

# A history of meteorological observations in Guernsey

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The British fascination with the weather is legendary and it is perhaps not surprising that, given the location, the inhabitants of the Channel Islands are as enthusiastic as anyone about a subject that has always had such a profound effect on their daily lives. The island of Guernsey has long seafaring and agricultural traditions. Such was the impact of the elements on these industries that written reference to the local weather can often be found in journals and diaries of a bygone age.

Guernsey is the most westerly of the Channel Islands. There are, at present, three official weather stations on Guernsey (Figure 1), the main one at the airport on the southern plateau, a privately run site at L'Ancrese in the low-lying north, and an automatic weather station on Lihou Island, just off the west coast.

## The early years of instrumental observations in Guernsey (1842 to 1946)

In 1777, Elisha Dobrée, Douzenier (parish representative) and Constable of St Peter Port (both parish appointments), started a local journal that contained regular reference to the daily weather, albeit in a conversational rather than a detailed manner. These journals are held in local archives, but an organized record of his observations would appear never to have been collated due, no doubt, to the lack of specific data.

However, all that was to change when, in 1842, a Dr Samuel Elliot Hoskins MD, FRS, FRCP, FRMS began what was to become a highly detailed and virtually unbroken record of meteorological observations that continues to the present day. This remarkable man of letters was the principal doctor in Guernsey for many years and had a history of groundbreaking research in diverse areas of science.

Dr Hoskins founded the first meteorologi-

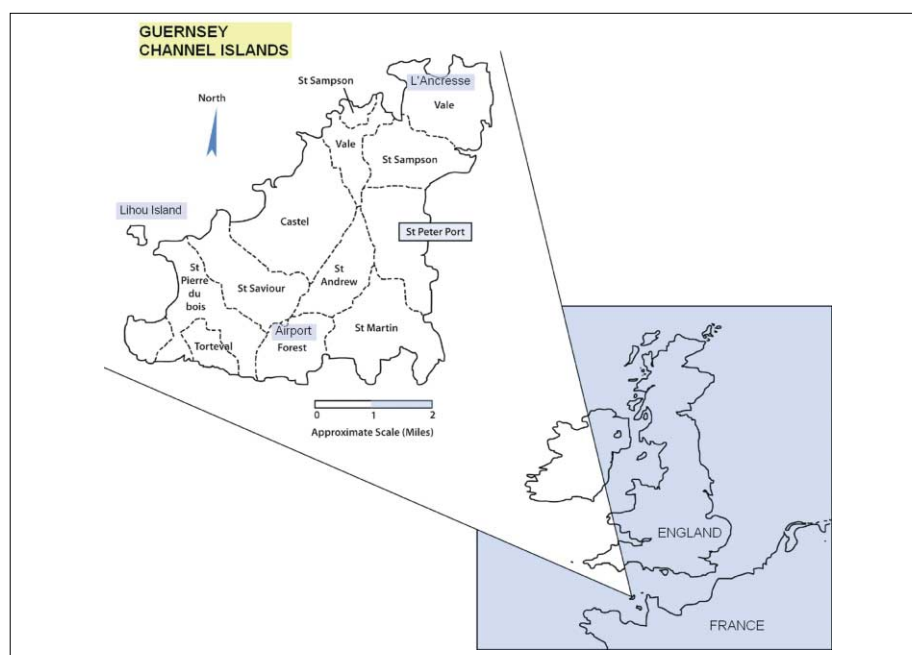


Figure 1. Location map of Guernsey, its parishes and current weather station sites. (Map courtesy of States of Guernsey Policy Council.)

cal station on the island in New Street, St Peter Port, in 1842. Temperature, pressure, wind, cloud cover, rainfall and weather were carefully recorded with observations made at 0900 and 1500 h. Dr Hoskins' records were kept in beautifully bound volumes and all have survived the test of time despite being moved frequently over the years. They are currently being transcribed onto an electronic database for posterity as, sadly, the original manuscripts are showing signs of decay.

Dr Hoskins retired from medical practice in 1859 but continued to keep his 'register of observations' in a most meticulous manner for many years. His reports were regularly forwarded to the Registrar General of England and to the United States Government where they were deemed 'most important'. At the age of 81, he felt it time to find a successor for his work and enlisted the help of Adolphus Collenette, who assumed full responsibility for the maintenance of the meteorological record on the death of Dr Hoskins in 1888. Dr Hoskins' passing was a notable event and many references to his

full and dedicated life can be found in the archive (see *The Guernsey Star* (1888) and *The Dictionary of National Biography* (1885–1901)).

## A new hand at the helm

Adolphus Collenette was a worthy successor to the great Doctor. *La Société Guernesiaise* (1922) reports that he was a renowned geologist and meteorologist and a working chemist. His knowledge of the chemistry of hothouse culture (tomato-growing being a major industry in Guernsey at that time) led to the publication of his well-respected paper 'Tomato Disease in Guernsey'. He was an active member of the local community and served on several States Committees. He held a seat on the Board of Management of the Guille-Allès Library and became Honorary Curator of the Museum in 1898, the same year that he was elected a Douzenier of St Peter Port.

Mr Collenette kept his laboratory in the Commercial Arcade, St Peter Port, and often displayed in the window a daily weather

forecast that was based on his observations and knowledge built up over many years. This forecast was to become a public institution and led to a local tale that:

*As long as the Almighty kept the control of the weather in His own hands we had something like a decent climate, but since entrusting it to Mr Collenette, well – what could you expect!*

His public image as the 'weather prophet' was not one he courted as he felt that the issue of forecasts was a public whim, a diversion, and of small import compared with the maintenance over many years of a reliable climatic record – sentiments of a true observer!

In April 1881, just after his association with Dr Hoskins, Mr Collenette moved the weather station to Le Hechet, Ruettes Brayes, and then to Hauteville, St Peter Port, in 1892, where a sunshine recorder was added to the already impressive list of equipment. In 1902, the States of Guernsey, anxious that the continuous record should not be lost, voted an annual grant-in-aid of £50 towards operating costs, ending 60 years of totally private ownership. In the same year, Mr Collenette retired from business and moved the equipment to Brooklyn, Fort Road, St Martin.

Mr Collenette then developed a series of local rainfall stations across the island – all manned by volunteer enthusiasts – and in 1917 published a map of the local distribution of rainfall in Guernsey (Figure 2). The results of his survey indicate that the wettest area of Guernsey is the area of high ground to the south of St Peter Port with progressively less rainfall being recorded to the west. During his tenure, Mr Collenette also produced many papers on the local geology of Guernsey for *La Société Guernesiaise* (previously The Guernsey Society of Natural Science and Local Research) of which he was an active member, and President from 1895 to 1896.

## Public ownership

In 1917, at the age of 76, Mr Collenette felt the time had come to ensure the continuance of his work and approached the States with an offer to pass over the running and effects of the meteorological station entirely to the public domain. Dr Napier Shaw, Director of the Meteorological Office in the UK, was consulted for advice, and in 1918 the States created a Meteorological Committee and purchased Mr Collenette's equipment and records for £150. The annual grant-in-aid was also increased to £80, which allowed him to take on staff to assist with the day-to-day running of the observatory.

The lease was soon to expire on Brooklyn, however, and so the new Committee set about finding a more permanent home for

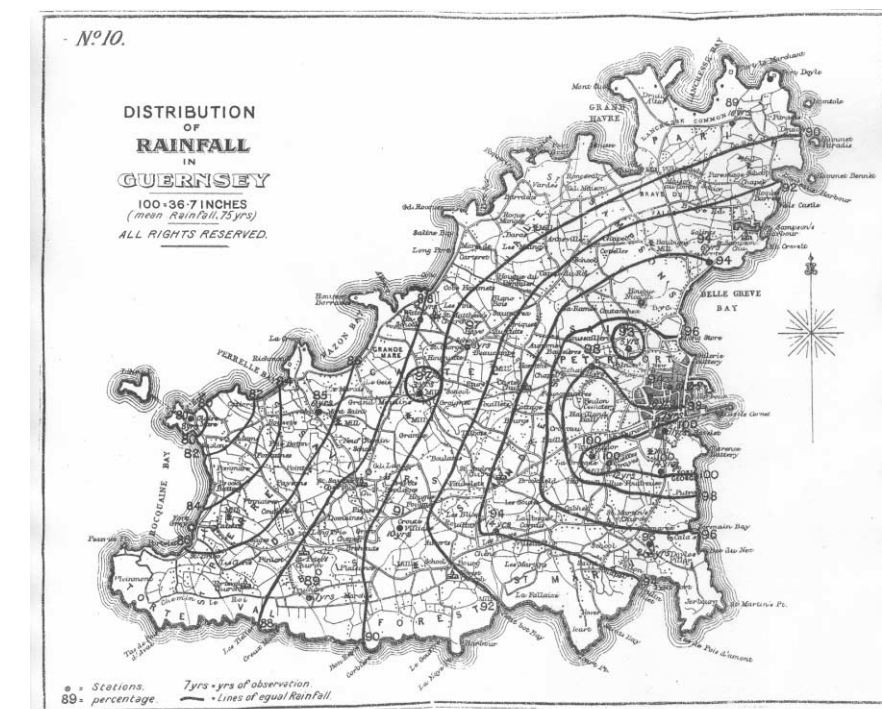


Figure 2. Rainfall distribution map – Guernsey (published in 1917 by Adolphus Collenette). Isolines show the percentage recorded in each location as a proportion of that received in the wettest area. (© States of Guernsey.)

the equipment. In June 1921, at a cost of £716, a purpose-built observatory, with rooms to house the daily records, was opened in the grounds of Lukis House, Grange Road, St Peter Port (Figure 3). By this time the annual grant-in-aid from the States had risen to £100 and a Dines anemo-biograph was installed and brought into use.

Adolphus Collenette lived just long enough to see the new observatory established and operational. Sadly he was to die before he could arrange an official opening for States Members and the public but he passed away happy that he had achieved his life's purpose – the establishment of a proper States-supported meteorological observatory. After his death, Mr Collenette's second-in-command and another prominent Guernseyman, a Mr H. V. W. Miles, was promoted to Senior Observer. Several full-time assistants were taken on including 'Dougie' Sackett, who joined in 1922 and was promoted to Senior Observer in 1935, eventually retiring in 1967 after 45 years of dedicated service.

With the growth of aviation in the 1930s, it was decided to move the observatory to the newly established airfield at La Villiaze in the Forest parish (Figure 1). Max Hewitt was taken on in 1939 to help out with the increased workload, but the war delayed the move for several years. The new airport meteorological observatory was finally completed on 1 August 1946, and the Lukis House premises were closed. The old observatory building still exists, however, and appropriately is currently occupied by *La Société Guernesiaise*.

## Observations at the airport (1946 onwards)

The new observatory soon found itself having to satisfy an ever-increasing demand for meteorological information, particularly for aviation, so routine observations were taken over 24-hours for the first time. The instrument enclosure was eventually sited between the runway and taxiway to the north of the terminal building and the duty observer had to play a sort of 'Russian roulette' with taxiing aircraft in order to take the hourly readings.

Main (6-hour) and intermediate (3-hour) synoptic observations were taken overnight when the airport was closed, but during operational hours there was a need for hourly synoptic and half-hourly aviation weather reports – even more in poor weather. Weather summaries in the form of National Climatological Messages (NCMs) were sent daily to the Met Office at 0900 and 2100 UTC, and monthly and annual weather reports dispatched when complete.

Nothing was automatic in those days and all instruments had to be studied, readings taken and results recorded in longhand fashion in a daily register of observations. Coded signals were entered onto message pads and given to the telex operator for onward transmission to Jersey and the UK. The quality and volume of data supplied to the Met Office, coupled with its geographical position, saw the new meteorological office at Guernsey airport established as the principal meteorological observing site in the Channel Islands.



Figure 3. The purpose-built observatory in the grounds of Lukis House, St Peter Port. (© Tim Lillington.)

In keeping with its new aeronautical role, the observatory began recording and reporting additional elements. Humidity, dew point, visibility, cloud amounts, types and heights were added to the already impressive list of data that had been recorded over the previous century. It was also decided that soil temperature data would be required for the important agriculture and horticulture industries – the *Guernsey Tom* tomato had by then built up a deserved reputation and the export of outdoor cut flowers, such as daffodils, was finding a ready market. Thermometers at depths of six inches, one, two, three and four feet (15, 30, 60, 90 and 120 cm respectively) were read on a daily basis.

In those early post-war years, the meteorological office at Guernsey airport was housed in a small room on the first floor of the main terminal building. This room, measuring about 7 ft by 12 ft (2.1 m by 3.7 m), was hopelessly inadequate for its purpose and all the old records were dispatched once again to the nooks and crannies of a number of States-owned buildings across Guernsey. It is more by luck than good judgement that these records are now, thankfully, all under the protection of the excellent official States Archive Service, which, incidentally, willingly provided much of the early detail for this article.

The observatory continued to attract 'men of note' to its ranks and was privileged to employ Captain Henri Biard in the early post-war years. Captain Biard had previously won the Schneider Trophy – a prestigious international air race for seaplanes. Some years later, Dudley Jehan also joined as an observer before taking up his calling as meteorologist with the Antarctic Expedition.

By 1970, the first-floor office had become known as 'the broom cupboard' and the Airport Authority finally acknowledged the drawbacks of combining an observatory and an aeronautical meteorological briefing facility in such limited space. A new office was established alongside the flight briefing room on the ground floor and the assimilation into the role of an aeronautical meteorological office was complete.

Overseeing this latest move was the new Senior Meteorological Observer, Max Hewitt, who had taken over from 'Dougie' Sackett in 1967. By then the staff had grown to six in total and a magical piece of equipment – the cloud base recorder – was added to the stock. Until then, cloud base in poor weather was measured by releasing a hydrogen balloon of known buoyancy. These balloons were inflated at a remote site, tied to railings on the terminal building roof and dispatched one at a time when

required. The observer would time the balloon's ascent by stopwatch to its disappearance in cloud. Four hundred feet (122 m) a minute was used as the calculator but many a time in fresh winds, the balloon would disappear behind trees or buildings only to reappear some moments later heading off in a new direction which, on occasions, was downwards. 'Precise but not very accurate' some would say.

The new office was not without its drawbacks. To save money, homemade double-glazing was installed that proved not to be sufficiently watertight. One particular observer who was prone to laziness was, on one famous occasion, estimating the elements from the comfort of the observer's chair. Unbeknown to him the double-glazing began to mist up internally and fairly soon he was reporting fog. Several aircraft had to delay their approach to Guernsey while a somewhat confused Air Traffic Control Officer pointed out to the observer that the sky was blue and the island of Alderney could be clearly seen 20 miles (32 km) away.

The rapid progress of aviation technology soon saw a new technical block being built to the west of the old terminal building. Max would have hated all this change and it was probably just as well that he had retired and handed over the reins to an energetic and enthusiastic Mike Lillington when the time came to move the office to the new building. The move was completed in 1977, and, after some initial resistance from the Airport Authority, the instrument enclosure was resited to a far more convenient spot just to the north of the new building (Figure 4) where it remains today. By then, two observers were on duty for the busier times. Pilot briefing had become a much more formal and labour-intensive affair and public enquiries were on the increase. Mike had spent many hours designing the layout of the new office and enclosure, and the more efficient working environment that he created helped the staff with the extra workload – which was just as well as local radio came to Guernsey soon after and the observer found himself 'live' at 0800 local time (LT) each morning giving what proved to be a very popular forecast for the islands.

Mike left the office in 1986 after 27 years' service and John Phillips – another long-serving observer who joined in 1966 – took over as Senior Observer. Tim Lillington, Mike's younger brother, current incumbent of the post and author of this article, succeeded John in 1997, having already clocked up 25 years as an observer. By this time, pilot briefing had been automated and the radio slot lost – both to the greater gods of litigation and accountability – so we were back to six staff once again, where we remain to this day.



## Observations from other sites

Just as Guernsey's main observatory was getting all aeronautical, two other developments were taking place that were to provide traditional 'grass roots' weather observations once again. In 1966, one of the airport observers, Jimmy Janes, felt that the island was being short-changed in respect of sunshine hours. The airport was on the high ground to the south and suffered orographically at times from low cloud and fog. Jimmy lived at L'Ancrese in the low-lying north (Figure 1) and secured Tourist Board funding to establish a 'Health Resort' weather station in his garden (Figure 5). In a somewhat bizarre turn of events, Jimmy was paid £50 a year to maintain the climatological record – exactly the same as Mr Collenette was paid by the States for the same work 65 years earlier!

To gain maximum exposure, the Campbell–Stokes sunshine recorder was mounted on a plinth attached to a chimney alongside a flat roof. Changing sunshine cards was not for the faint-hearted. Jimmy's original notion that L'Ancrese was sunnier than the more southerly but higher Forest parish was to be proved correct (Table 1) and the station was to feature in, and occasionally top, the UK sunshine ranking tables for many years. Unfortunately the sunshine recorder site is currently affected by shadow from a large tree in a neighbouring property but a resolution to this problem, using the most traditional of remedies, is hopefully close at hand.

The L'Ancrese weather station quickly gained the approval of the Met Office and has been operating continuously ever since, despite a change of owner along the way. For many years daily reports of sunshine, rainfall, temperatures and weather were telephoned through to the Met Office at 1730 LT each evening to feature in the national newspaper summaries the following day. Monthly weather reports are prepared from raw data by the airport observers who also cover for the occupants during periods of absence.

In 2005, tourism chiefs decided to withdraw their financial support of the L'Ancrese site as, apparently, visitors to Guernsey were not interested in local sunshine hours and the daily publicity afforded to the L'Ancrese figures in the national newspapers was, it appears, not worth the £1500 per year investment. Thankfully the States Environment Department stepped in to secure the future of this valuable climatological asset.

Another private weather station was set up in the early 1970s by Lt Col Patrick Wootton, tenant of the historically important and environmentally sensitive Priory island of Lihou to the west of Guernsey (Figure 1). As well as introducing seaweed-



Figure 4. Guernsey Airport meteorological instrument enclosure. (© F. McMeiken.)



Figure 5. L'Ancrese weather station. (© Dave Cunningham.)

eating sheep to Lihou – a Channel Islands first – Lt Col Wootton also established a youth fellowship based in the Island's only other building – a large granite residence at the top of the causeway (Figure 6).

As part of the fellowship activities, a Stevenson screen was erected to the north of the residence and readings were taken at 0900, 1200, 1500 and 1800 UTC. Sadly, none of the data can be traced locally. It is, of course, debatable how useful the data

would have been owing to the patchy occupation of the island. That was not the end of readings from this idyllic spot, however, as in the late 1990s an automatic weather station was sited on Lihou (Figure 7). The location is not ideal, as it is overshadowed by a large rocky outcrop but other conservation priorities prevailed. Several years on and we are now downloading data on a daily basis via a GSM modem link. The equipment is driven by battery and solar



power with a data logger recording temperature, humidity, air pressure, solar radiation, rainfall and wind speed and direction – how Dr Hoskins would have envied such labour-saving technology!

## The Guernsey climate

With the mass of historical data now at our disposal, we are able to be fairly specific, not only about the Guernsey climate, but also about climatic trends over the last 164 years. At latitude 49°N, Guernsey lies within the zone of prevailing mid-latitude Westerlies and the local climate is tempered by the waters of the English Channel.

The Guernsey climate is temperate in nature with mild, damp cloudy winters and warm drier sunnier summers. It is interesting to note that subtle differences exist between the airport readings, taken at 101 mamsl, and those of L'Ancrese at only 5 mamsl. Notable differences also occur within the Channel Islands as a whole with the larger island of Jersey to the south-east enjoying higher temperatures in the summer but suffering lower temperatures in the winter (Table 2). Jersey is closer to France, particularly to the east (20 km compared to 35 km for Guernsey), and experiences a more extreme continental influence when the wind is between 070° and 150°. Tables 1 and 2 show the 30-year period monthly averages for temperature, sunshine and rainfall, for Guernsey Airport, L'Ancrese (Cunningham and Lillington, 2005) and Jersey (Le Blancq, 2005).

The temperature data in Table 2 illustrate the adiabatic effects of the 96 m height difference between L'Ancrese and the airport. However, the cliffy southern coastline of Guernsey encourages orographic cloud development that also affects the local air temperature and has an impact on sunshine and rainfall totals. L'Ancrese weather station has proved to be a good ambassador for Guernsey tourism.

With such a wealth of observational data, it is tempting to compare the records that span the 164 years since Dr Hoskins first put his meteorological pen to paper. The changes of site throughout that time make an exact comparison difficult but research has shown that the figures for temperature are reasonably homogeneous. However, Figure 2 illustrates the variation in rainfall across the island based on the Collette survey. His findings are considered accurate enough to justify adjusting the pre-1947 rainfall figures accordingly prior to any comparison being made.

Figure 8 illustrates a rise in the 30-year average of mean air temperature in the region of 1 degC over the last 150 years, which accords with the global pattern and published climate change scenarios produced by BIC (2003) and DEFRA (2005).

**Table 1**

*1971–2000 monthly averages of sunshine and rainfall for Guernsey Airport (Apt.), L'Ancrese (L'Anc.) and Jersey (Fort Regent sunshine and St Louis rainfall).*

	Sunshine hours			Rainfall (mm)		
	Apt.	L'Anc.	Jersey	Apt.	L'Anc.	Jersey
Jan	57.9	62.1	(65.5)	89.2	90.8	(90.4)
Feb	78.4	86.1	(87.8)	76.5	72.3	(73.6)
Mar	126.1	134.8	(134.4)	66.7	61.2	(70.8)
Apr	183.2	194.6	(190.5)	51.1	47.5	(54.4)
May	233.8	247.6	(239.2)	49.6	46.5	(52.0)
Jun	238.2	250.1	(246.6)	46.2	39.7	(48.6)
Jul	248.1	262.5	(257.1)	37.6	33.7	(37.0)
Aug	235.0	247.9	(246.1)	45.8	44.1	(45.6)
Sep	174.0	187.7	(182.3)	66.8	64.2	(70.3)
Oct	118.3	128.2	(123.6)	89.1	85.4	(92.2)
Nov	74.9	79.3	(79.6)	97.9	96.5	(107.9)
Dec	52.2	55.5	(59.4)	107.3	104.5	(110.5)
Year	1819.9	1936.4	(1912.1)	824.0	786.4	(853.3)



Figure 6. Lihou Island viewed across a flooded causeway from Guernsey's west coast. The automatic weather station is located just behind the rocky outcrop on the hilltop to the right of the Island's solitary dwelling house. (© Tim Lillington.)



Figure 7. The Lihou Island automatic weather station. (© Tim Lillington.)

Table 2

1971–2000 monthly averages of maximum, minimum and mean air temperatures for Guernsey Airport (Apt.), L'Ancrese (L'Anc.) and Jersey St Louis observatory.

	Maximum °C			Minimum °C			Mean °C		
	Apt.	L'Anc.	Jersey	Apt.	L'Anc.	Jersey	Apt.	L'Anc.	Jersey
Jan	8.4	9.4	(8.4)	4.7	5.4	(4.3)	6.6	7.4	(6.4)
Feb	8.2	9.4	(8.7)	4.4	4.9	(4.0)	6.3	7.2	(6.4)
Mar	9.6	11.0	(10.9)	5.2	5.8	(5.4)	7.4	8.4	(8.2)
Apr	11.2	12.6	(13.0)	6.2	6.7	(6.6)	8.7	9.7	(9.8)
May	14.4	15.5	(16.6)	8.7	9.1	(9.4)	11.6	12.3	(13.0)
Jun	16.9	17.9	(19.2)	11.1	11.5	(11.8)	14.0	14.7	(15.5)
Jul	19.2	20.1	(21.4)	13.2	13.5	(14.0)	16.2	16.8	(17.7)
Aug	19.5	20.6	(21.8)	13.7	14.1	(14.4)	16.6	17.4	(18.1)
Sep	17.6	18.9	(19.3)	12.5	13.0	(12.9)	15.0	16.0	(16.1)
Oct	14.7	15.9	(15.7)	10.5	11.0	(10.6)	12.6	13.5	(13.1)
Nov	11.4	12.5	(11.8)	7.7	8.2	(7.4)	9.3	10.4	(9.6)
Dec	9.6	10.6	(9.5)	6.0	6.6	(5.5)	7.4	8.6	(7.5)
Year	13.4	14.6	(14.7)	8.7	9.2	(8.9)	11.1	11.9	(11.8)

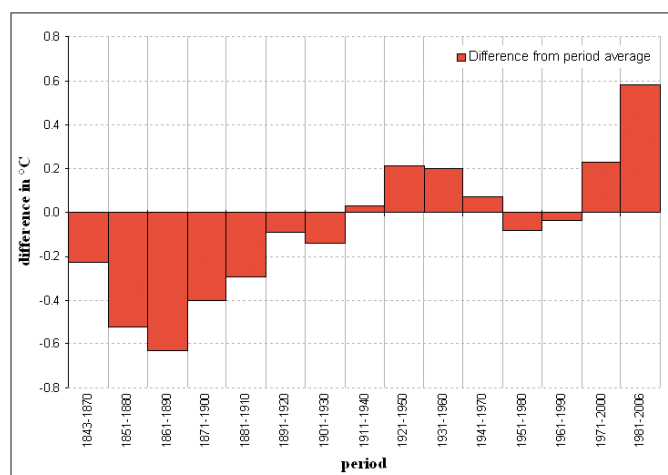


Figure 8. Guernsey – decadal 30-year running average of mean air temperature relative to the long-period average (10.77 degC).

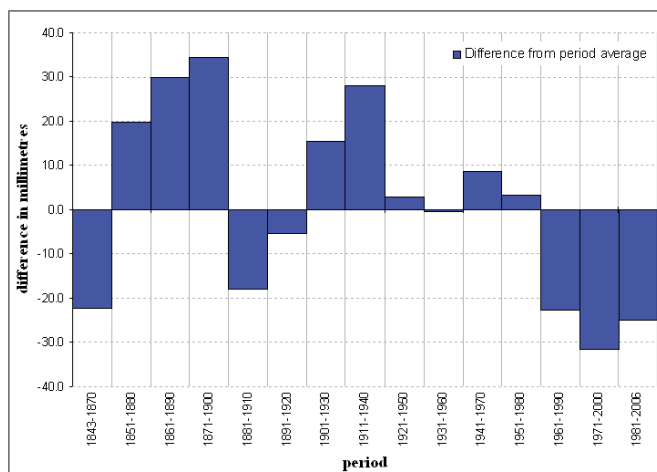


Figure 9. Guernsey – decadal 30-year running average of rainfall relative to the long-period average (855.6 mm).

However the record indicates a greater rise in mean air temperature over the last 20 years of 0.8 degC above the 1843–2006 average. Only time will tell if this is a 'blip' or something longer-lasting.

Figure 9 illustrates that average rainfall is decreasing. The last 50 years have witnessed a decrease in the order of 6% when compared to the second half of the nineteenth century (although it should be remembered that this comparison is contingent on the accuracy of the adjustment of pre-1947 data). Figure 10 shows a 15% reduction in summer/autumn rainfall in the past 150 years and a 10% increase in winter and spring rainfall over the same period. The change to wetter winters and drier summers is predicted in published climate change scenarios, a trend that would impact adversely on local water supplies, which rely heavily on surface water collection.

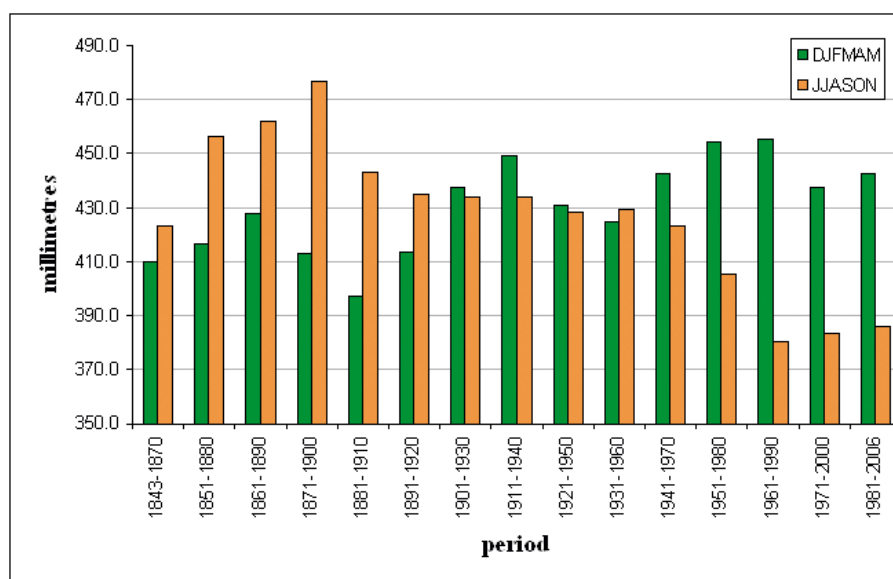


Figure 10. Guernsey – decadal 30-year running average of rainfall – seasonal comparison winter/spring plotted against summer/autumn.

## What happens next?

The last decade has not only seen changes in air temperature and rainfall in Guernsey, but it has also witnessed a revolution in weather observation practices. The first computer was brought into the office in 1996 as part of a new laser ceilometer cloud-base recording installation and this was soon followed by a semi-automatic weather observation system. The old manual methods of taking observations, little changed in 150 years, were, rather sadly, made redundant. Gone were the slide-rule calculations of dew point and humidity, the visual analysis of the wind trace and the calculation by hand of pressure settings. Mercury and alcohol thermometers and the Kew-pattern barometer were consigned to the storeroom, all replaced by the mighty processor.

The Campbell–Stokes sunshine recorder still keeps a proud vigil on the technical block roof but electronic impostors threaten even that. However, that may not be for some time yet if our own electronic sunshine recorder is anything to go by. This equipment has the proud boast of having recorded 24.1 hours of sunshine in one day (precise but not accurate again!). The observer is still left to make some decisions though – visibility, cloud detail and weather are not yet reliably automated, particularly in an island environment, and a working knowledge of the old way must be retained – just in case.

The office is currently striving to transfer the old records into an electronic database, which will allow far more flexibility when handling data. This information has formed the basis of a companion article on climate change in Guernsey (Sparks *et al.* (2007), to be published in next month's *Weather*) and the office has been involved in providing data for several global warming studies including the British–Irish Council's *Scenarios for climate change* (BIC, 2003).

Consider the foresight of the old pioneers of weather observing in Guernsey – Dr Hoskins and Mr Collenette. They could never have envisaged such major issues as global warming, yet they still knew the vital necessity of maintaining an accurate and continuous record so that succeeding generations would have a deeper understanding of our climate to give us a better understanding of 'what happens next'.

## Acknowledgements

The author is pleased to acknowledge the dedicated work of all the Guernsey meteorological observers, both past and present, whose contribution to the local weather record is simply priceless. Thanks must also go to Dr Darryl Ogier, his excellent staff at the island Archives Service and observer

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