6	7.5	7.5	7.9	9.8	12.0	14.4	15.7	16.0	14.0	11.4	9.6	11.1
2001	7.3	6.9	6.9	7.5	9.4	11.9	14.0	15.4	15.4	14.4	11.9	9.8	10.9
2002	7.8	8.0	7.7	8.7	9.9	12.3	14.0	15.2	15.7	14.5	12.1	9.4	11.3
2003	7.6	6.8	6.8	8.3	10.0	12.2	14.6	16.2	16.5	14.6	11.7	9.8	11.3
whole data set													
mean	7.4	6.7	6.6	7.7	9.7	12.0	14.1	15.3	15.2	13.6	11.2	9.0	
count	38	38	39	39	39	39	39	39	39	39	39	39	
sd	0.78	0.90	0.78	0.66	0.58	0.51	0.52	0.61	0.72	0.64	0.73	0.63	
1971 - 2000													
mean	7.5	6.7	6.7	7.8	9.8	12.0	14.1	15.4	15.2	13.5	11.2	9.0	
count	28	28	29	29	29	29	29	29	29	29	29	29	
sd	0.83	0.96	0.73	0.61	0.58	0.57	0.57	0.66	0.76	0.65	0.73	0.60	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Amlwch which are derived from simple averaging of all the monthly data.

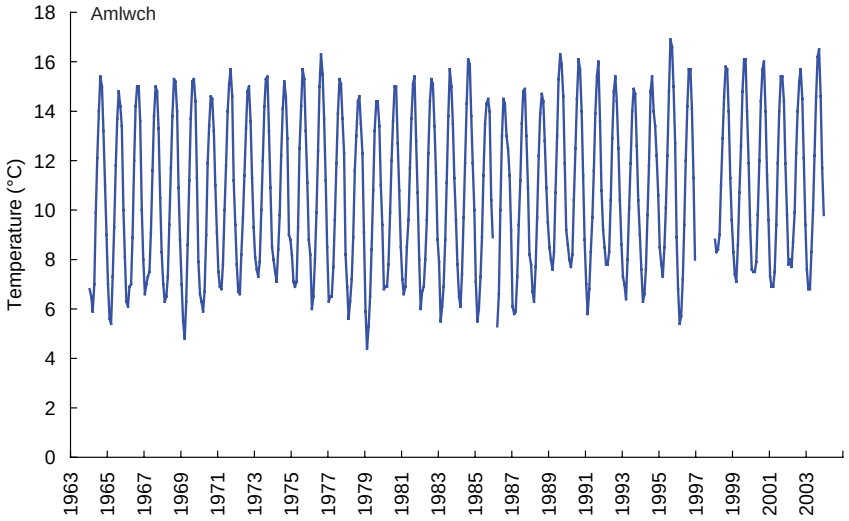


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

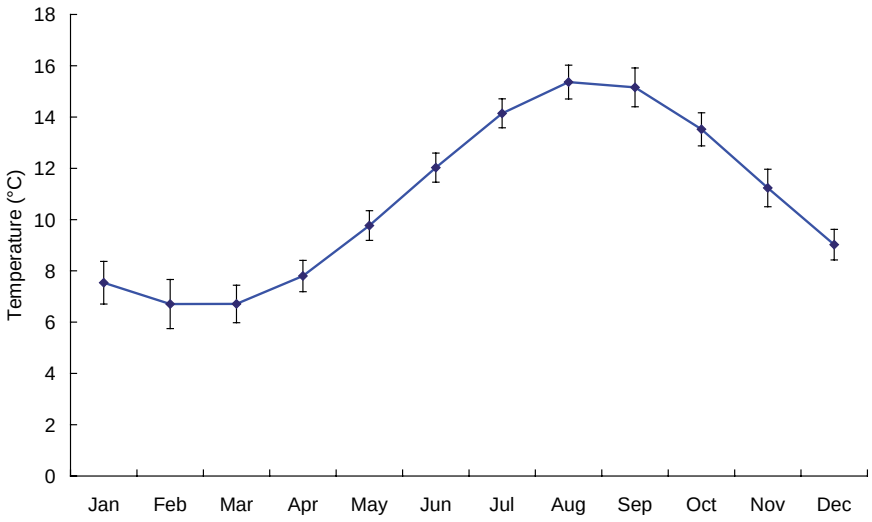


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

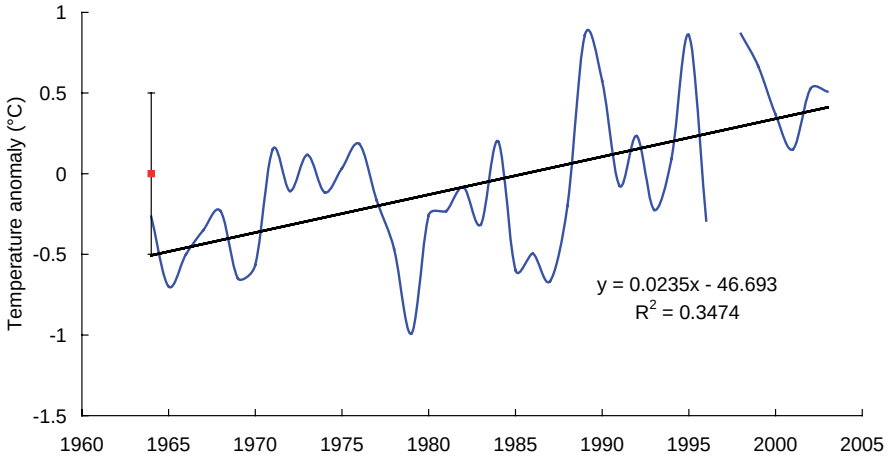


Table 39. Monthly mean sea temperature for Moelfre at 53° 21' N, 4° 14' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1966	5.3	4.9	6.5	6.5	9.2	12.1	14.4	15.1	15.2	13.1	9.5	7.7	10.0
1967	6.2	6.3	7.2	7.6	9.0	13.3	14.4	15.0	14.7	12.8	10.0	8.1	10.4
1968	6.0	5.4	6.1	7.9	9.7	12.3	14.1	16.0	15.6	14.6	9.9	6.5	10.3
1969	6.0	4.6	4.0	6.0	9.1	12.2	14.1	15.6	15.6	14.0	10.3	6.2	9.8
1970	5.5	5.5	5.6	6.7	9.3	13.1	14.4	14.7	15.3	13.1	10.4	7.6	10.1
1971	5.9	6.3	6.3	7.5	9.6	12.7	15.2	16.1	15.5	13.8	9.9	8.1	10.6
1972	6.4	5.6	5.9	8.6	10.1	12.1	13.8	14.7	14.3	13.1	10.2	8.3	10.3
1973	6.5	6.9	7.8	9.3	10.2	12.9	15.8	15.7	15.0	12.9	11.1	7.6	11.0
1974	7.1	6.9	6.9	8.4	10.7	13.1	14.4	15.0	15.0	11.4	9.2	8.3	10.5
1975	7.2	7.3	6.8	7.4	12.3	14.2	15.8	16.0	14.9	12.8	10.0	8.0	11.1
1976	7.9	5.4	6.8	10.1	11.6	14.3	17.8	19.7	16.8	12.1	6.5	3.8	11.1
1977	5.0	5.4	6.4	8.1	11.6	14.2	15.3	16.3	14.6	13.1	10.0	7.8	10.7
1978	6.2	5.1	6.3	7.7	9.6	13.0	14.8	15.4	14.7	13.4	11.8	7.7	10.5
1979	4.9	4.2	5.0	5.7	7.2	8.4	10.6	11.0	10.9	9.5	6.6	4.2	7.4
1980					11.0	13.8	14.9	14.6	12.9	10.0	9.5	8.2	
1981	7.0	6.5	7.8	9.2	10.2	13.3	14.8	16.1	15.1	11.4	9.5	6.5	10.6
1982	4.8	5.0	6.9	8.2	10.4	14.6	16.1	16.2	14.2	11.8	9.2	7.3	10.4
1983	6.6	4.3	6.0	7.2	9.2	11.9	16.3	16.7	14.3	12.0	7.9	7.4	10.0
1984	6.0	5.3	5.4	7.5	11.3	14.1							
1985	4.2	3.3	5.3	8.4	9.1	10.2	12.4	13.1	14.6	13.8	9.3	7.9	9.3
1986	6.0	3.3	4.4	6.2	9.2	12.6	14.1		14.0	12.8	10.2	8.5	
1987	5.3	5.6	5.8	7.8	10.2	11.8	14.9	15.9	15.5	12.6	10.4	7.6	10.3
1988	7.5	6.4	6.3	8.4	10.7	13.7	14.6	15.7	14.0	12.1	9.7	8.7	10.7
1989	7.8	7.4	7.3	8.0	11.4	14.1	16.1	16.8	15.8	13.7	10.8	7.3	11.4
1990	7.7	7.5	7.4	8.1	11.6	12.4	15.2	16.7	15.3	13.3	10.4	7.8	11.1
1991	6.2	4.2	6.5	8.2	10.3	12.5	14.4	16.1	16.2	12.8	9.7	8.4	10.5
1992	7.9	7.1	7.6	8.0	10.6	13.5	16.0	16.3	14.2	11.7	10.1	8.0	10.9
1993	6.7	6.7	5.9	8.2	10.9	12.5	14.5	15.4	15.2	11.7	9.3	8.2	10.4
1994	7.1	5.8	6.2	7.4	10.7	13.5	14.5	15.7	14.5	12.6	11.6	9.6	10.8
1995	7.2	7.4	7.0	8.5	10.1	13.3	15.9	17.6	16.1	14.5	11.5	7.0	11.3
1996	4.8	4.4	5.4	7.4	9.4	12.3	14.9	16.2	15.1	13.7	10.4	7.2	10.1
1997	4.8	6.0	7.3	9.1	10.7	13.0	15.1	17.4	15.8	13.2	11.0	8.6	11.0
1998	8.1	8.0	8.0	8.9	11.5	13.2	15.0	15.6	14.4	13.6	10.6	8.9	11.3
1999	7.9	7.2	7.5	9.0	11.6	14.0	16.7	17.5	17.2	14.5	12.1	8.9	12.0
2000	7.4	7.5	7.9	8.1	11.0	13.5							
2001			6.4	8.5	12.0	14.7	16.9	17.2					
2002	7.0	8.1	8.5	9.7	10.7								
2003		6.3	7.3	9.3	10.8		17.1	17.3	16.1		11.0	8.8	
2004	6.9	7.8		9.8	11.8	14.5	15.3	16.1					
whole data set													
mean	6.4	6.0	6.5	8.1	10.4	13.0	15.0	15.9	15.0	12.8	10.0	7.7	
count	36	37	37	38	39	37	36	35	34	33	34	34	
sd	1.07	1.30	1.02	1.02	1.06	1.22	1.30	1.41	1.12	1.17	1.22	1.18	
1971 - 2000													
mean	6.5	5.9	6.6	8.1	10.5	13.0	15.0	15.9	14.9	12.6	9.9	7.7	
count	29	29	29	29	30	30	28	27	28	28	28	28	
sd	1.14	1.32	0.94	0.90	1.03	1.27	1.33	1.54	1.20	1.19	1.32	1.23	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Moelfre which are derived from simple averaging of all the monthly data.

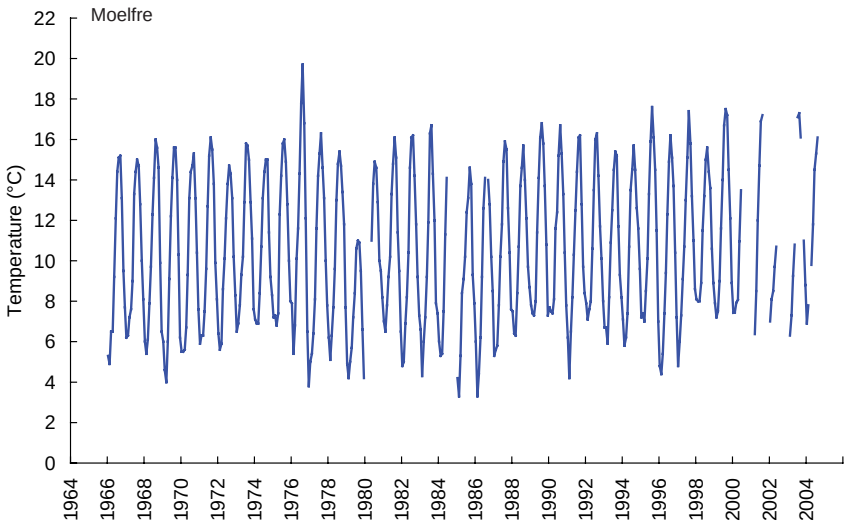


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

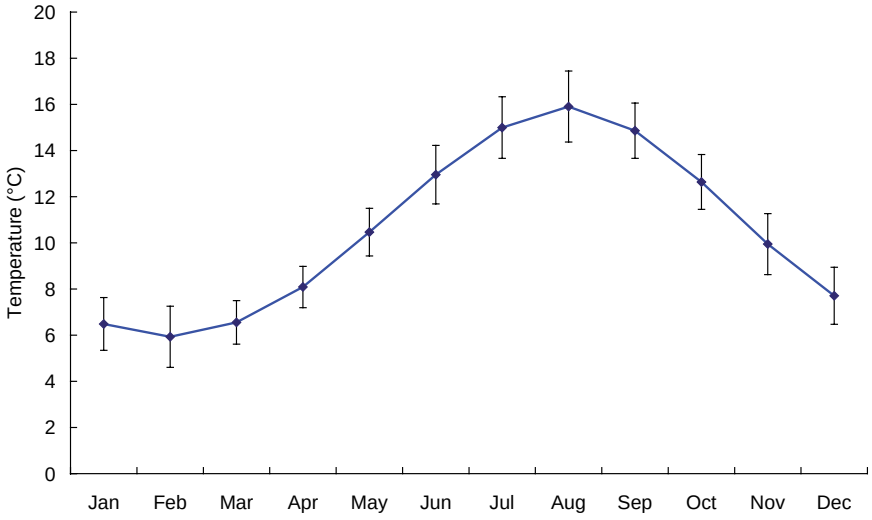


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

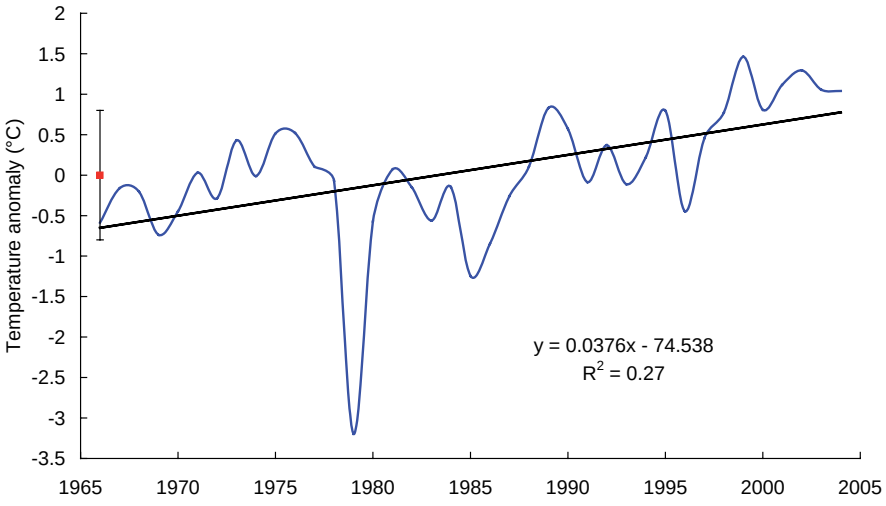


Table 40. Monthly mean sea temperature for Heysham Power Station at 54° 2' N, 2° 50' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1955	2.5	2.0	2.2	8.6	11.3	14.0	18.9	18.4	14.7	10.9	6.2	5.1	9.6
1956	3.8	0.9	5.1	7.1	12.0	13.7	15.4	12.9	12.1	9.1	6.5	4.7	8.6
1957	3.2	3.4	6.1	8.2	10.3	14.9	16.8	15.6	11.3	9.4	5.6	3.6	9.0
1958	2.3	2.6	2.1	6.0	11.9	14.8	16.3	15.8	15.9	11.1	8.6	4.3	9.3
1959	2.1	4.2	6.9	9.5	13.7	15.8	17.8	17.4	16.2	12.5	7.4	5.1	10.7
1960	3.3	2.8	4.8	9.7	15.0	16.4	15.4	15.3	13.3	9.0	5.4	3.2	9.5
1961	3.8	6.1	6.8	9.1	12.6	14.1	14.7	14.6	13.9	10.1	5.6	5.0	9.7
1962													
1963	-0.6	0.0	4.4	7.1	10.9	14.6	15.1	14.4	13.9	10.6	8.3	3.7	8.5
1964	2.9	4.2	5.0	9.0	12.8	15.4	17.1	16.1	14.0	7.3	6.7	4.6	9.6
1965	2.8	2.9	5.2	7.9	12.9	15.2	15.4	15.1	13.2	12.6	3.3	2.3	9.1
1966	2.8	5.2	6.3	7.6	12.8	16.7	17.3	16.2	14.4	12.3	9.3	6.9	10.7
1967	5.8	5.3	6.2	9.8	13.7	16.9	18.2	17.3	15.2	12.1	6.1	3.9	10.9
1968	5.0	3.9	8.6	12.0	12.4	17.4	17.4	17.3	15.7	15.2	7.8	5.1	11.5
1969	5.4	2.5	3.9	9.3	11.4	16.3	18.2	17.7	14.9	12.3	5.2	4.4	10.1
1970	3.8	3.2	5.1	8.1	14.4	17.6	15.8	16.2	14.2	9.6	8.3	6.4	10.2
1971	4.3	4.8	5.8	9.9	13.8	15.8	19.4	16.0	15.1	12.1	7.2	5.2	10.8
1972	4.4	4.7	5.8	8.9	11.4	13.3	16.0	15.2	14.1	10.9	6.8	4.4	9.7
1973	3.9	5.6	6.6	8.4	12.4	16.2	18.2	18.1					
1974													
1975													
1976	5.3	4.3	5.7	8.4	11.3	19.4	19.9	19.0	13.5	11.3	7.3	4.1	10.8
1977	2.2	4.7	6.9	7.6	11.5	14.8	15.9	16.7	13.8	11.2	7.1	4.4	9.7
1978	3.8	1.8	7.0	9.7	11.3	11.8	14.8	15.4	12.9	12.8	10.3	3.0	9.6
1979	0.1	1.2	3.1	7.8	11.6	16.7	16.0	14.3	11.2	10.3	7.8	5.1	8.8
1980	2.6	5.6	5.4	9.7	11.2	15.6	15.3	17.2	14.6	9.7	7.4	4.8	9.9
1981	3.9	3.8	5.8	9.8	12.5	13.9	17.8	16.5	14.7	8.4	7.0	-0.3	9.5
1982	1.1	5.0	8.1	10.8	15.4	15.6							
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990	6.1	5.6	7.4	8.4	12.5			17.6	15.4	13.0	8.5	5.5	
1991											9.6	6.9	
1992	6.9	6.0	7.5	9.3	12.4	16.7	17.4	17.4	13.5	12.5	8.1	6.4	11.2
1993	5.4	6.7	7.6	9.5	11.4	15.6	16.6	15.8	14.9	9.5	7.5	6.1	10.6
1994	6.4	4.8	6.3	8.9	11.6	14.3	17.6	17.6	13.5	12.6	10.9	8.0	11.0
1995	5.6	6.2	6.6	9.6	12.1	15.0		19.6	16.1	13.2			
1996	4.6	3.0	4.9	7.0	11.0	15.1	16.6	16.1	15.5	12.1	8.2	5.5	10.0
1997													
1998	6.1	6.8	8.0	8.1	13.0	14.1	16.0	16.6	15.4	12.8	9.0	7.1	11.1
1999	6.1	6.2	7.3	9.9	12.9	15.3	17.6	17.0	16.7	12.4	9.9	5.9	11.4
2000	5.5	6.2	7.4	8.5	13.4	15.2	16.4	17.7	15.9	12.2	8.8	7.6	11.2
2001	5.2	5.4	6.1	8.5	12.8	14.7	17.3	17.8	15.1	14.1	10.3	7.5	11.2
2002	5.9	7.0	7.7	10.2	12.6	15.3	16.7	18.0	16.5	12.7	9.7	7.3	11.6
2003	6.1	5.2	8.0	10.5	13.1	17.3	18.3	19.3	16.5	12.1	9.4	6.9	11.9
2004	5.7	6.4	7.0	10.2	14.3	16.7	17.1	18.3	15.3	11.9	9.9	7.6	11.7
whole data set													
mean	4.1	4.4	6.1	8.9	12.5	15.5	16.9	16.7	14.5	11.4	7.8	5.2	
count	38	38	38	38	38	37	35	37	36	36	36	36	
sd	1.79	1.77	1.55	1.20	1.17	1.41	1.30	1.48	1.37	1.68	1.70	1.73	
1971 - 2000													
mean	4.4	4.9	6.5	9.0	12.2	15.2	17.0	16.9	14.5	11.6	8.3	5.3	
count	19	19	19	19	19	18	16	18	17	17	17	17	
sd	1.85	1.55	1.23	0.96	1.11	1.59	1.41	1.33	1.36	1.40	1.25	1.95	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Heysham Power Station which are derived from simple averaging of all the monthly data.

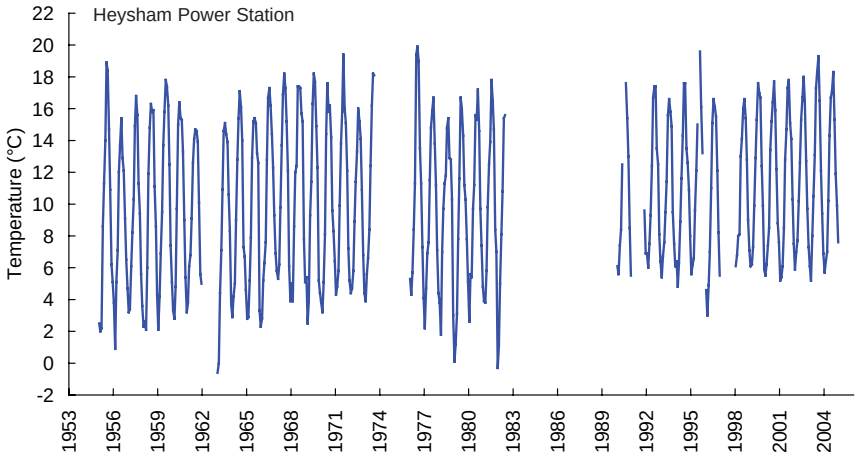


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

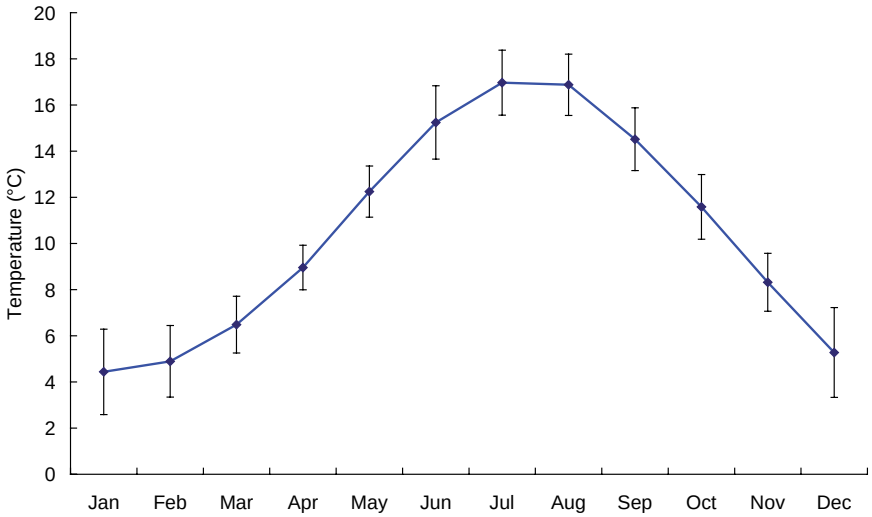


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

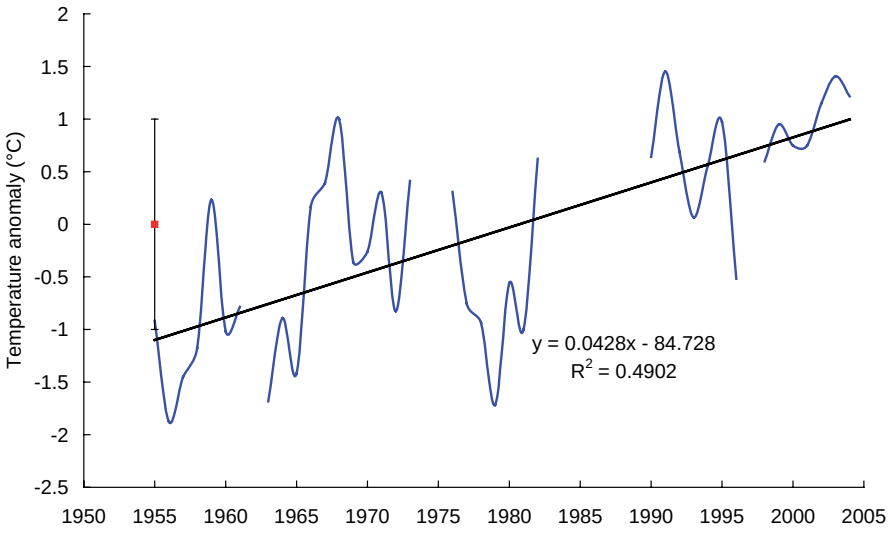


Table 41. Monthly mean sea temperature for Port Erin at 54° 5' N, 4° 46' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1903	7.6	7.8	7.6	8.1	9.4	10.9	12.9	13.9	13.3	12.7	10.9	9.2	10.4
1904	8.3	7.5	7.0	8.0	9.1	11.1	13.5	14.2	13.9	12.7	11.2	9.7	10.5
1905	8.2	7.3	7.5	8.1	9.8	11.9	14.3	14.4	13.8	12.1	10.5	9.5	10.6
1906	8.3	6.9	6.9	7.6	8.7	11.2	13.1	14.3	14.1	12.9	11.1	9.3	10.4
1907	8.2	6.6	6.8	7.7	8.9	10.6	12.4	13.3	13.3	12.2	10.8	9.3	10.0
1908	7.6	7.1	6.6	7.2	9.0	11.0	12.8	13.8	13.0	12.8	11.3	9.8	10.2
1909	8.0	6.8	6.1	7.6	9.3	11.2	12.6	13.7	12.9	12.2	10.1	8.5	9.9
1910	7.4	6.6	7.0	7.5	8.9	10.9	12.6	13.8	13.4	12.1	9.8	8.8	9.9
1911	7.8	7.0	6.7	7.2	9.5	11.5	13.3	15.0	14.3	12.4	9.9	9.2	10.3
1912	7.9	6.9	7.6	8.4	10.1	11.9	13.3	13.5	12.8	11.8	10.3	9.1	10.3
1913	8.0	7.5	7.1	7.7	9.3	11.4	12.7	13.9	13.6	12.8	11.4	9.3	10.4
1914	7.7	7.9	7.6	8.6	9.8	11.5	13.9	14.7	14.3	13.0	11.1	9.3	10.8
1915	7.8	6.9	6.8	7.7	9.0	11.1	12.9	14.0	13.9	12.4	9.8	8.6	10.1
1916	8.4	6.7	5.6	7.1	8.8	10.6	12.6	14.2	13.4	12.1	10.5	8.8	9.9
1917	6.6	5.3	5.5	6.0	8.0	10.9	12.9	13.6	13.6	11.4	9.9	8.0	9.3
1918	6.4	7.4	6.4	7.4	9.4	11.7	13.0	14.2	13.0	11.5	10.2	9.4	10.0
1919	7.8	6.5	6.4	7.4	9.0	11.2	12.1	13.8	13.0	11.3	9.0	8.3	9.7
1920	7.2	6.6	6.6	7.4	9.2	11.3	12.9	13.3	13.2	12.3	10.9	8.9	10.0
1921	8.8	7.5	7.8	8.4	10.1	12.0	14.0	14.4	14.0	13.6	11.0	10.0	11.0
1922	8.1	7.7	7.2	7.6	9.6	11.6	12.6	13.2	13.0	11.8	10.4	9.7	10.2
1923	8.2	7.9	7.9	8.4	9.4	10.9	13.2	13.7	13.1	12.0	9.7	8.4	10.2
1924	7.8	7.0	6.6	7.4	9.0	11.5	13.1	13.7	13.4	12.3	11.2	10.7	10.3
1925	8.9	7.9	7.5	8.1	9.2	11.2	13.4	14.6	13.5	12.7	10.9	8.9	10.6
1926	8.4	7.9	7.6	8.4	9.5	11.9	13.5	14.7	14.5	12.9	11.2	9.1	10.8
1927	8.6	7.3	7.7	8.2	9.5	11.1	12.8	14.5	14.0	12.9	11.2	8.9	10.6
1928	7.8	6.8	6.6	7.4	9.2	10.6	12.5	13.5	13.9	12.6	11.2	8.9	10.1
1929	7.6	7.0	6.8	7.6	9.0	11.6	13.3	14.0	14.2	12.4	11.1	9.9	10.4
1930	8.6	7.1	7.0	7.6	9.2	11.6	13.4	13.9	13.8	12.6	10.9	9.8	10.5
1931	8.2	7.2	6.1	7.0	8.8	11.0	13.2	13.8	13.4	12.6	11.6	10.2	10.3
1932													
1933													
1934													
1935													
1936													
1937													
1938													
1939													
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950	8.9	7.9	8.4	8.5	9.9	12.3	13.8	14.5	13.6	12.3	10.3	8.6	10.8

Table 41. continued: Monthly mean sea temperature for Port Erin at 54° 5' N, 4° 46' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1951	7.6	6.9	6.7	7.1	7.9	10.4	13.0	13.5	13.4	13.0	12.2	10.8	10.2
1952	8.6	6.9	6.9	8.5	9.4	11.4	13.5	14.1	13.2	11.5	9.9	8.3	10.2
1953	7.6	6.7	7.3	7.8	9.4	11.3	13.2	14.5	14.0	13.3	12.0	10.8	10.7
1954	8.9	7.7	7.5	8.5	9.3	11.3	12.8	13.7	13.4	12.7	11.0	9.8	10.6
1955	7.8	6.3	6.2	7.6	8.9	10.6	12.9	14.2	14.3	12.9	11.7	10.0	10.3
1956	8.3	6.7	7.0	7.8	9.4	11.2	13.1	13.3	13.3	12.6	11.1	9.9	10.3
1957	8.4	7.7	8.3	8.9	9.9	12.1	13.8	14.6	14.0	12.9	10.7	9.3	10.9
1958	7.8	7.6	6.8	7.4	9.3	11.2	13.0	14.2	14.1	13.3	11.8	10.1	10.6
1959	8.4	7.9	8.4	9.1	10.4	12.5	14.5	15.2	15.0	14.4	12.5	10.5	11.6
1960	8.8	7.9	7.6	8.8	10.6	12.5	13.7	14.6	14.4	12.9	11.4	9.3	11.0
1961	8.1	8.3	8.2	8.8	10.4	12.1	13.6	14.1	13.9	12.9	10.6	9.1	10.8
1962	7.9	7.0	6.2	7.3	9.2	10.7	12.2	13.7	13.2	12.3	10.6	8.8	9.9
1963	5.7	4.5	5.8	6.8	8.4	10.5	12.2	13.0	12.8	11.9	11.0	8.8	9.3
1964	8.5	7.3	6.8	7.9	10.0	11.5	13.3	14.1	13.9	12.8	11.3	9.4	10.6
1965	7.8	6.5	6.5	8.1	9.4	11.8	12.9	14.0	13.2	12.5	9.9	9.1	10.1
1966	7.4	6.7	7.3	7.0	9.2	11.7	13.4	13.8	13.9	12.9	10.7	9.2	10.3
1967	7.9	7.7	7.3	7.3	8.6	11.5	13.3	14.0	13.7	12.3	10.3	8.9	10.2
1968	8.0	6.8	7.1	7.6	9.2	11.8	13.0	14.3	14.1	13.3	10.7	9.6	10.5
1969	8.5	6.6	5.6	7.3	8.9	11.5	13.5	14.1	13.7	13.4	11.2	9.2	10.3
1970	7.8	7.1	6.3	7.2	9.4	11.4	12.8	13.8	13.6	12.6	11.0	9.4	10.2
1971	8.5	7.9	7.4	8.3	10.2	11.5	13.3	14.4	14.2	13.5	11.2	10.6	10.9
1972	8.5	7.8	7.8	8.7	9.8	11.0	12.9	13.7	13.6	12.9	11.1	9.9	10.6
1973	8.9	7.9	8.0	8.4	9.7	12.4	13.8	14.3	14.3	12.6	11.0	9.4	10.9
1974	8.8	8.2	7.9	8.7	9.9	11.7	13.4	14.4	13.6	11.7	10.6	9.2	10.7
1975	8.4	7.5	7.5	8.0	9.4	11.9	14.3	15.2	14.3	13.0	11.3	10.0	10.9
1976	8.9	7.3	7.2	7.8	9.5	12.0	13.8	14.3	13.5	13.0	11.5	9.7	10.7
1977	7.7	7.5	7.5	7.8	9.2	11.0	13.3	14.0	13.6	12.8	10.7	9.3	10.4
1978	7.8	6.4	7.1	7.5	9.0	11.0	11.8	13.2	13.3	12.7	12.0	9.6	10.1
1979	7.5	6.0	5.9	6.8	8.3	11.2	13.0	13.4	13.3	12.6	10.6	9.7	9.9
1980	7.8	7.9	7.4	8.2	9.5	11.7	12.7	14.5	14.6	12.7	11.1	9.5	10.6
1981	8.0	7.1	7.4	8.1	9.4	11.7	13.0	13.8	14.1	11.7	10.6	8.2	10.3
1982	7.2	6.9	6.9	8.1	9.4	11.8	13.1	13.8	13.3	12.4	10.9	8.9	10.2
1983	7.8	5.6	6.7	7.2	8.8	11.0	13.3	14.2	13.5	12.4	11.4	9.9	10.2
1984	7.8	7.0	6.9	7.6	9.1	11.6	13.4	14.6	14.2	12.9	11.6	10.5	10.6
1985	8.2	6.8	6.8	7.7	8.9	11.0	13.4	13.6	13.4	13.2	10.4	10.0	10.3
1986	7.6	5.3	6.2	6.5	8.5	10.3	12.4	12.7	12.5	12.1	10.7	9.4	9.5
1987	7.2	6.9	6.5	7.7	9.1	10.9	13.1	13.8	13.7	12.3	11.0	9.3	10.1
1988	8.8	7.4	7.2	8.0	9.6	11.9	13.6	14.3	13.4	12.3	11.3	10.4	10.7
1989	9.5	8.5	8.0	8.1	9.9	11.4	13.9	14.7	14.3	13.5	11.7	10.0	11.1
1990	9.4	8.4	7.8	8.1	10.0	12.0	13.3	15.0	14.2	13.0	11.2	9.4	11.0
1991	7.8	6.0	7.3	7.8	9.1	10.7	13.1	14.3	14.2	12.7	11.1	9.7	10.3
1992	8.5	8.0	8.0	8.1	9.8	11.8	13.4	14.6	13.6	12.0	10.6	9.6	10.7
1993	7.9	7.4	7.0	8.2	9.4	11.6	13.1	13.8	13.5	12.1	10.5	9.7	10.4
1994	8.0	6.7	7.2	7.5	9.0	11.1	13.3	13.8	13.3	12.3	11.9	11.0	10.4
1995	8.2	8.1	7.4	8.4	9.8	11.5	14.0	15.3	14.4	14.0	12.2	9.8	11.1
1996	8.6	7.1	6.9	8.0	8.7	11.4	13.1	14.1	13.7	13.0	10.5	9.1	10.4
1997	7.7	7.6	7.8	8.3	9.6	11.3	13.7	15.0	14.6	13.7	12.6	11.1	11.1
1998	9.6	9.1	8.9	9.0	10.5	12.2	14.0	14.8	14.7	13.5	11.6	10.2	11.5

Table 41. continued: Monthly mean sea temperature for Port Erin at 54° 5' N, 4° 46' W.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	mean
1999	8.9	7.7	7.8	8.9	10.5	12.3	14.2	14.5	15.0	13.3	12.1	9.8	11.3
2000	8.3	7.8	8.0	8.2	10.3	12.1	13.7	15.2	15.1	13.4	11.0	10.1	11.1
2001	8.4	7.8	7.2	8.3	10.0	12.0	13.8	14.9	14.2	13.9	12.2	10.3	11.1
2002	9.5	8.6	8.2	9.0	10.4	12.5	13.8	14.8	14.6	13.2	12.1	9.9	11.4
2003		7.7	8.1	8.9	10.5	12.9	14.3	15.4	14.9	13.2	12.2	10.1	11.7
2004	8.7	8.0	7.7	8.7	10.6	12.8	13.9	14.8	14.5	13.0	11.9	10.6	11.3
whole data set													
mean	8.1	7.2	7.1	7.9	9.4	11.5	13.2	14.1	13.8	12.7	11.0	9.5	
count	83	84	84	84	84	84	84	84	84	84	84	84	
sd	0.65	0.76	0.70	0.62	0.58	0.56	0.54	0.56	0.56	0.60	0.70	0.66	
1971 - 2000													
mean	8.3	7.3	7.3	8.0	9.5	11.5	13.3	14.2	13.9	12.8	11.2	9.8	
count	30	30	30	30	30	30	30	30	30	30	30	30	
sd	0.64	0.87	0.62	0.55	0.56	0.51	0.53	0.62	0.59	0.58	0.57	0.60	

Figure (a). Monthly mean surface temperature for the entire duration of the record at Port Erin which are derived from simple averaging of all the monthly data.

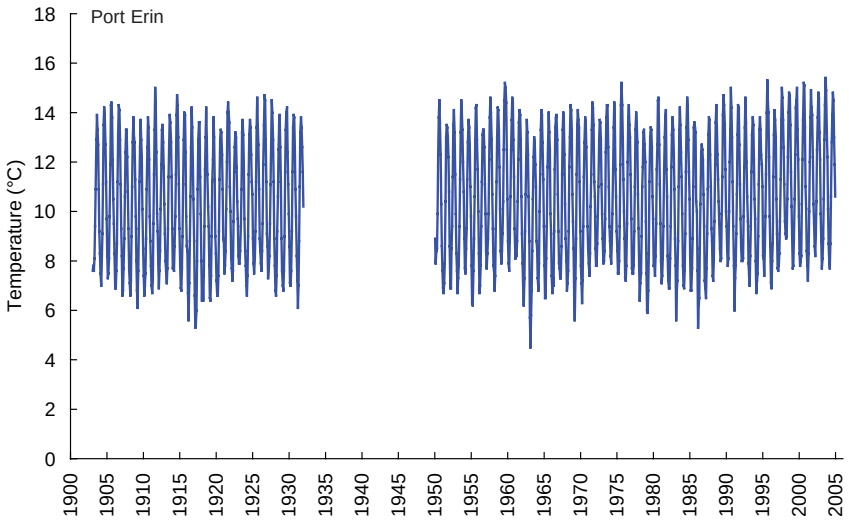


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

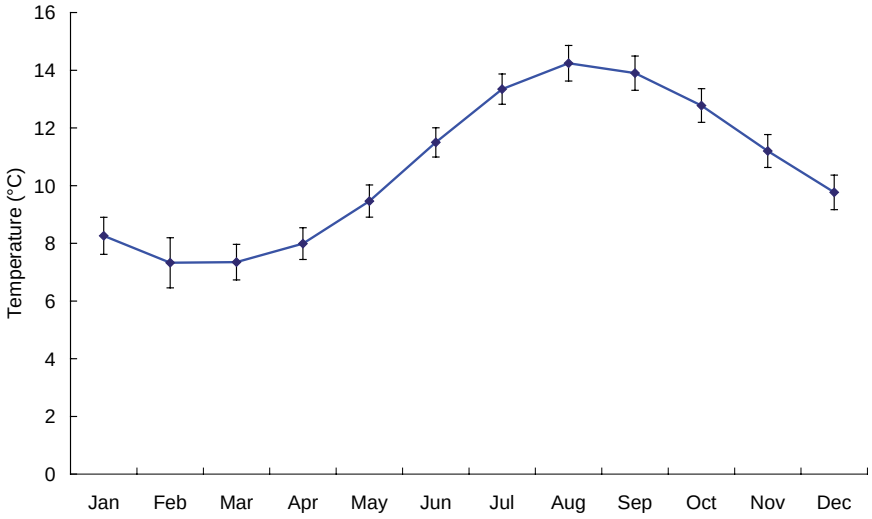
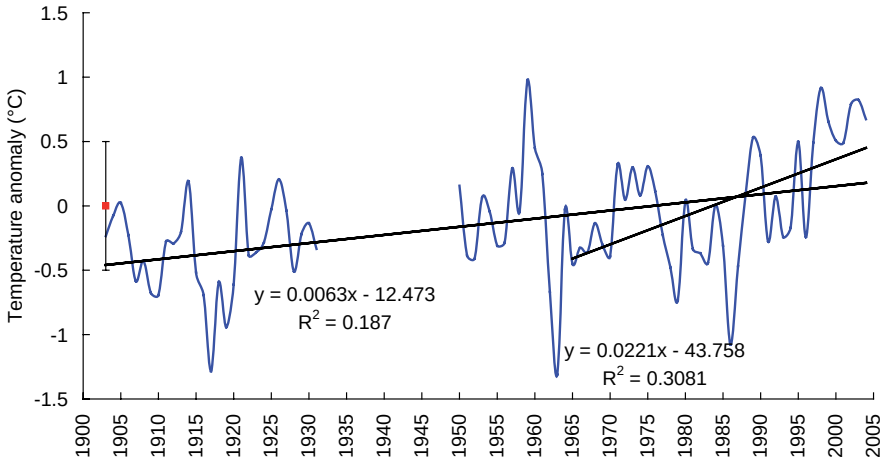


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.



Appendix B. Monthly mean sea surface temperatures and salinity - Ferry route 52°N

Table 42. Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Aug-70	17.7	17.6	17.2	16.8	16.9	17.3	17.7	18.3	18.3
Sep-70	17.3	17.0	16.8	16.8	16.9	17.0	17.3	17.6	17.5
Oct-70	14.0	14.7	15.2	15.4	15.3	15.3	15.2	15.2	14.5
Nov-70	10.5	11.3	12.6	13.0	12.7	12.6	11.8	11.3	10.8
Dec-70	7.9	9.7	10.5	10.9	10.2	10.0	9.7	9.0	8.5
Jan-71									
Feb-71	5.5	6.4	7.1	7.4	7.6	7.0	6.2	5.6	5.7
Mar-71	6.1	6.3	6.7	7.1	7.2	6.6	5.9	5.6	5.8
Apr-71	7.3	7.2	7.2	7.6	7.8	7.5	7.4	7.6	8.4
May-71	11.6	9.7	9.6	9.5	9.6	9.6	9.8	10.3	11.9
Jun-71	14.1	13.3	12.8	12.2	12.1	12.5	13.0	13.2	14.4
Jul-71	17.9	16.2	15.3	15.0	15.5	15.9	16.3	17.3	17.8
Aug-71	18.9	17.9	17.3	17.2	17.5	18.0	18.2	18.6	19.2
Sep-71	17.6	17.7	17.4	17.2	17.3	17.8	18.1	17.9	18.3
Oct-71	15.9	16.3	16.5	16.6	16.6	16.6	16.6	16.6	16.4
Nov-71	10.7	11.5	12.8	13.4	13.3	12.9	12.7	12.5	11.7
Dec-71	7.5	9.1	10.0	10.9	10.5	10.1	9.7	9.3	8.6
Jan-72	5.7	7.1	8.6	9.5	9.0	8.5	8.3	7.6	7.0
Feb-72	4.8	6.1	7.8	8.1	7.7	7.1	6.1	4.8	4.8
Mar-72	6.1	6.8	7.6	7.7	7.6	7.1	6.1	5.4	5.8
Apr-72	9.1	8.6	8.8	9.0	8.9	8.6	8.0	7.9	9.2
May-72	11.9	10.9	10.8	10.8	10.8	10.9	11.0	11.1	11.8
Jun-72	14.5	13.2	12.5	12.3	12.5	12.7	13.1	13.5	14.9
Jul-72	17.5	15.9	14.9	14.6	15.0	15.2	15.8	16.2	18.2
Aug-72	17.5	17.2	17.1	16.8	16.6	17.0	17.2	18.0	18.3
Sep-72	15.5	16.2	16.1	16.2	16.3	16.4	16.5	16.6	17.0
Oct-72	13.1	14.1	14.5	14.8	14.7	14.5	14.3	14.0	13.7
Nov-72	7.6	10.0	10.8	11.4	12.1	11.8	11.4	11.1	10.1
Dec-72	6.9	9.3	11.0	11.0	10.7	10.1	9.4	8.6	7.8
Jan-73	7.8	7.3	8.6	8.6	8.2	7.6	7.0	6.4	5.9
Feb-73	5.5	6.8	7.8	8.1	7.9	7.1	6.5	5.9	5.7
Mar-73	6.5	6.4	7.3	7.7	7.7	7.1	6.8	6.3	6.5
Apr-73	7.5	7.1	7.6	7.8	8.0	7.7	7.2	7.7	8.5
May-73	13.0	10.9	9.8	10.2	9.8	10.0	10.1	10.5	12.1
Jun-73	16.8	14.7	13.7	13.2	13.5	13.8	14.3	14.8	16.8
Jul-73	18.6	17.6	16.4	15.9	16.2	16.7	17.2	17.9	19.1
Aug-73	18.7	17.9	17.3	17.0	17.3	17.7	18.3	18.6	19.6
Sep-73	17.5	17.9	17.9	17.6	17.7	18.2	18.3	18.6	18.7
Oct-73	12.8	13.8	14.5	15.1	14.9	14.9	14.8	14.5	13.3
Nov-73									
Dec-73	5.5	7.2	8.4	9.2	9.0	8.4	8.1	7.5	6.7
Jan-74	6.3	8.4	8.2	9.0	9.0	8.2	7.4	6.6	6.7
Feb-74	6.4	7.7	8.6	9.1	8.9	8.3	7.7	7.0	7.0
Mar-74	5.8	7.0	8.0	8.6	8.2	7.8	7.2	6.1	6.5
Apr-74	9.1	8.5	9.0	9.4	10.0	9.8	9.9	10.0	11.4
May-74	12.2	10.9	10.5	10.4	10.7	10.6	10.7	10.8	12.0
Jun-74	15.1	13.7	13.3	12.6	12.9	13.1	13.3	13.7	16.1
Jul-74	16.5	16.4	15.7	15.3	15.3	15.6	16.3	16.4	17.9

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Aug-74	18.1	17.7	17.2	16.9	17.1	17.5	17.7	17.9	18.7
Sep-74	15.5	15.5	15.8	15.9	15.9	15.9	16.1	16.0	16.1
Oct-74	10.7	12.3	13.4	13.7	13.5	13.3	13.1	12.6	12.1
Nov-74	8.3	9.9	10.9	11.5	11.2	10.8	10.3	9.9	9.3
Dec-74	7.1	8.3	9.7	10.1	9.7	9.2	8.6	8.1	7.8
Jan-75	6.4	7.8	9.2	9.4	9.0	8.8	8.2	7.6	7.1
Feb-75	6.2	7.3	8.3	8.8	8.5	8.0	7.6	7.3	7.0
Mar-75	5.8	6.6	7.4	8.1	7.9	7.5	7.2	6.9	6.9
Apr-75	8.0	7.3	7.5	7.5	7.8	7.6	7.3	7.3	7.7
May-75	11.1	9.5	9.8	9.3	9.7	9.7	10.3	10.6	11.3
Jun-75	11.6	10.0	10.2	9.8	10.6	10.8	11.0	11.6	13.4
Jul-75	17.6	16.0	15.4	14.6	15.0	15.5	15.9	16.9	18.4
Aug-75	20.2	18.9	17.8	17.6	17.7	18.4	18.8	18.8	21.0
Sep-75	17.9	18.3	17.9	17.8	17.9	18.3	18.6	18.7	19.1
Oct-75	13.1	14.8	15.2	15.4	15.3	15.2	15.1	14.8	14.4
Nov-75	10.1	11.7	12.8	13.3	13.1	12.8	12.5	11.8	11.3
Dec-75	6.4	8.6	9.3	10.4	10.2	9.7	9.1	8.4	7.8
Jan-76	6.3	6.8	7.7	8.7	8.6	8.1	7.7	7.1	7.5
Feb-76	5.5	5.4	6.0	6.9	6.8	6.4	6.1	5.5	5.2
Mar-76	6.9	6.4	7.3	7.5	7.1	6.4	5.7	5.5	6.5
Apr-76	8.9	7.7	8.3	8.5	8.2	7.6	7.2	7.2	8.2
May-76	12.9	10.8	10.4	10.1	10.1	10.1	10.1	10.4	12.6
Jun-76	19.1	16.1	15.0	13.8	14.3	14.9	15.4	15.7	18.7
Jul-76	20.5	19.0	17.8	17.3	16.8	17.3	17.8	18.0	19.2
Aug-76	19.6	18.8	18.6	18.2	18.4	18.7	19.0	19.1	19.5
Sep-76	17.7	17.7	17.8	18.2	17.8	18.4	18.5	18.3	18.3
Oct-76	14.4	15.0	16.0	16.2	16.2	16.0	15.8	15.4	15.1
Nov-76	10.9	13.1	14.6	14.8	14.6	14.4	14.0	13.5	12.1
Dec-76	5.0	7.0	9.3	9.3	9.1	9.1	8.6	7.8	7.2
Jan-77	4.3	6.8	8.0	8.6	8.1	7.6	6.9	6.1	4.7
Feb-77	6.3	7.5	8.2	8.5	8.2	7.9	7.2	6.3	6.1
Mar-77	8.0	8.2	8.6	8.7	8.7	8.5	7.9	7.6	8.3
Apr-77	8.5	8.5	8.8	9.0	8.9	8.8	8.5	8.3	9.4
May-77	10.8	10.3	10.2	10.2	10.4	10.4	10.6	11.1	12.8
Jun-77	13.1	12.4	12.1	11.9	12.2	12.5	12.6	12.9	13.5
Jul-77	16.2	14.4	14.7	14.0	14.1	14.6	15.0	15.7	18.3
Aug-77	17.8	17.4	17.2	16.8	17.0	17.1	17.5	17.6	19.4
Sep-77	16.3	16.4	16.5	16.5	16.5	16.7	16.9	17.1	17.7
Oct-77	13.9	14.5	14.9	15.2	15.1	15.2	14.8	14.8	14.8
Nov-77	8.9	11.5	12.3	12.8	12.4	12.1	11.7	10.8	9.8
Dec-77	8.2	8.9	10.4	10.1	9.8	9.2	8.3	7.7	7.4
Jan-78	5.5	6.5	7.4	8.4	8.1	7.6	7.0	6.4	6.2
Feb-78									
Mar-78	6.3	5.8	6.8	6.9	6.8	6.2	5.8	5.3	5.7
Apr-78	6.8	6.4	6.4	7.3	7.7	7.6	7.4	7.1	7.6
May-78	11.1	9.7	9.7	9.4	9.5	9.8	10.2	11.1	13.0
Jun-78									
Jul-78									
Aug-78	18.3	16.8	16.4	15.9	16.1	16.4	16.8	17.0	18.3

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Sep-78									
Oct-78	13.9	14.5	15.0	15.5	15.4	15.3	15.4	15.3	15.1
Nov-78	9.2	11.2	11.9	12.7	12.8	12.4	12.1	11.8	10.3
Dec-78									
Jan-79	2.9	3.9	3.7	5.7	6.8	5.9	5.2	4.3	2.8
Feb-79	2.6	2.9	4.5	6.0	5.7	5.1	4.4	2.5	3.4
Mar-79	4.5	4.7	4.8	5.4	5.8	5.3	4.4	4.0	5.2
Apr-79	5.6	6.8	7.0	7.1	7.0	6.4	6.8	6.5	7.7
May-79	10.8	9.5	9.3	9.3	9.4	9.4	9.8	9.9	11.8
Jun-79									
Jul-79	17.8	16.9	16.3	15.5	15.4	15.8	16.2	16.8	18.3
Aug-79	17.6	17.6	17.3	16.6	16.3	16.7	17.2	17.5	18.4
Sep-79									16.3
Oct-79	14.0	15.0	15.4	15.6	15.6	15.6	15.5	15.4	14.8
Nov-79	9.9	11.3	12.7	13.6	13.5	13.1	12.9	12.5	10.7
Dec-79	8.8	10.6	11.4	12.1	11.8	11.3	10.8	9.8	10.0
Jan-80	3.9	5.5	7.5	8.7	8.9	8.4	7.9	6.8	5.5
Feb-80	5.3	6.6	7.2	7.9	7.8	7.1	6.7	5.9	5.9
Mar-80	5.8	5.8	6.6	7.6	7.6	7.2	6.8	6.2	6.0
Apr-80	8.2	7.4	7.4	7.6	7.8	7.7	7.7	8.0	8.8
May-80	9.8	9.0	8.3	8.8	9.1	9.3	9.0	9.8	10.7
Jun-80	15.7	13.8	13.3	12.8	12.7	13.0	13.3	14.4	14.0
Jul-80	16.2	15.5	15.0	14.5	14.5	14.8	15.2	15.7	16.5
Aug-80									
Sep-80									
Oct-80	15.8	15.8	15.1	15.7	15.4	15.4	15.4	15.5	14.8
Nov-80	8.8	10.2	11.0	11.7	11.6	11.4	11.2	10.7	10.2
Dec-80	5.5	6.4	7.1	8.4	8.9	8.5	7.7	7.2	6.6
Jan-81	5.1	4.8	5.6	6.4	6.6	6.3	6.1	5.4	4.9
Feb-81	4.4	4.6	5.5	6.0	6.4	6.2	5.9	5.4	4.8
Mar-81									
Apr-81	8.1	7.8	7.5	8.7	8.7	8.8	8.6	8.9	9.3
May-81	13.5	12.1	11.5	11.1	11.2	11.5	11.7	11.8	10.9
Jun-81	15.4	14.2	13.7	12.8	12.8	13.1	13.5	13.9	15.5
Jul-81	17.3	16.7	16.3	15.7	15.5	15.8	16.3	17.0	17.7
Aug-81	18.8	18.0	17.7	17.2	17.1	16.7	17.3	19.1	19.0
Sep-81	17.8	17.5	17.8	17.4	17.6	17.6	17.9	17.9	18.2
Oct-81	14.5	15.5	15.9	15.9	15.6	15.5	15.4	15.3	15.0
Nov-81	10.0	11.3	11.9	13.5	14.2	13.4	11.6	11.5	10.8
Dec-81									
Jan-82									
Feb-82	7.1	7.0	7.9	7.5	7.9	9.9	9.8	8.2	6.9
Mar-82	6.7	7.7	7.8	8.1	8.1	7.6	6.9	6.3	6.3
Apr-82	10.6	10.7	11.0	10.7	10.9	9.6	9.1	9.1	10.2
May-82									
Jun-82									
Jul-82									
Aug-82									
Sep-82									

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Oct-82									
Nov-82									
Dec-82	9.2	10.7	11.1	11.1	11.1	11.1	10.1	9.8	8.6
Jan-83									
Feb-83	3.0	4.0	4.0	6.1	6.1	5.0	5.0	4.0	3.0
Mar-83	5.2	5.5	5.5	6.1	6.2	6.2	6.0	5.7	6.1
Apr-83	7.8	7.7	7.7	7.7	7.7	7.5	7.4	7.4	8.6
May-83	11.5	10.7	10.4	10.3	10.4	10.4	10.3	10.9	11.2
Jun-83	13.9	13.7	13.1	12.6	12.7	12.8	13.1	14.3	14.7
Jul-83	17.5	15.8	15.3	15.0	14.9	15.4	15.8	16.8	17.9
Aug-83	19.0	18.2	17.8	17.5	17.4	18.1	18.5	18.9	19.1
Sep-83	17.2	17.8	17.8	17.9	17.8	17.9	18.0	18.1	17.9
Oct-83	14.0	15.2	15.6	16.0	15.9	15.8	15.6	15.4	15.5
Nov-83	10.5	11.2	12.3	13.2	13.1	12.7	12.4	11.9	11.6
Dec-83									
Jan-84	4.6	8.2	9.1	9.5	9.5	9.1	8.8	8.9	8.8
Feb-84	6.0	7.0	8.1	8.5	8.8	8.3	7.2	6.2	6.6
Mar-84	6.3	6.3	6.9	7.7	8.0	7.6	7.5	7.0	8.5
Apr-84	9.6	8.8	9.6	9.1	8.8	8.8	8.6	9.4	10.2
May-84	10.3	9.7	9.5	9.9	10.5	10.4	10.2	10.8	11.6
Jun-84	14.9	13.4	12.8	12.4	12.9	13.0	13.5	13.6	14.6
Jul-84	16.4	15.3	15.0	14.3	14.3	14.8	15.0	15.7	15.9
Aug-84	19.0	18.2	17.5	17.1	17.1	17.6	17.8	17.7	18.5
Sep-84	17.8	17.9	17.9	17.8	18.0	18.0	18.2	18.3	18.8
Oct-84	14.4	15.5	15.5	15.8	15.6	15.9	15.9	15.5	16.1
Nov-84	11.4	13.3	13.7	14.2	13.9	13.5	13.3	12.7	12.6
Dec-84	7.8	10.3	11.0	11.3	11.3	10.8	10.6	9.9	9.2
Jan-85	4.3	6.3	7.2	8.5	8.3	7.6	7.1	6.3	5.4
Feb-85	2.4	3.4	4.1	5.2	5.3	4.9	4.3	3.3	3.1
Mar-85	4.0	3.7	4.4	5.6	5.3	4.5	3.8	3.7	3.7
Apr-85	8.6	7.4	7.6	8.5	8.2	8.0	7.9	7.5	8.6
May-85	10.9	9.8	9.9	9.9	10.5	10.1	10.3	11.2	11.3
Jun-85	13.8	12.3	12.6	12.0	12.2	12.4	12.7	12.9	13.4
Jul-85	17.4	16.4	15.9	15.1	15.1	15.5	16.0	16.5	17.0
Aug-85	16.7	16.7	16.5	16.1	16.4	16.7	17.0	17.2	17.4
Sep-85	16.5	16.6	16.5	16.4	16.4	16.5	16.6	16.7	17.0
Oct-85	15.1	15.6	16.0	16.1	16.0	16.0	15.9	15.7	15.6
Nov-85	8.8	11.0	11.8	12.7	12.6	12.2	11.7	11.0	10.3
Dec-85	7.4	8.9	9.8	10.5	10.3	9.7	9.1	8.9	10.4
Jan-86	4.6	6.4	7.6	8.7	8.5	7.9	7.3	6.0	6.8
Feb-86	3.0	3.8	5.2	6.1	6.0	5.5	4.6	3.8	3.5
Mar-86	2.0	2.6	3.4	4.2	4.4	4.0	3.6	3.8	4.0
Apr-86									
May-86									
Jun-86			13.6	13.2	16.0	14.0	15.0	16.1	16.4
Jul-86	17.6	16.4	15.8	15.2	15.1	15.7	16.7	17.4	17.9
Aug-86	17.7	17.7	17.5	17.0	17.0	17.2	17.6	18.0	18.5
Sep-86	15.1	15.7	16.1	16.0	15.9	16.1	16.2	16.3	16.3
Oct-86	14.3	14.6	15.0	15.1	15.0	15.0	14.9	14.8	14.6

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Nov-86	10.0	12.0	12.5	13.1	13.0	12.7	12.3	11.7	11.5
Dec-86	8.3	10.4	11.3	11.9	11.7	11.2	10.8	10.4	9.4
Jan-87	5.1	5.7	7.2	8.7	8.5	7.8	6.8	4.7	5.5
Feb-87	5.1	6.0	7.2	7.6	7.4	6.7	6.2	5.8	6.6
Mar-87	4.7	4.7	4.6	4.7	5.0	4.7	4.2	4.0	4.0
Apr-87	7.9	7.5	7.6	7.9	7.7	7.1	6.7	6.5	7.0
May-87	10.4	9.6	10.0	10.4	10.4	10.1	10.3	10.6	10.7
Jun-87	15.0	14.1	13.5	13.2	13.3	13.4	13.5	13.9	14.5
Jul-87	17.6	16.4	16.0	15.5	15.5	15.9	16.5	17.4	17.8
Aug-87	17.7	16.9	17.1	16.9	16.9	17.2	17.5	17.6	18.0
Sep-87	18.0	18.3	18.2	18.1	18.0	18.1	18.2	18.4	18.6
Oct-87	15.5	15.7	16.1	16.2	16.1	15.8	15.6	15.2	14.6
Nov-87									
Dec-87	7.1	8.1	10.2	10.7	10.5	9.9	9.1	8.4	8.0
Jan-88	7.1	8.8	9.6	9.9	9.6	8.9	8.3	7.7	7.4
Feb-88	7.1	7.6	8.4	9.0	8.7	7.9	7.6	7.1	6.9
Mar-88	6.0	6.1	6.6	7.1	7.2	6.9	6.5	6.3	6.4
Apr-88	8.2	7.5	7.8	8.0	8.3	8.1	8.4	8.0	8.5
May-88	13.2	11.9	11.6	11.3	11.2	11.4	11.6	11.9	12.5
Jun-88	14.1	14.2	13.6	13.1	13.0	13.6	13.9	14.1	14.7
Jul-88	16.7	16.3	15.6	15.3	15.5	15.7	15.9	16.1	16.5
Aug-88	18.0	17.5	17.2	16.8	17.1	17.4	17.6	18.0	18.4
Sep-88	16.4	16.7	17.0	16.9	16.8	17.0	17.3	17.3	17.2
Oct-88	14.2	14.4	15.1	15.5	15.4	15.2	15.1	15.0	14.3
Nov-88	10.1	11.2	12.3	13.1	13.0	12.6	12.4	11.8	11.7
Dec-88	8.4	10.3	10.3	12.1	12.1	11.0	11.4	10.2	10.7
Jan-89	7.5	9.6	9.6	10.3	10.4	10.6	10.5	9.8	9.1
Feb-89	8.6	7.9	9.1	9.1	9.2	8.9	8.8	9.0	7.9
Mar-89	8.6	8.5	10.2	9.3	9.2	10.2	9.2	8.9	8.8
Apr-89	8.8	9.0	9.5	9.7	9.7	9.5	9.2	9.1	9.1
May-89	12.1	11.4	11.5	11.2	11.4	11.5	12.2	12.1	12.6
Jun-89	16.7	15.2	14.8	14.6	14.9	15.0	15.4	15.9	16.2
Jul-89	20.0	19.3	18.0	18.1	18.3	18.9	18.9	19.3	19.5
Aug-89	20.1	19.7	19.9	19.7	19.6	19.8	19.9	19.3	20.2
Sep-89	19.2	19.0	19.1	19.2	19.3	19.3	19.3	19.3	19.1
Oct-89	15.6	17.0	17.0	17.3	17.2	17.1	16.8	16.4	16.1
Nov-89	10.8	12.7	14.2	14.7	14.4	13.8	13.1	12.4	11.8
Dec-89	8.4	9.7	10.7	11.5	11.7	11.2	10.4	10.1	9.7
Jan-90	9.8	10.3	10.7	11.3	11.1	10.6	9.1	8.4	7.9
Feb-90	9.4	9.9	10.6	10.8	11.2	10.6	9.7	9.3	9.1
Mar-90	9.3	8.9	9.3	10.1	9.9	9.4	9.5	9.3	9.1
Apr-90	9.9	9.3	9.6	9.9	10.3	10.2	10.1	10.1	11.0
May-90	13.0	11.7	11.9	11.4	11.6	12.0	12.2	12.8	13.1
Jun-90	15.1	14.6	14.3	14.1	14.0	14.6	14.8	15.1	15.4
Jul-90	18.2	17.2	16.4	16.1	16.4	17.0	17.3	17.8	18.5
Aug-90	19.9	19.4	18.8	18.1	18.3	18.8	19.1	19.5	20.0
Sep-90	17.9	18.2	18.4	18.4	18.3	18.3	18.5	18.7	18.4
Oct-90	16.6	16.0	16.3	16.5	16.6	16.3	15.5	15.5	15.1
Nov-90	12.0	13.3	13.0	13.9	13.8	13.4	12.5	12.3	11.2

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Dec-90	7.8	9.6	10.5	11.2	11.1	10.7	10.1	9.3	9.4
Jan-91	6.6	6.6	8.8	9.5	9.1	8.5	7.8	7.0	6.6
Feb-91	4.4	5.0	6.3	7.7	7.5	6.9	6.2	5.5	4.6
Mar-91	6.8	6.6	7.3	8.3	7.9	7.6	6.7	6.0	6.2
Apr-91	8.8	8.3	8.7	9.0	9.2	9.4	9.1	8.8	9.2
May-91	11.0	10.0	9.3	9.6	10.3	10.6	10.6	11.0	11.9
Jun-91	14.2	12.9	12.2	12.0	12.2	12.4	12.6	12.7	13.1
Jul-91	18.2	16.7	15.9	15.3	15.3	15.8	16.3	16.7	17.1
Aug-91	20.1	19.2	18.3	17.4	17.9	18.3	18.7	19.1	19.9
Sep-91	18.6	18.7	18.6	19.2	19.3	19.6	19.5	19.3	20.0
Oct-91	15.3	17.0	17.2	17.4	17.3	17.2	17.1	16.5	16.3
Nov-91	12.5	13.4	14.0	14.6	14.3	13.8	13.7	13.3	12.2
Dec-91	12.0	12.5	12.8	12.7	12.1	12.4	11.1	11.1	11.6
Jan-92	8.3	9.1	10.0	10.3	10.3	10.0	9.3	8.6	8.1
Feb-92	8.0	7.9	7.9	8.1	8.3	8.4	7.7	7.6	7.1
Mar-92	10.1	8.3	8.4	8.4	8.8	9.0	8.6	8.0	8.0
Apr-92	10.6	10.0	9.9	9.9	10.1	9.9	9.8	10.0	10.7
May-92	14.8	14.0	12.8	12.7	12.7	12.4	13.0	13.8	14.3
Jun-92	18.9	17.7	16.8	16.1	16.2	16.6	17.1	18.0	18.6
Jul-92	19.5	19.0	18.1	17.6	17.8	18.3	18.7	19.0	19.3
Aug-92	20.2	19.9	19.8	19.4	19.5	19.8	20.1	20.4	20.7
Sep-92	20.3	17.6	17.6	17.8	17.8	18.1	18.3	18.2	18.0
Oct-92	14.9	15.2	15.7	16.2	16.1	16.1	15.7	15.3	15.5
Nov-92	11.2	12.3	13.5	14.5	14.2	13.8	13.4	13.2	12.8
Dec-92	10.3	11.7	12.1	12.5	12.5	12.1	11.9	10.7	9.9
Jan-93	9.0	9.7	10.3	10.2	10.2	10.0	9.4	9.7	9.8
Feb-93	8.5	8.3	9.8	10.3	10.1	10.1	9.6	8.8	9.8
Mar-93	8.3	8.4	9.1	9.5	9.6	9.3	8.8	8.4	7.8
Apr-93	10.1	9.7	9.7	9.6	9.8	9.4	9.3	9.7	10.8
May-93	13.9	12.9	12.7	12.3	12.4	12.2	12.3	12.6	13.1
Jun-93	18.5	17.8	17.1	15.8	16.1	16.3	15.8	16.3	16.8
Jul-93	18.6	18.5	18.5	18.4	18.2	18.6	18.9	18.8	19.3
Aug-93	19.2	19.0	18.4	18.4	17.2	16.2	16.4	16.6	17.5
Sep-93	18.0	18.2	18.3	18.1	18.1	18.3	18.4	18.4	18.9
Oct-93	17.7	16.8	17.2	17.2	17.8	17.9	17.5	17.8	17.4
Nov-93									
Dec-93	8.2	8.4	10.2	10.0	9.6	9.2	8.2	7.5	7.2
Jan-94	7.7	9.0	9.9	10.7	11.0	10.9	10.4	9.6	9.0
Feb-94	6.7	8.1	8.5	9.3	8.7	8.8	8.5	7.7	7.0
Mar-94									
Apr-94	10.1	8.6	8.9	9.3	9.5	9.6	9.6	9.2	11.0
May-94	12.0	11.3	11.5	11.4	11.6	11.6	12.1	12.4	13.3
Jun-94	15.5	14.2	14.3	13.9	13.9	14.1	14.3	14.9	15.2
Jul-94	20.4	18.0	17.3	16.4	16.3	16.9	17.8	18.0	19.7
Aug-94	20.1	19.4	19.3	18.7	18.7	19.4	19.8	19.8	21.1
Sep-94	15.9	16.9	17.2	17.4	17.5	17.5	17.6	17.6	17.1
Oct-94	13.6	14.2	15.2	15.2	15.2	14.9	14.6	14.1	14.3
Nov-94	13.4	13.7	14.1	14.4	14.4	14.3	14.0	13.6	14.0
Dec-94	10.4	12.0	12.5	13.4	13.3	12.9	12.5	11.9	11.8

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Jan-95	5.7	7.8	9.2	10.1	9.4	9.0	8.7	7.7	7.8
Feb-95	7.7	8.9	9.3	9.9	9.7	9.3	8.8	8.2	8.2
Mar-95	7.2	7.5	7.9	8.4	8.7	8.5	8.2	7.9	7.9
Apr-95	8.3	8.3	8.9	9.2	9.2	9.0	8.8	8.8	9.2
May-95	11.3	10.6	10.6	10.7	11.0	11.1	11.1	11.4	11.5
Jun-95	15.2	13.5	13.1	12.8	13.0	13.5	13.6	14.0	15.4
Jul-95	19.2	17.4	16.7	16.6	17.0	17.5	17.9	18.9	19.6
Aug-95	20.6	19.6	19.0	18.4	18.6	19.1	19.5	20.6	21.6
Sep-95	18.0	18.6	19.0	19.6	19.6	19.7	19.5	18.8	18.9
Oct-95	15.2	15.8	16.1	16.9	16.9	16.8	16.8	16.6	16.6
Nov-95	11.5	12.7	13.5	14.4	14.4	14.0	13.5	13.3	13.3
Dec-95	8.2	10.8	12.0	12.3	11.8	11.0	10.6	9.7	9.6
Jan-96	4.8	6.8	8.9	9.0	8.6	7.6	6.6	5.9	4.5
Feb-96	4.0	5.9	6.7	7.4	6.8	5.7	4.3	3.8	3.2
Mar-96	5.4	5.7	6.5	7.0	6.9	5.9	4.9	4.1	5.2
Apr-96									
May-96	9.8	9.2	9.5	9.7	9.7	9.8	9.1	9.4	9.7
Jun-96	15.1	14.0	13.6	12.9	13.1	13.3	13.5	13.9	14.8
Jul-96	16.0	14.7	14.6	14.2	14.5	14.9	15.1	16.0	15.7
Aug-96	18.5	18.3	18.1	17.6	17.7	18.1	17.9	18.0	18.2
Sep-96	16.6	16.5	16.5	16.8	16.7	16.6	16.6	16.5	16.3
Oct-96	15.0	15.1	15.5	15.9	15.6	15.5	15.5	15.3	14.9
Nov-96	11.0	12.2	13.0	13.7	13.2	12.8	13.1	12.5	11.8
Dec-96	8.5	9.7	10.6	10.9	10.7	10.3	9.2	9.0	8.7
Jan-97	3.0	3.9	5.7	6.5	6.4	5.6	4.8	3.9	2.9
Feb-97	4.4	4.9	5.3	5.8	5.7	4.5	3.9	3.6	3.7
Mar-97	7.4	7.2	7.8	8.2	8.1	7.9	6.9	6.7	7.0
Apr-97	9.4	8.7	8.5	9.1	9.5	9.1	8.9	8.4	8.6
May-97	12.9	11.7	11.4	11.2	11.3	11.4	11.5	11.4	12.4
Jun-97	17.1	15.0	14.6	14.0	14.2	14.5	14.7	15.0	15.3
Jul-97	18.6	17.8	17.5	16.5	16.8	17.2	17.5	17.5	18.5
Aug-97	20.2	19.8	18.9	18.1	18.3	18.7	19.2	19.8	20.3
Sep-97	18.2	18.7	18.6	18.7	18.7	18.4	19.1	18.9	18.9
Oct-97	15.8	16.5	16.7	16.8	16.7	16.8	16.4	16.1	15.7
Nov-97	11.8	13.5	14.2	14.4	14.2	13.6	13.0	12.5	11.7
Dec-97	9.6	10.9	11.4	12.0	11.9	10.9	10.5	9.5	8.5
Jan-98	8.8	9.3	10.2	11.3	11.1	10.3	9.7	8.9	8.2
Feb-98	6.2	6.8	8.2	8.9	8.8	8.3	7.7	7.4	6.9
Mar-98	8.4	7.5	7.9	8.3	8.6	8.3	8.4	8.0	7.9
Apr-98	10.1	9.9	10.0	10.1	10.1	10.1	9.9	9.5	9.5
May-98	12.4	11.8	11.9	11.7	11.8	12.0	12.1	12.5	12.7
Jun-98	17.2	16.2	16.0	15.7	15.7	16.0	16.2	16.3	16.3
Jul-98	18.1	17.3	16.8	16.5	16.4	16.9	17.7	18.5	19.0
Aug-98	18.2	18.1	18.2	17.8	18.1	18.3	18.3	18.8	19.0
Sep-98	17.2	17.2	17.4	17.7	17.6	17.6	17.7	17.9	18.2
Oct-98	13.4	14.4	15.0	15.4	15.4	15.2	14.9	14.6	14.1
Nov-98	8.9	10.6	11.5	12.5	12.1	11.8	11.4	10.7	9.5
Dec-98	6.0	7.2	8.4	9.6	9.9	9.2	8.4	7.6	7.1
Jan-99	6.6	8.4	9.1	9.5	9.4	8.5	7.9	6.9	6.7

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Feb-99	5.4	6.0	6.7	7.8	8.0	7.5	6.9	6.5	6.1
Mar-99	5.8	5.7	6.2	6.8	7.0	7.2	6.7	6.4	6.4
Apr-99	8.7	8.1	8.3	8.5	8.6	8.6	9.0	9.4	10.1
May-99	13.7	12.4	12.4	12.1	12.2	12.2	12.4	12.7	13.3
Jun-99	16.6	15.7	15.3	14.8	15.0	15.3	15.7	16.0	16.8
Jul-99	19.6	18.5	18.1	17.1	17.1	17.6	18.3	18.6	18.9
Aug-99	19.9	19.6	19.3	18.6	18.5	19.1	19.6	19.8	20.0
Sep-99	19.1	19.1	19.1	19.0	18.9	19.1	19.4	19.5	19.7
Oct-99	15.3	15.8	16.3	16.6	16.6	16.5	16.3	16.1	15.8
Nov-99	11.9	13.2	13.6	14.2	14.1	14.2	13.1	12.9	12.4
Dec-99	8.1	10.9	9.7	11.8	11.8	11.2	10.5	9.7	10.3
Jan-00	7.8	8.3	9.4	10.1	9.9	9.5	8.7	8.0	8.5
Feb-00	6.3	6.8	7.1	8.3	8.2	7.8	7.2	6.8	6.9
Mar-00	8.1	7.6	8.0	8.8	8.6	8.2	7.8	7.5	7.6
Apr-00	9.0	8.4	8.7	9.0	9.3	9.2	9.6	9.7	9.9
May-00	13.6	12.4	12.1	11.6	11.6	11.8	12.1	12.3	12.8
Jun-00	17.1	15.9	16.5	16.5	16.4	16.6	16.7	17.0	17.2
Jul-00	17.9	17.6	17.8	17.1	17.1	17.4	17.7	18.0	18.2
Aug-00	19.2	18.4	18.4	18.1	18.0	18.3	18.6	19.0	19.4
Sep-00	18.3	18.4	18.4	18.2	18.3	18.4	18.7	18.8	19.3
Oct-00	15.7	16.3	16.5	16.6	16.6	16.5	16.6	16.5	16.0
Nov-00	11.9	12.3	13.3	13.8	13.7	13.4	13.1	12.7	11.9
Dec-00	10.1	11.0	11.6	11.8	11.7	11.4	11.0	10.4	10.2
Jan-01	5.4	7.9	8.6	8.7	8.7	8.2	7.7	6.9	6.2
Feb-01	6.5	7.2	8.0	8.7	8.5	8.2	7.5	6.8	7.5
Mar-01	6.1	5.9	6.7	7.6	7.8	7.5	6.9	6.7	7.1
Apr-01	9.0	8.4	8.7	9.1	8.9	8.8	8.8	8.7	9.5
May-01	12.1	11.0	11.0	10.9	11.2	11.4	11.4	12.1	12.2
Jun-01	16.0	14.4	14.4	13.7	13.8	14.3	14.6	15.0	16.2
Jul-01	19.4	18.3	18.0	17.2	17.2	17.6	18.2	18.6	19.4
Aug-01	21.2	20.0	19.6	18.8	18.6	18.9	19.4	19.6	21.2
Sep-01	17.6	18.3	18.0	18.2	18.1	18.1	18.2	18.3	18.2
Oct-01	17.0	17.2	17.2	18.1	18.1	18.0	17.8	17.6	17.1
Nov-01	11.1	12.1	13.2	14.0	13.9	13.6	13.2	12.7	13.6
Dec-01	8.6	9.9	11.2	12.3	12.0	11.5	11.0	10.5	10.1
Jan-02	5.6	6.7	8.1	9.5	9.1	8.5	7.8	7.4	7.4
Feb-02	8.1	8.3	8.8	9.5	9.1	8.7	8.2	7.8	7.8
Mar-02	8.3	8.3	8.4	9.1	9.2	9.0	8.6	8.3	8.6
Apr-02	10.0	9.2	9.5	9.8	9.9	9.9	9.7	10.2	10.6
May-02	13.3	12.5	12.5	12.3	12.3	12.5	12.5	12.4	12.9
Jun-02	16.5	15.5	14.8	14.5	14.5	14.8	15.4	15.6	16.3
Jul-02	18.1	17.8	17.3	16.5	16.7	17.0	17.4	17.9	18.4
Aug-02									
Sep-02									
Oct-02	11.6	14.3	14.8	15.5	15.2	15.0	14.3	13.8	12.4
Nov-02	11.2	12.6	14.1	14.4	14.2	13.8	13.1	12.1	11.8
Dec-02	9.5	11.4	12.2	12.6	12.3	11.8	11.4	9.9	9.0
Jan-03									
Feb-03	4.6	4.9	5.9	7.0	7.4	6.9	6.3	5.8	5.5

Table 42. continued: Ferry route temperature data

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Mar-03	7.0	6.4	6.4	6.5	7.0	7.1	6.8	6.8	6.9
Apr-03	9.1	8.1	8.0	7.8	8.5	8.5	8.5	8.7	9.4
May-03	13.6	11.9	11.3	10.7	10.8	11.1	11.2	11.6	12.6
Jun-03	18.2	16.2	15.2	14.2	14.3	14.8	15.2	15.8	16.8
Jul-03	20.3	19.0	18.1	17.5	17.5	18.1	18.7	19.1	19.5
Aug-03	21.3	20.9	20.3	19.6	19.6	20.0	20.4	21.1	21.2
Sep-03	17.9	18.3	18.4	18.4	18.6	18.8	19.1	19.2	19.7
Oct-03	12.5	14.0	15.3	15.6	15.6	15.3	15.0	14.3	14.4
Nov-03	10.0	11.5	12.2	12.9	12.8	12.4	12.0	11.6	11.2
Dec-03	8.7	9.6	10.4	11.5	11.2	10.7	10.0	9.3	9.0
Jan-04	6.3	7.7	8.9	9.3	8.9	8.4	7.1	6.4	5.9
Feb-04	5.7	6.0	7.3	8.0	8.1	7.9	7.1	6.3	6.1
Mar-04	6.3	6.0	6.1	6.5	7.1	6.9	6.5	6.2	6.2
Apr-04	10.2	9.2	9.1	9.2	9.2	9.2	9.1	9.0	10.2
May-04	12.9	11.8	11.6	11.3	11.3	11.5	11.8	12.0	13.3
Jun-04	16.3	16.0	15.5	14.8	14.8	15.3	16.0	16.1	17.4
Jul-04	18.2	17.5	17.1	16.5	16.7	17.3	17.8	18.1	18.6
Aug-04	20.7	19.8	19.6	18.9	19.0	19.3	19.9	20.4	20.9
Sep-04	17.9	18.5	18.4	18.4	18.6	18.8	18.9	19.0	18.9
Oct-04	14.3	15.3	15.9	16.3	16.1	15.9	15.6	14.9	14.9
Nov-04	11.6	12.3	13.2	13.9	13.5	13.1	12.5	12.3	12.2
Dec-04	8.6	9.5	10.8	11.5	11.3	10.7	10.2	9.8	9.0

Figure (a). Monthly mean surface temperature for the entire duration of the record at ferry route station P2 which are derived from simple averaging of all the monthly data.

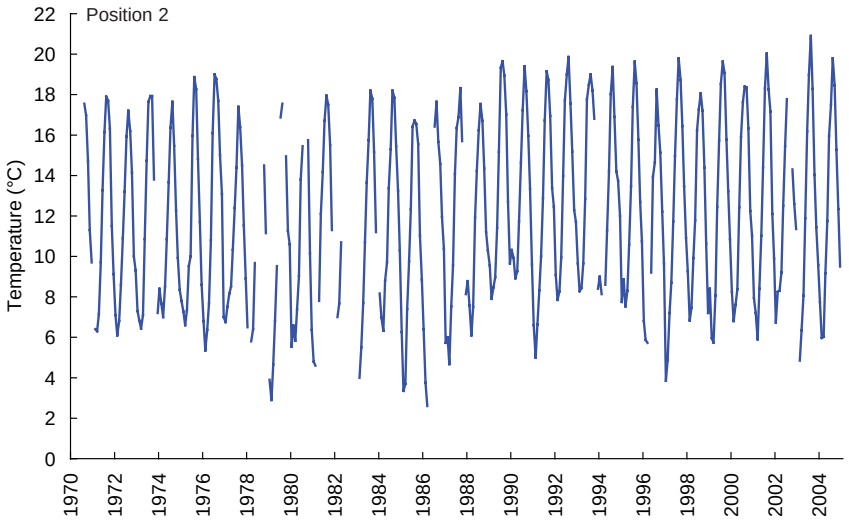


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

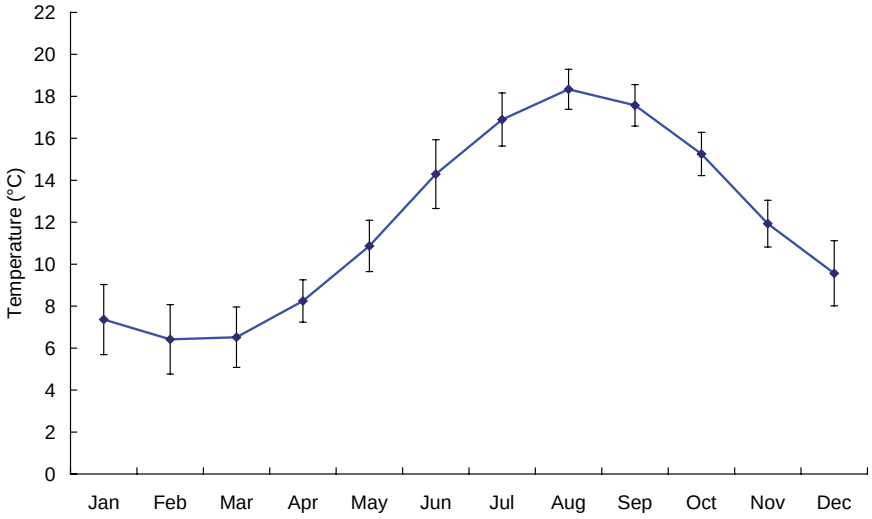


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

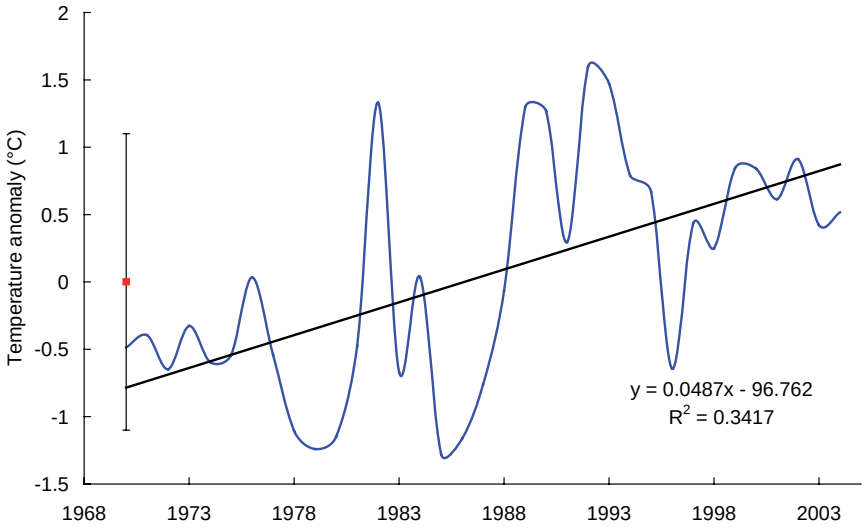


Figure (a). Monthly mean surface temperature for the entire duration of the record at ferry route station P4 which are derived from simple averaging of all the monthly data.

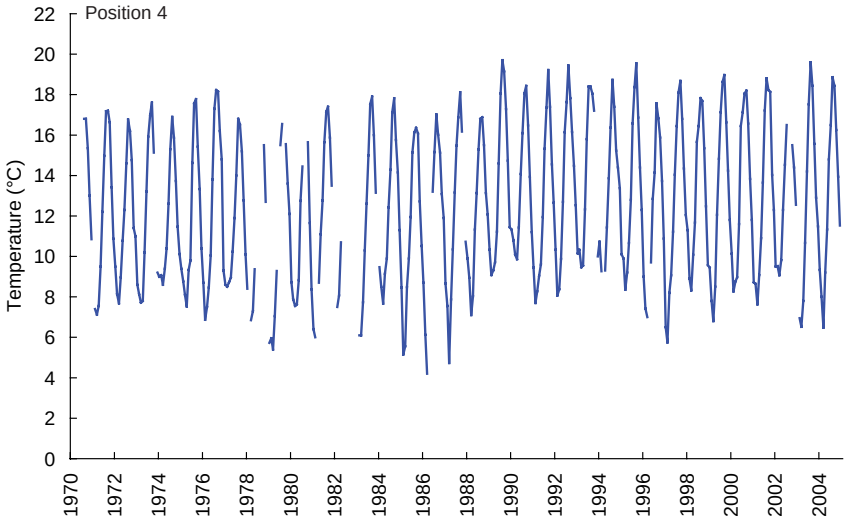


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

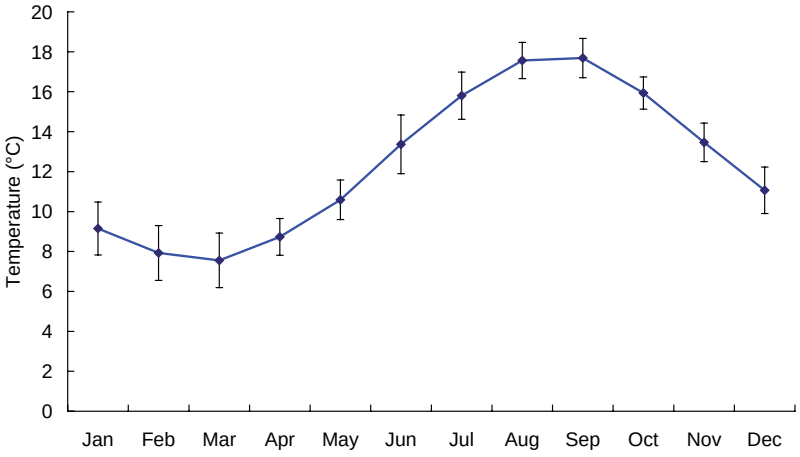


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

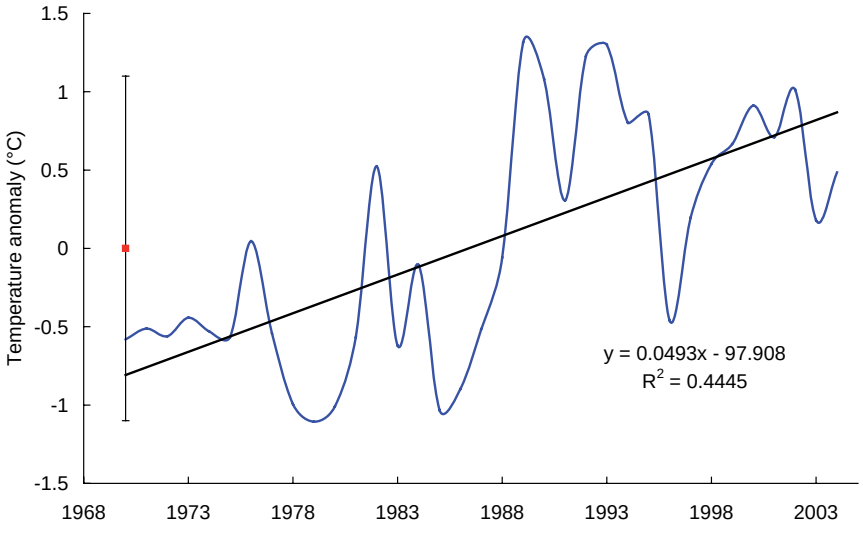


Figure (a). Monthly mean surface temperature for the entire duration of the record at ferry route station P7 which are derived from simple averaging of all the monthly data.

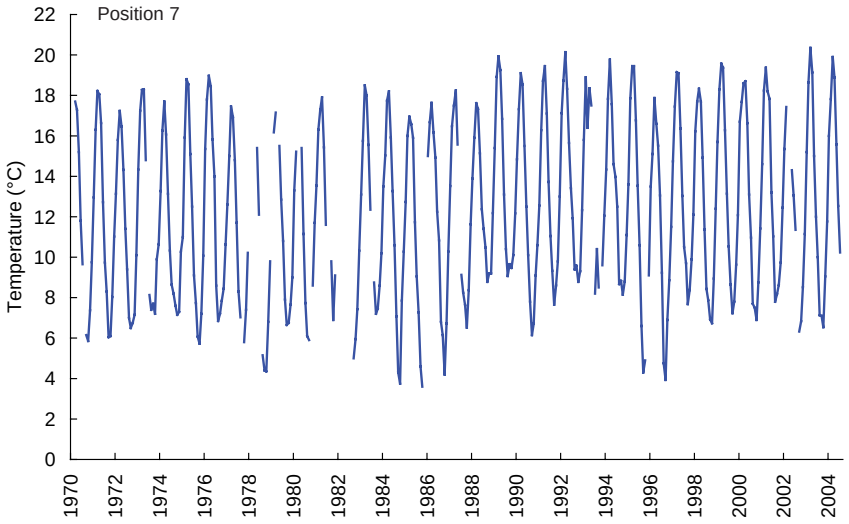


Figure (b). Monthly climatic average with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

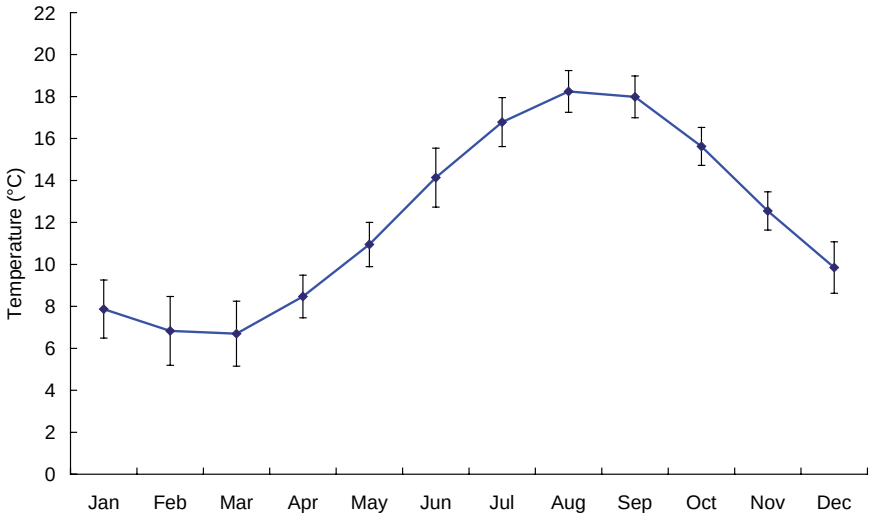


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) temperature has been subtracted from the average annual temperature. The standard deviation of the annually averaged temperature of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

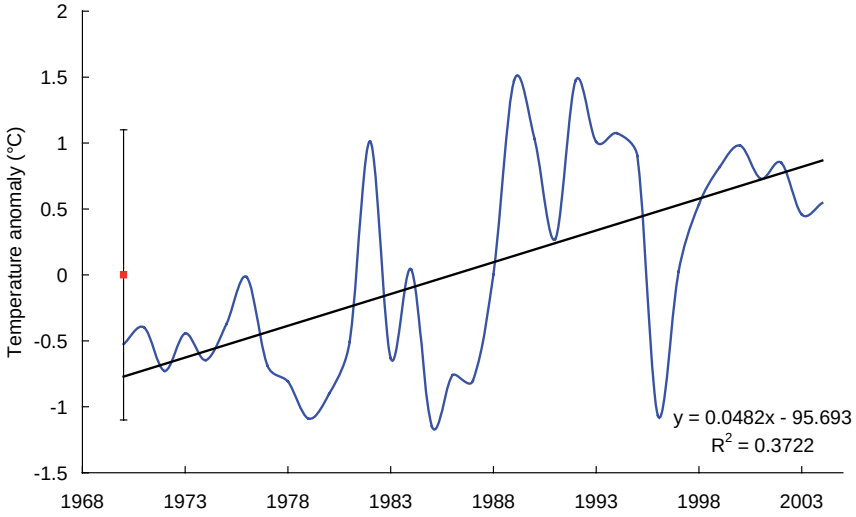


Table 42. Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Aug-70	34.347	34.612	34.408	33.768	34.726	34.581	34.375	33.732	28.685
Sep-70	34.648	34.834	34.963	34.924	34.773	34.613	34.055	32.730	28.122
Oct-70	34.996	34.921	34.893	34.982	34.894	34.689	34.394	33.584	27.819
Nov-70	34.571	34.865	35.043	35.061	34.995	34.793	34.343	33.251	26.756
Dec-70	34.313	34.911	35.137	35.171	35.086	34.947	34.692	33.924	26.888
Jan-71									
Feb-71	33.893	34.661	35.020	35.182	35.285	35.061	34.536	33.125	22.280
Mar-71	33.881	34.473	34.820	35.088	35.226	35.070	34.314	32.355	27.063
Apr-71	33.566	34.083	34.641	34.906	35.137	34.813	33.449	32.640	29.347
May-71	33.675	34.094	34.489	34.685	34.882	34.542	33.954	33.061	25.704
Jun-71	33.769	34.064	34.361	34.498	34.583	34.161	33.491	32.696	28.148
Jul-71	33.889	34.128	34.653	34.785	34.700	34.034	33.148	31.178	27.373
Aug-71	33.968	34.511	34.774	34.876	34.778	34.383	33.766	32.195	28.127
Sep-71	34.380	34.566	34.814	34.916	34.985	34.991	34.439	33.030	22.897
Oct-71	34.350	34.689	34.753	34.903	34.924	34.989	34.577	33.919	26.201
Nov-71	34.090	34.485	34.553	34.865	34.968	34.994	34.928	33.974	27.816
Dec-71	33.952	34.318	34.414	34.913	34.976	34.929	34.803	34.252	31.285
Jan-72	33.122	34.256	34.712	34.987	35.040	35.052	34.894	34.297	21.824
Feb-72	33.166	34.622	35.128	35.117	35.072	35.065	34.921	33.881	23.693
Mar-72	33.791	34.611	35.105	35.126	35.137	35.017	34.949	34.325	29.877
Apr-72	34.108	34.651	34.938	35.198	35.212	34.821	34.104	32.746	25.342
May-72	33.441	34.481	34.811	35.051	35.177	35.017	34.089	33.459	25.629
Jun-72	33.937	34.837	35.058	35.184	35.158	35.021	34.390	33.931	23.797
Jul-72	34.358	34.721	34.988	35.098	35.150	35.065	34.801	33.843	23.747
Aug-72	34.404	34.548	34.892	34.972	35.025	34.996	34.765	30.481	27.192
Sep-72	34.066	34.634	34.707	34.910	35.020	35.056	34.446	33.128	26.663
Oct-72	34.203	34.555	34.776	35.047	35.094	35.051	34.577	33.854	23.962
Nov-72	34.178	34.619	34.711	34.817	34.867	34.675	34.355	33.852	18.578
Dec-72	34.132	34.938	35.221	35.230	35.055	34.826	34.111	33.598	22.691
Jan-73	34.736	34.947	35.090	35.024	34.981	34.862	34.887	34.668	27.369
Feb-73	34.792	34.957	35.062	35.085	34.990	34.791	34.673	34.358	29.513
Mar-73	34.406	34.697	35.060	35.134	35.128	34.813	34.420	33.406	19.055
Apr-73	34.339	34.617	34.906	35.108	35.053	34.700	34.234	32.418	17.400
May-73	34.141	34.623	34.822	35.009	34.886	34.689	33.986	33.079	28.064
Jun-73	34.545	34.724	35.009	35.135	35.068	34.823	33.972	32.593	24.884
Jul-73	34.512	34.723	34.893	34.996	35.006	34.657	33.190	31.385	21.314
Aug-73	34.699	34.816	34.906	34.979	34.953	34.857	34.330	33.192	22.632
Sep-73	34.777	35.085	35.235	35.292	35.309	35.179	34.626	33.844	25.642
Oct-73	34.632	34.688	34.835	34.938	35.051	34.945	34.537	33.401	26.437
Nov-73									
Dec-73	34.121	34.511	34.731	34.927	34.989	35.004	35.039	33.501	25.819
Jan-74	33.933	34.941	35.011	35.205	35.183	35.063	33.818	33.648	19.535
Feb-74	34.231	34.769	35.218	35.251	35.208	35.147	34.827	32.337	27.250
Mar-74	34.560	34.943	35.260	35.338	35.250	35.011	34.747	31.568	23.876
Apr-74	33.779	34.456	35.090	35.288	35.008	34.278	34.160	33.164	21.731
May-74	33.969	34.267	34.828	34.943	34.963	34.625	33.920	33.296	25.866
Jun-74	34.177	34.371	34.893	34.972	34.861	34.455	33.924	33.193	18.887
Jul-74	34.232	34.488	34.913	35.014	35.050	34.883	34.149	33.190	22.163
Aug-74	34.398	34.678	34.960	35.101	35.144	35.077	34.654	33.919	27.215

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Sep-74	34.400	34.990	34.994	35.059	35.031	34.972	34.882	34.586	22.230
Oct-74	34.117	34.691	34.890	34.993	35.118	34.947	34.812	32.207	20.603
Nov-74	33.218	34.451	34.740	34.965	34.891	34.860	34.415	33.156	24.081
Dec-74	33.183	34.508	35.126	35.034	34.926	34.669	34.321	33.204	17.097
Jan-75	31.995	34.493	34.949	35.088	34.808	34.505	34.303	33.331	25.990
Feb-75	33.255	34.378	34.759	35.094	35.056	34.738	34.382	33.450	17.467
Mar-75	33.830	34.360	34.794	34.949	34.839	34.696	34.385	33.697	23.210
Apr-75	33.459	34.077	34.602	34.475	34.573	34.540	33.721	32.584	18.856
May-75	32.630	33.825	34.441	34.329	34.302	33.982	33.488	31.446	20.046
Jun-75	33.566	33.832	34.250	34.248	34.230	33.781	33.511	32.219	19.344
Jul-75	33.793	33.932	34.078	34.051	34.003	33.391	32.641	30.587	18.480
Aug-75	33.919	34.200	34.511	34.537	34.258	33.594	32.707	31.555	17.109
Sep-75	34.180	34.330	34.630	34.781	34.823	34.211	33.103	30.157	16.774
Oct-75	34.092	34.618	34.743	34.790	34.815	34.758	34.090	32.705	21.096
Nov-75	34.324	34.590	34.706	34.792	34.700	34.791	34.121	30.591	21.811
Dec-75	34.191	34.527	34.636	34.752	34.748	34.693	34.019	32.061	16.644
Jan-76	33.989	34.372	34.576	34.762	34.737	34.382	33.727	30.857	18.145
Feb-76	34.182	34.442	34.503	34.626	34.785	34.565	33.772	32.739	20.515
Mar-76	34.085	34.548	34.934	35.046	34.886	34.393	33.457	32.509	22.297
Apr-76	34.414	34.566	34.947	35.074	35.044	34.723	33.942	32.131	16.577
May-76	34.233	34.600	34.820	34.900	34.855	34.501	33.728	32.837	21.794
Jun-76	34.496	34.649	34.918	34.499	34.844	34.305	33.530	32.645	20.506
Jul-76	34.567	34.656	34.944	35.032	34.974	34.507	33.753	33.059	27.915
Aug-76	34.655	34.706	34.986	35.064	34.944	34.724	34.113	32.398	24.556
Sep-76	34.422	34.640	34.849	34.985	34.925	34.678	34.178	33.422	29.486
Oct-76	34.120	34.802	35.062	34.907	34.808	34.660	34.368	33.760	25.367
Nov-76	33.807	34.793	34.878	34.869	34.740	34.632	34.602	34.617	18.087
Dec-76	34.355	34.844	35.160	35.172	35.090	34.910	34.785	34.330	31.852
Jan-77	33.655	34.910	35.021	35.197	35.142	34.979	34.701	34.273	12.976
Feb-77	33.073	34.605	35.001	35.095	35.061	35.028	34.504	29.155	19.868
Mar-77	33.089	34.540	34.905	35.158	35.142	35.039	34.393	32.507	19.021
Apr-77	33.345	34.495	34.804	35.053	35.039	34.891	34.446	32.569	13.865
May-77	33.349	34.191	34.863	35.004	34.926	34.783	34.048	31.555	16.584
Jun-77	33.447	34.105	34.712	35.120	35.145	34.838	34.419	32.898	28.307
Jul-77	33.526	33.649	34.072	34.491	34.610	34.677	34.095	33.079	22.967
Aug-77	33.900	34.110	34.444	34.564	34.658	34.439	33.619	32.752	16.836
Sep-77	33.857	34.364	34.840	34.864	34.944	34.591	33.823	32.696	17.669
Oct-77	34.171	34.740	34.889	34.949	34.974	35.011	34.450	33.605	21.056
Nov-77	34.265	34.710	34.709	34.637	34.684	34.719	34.377	31.704	25.643
Dec-77	34.593	34.591	34.589	34.561	34.468	34.404	34.080	33.014	
Jan-78	34.081	34.603	34.704	34.808	34.693	34.548	34.427	33.474	27.644
Feb-78									
Mar-78	33.997	34.618	34.860	35.014	34.979	34.784	34.375	33.039	24.412
Apr-78	33.327	34.344	34.014	34.893	35.036	35.327	33.944	32.670	21.906
May-78	33.429	33.684	34.472	34.670	34.873	34.411	33.295	29.074	19.076
Jun-78									
Jul-78									
Aug-78	34.017	34.237	34.476	34.683	34.749	34.592	33.945	32.859	17.252
Sep-78									

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Oct-78	34.135	34.205	34.436	34.601	34.743	34.656	34.372	33.915	18.215
Nov-78	34.046	34.499	34.491	34.676	34.738	34.650	34.282	33.588	29.873
Dec-78									
Jan-79	34.038	34.468	34.012	34.881	34.919	34.688	34.593	34.345	23.774
Feb-79	32.684	34.219	34.816	35.014	34.962	34.235	34.341	29.721	15.610
Mar-79	32.622	34.437	34.298	34.658	34.960	34.766	34.062	32.797	22.263
Apr-79	33.030	34.614	34.829	34.958	34.860	34.643	34.428	33.113	22.256
May-79	33.086	33.429	34.336	34.753	34.802	34.638	34.448	33.476	21.308
Jun-79									
Jul-79	33.765	34.110	34.465	34.722	34.747	34.561	34.129	33.324	12.574
Aug-79	34.062	34.345	34.556	34.754	34.790	34.697	34.342	33.680	24.639
Sep-79									32.730
Oct-79	34.536	34.649	34.824	34.873	34.847	34.740	34.554	34.082	29.007
Nov-79	34.663	34.861	34.938	35.002	34.913	34.759	34.521	33.882	25.992
Dec-79	34.716	34.897	34.928	34.995	34.894	34.828	34.760	34.216	33.926
Jan-80	33.810	34.825	34.984	35.084	35.148	35.059	34.908	33.270	22.100
Feb-80	33.757	34.755	34.950	35.236	35.128	35.069	34.719	32.909	18.631
Mar-80	33.459	34.019	34.721	35.153	35.034	34.895	34.704	33.750	27.014
Apr-80	33.084	33.473	34.040	34.946	34.771	34.774	34.354	31.184	22.960
May-80	33.084	33.258	34.045	34.786	35.069	34.666	34.325	32.446	25.999
Jun-80	33.382	33.924	34.260	34.465	34.593	34.266	33.129	29.952	25.927
Jul-80	33.937	34.040	34.647	34.849	34.990	34.739	34.029	31.527	17.264
Aug-80									
Sep-80									
Oct-80	34.204	34.454	34.679	34.791	34.751	34.702	34.538	34.034	23.730
Nov-80	33.908	34.683	34.718	34.851	34.792	34.642	34.501	33.612	23.967
Dec-80	32.912	34.109	34.332	34.831	34.836	34.600	33.752	33.792	24.548
Jan-81	33.864	33.122	34.270	34.782	34.861	34.625	34.452	33.319	21.422
Feb-81	32.778	33.537	34.377	34.711	34.894	34.667	34.359	33.310	23.244
Mar-81									
Apr-81	32.603	33.170	33.958	34.841	34.849	34.658	33.658	31.352	25.025
May-81	33.020	33.917	34.140	34.561	34.389	34.109	33.246	32.858	31.403
Jun-81	33.361	33.979	34.416	34.759	34.709	34.361	33.627	31.773	24.201
Jul-81	33.601	33.744	34.358	34.506	34.614	34.562	34.273	33.137	25.204
Aug-81	33.590	33.637	34.285	34.419	34.471	34.387	34.042	31.930	25.837
Sep-81	33.783	33.871	34.182	34.347	34.450	34.293	33.679	32.851	27.163
Oct-81	34.394	34.661	34.681	34.633	34.471	34.231	33.361	29.312	17.645
Nov-81	34.258		34.722	34.692	34.547	34.443	33.540	31.720	18.445
Dec-81	34.196	34.433	34.646	34.641	34.625	34.346	33.675	28.880	25.626
Jan-82									
Feb-82	34.139	34.387	34.348	34.608	34.566	34.347	33.413	28.153	17.550
Mar-82	34.204	34.518	34.550	34.798	34.482	34.068	33.247	29.434	21.167
Apr-82	34.039	34.656	34.805	34.829	34.045	33.036	32.798	26.764	
May-82									
Jun-82									
Jul-82									
Aug-82									
Sep-82									
Oct-82									

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Nov-82	34.368	34.490	34.536	34.536	34.435	34.374	34.272	34.070	33.760
Dec-82	34.670	34.783	34.822	34.957	34.751	34.594	34.089	33.886	34.920
Jan-83									
Feb-83	33.370	33.449	34.149	34.761	34.972	34.531	33.525	32.033	27.960
Mar-83	33.746	33.865	34.224	34.463	34.468	34.281	33.444	33.552	29.851
Apr-83	33.588	34.105	34.410	34.736	34.722	34.417	33.729	32.385	22.357
May-83	33.309	34.283	34.624	34.751	34.641	34.424	34.156	32.883	27.927
Jun-83	33.995	34.159	34.545	34.538	34.451	34.282	31.642	30.831	32.862
Jul-83	33.781	33.566	34.403	34.430	34.376	34.184	33.835	32.372	28.074
Aug-83	33.526	33.676	34.141	34.368	34.351	33.965	33.296	32.555	31.475
Sep-83	34.111	34.327	34.483	34.587	34.553	34.206	33.386	32.825	32.091
Oct-83	34.455	34.743	34.774	34.781	34.719	34.725	34.622	34.062	31.643
Nov-83	34.407	34.337	34.634	34.849	34.729	34.690	34.714	34.196	32.518
Dec-83									
Jan-84	32.243	34.333	34.953	34.989	34.944	34.780	34.235	31.926	23.339
Feb-84	33.540	34.564	34.867	35.005	34.887	34.611	33.610	28.426	22.103
Mar-84	33.687	33.926	34.651	34.847	34.920	34.617	33.729	31.490	23.395
Apr-84	33.942	33.907	34.760	34.678	34.554	34.432	33.628	29.018	20.556
May-84	33.681	33.972	34.458	34.917	34.608	34.421	33.240	31.835	28.266
Jun-84	33.705	33.785	34.249	34.457	34.693	34.287	29.275	28.424	26.107
Jul-84	33.830	33.677	34.137	34.408	34.511	34.107	33.409	30.644	28.165
Aug-84	33.895	33.838	34.279	34.539	34.533	34.121	33.476	32.335	29.686
Sep-84	34.107	34.244	34.516	34.770	34.762	34.413	33.501	31.941	23.406
Oct-84	33.842	34.452	34.768	34.842	34.805	34.724	34.290	33.329	30.609
Nov-84	34.274	34.780	34.902	34.927	34.843	34.694	34.589	34.298	32.549
Dec-84	33.791	34.893	34.950	34.981	35.002	34.746	34.623	34.433	33.176
Jan-85	33.912	34.306	34.690	35.013	34.978	34.628	34.602	33.766	29.487
Feb-85	33.461	34.184	34.634	34.880	34.903	34.890	34.512	33.108	27.636
Mar-85	33.814	34.191	34.664	34.902	34.995	34.811	34.188	32.888	30.312
Apr-85	33.758	34.416	34.653	34.964	35.022	34.806	33.894	32.105	24.323
May-85	33.357	33.980	34.519	34.883	34.949	34.770	33.227	28.905	23.518
Jun-85	33.437	33.739	34.334	34.599	34.696	34.502	33.759	32.505	31.405
Jul-85	34.026	34.342	34.675	34.635	34.791	34.751	33.925	33.286	29.685
Aug-85	34.300	34.693	34.811	34.843	34.760	34.668	34.561	34.298	33.444
Sep-85	34.635	34.840	34.850	34.907	34.776	34.629	34.538	34.365	30.587
Oct-85	34.842	34.776	34.899	34.855	34.774	34.728	34.533	34.353	31.662
Nov-85	34.625	34.668	34.935	35.020	34.902	34.703	34.541	34.149	31.415
Dec-85	34.350	34.809	34.946	34.966	34.919	34.749	34.518	33.813	25.484
Jan-86	33.642	34.644	34.799	34.934	34.954	34.873	34.555	33.702	24.561
Feb-86	33.096	33.810	34.750	34.978	35.115	35.061	34.372	32.015	25.994
Mar-86	33.389	33.697	34.258	34.833	35.119	35.056	34.392	31.831	30.081
Apr-86									
May-86									
Jun-86			34.661	34.538	34.923	34.817	34.672	31.994	25.938
Jul-86	33.778	33.709	34.563	34.697	34.866	34.739	34.420	33.378	29.508
Aug-86	34.222	34.279	34.649	34.808	34.774	34.591	34.405	33.989	30.821
Sep-86	34.309	34.357	34.713	34.977	35.048	34.848	34.452	33.238	30.929
Oct-86	34.122	34.380	34.744	34.998	35.092	34.889	34.498	33.662	31.610
Nov-86	34.141	34.771	34.870	34.900	34.945	34.847	34.558	34.315	33.169

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Dec-86	34.384	34.840	34.757	34.967	34.946	34.871	34.794	34.574	32.607
Jan-87	33.931	34.131	34.709	35.030	34.986	34.801	34.171	31.629	30.251
Feb-87	33.669	34.144	34.601	34.955	34.935	34.429	33.795	30.799	25.507
Mar-87	33.803	33.872	34.350	34.689	34.790	34.435	33.927	32.347	30.355
Apr-87	33.843	34.640	34.702	34.996	34.982	34.741	34.287	33.174	28.570
May-87	31.400	32.905	34.066	34.683	34.868	34.704	34.295	33.673	32.222
Jun-87	33.131	33.722	34.144	34.528	34.690	34.580	34.136	33.306	29.482
Jul-87	33.850	33.705	34.536	34.760	34.909	34.635	33.553	31.768	28.353
Aug-87	33.618	33.828	34.420	34.645	34.778	34.535	34.113	33.214	28.383
Sep-87	33.466	34.108	34.386	34.545	34.608	34.292	34.164	33.424	30.539
Oct-87	33.392	34.530	34.856	34.815	34.737	34.497	34.090	33.522	31.217
Nov-87	33.828	34.366	34.835	34.846	34.825	34.618	34.286	33.625	28.805
Dec-87	33.743	33.867	34.428	34.895	34.905	34.798	34.588	32.882	28.785
Jan-88	33.933	34.966	35.106	35.091	34.961	34.611	33.696	33.213	31.820
Feb-88	33.773	34.542	35.017	35.109	35.003	34.776	34.358	33.786	30.874
Mar-88	32.773	33.576	34.221	34.766	34.877	34.338	33.577	32.948	26.651
Apr-88	33.217	33.533	34.249	34.642	34.616	34.091	32.027	30.248	28.298
May-88	33.327	33.621	34.008	34.222	34.216	33.829	33.089	31.886	29.405
Jun-88	33.780	33.550	34.195	34.450	34.358	33.823	32.819	30.469	28.101
Jul-88	33.768	34.413	34.616	34.846	34.641	34.066	33.069	32.117	30.164
Aug-88	34.420	34.721	34.839	34.875	34.836	34.772	34.301	33.327	31.054
Sep-88	34.611	34.694	34.826	34.881	34.725	34.600	34.652	34.330	31.877
Oct-88	34.736	34.811	34.966	34.968	34.840	34.658	34.527	34.106	29.556
Nov-88	34.611	34.550	34.932	35.044	34.949	34.781	34.570	33.230	28.959
Dec-88	34.291	34.528	34.827	35.047	34.932	34.661	34.573	33.340	32.260
Jan-89	34.162	34.426	34.635	34.813	35.004	34.835	34.591	32.791	33.928
Feb-89	34.158	34.567	34.648	34.897	34.911	34.774	34.558	34.250	32.957
Mar-89	33.604	34.848	35.099	35.157	35.071	34.815	34.440	33.468	27.581
Apr-89	34.290	34.681	34.828	34.854	34.933	34.744	34.287	32.232	31.102
May-89	34.124	34.341	34.736	34.858	34.848	34.639	33.651	32.162	27.083
Jun-89	34.005	33.992	34.630	34.900	34.901	34.714	34.178	33.107	31.631
Jul-89	33.971	34.031	34.524	34.782	34.881	34.527	34.069	32.977	30.362
Aug-89	34.371	34.228	34.517	34.777	34.853	34.501	33.878	33.418	32.452
Sep-89	34.337	34.488	34.801	35.008	34.969	34.541	33.886	33.136	32.044
Oct-89	34.387	34.546	34.691	34.917	34.915	34.605	34.036	33.408	30.251
Nov-89	34.826	35.116	35.226	35.191	35.158	35.092	34.565	33.469	30.800
Dec-89	34.760	34.703	35.060	35.226	35.228	35.103	34.865	34.399	33.497
Jan-90	34.602	35.087	35.007	35.301	35.283	35.234	34.820	34.253	28.298
Feb-90	34.330	34.860	34.921	35.286	35.322	35.282	35.087	34.744	31.744
Mar-90	34.314	34.507	34.799	35.183	35.271	35.151	34.991	34.698	29.512
Apr-90	33.823	33.981	34.615	34.938	35.192	35.091	34.712	33.772	30.697
May-90	33.873	33.932	34.481	34.611	34.810	34.953	34.739	33.259	30.816
Jun-90	34.042	34.308	34.588	34.747	34.824	34.638	34.171	33.724	32.135
Jul-90	34.594	34.811	35.040	34.923	35.195	35.160	34.728	33.442	30.991
Aug-90	34.734	34.822	35.057	35.056	35.194	35.197	34.852	34.118	31.047
Sep-90	34.856	34.974	35.101	35.179	35.208	35.169	34.954	34.394	33.331
Oct-90	35.037	35.181	35.256	35.268	35.308	35.250	34.999	34.647	33.460
Nov-90	35.067	35.203	35.313	35.301	35.310	35.342	35.220	34.864	31.410
Dec-90	34.299	34.635	35.178	35.304	35.300	35.309	35.165	31.170	32.750

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Jan-91									
Feb-91	34.129	34.497	35.029	35.370	35.430	35.426	35.246	33.408	31.220
Mar-91	34.571	34.893	34.902	35.420	35.478	35.226	35.065	34.101	32.968
Apr-91	34.341	34.584	35.013	35.325	35.387	35.304	34.757	33.897	32.439
May-91	33.587	34.032	34.791	35.139	35.405	35.256	34.906	31.795	28.827
Jun-91	33.759	34.167	34.387	34.699	35.035	35.027	34.693	34.243	31.906
Jul-91	34.063	34.355	34.791	35.065	34.952	34.807	34.487	33.782	31.965
Aug-91	34.590	34.472	34.873	35.026	35.161	35.147	35.023	34.443	31.213
Sep-91	34.627	34.513	34.876	35.006	34.903	35.111	34.971	34.601	32.305
Oct-91	34.765	34.804	35.132	34.986	35.054	35.034	34.867	34.302	29.329
Nov-91	35.007	35.137	35.269	35.284	35.196	35.084	33.578	33.005	26.942
Dec-91	34.972	35.180	35.247	35.241	35.217	35.070	34.937	34.186	32.543
Jan-92	29.231	34.485	34.805	35.067	35.156	35.153	34.958	34.445	31.855
Feb-92	29.035	34.447	34.719	34.797	35.111	35.120	34.827	34.404	32.949
Mar-92	34.091	34.415	34.727	34.991	35.074	34.957	34.431	33.866	32.293
Apr-92	34.192	34.608	34.840	35.153	35.219	35.020	34.374	33.212	29.846
May-92	34.492	34.451	34.945	35.230	35.293	35.194	34.907	33.428	21.016
Jun-92	34.107	34.366	34.874	34.905	35.254	35.193	34.808	32.745	27.999
Jul-92	32.103	34.362	34.749	34.952	34.958	34.619	34.074	32.916	32.241
Aug-92	34.368	34.788	34.802	35.141	35.211	35.065	34.536	33.767	32.877
Sep-92	28.163	35.286	35.341	35.242	35.293	35.217	35.252	34.618	33.897
Oct-92	34.504	34.633	34.847	35.264	35.015	35.257	35.249	34.526	33.211
Nov-92	33.338	34.818	35.095	35.189	35.033	34.960	34.779	34.272	33.141
Dec-92	33.998	34.873	35.329	35.414	35.416	35.330	35.008	34.295	27.491
Jan-93	34.240	34.850	35.049	35.139	35.014	34.893	34.761	32.535	26.672
Feb-93	34.178	34.305	35.038	35.349	35.390	35.165	34.663	32.516	27.397
Mar-93	33.586	33.844	34.497	35.031	35.430	35.171	34.712	33.091	29.211
Apr-93	32.739	34.509	34.766	35.123	35.039	34.879	34.372	33.490	30.290
May-93	33.826	34.614	35.003	35.209	35.239	35.095	34.456	33.607	31.665
Jun-93	34.521	34.557	34.931	35.158	35.126	35.072	34.688	33.394	29.334
Jul-93	34.629	34.491	34.848	34.727	34.844	34.545	34.337	32.921	28.411
Aug-93	34.800	34.958	35.083	35.132	35.060	34.946	34.643	33.955	28.937
Sep-93	34.496	34.733	34.944	35.102	35.083	34.932	34.597	33.817	28.519
Oct-93	34.099	34.539	34.741	35.066	35.024	34.824	34.266	32.179	30.466
Nov-93	33.534	34.122	34.427	34.907	34.755	34.364	34.110	33.430	31.253
Dec-93	33.451	34.594	35.007	35.054	34.985	34.750	33.893	33.052	31.642
Jan-94	33.143	33.920	34.401	34.552	34.553	34.707	34.279	33.179	28.533
Feb-94	33.066	33.724	34.028	34.526	34.634	34.638	34.498	34.059	31.623
Mar-94									
Apr-94	33.326	34.148	34.493	34.851	34.760	34.012	33.784	31.353	22.691
May-94	33.547	33.678	34.375	34.774	34.888	34.773	34.222	31.904	28.257
Jun-94	33.658	33.778	34.342	34.724	34.785	34.696	34.130	33.132	30.792
Jul-94	33.977	33.962	34.514	34.725	34.780	34.595	34.355	32.505	28.694
Aug-94	33.844	33.972	34.524	34.731	34.818	34.160	33.966	33.144	29.832
Sep-94	33.340	34.529	34.736	34.836	34.785	34.599	34.163	32.919	26.913
Oct-94	34.222	34.561	34.739	34.845	34.836	34.641	34.249	31.498	29.828
Nov-94	34.409	34.474	34.782	34.863	34.875	34.743	34.589	33.587	30.459
Dec-94	34.311	34.730	34.945	34.983	34.929	34.762	34.486	33.532	29.597
Jan-95	33.665	34.731	34.930	34.974	34.768	34.736	34.154	29.175	20.494

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Feb-95	33.059	34.533	34.829	34.868	34.676	34.455	34.024	27.635	20.312
Mar-95	32.524	34.079	34.240	34.761	34.804	34.647	34.296	33.170	29.645
Apr-95	33.508	33.739	34.508	34.966	34.875	34.512	32.107	29.927	23.360
May-95	33.326	33.671	34.228	34.480	34.649	34.197	33.113	30.904	26.408
Jun-95	33.233	33.618	34.114	34.365	34.381	33.637	33.116	31.525	23.313
Jul-95	33.709	33.971	34.331	34.405	34.052	33.292	32.567	29.089	26.605
Aug-95	33.985	34.083	34.330	34.385	34.360	33.960	33.049	30.368	26.565
Sep-95	34.126	34.206	34.385	34.229	34.077	33.449	33.084	31.364	28.925
Oct-95	34.338	34.345	34.589	34.694	34.702	34.509	33.829	32.976	32.199
Nov-95	34.612	34.739	34.845	34.865	34.852	34.603	33.655	33.026	28.624
Dec-95	34.569	34.908	34.949	34.894	34.768	34.620	34.132	33.271	27.984
Jan-96	34.538	34.791		34.973	34.886		34.164	34.153	
Feb-96	34.409	34.911	34.989	34.785	35.100	34.864	34.233	33.191	28.966
Mar-96	34.132	34.567	34.856	35.050	35.076	34.947	34.349	33.592	30.945
Apr-96	34.228	34.560	34.751	34.971	35.041	34.711	34.070	32.191	29.785
May-96	33.954	34.094	34.593	34.817	34.946	34.792	34.183	31.361	29.258
Jun-96	34.165	34.315	34.736	34.826	34.710	34.291	32.963	31.405	28.245
Jul-96	34.177	34.301	34.766	34.952	34.975	34.633	34.050	32.315	32.470
Aug-96	34.392	34.383	34.739	34.953	35.030	34.988	34.307	33.793	31.907
Sep-96	34.234	34.306	34.478	34.864	34.921	34.890	34.673	33.411	31.659
Oct-96	34.150	34.585	34.795	34.963	34.972	34.856	34.301	33.649	32.116
Nov-96	34.764	34.904	35.021	35.064	35.031	34.948	34.804	34.378	32.949
Dec-96	34.636	34.472	34.433	34.836	33.811	32.896	32.761	32.370	26.930
Jan-97	34.175	34.304	34.449	34.487	34.768	34.712	34.592	34.063	32.891
Feb-97	34.318	34.639	34.876	35.052	35.040	34.819	33.807	32.115	32.131
Mar-97	34.478	34.582	35.025	35.208	34.962	35.147	34.667	33.821	30.076
Apr-97	34.127	34.226	34.641	35.093	35.152	34.952	34.607	33.606	30.931
May-97	34.311	34.474	34.747	35.186	34.930	34.833	34.383	33.188	28.098
Jun-97	34.102	34.361	34.811	35.015	34.994	34.735	33.800	33.805	31.597
Jul-97	34.455	34.440	34.932	35.045	35.009	34.831	34.327	33.523	30.215
Aug-97	34.583	34.672	35.004	35.056	35.076	34.974	34.476	32.928	28.285
Sep-97	34.897	34.871	35.054	35.017	34.974	34.945	34.438	33.564	28.394
Oct-97	34.506	34.813	35.023	35.097	35.031	34.893	34.589	33.976	30.696
Nov-97	34.730	34.970	35.110	35.127	35.071	34.951	34.594	33.843	32.922
Dec-97	34.854	35.044	35.083	35.114	35.069	34.983	34.923	34.495	31.638
Jan-98	34.683	34.721	35.058	35.275	35.289	35.180	34.418	33.025	29.036
Feb-98	33.848	34.148	35.127	35.283	35.386	35.101	34.529	33.991	33.142
Mar-98	34.032	34.101	34.843	35.005	35.062	34.922	34.175	31.710	25.584
Apr-98	34.301	34.599	35.025	35.232	35.261	35.113	34.530	33.793	32.743
May-98	33.931	34.255	34.906	35.157	35.284	35.181	34.951	32.724	30.721
Jun-98	34.064	34.484	34.958	35.014	35.039	35.061	34.531	34.060	33.159
Jul-98	34.446	34.644	34.994	35.086	35.203	35.115	34.935	32.944	28.468
Aug-98	34.393	34.478	34.940	35.103	35.148	35.101	34.938	34.616	28.350
Sep-98	34.534	34.591	35.014	35.107	35.153	35.049	34.903	34.559	29.720
Oct-98	34.473	34.732	34.978	35.130	35.116	35.011	34.825	34.438	33.139
Nov-98	34.563	35.059	35.201	35.222	35.163	35.058	34.941	33.906	23.781
Dec-98	34.084	34.941	35.082	35.192	35.244	35.099	34.831	33.521	31.451
Jan-99	33.760	35.000	35.255	35.325	35.264	35.495	35.047	33.550	32.051
Feb-99	27.933	33.913	34.758	35.135	35.285	35.120	34.804	33.588	29.027

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Mar-99	33.216	33.587	34.403	34.924	35.065	35.092	34.491	33.494	28.563
Apr-99	33.689	33.493	34.462	34.985	35.026	34.859	34.303	31.428	28.301
May-99	33.885	33.942	34.588	35.033	34.993	34.774	34.475	33.544	30.183
Jun-99	34.192	34.258	34.588	35.013	34.942	34.814	34.481	33.693	26.151
Jul-99	34.235	34.062	34.818	35.038	35.090	34.937	34.616	32.885	32.059
Aug-99	33.483	34.153	34.826	35.047	35.074	34.922	34.361	33.654	32.664
Sep-99	34.567	34.630	34.720	34.991	34.994	34.886	34.396	33.870	31.750
Oct-99	34.426	35.044	35.137	35.130	35.056	34.897	34.686	34.261	32.452
Nov-99	34.441	34.693	34.733	34.936	34.959	34.930	34.369	32.511	31.653
Dec-99	34.169	34.714	34.929	35.170	35.139	34.706	34.136	32.496	26.919
Jan-00	34.034	34.681	35.063	35.286	35.242	35.074	34.504	33.027	27.911
Feb-00	33.995	34.642	34.811	35.135	35.152	34.896	34.571	33.996	26.187
Mar-00	33.745	34.477	34.855	35.179	34.959	34.660	34.431	32.374	27.667
Apr-00	33.315	34.128	34.689	34.913	34.889	34.541	34.092	33.249	31.083
May-00	33.769	34.010	34.576	34.793	34.592	34.215	33.355	32.258	30.712
Jun-00	33.721	33.956	34.540	34.653	34.676	34.306	33.566	32.092	28.298
Jul-00	34.024	34.112	34.503	34.726	34.738	34.576	34.254	32.162	28.764
Aug-00	34.214	33.984	34.318	34.699			34.507	33.934	31.247
Sep-00	34.420	34.231	34.619	34.785	34.726	34.669	34.359	33.717	22.869
Oct-00	34.244	34.805	34.907	34.907	34.852	34.764	34.547	34.076	30.636
Nov-00	32.996	34.436	34.859	34.988	34.897	34.611	34.371	33.928	33.308
Dec-00	32.404	34.462	34.917	35.064	35.085	34.957	34.483	33.837	33.211
Jan-01	33.016	34.687	34.962	35.035	35.011	34.896	34.582	32.946	29.737
Feb-01	33.038	34.276	34.688	35.118	35.098	34.956	34.276	32.522	27.503
Mar-01	32.336	33.199	34.232	34.667	34.993	34.925	33.893	32.308	25.285
Apr-01	32.821	33.503	34.277	34.462	34.757	34.627	33.875	32.265	22.837
May-01	32.945	33.438	34.113	34.470	34.592	34.356	33.365	31.140	29.916
Jun-01	33.196	33.146	33.889	34.137	34.252	34.318	33.970	32.722	25.653
Jul-01	33.551	33.738	34.142	34.423	34.413	34.150	33.476	33.181	29.182
Aug-01	33.674	34.019	34.388	34.464	34.410	34.277	34.031	33.656	31.170
Sep-01	33.804	33.862	34.172	34.347	34.320	34.309	34.229	32.659	29.182
Oct-01	34.054	34.242	34.400	34.467	34.318	34.061	33.522	32.219	24.918
Nov-01	34.021	34.022	34.392	34.606	34.452	34.230	34.096	33.390	22.129
Dec-01	33.833	34.129	34.545	34.608	34.404	34.173	34.033	33.825	25.950
Jan-02	33.641	34.023	34.310	34.675	34.470	34.172	33.865	33.030	26.593
Feb-02	33.693	34.034	34.643	34.783	34.580	34.403	34.012	33.175	30.678
Mar-02	33.424	34.253	34.510	34.771	34.694	34.426	33.841	32.880	26.535
Apr-02	33.637	33.673	34.369	34.587	34.723	34.475	33.801	32.175	26.568
May-02	33.693	34.129	34.411	34.561	34.601	34.206	33.309	32.220	27.290
Jun-02	34.177	34.750	34.968	35.001	34.882	34.696	34.024	33.274	31.065
Jul-02	34.552	34.455	34.804	34.878	34.733	34.637	34.435	33.593	31.253
Aug-02									
Sep-02									
Oct-02	34.071	35.071	35.133	35.166	34.896	34.652	33.556	32.667	30.304
Nov-02	33.973	34.929	35.137	35.129	35.069	34.961	34.547	32.698	28.256
Dec-02	34.423	35.028	35.166	35.156	35.074	34.922	34.722	33.459	27.629
Jan-03									
Feb-03	32.883	32.819	34.205	34.864	35.227	34.987	34.708	33.825	29.247
Mar-03	32.757	33.255	33.911	34.189	34.538	34.717	34.421	32.678	30.456

Table 42. continued: Ferry route salinity data.

Date	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6	Position 7	Position 8	Position 9
Apr-03	33.016	33.340	33.884	34.293	34.727	34.623	33.974	32.621	29.528
May-03	33.095	33.798	34.305	34.365	34.484	34.358	33.716	33.067	32.476
Jun-03	33.991	34.004	34.738	34.933	35.031	34.926	34.619	33.535	31.550
Jul-03	34.226	34.207	34.635	34.819	34.899	34.841	34.679	34.106	32.905
Aug-03	34.605	34.393	34.665	34.764	34.752	34.669	34.587	34.107	32.054
Sep-03	34.463	34.408	34.628	34.837	34.829	34.689	34.560	34.208	32.393
Oct-03	34.630	34.534	34.614	34.727	34.911	34.868	34.777	33.338	26.729
Nov-03	34.486	34.882	34.976	34.998	34.894	34.839	34.539	33.979	32.796
Dec-03	34.714	34.821	34.943	35.115	35.072	34.913	34.634	33.942	32.008
Jan-04	34.454	34.804	34.967	35.014	34.992	34.927	34.337	32.898	30.180
Feb-04	34.087	34.645	34.753	34.993	35.043	34.972	34.703	33.424	28.984
Mar-04	33.452	33.967	34.381	34.834	34.977	34.854	34.364	33.394	30.209
Apr-04	33.725	34.241	34.680	34.973	34.892	34.760	34.147	33.341	28.045
May-04	33.943	34.135	34.683	34.955	35.080	34.772	34.198	33.363	29.251
Jun-04	33.977	34.205	34.632	34.863	34.916	34.716	34.138	33.424	29.379
Jul-04	34.236	34.433	34.616	34.838	34.897	34.745	34.318	33.624	31.793
Aug-04	34.172	34.420	34.752	34.899	34.945	34.880	34.605	34.115	33.253
Sep-04	34.632	34.816	34.984	35.042	34.967	34.849	34.682	34.201	32.439
Oct-04	34.755	35.012	35.063	35.078	34.982	34.901	34.699	34.209	33.402
Nov-04	34.600	34.692	35.060	35.143	35.086	34.962	34.759	33.793	31.798
Dec-04	34.112	34.281	34.928	35.186	35.117	34.959	34.804	34.548	30.002

Figure (a). Monthly mean salinity for the entire duration of the record at ferry route station P2 which are derived from simple averaging of all the monthly data.

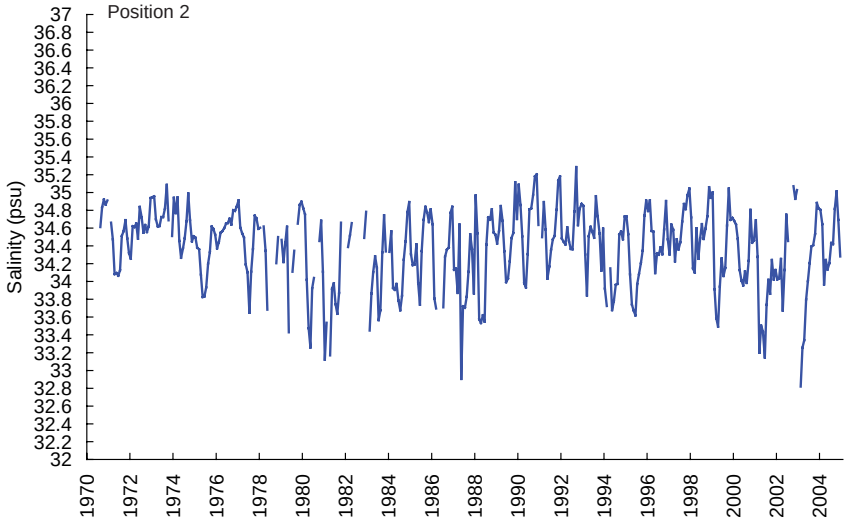


Figure (b). Monthly average salinity with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

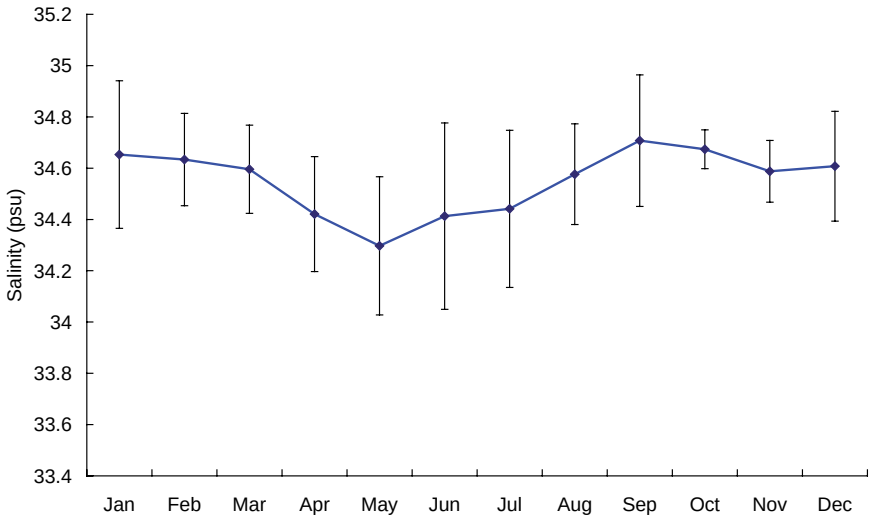


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) salinity has been subtracted from the average annual salinity. The standard deviation of the annually averaged salinity of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

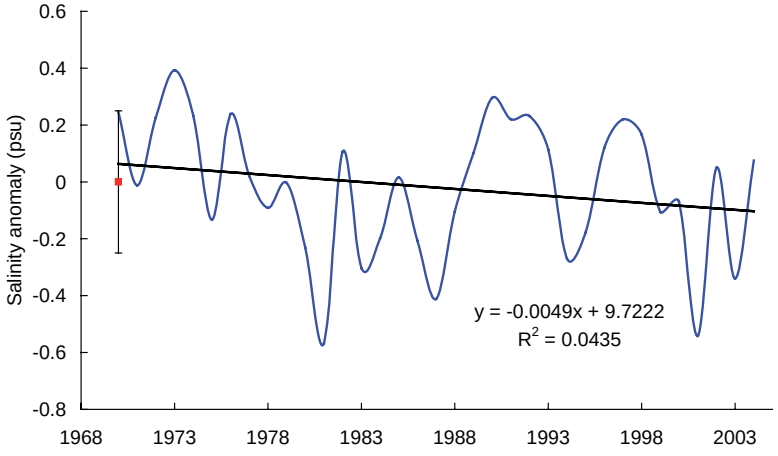


Figure (a). Monthly mean salinity for the entire duration of the record at ferry route station P4 which are derived from simple averaging of all the monthly data.

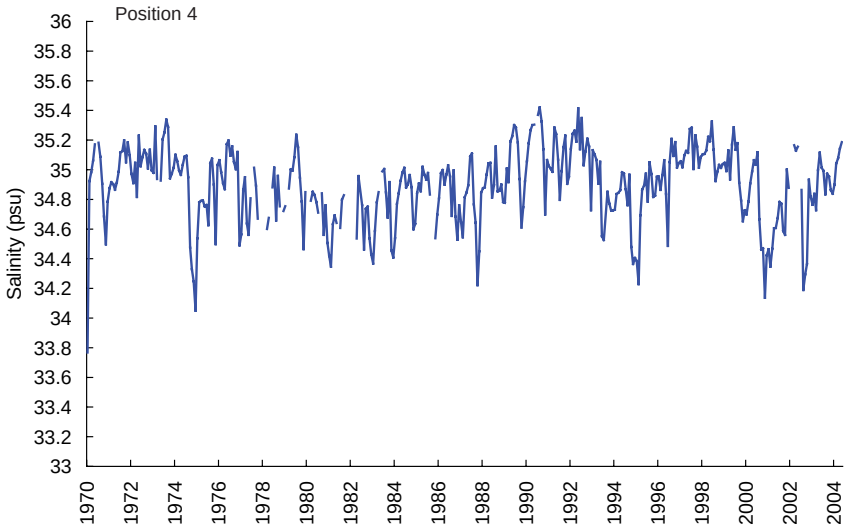


Figure (b). Monthly average salinity with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

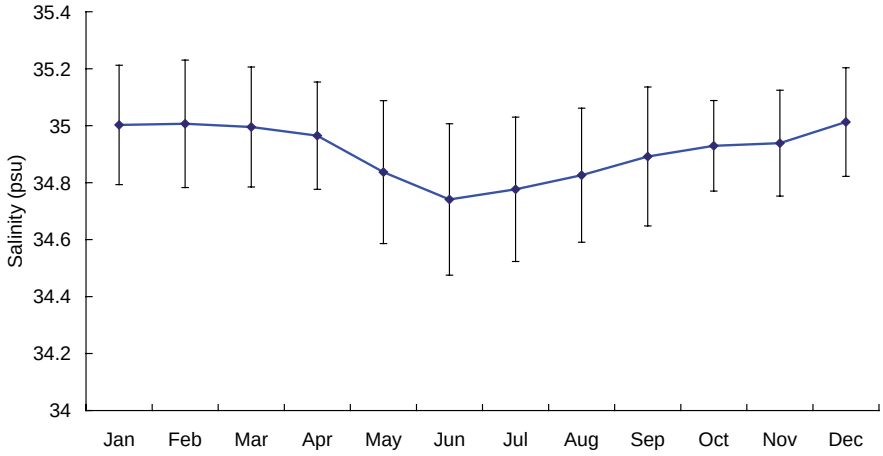


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) salinity has been subtracted from the average annual salinity. The standard deviation of the annually averaged salinity of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.

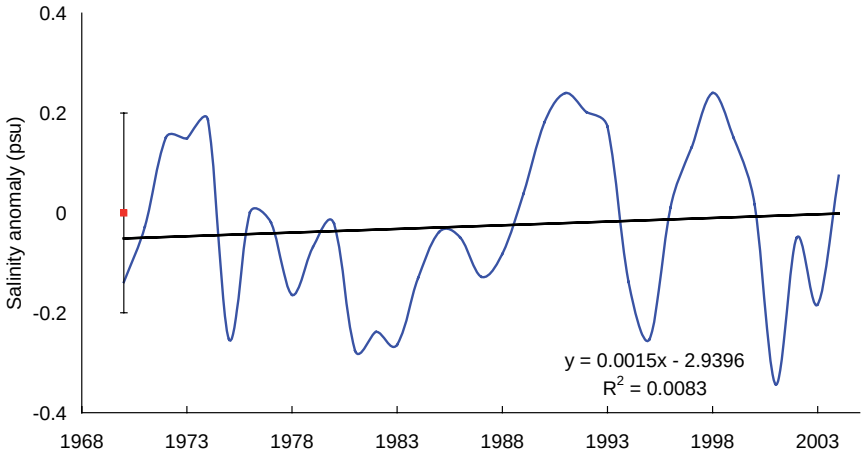


Figure (a). Monthly mean salinity for the entire duration of the record at ferry route station P7 which are derived from simple averaging of all the monthly data.

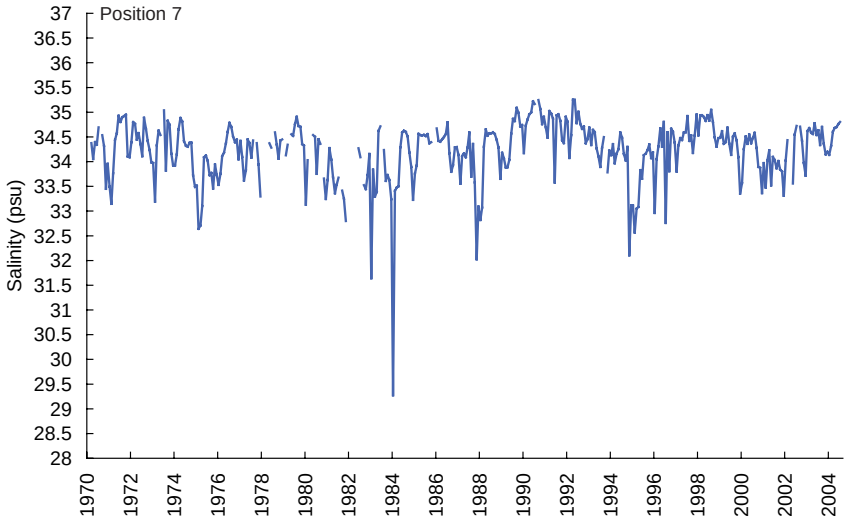


Figure (b). Monthly average salinity with the first standard deviation. The standard deviation has been derived from the difference in the monthly average from the long-term (1971 – 2000) mean.

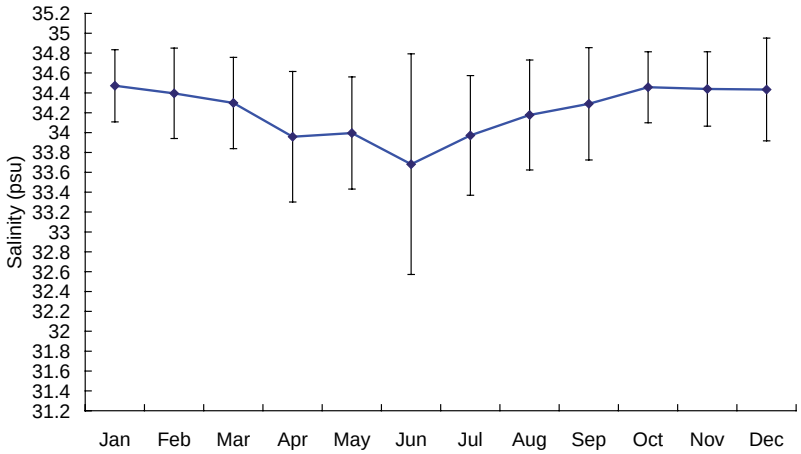
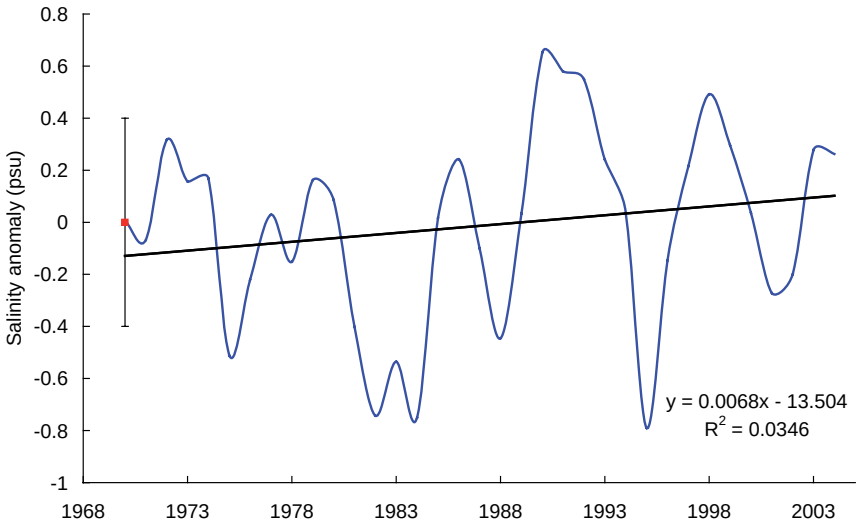


Figure (c). Yearly anomaly from the base period. Where the average base period (1971 –2000) salinity has been subtracted from the average annual salinity. The standard deviation of the annually averaged salinity of the entire record is also shown. A trend line derived from a linear least squares analysis has been added to indicate the extent to which annual changes are linear.



Cefas

Head office
Centre for Environment,
Fisheries & Aquaculture Science
Pakefield Road, Lowestoft,
Suffolk NR33 0HT, UK

Tel +44 (0) 1502 56 2244
Fax +44 (0) 1502 51 3865
Web www.cefas.co.uk

Cefas is an executive agency of Defra

ISSN 0264-5130