The rainfall observers

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Introduction

In 2020, while the UK was in lockdown due to the COVID-19 pandemic, 16 000 volunteers helped transcribe monthly rainfall totals from 347 volumes of the 'ten-year sheets' – a total of 66 000 scanned images (example in Figure 1) – into invaluable digital data. This unique collection of tabulated rainfall data contains more than 5 million hand-written measurements of monthly rainfall amounts, taken all across the British and Irish Isles from the late seventeenth century up to 1960. From 1961 onwards, rainfall records were already held in digital format.

The 'ten-year sheets' were originally prepared and collated by the British Rainfall Organization (BRO) under the leadership of George Symons, and eventually taken over by the Met Office following its absorption of the BRO in 1919 (Mill, 1919; Burt, 2010). The *Rainfall Rescue* project, which transformed the numbers written on these sheets into digital data, is described in detail by Hawkins *et al*. (2023), and the data have since been used by the Met Office to update their national rainfall statistics (Kendon *et al*., 2023). All the images of the sheets are freely available on the Met Office Digital Archive (Met Office, 2020).

Here we focus on the people who took the original measurements: *the rainfall observers*.

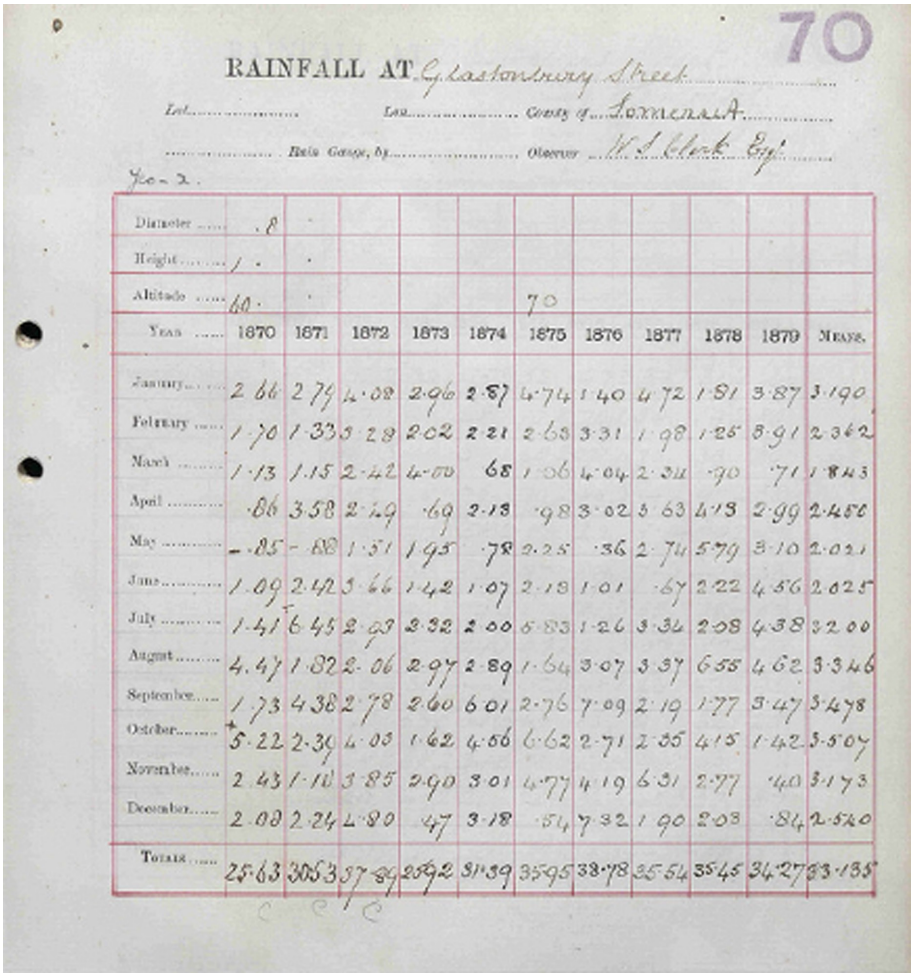
The ten-year rainfall sheets usually provide names, and sometimes titles, of the observers. The majority are men, some doctors (either medical or academic), gentlemen clergy, chief/civil engineers and members of the aristocracy. However, many women also contributed significant observations, for example, Lady Bayning and Mary Katharine Rope (see later).

Many of the observers were enthusiastic 'amateurs', but water supply, railway and sewage companies became more involved in measuring rainfall, particularly in relation to works related to public water supplies, reservoir construction and the like. More information about the observers is only gained by investigating genealogical or census information, where more occupational evidence can often be found. For example, the sheets contain observations made by a mill owner, cotton broker, farmer, head gardener, jeweller, manufacturer of optical instruments, shepherd, etc. The earliest regular observations were made by Richard Townley, starting in 1677 (see Folland and Wales-Smith, 1977), and he published his measurements via the Royal Society's *Philosophical Transactions* journal (Townley, 1694).

Observers with extremely long records

For about 100 years (1867–1965), the annual *British Rainfall* publication contained an obituary section to recognise the long-serving observers who had died since the previous publication (Meats, 2025a). The obituaries provide varying levels of detail, but they usually allow the names and approximate observation period to be deduced for the longest serving observers, although for many of the members of the aristocracy and land-owning classes, the readings were probably taken by gardening or estate staff. For example, at Marchmont House in Berwickshire, the head gardener – Peter Loney and then JA Wood – took the observations for a 50+ year period from the 1860s onwards.

Up to 1965, about 130 observers had been noted as having recorded rainfall for 50 years


RAINFALL AT Glastonbury Street

Year	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	Means.
January	2·66	2·79	4·08	2·96	2·87	4·74	1·40	4·72	1·81	3·87	3·190
February	1·70	1·33	3·28	2·02	2·21	2·68	3·31	1·98	1·25	3·91	2·362
March	1·13	1·15	2·42	4·00	68	1·06	4·04	2·34	·90	·71	1·843
April	·86	3·58	2·49	·69	2·18	·98	3·02	3·63	4·18	2·99	2·456
May	·85	·88	1·51	1·95	·78	2·25	·36	2·74	5·79	3·10	2·021
June	1·09	2·42	3·66	1·42	1·07	2·18	1·01	·67	2·22	4·56	2·625
July	1·41	6·45	2·99	2·32	2·00	6·83	1·26	3·34	2·08	4·38	3·200
August	4·47	1·82	2·06	2·97	2·89	1·64	3·07	3·37	6·55	4·62	3·346
September	1·73	4·38	2·78	2·60	6·01	2·76	7·09	2·19	1·77	3·47	3·498
October	5·22	2·39	4·03	1·62	4·66	6·62	2·71	2·35	4·15	1·42	3·507
November	2·43	1·10	3·85	2·90	3·01	4·77	4·19	6·31	2·77	·40	3·173
December	2·08	2·24	4·80	·47	3·18	·54	7·32	1·90	2·08	·84	2·520
Totals	25·63	30·53	37·84	25·92	31·39	35·95	38·78	35·54	35·45	34·27	33·135

Figure 1. Example ten-year rainfall sheet for the 1870s for the village of Street in Somerset, observed by W.S. Clark.

or more, with the longest record to that date being John D. Walker's 75 years (1873–1947) spread over four sites in the Nottingham area. Figure 2 shows the reporting periods of the longest running observers recorded by *British Rainfall*: all the observers having 60+ years of observations and those with 50+ years who died before 1900. Detailed information about all the sites at which these long observers measured rainfall can be found in the online Supporting Information.

Remarkably, three of the original rainfall observers whose rainfall data were published in Symons's original *English Rainfall 1860* (the original four-page pamphlet included just 168 sites, all but three in England) were still contributing more than 60 years later in *British Rainfall 1922*. The last of the original contributors was William Stephens Clark of Street in Somerset (Figure 1) who died in 1925, having kept a rainfall record since 1857.

Some of the observers with 70 or more years of record were straightforward, such as Sir John Eldon Bankes, of the judiciary, who started recording at Soughton Hall in Northop near Mold in 1877 and continued there until his death in 1946, after which his son, Robert, continued the record, which appeared in *British Rainfall* until 1967. Some took observations at several sites, such as The Mackinnon of Mackinnon who had records from four widely spread locations on the ten-year sheets plus another three listed in *British Rainfall* (but with no matching sheets).

Notable observers

George James Symons FRS (1838–1900) was a zealous observer and, more importantly, was the founder of the BRO in 1860, responsible for collecting the rainfall measurements contained within the ten-year sheets. In 1865, he published '*On the Rainfall of the British Isles*', a 50-page report to the British Association for the Advancement of Science, later reprinted by the BRO as '*Rainfall Investigations from 1677 to 1865*' (Symons, 1865), which listed all known locations in Great Britain and Ireland where rainfall records had been kept, or were believed to have been kept. He also travelled the length and breadth of these islands to personally inspect many of the rain gauges; maps and details of his tours in the 1860s and 1870s are available (Meats, 2025b). To mark the centenary of his birth, the August 1938 edition of *The Meteorological Magazine* (also founded by Symons, in 1866) has an article discussing his rainfall and other scientific work (Mill, 1938), while Walker (2010) published a detailed account of Symons's life's work in the form of the BRO. Also in 2010, on the 150th anniversary of the BRO, the Royal Meteorological Society held a 1-day meeting to commemorate the event and later that year arranged for the refurbishment and rededication of George Symons' gravesite in Kensal Green Cemetery (Burt and Hardaker, 2010).

John Gough (1757–1825), although blind from the age of 3 as a result of smallpox, nevertheless recorded rainfall at several sites in Westmorland – namely Benson Knott, Waith Sutton and within Kendal

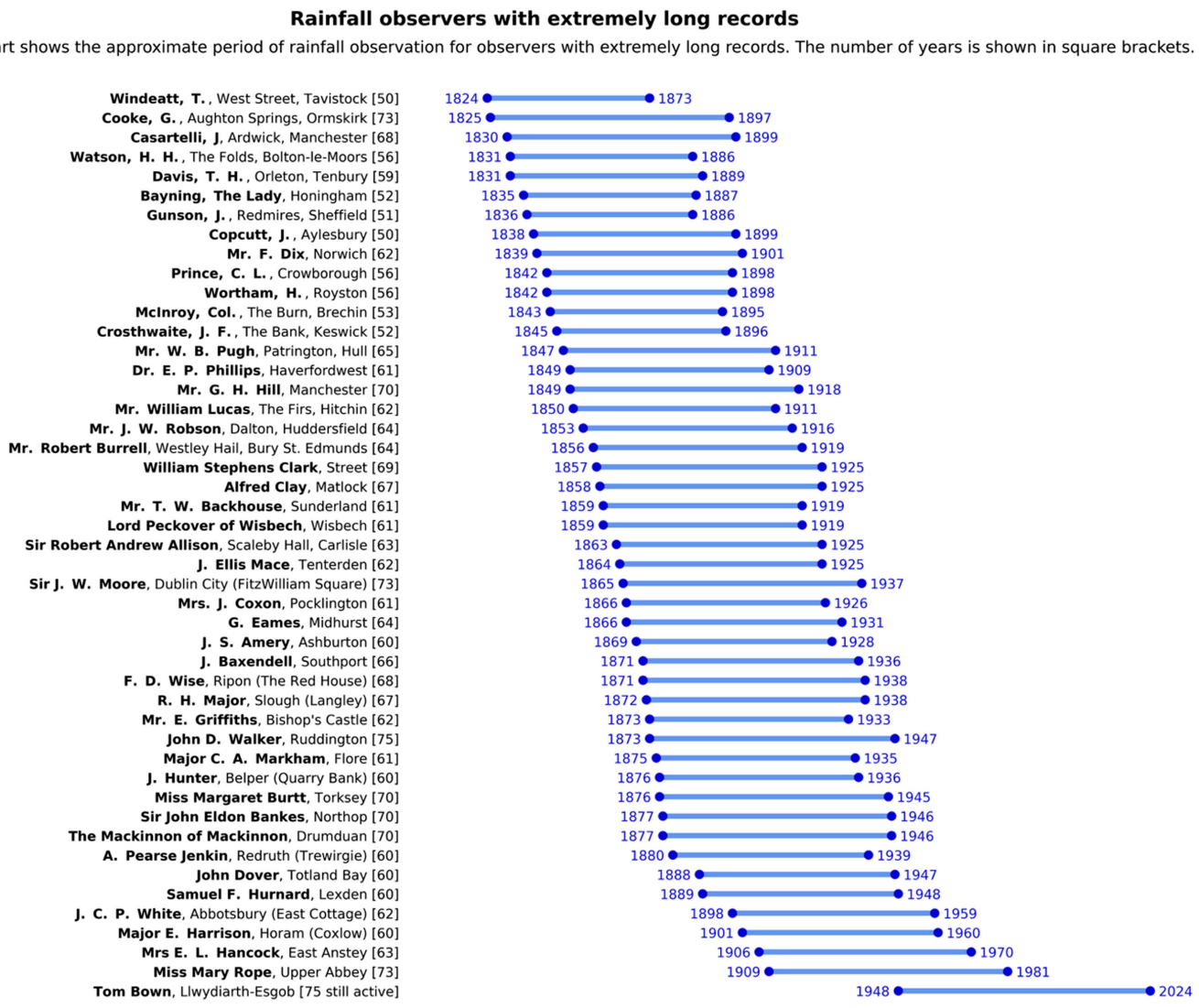


Figure 2. The longest rainfall records by individuals.

town. He also tutored **John Dalton FRS** (1766–1844) who is probably best known for pioneering the development of modern atomic theory and his work on colour-blindness, an affliction that bears his name (Daltonism). However, Dalton also kept a diary of weather observations for over 50 years, starting in 1787 in the Lake District and continued after a move to Manchester in 1793; the last record being on the day of his death. He also describes the rain gauges in use at the time and collated data from Kendal, Keswick and Manchester. **Samuel Marshall** (1792–1869) continued recording at Gough and Dalton's Kendal site from 1809 to 1819, before moving to a new Kendal site from 1822 until his death. A schoolmaster, he published yearly summaries for his and other gauges in the Lake District, among which were Esthwaite, Bowness and Ellery.

This wet region of the UK clearly inspired others such as **Sir Robert Andrew Allison** (1838–1926), who was educated at Rugby and Trinity, Cambridge and later became a director of Midland Railway and Liberal MP for Eskdale, a JP and High Sheriff of Cumberland. He still found time to maintain a climatological station at Scaleby Hall near Carlisle from 1863 to 1925.

George Cooke (1810–1898), with 73 years of observations, was responsible for observing at two locations: at three houses in West Derby (Liverpool) from 1825 to 1862 and then Aughton Springs from 1862 to 1897 (this record carried on to 1912). At Aughton Springs, he was listed as a retired Cotton Broker. It was not until 1887 that he began submitting records for *British Rainfall*; unfortunately, his obituary did not pick up the earlier 37 years at West Derby. Noted as a Quaker, his father, Isaac, was the founder of the Bank of Liverpool, which eventually became Barclays Bank.

Lady Bayning (1807–1887), born Emma Fellowes, recorded rainfall observations continuously for over 50 years between 1835 and 1887. Her recordings fall into three distinct periods as her life circumstances changed. Between 1835 and 1842, her measurements rotate seasonally around three different locations: at Marylebone, London, in spring, Ramsey (Huntingdonshire) in summer and Haveringland near Norwich for the rest of the year. From 1843 to 1847, after marrying Henry William-Powlett (Baron Bayning), her measurements switched to a new pattern: Honingham Hall near Norwich for July–October, and Brome in Suffolk (where her husband was the rector) for the rest of the year. After 1847, she recorded continuously for 40 years at Honingham Hall. Lady Bayning is also recorded as the observer for rainfall sheets for Felthorpe Hall (owned by her mother), about 8km from Honingham Hall, for 1843–1855 and then one further year in 1860.

Also in Norfolk, **Edward Boyce Pomeroy** (1827–1902) was a solicitor, Deputy Superintendent Registrar and church warden living at Vicar Street, Wymondham. He was also a prolific antiquarian and planned Wymondham Abbey church's Great Restoration, but did not live to see it come to fruition. His rain gauge record only ran from 1889 to his death, but his son, **John Bartle Pomeroy** (1868–1952), took up the observations and continued until shortly before his own demise. A joint record of some 62 years.

Reverend Canon James Mourant du Port (1832–1899) was born in Guernsey and educated at Cambridge, later becoming dean of Caius College. He was a keen amateur mycologist, often attending fungus forays in England and France. He observed rainfall first as vicar of Mattishall and later as Rector of Denver, both in the county of Norfolk. He was instrumental in creating the Norfolk Rainfall Organization and became the BRO's County Superintendent, responsible for coordinating Norfolk's gauges. He also supplied the local newspaper, the *Norfolk Chronicle*, with daily rainfall records from 28 sites. The Denver observations were continued after his death by A.W. Preston.

Nearby, **Orlando Whistlecraft** (1810–1893) was born in the small Suffolk village of Thwaite. A poor child, he attended school in Ipswich, returning to his home village to open his own school in 1829. In 1843, he became a grocer in order to devote more time to meteorological studies (he kept a weather diary for 65 years). Also, a part-time artist and poet, he became a pioneer of weather publishing, eventually issuing his annual Weather Almanac (from 1856 to 1884), in which he would offer his observation-based opinion of the nature of each month and season to come. His writings spanned the old and the new, where country lore met the scientific weather recording. His rain gauge record ran from 1830 to 1882, although he began his less formal rain observing at the age of nine. He died in some poverty and is buried in Thwaite, where the modern village sign commemorates his life, depicting the sun, clouds and rain. His weather diaries are scanned and online in the UK National Meteorological Archive (Whistlecraft, n.d.).

Also born in Suffolk was **Mary Katharine Rope BEM** (1896–1982), whose father farmed Lower Abbey in Leiston. She began her rainfall observations in 1909 and continued observing at several different sites over a total of 73 years after becoming the head of a private school in Leiston. She became the first person to receive the British Empire Medal for services to rainfall recording and featured on the front cover of *Monthly and Annual Rainfall Totals for 1982 over the United Kingdom*, the successor title to *British Rainfall*.

In the southwest, **Robert Fowler Sturge** (1835–1915) kept a rain gauge in Clifton for nearly 60 years, across three different sites from 1856 until his death. He worked for the family firm of land agents and surveyors, J P Sturge & Sons, eventually heading the company. He kept extensive weather observations which he analysed and printed in a series of privately published works. In 1882, he was elected a Fellow of the Meteorological Society. **William Stephens Clark** (1839–1925) was born into the Quaker shoe-making family of Street, Somerset. He took over the running of the company in 1863, retrieving it from near-bankruptcy by pioneering new technologies and innovation. The values of the family were extended to their workforce, building low-cost housing, a school, a theatre, a library and even a swimming pool for their use. He recorded rainfall for 69 years (see example in Figure 1). **Mrs E L Hancock** (1876–1971) (née Mary Soames) of East Anstey, Devon, kept a rainfall record for 63 years. She grew up at the vicarage in Mildenhall, Marlborough, Wiltshire, where her father, Rev Charles Soames, kept a gauge. When she moved to Devon in 1905, she started her own observations in three different locations within the same local area. The gauge was moved from her house the year before she died aged 95.

Some of the observers were involved in testing the measuring technology, such as **Charles Higman Griffith** (1830–1896) who was a clergyman who conducted a series of thorough instrument comparisons at his rectory in Stratfield Turgis in Hampshire during the 1860s and 1870s. He played a leading role in the adoption in 1875 of both the Stevenson screen and the five-inch 'Snowdon' rain gauge in the British Isles (see Burt, 2013 for more details). The experiments involved the installation of 42 gauges in his rectory grounds. Griffiths also ran a boarding school, the pupils of which no doubt assisted with the daily gauge readings. The results were compared with other sites, especially that of **Fenwick William Stow** (1841–1904), who was the son of a Leeds cloth merchant and was ordained in 1865. He first took a living in Tunbridge Wells where he recorded rainfall during 1867–1868, after which he moved to Hawsker near Whitby in Yorkshire for 2 years. Here he became fascinated by rainfall and set up 27 gauges – mostly in a paddock adjacent to his home at Brook House (Stow, 1870). He left Hawsker to become the curate of Harpenden, Hertfordshire from 1871, still recording rainfall, and a further move in 1873 saw him ensconced, with family, at the Vicarage in Aysgarth where he remained until his death. He was a prolific correspondent to *Symons's Meteorological Magazine* during the 39 years in which he recorded rainfall. He also discussed the aurora borealis, solar radiation and had robust discussions about rainfall, elevation and exposure with other observers.

Also in Yorkshire, **Alfred Clay** (1842–1925) kept a rainfall record for 67 years, first at Rastrick and latterly at Darley Hall, Derbyshire. He was an avid collector, donating many items to the British Museum, a magistrate and guardian of the Bakewell Workhouse as well as being a keen angler. **William Buckley Pugh** (1820–1912) kept a rainfall record at Patrington near Hull for 65 years. This was initially at the Flax Mill (1847–1882), where he was the manager, and then in Patrington village after his retirement (1883–1911). He had a second property at Dolfor Hall in Montgomeryshire, with its own long rainfall record (1869–1911).

Charles Leeson Prince (1821–1899) was born in Uckfield, Sussex and trained as a surgeon at Guy's Hospital; he practised with his father, who came from a long line of physicians. On his father's death in 1872, Charles moved to Crowborough, his influence helping the area to become known as a health resort. Dr Prince specialised in treatments for epilepsy and hydrophobia (rabies), but he had a multitude of interests away from medicine. He kept rainfall records at both Uckfield and then Crowborough for 56 consecutive years. His name can also be found on records at Brighton, Chichester, Lewes, Lyndhurst and Buxted. Prince was a Fellow of the Royal Astronomical *and* Meteorological Societies, owning an observatory first at Uckfield and later at the summit of Crowborough Hill, at 235m above sea level (Prince, 1885).

William Booth Bryan (1848–1914) is a typical example of a Water Company Civil Engineer. Born in Nottingham, he was articled to **Marriott Ogle Tarbotton** (1834–1887), the Borough Engineer in Wakefield (1855–1859) and a fellow rainfall observer. They both seem to have moved to Nottingham in 1859 when Tarbotton was appointed Borough Engineer and Bryan the Assistant Engineer. In 1873, Bryan was elected Borough Engineer to Burnley and then added the post of Borough and Water Engineer of Blackburn to his portfolio in 1878. In 1882, he joined the East London Waterworks Company, later becoming part of the Metropolitan Water Board in 1904 when he was made their chief executive. In total, he recorded rainfall for 41 years.

Following on the water theme, **Sir Joseph William Bazalgette**, Chief Engineer of London's Metropolitan Board of Works, is chiefly known for designing the sewerage system for central London in response to the 'Great Stink' of 1858. Bazalgette's sewerage system helped to significantly reduce contamination of drinking water by ducting raw sewage underground to designated pumping stations. By removing or significantly reducing the number of harmful bacteria entering the water supply, the new sewerage system resulted in the almost complete elimination of cholera epidemics in areas served by sewers and also significantly reduced outbreaks of typhus and typhoid. It also helped to control sewerage outfall into the Thames; thus helping to partly restore elements of its ecosystem. The system was opened in 1865, although it was another 10 years until it was fully complete. Bazalgette recorded rainfall from three gauges at a property in Westminster Spring Gardens from 1870 to 1879 and then at Battersea Creek and Asylum Road, Peckham, between 1880 and 1889.

Lady Louisa Knightley (1842–1913) née Bowater, married Sir Rainald Knightley, a British politician who became a peer in 1892. She kept rainfall records at Fawsley Hall near Daventry in Northamptonshire from 1880 until her death. Lady Knightley's involvement in support of her husband's election campaigns without herself being able to vote led to an interest in women's suffrage. After her husband's death in 1895, she expanded her activities around women's rights. Unfortunately, Louisa died some years before women were granted the right to vote in the UK.

Dr Alexander Buchan (1829–1907) organised a number of rain gauges across Scotland from about 1864 onwards. He was secretary of the Scottish Meteorological Society for 47 years from 1860, editor of the Society's journal and member of the Council of the Royal Meteorological Society. He was a driving force in setting up the Ben Nevis Observatory in 1883 and is credited with developing the weather map for forecasting, which is still familiar today. Another observer linked to Ben Nevis is **Clement Lindley Wragge** (1852–1922), who was raised in the Churnet valley, Staffordshire and became an avid naturalist. After losing both parents while young, he was taught the rudiments of astronomy and meteorology by his grandmother Emma Wragge. In 1876, he sailed to Melbourne but soon returned to England. In 1881, learning of the Scottish Meteorological Society's plans to establish a weather station on Ben Nevis, Wragge offered to make daily ascents and take observations. Wragge climbed the mountain every day from June to October 1881, while recording the weather including rainfall, a daily round journey of 22km from Fort William. He was subsequently awarded the Society's Gold Medal. On returning to Australia, he helped found the Royal Meteorological Society of Australia, and was then appointed Government Meteorologist for Queensland in 1884. Within 3 weeks of his arrival in Brisbane, over 450mm of rain fell, earning him the nickname 'Inclement' Wragge. His unconventional methods were typified by his practice of naming cyclones in his official reports after the letters of the Greek alphabet but later using the names of figures from Polynesian mythology and also politicians. After his retirement, it would be another 60 years before this idea of naming storms resurfaced. A biography of Clement Wragge has recently been published (Frazer, 2023).

And it is not just past observers we should recognise. In January 2024, **Tom Bown MBE**, from Llwydiarth Esgob on Anglesey, was presented with an award by the Met Office for recording rainfall continuously for 75 years (BBC, 2024). Tom began daily rainfall observations at age 10 in 1948, following on from his grandfather, whose records on the family farm commenced in 1890: he was awarded MBE after 50 years' contributions. And one of the authors of this paper (SB) has recorded rainfall for 54 years, providing an unbroken series to the Met Office since 1974.

Discussion

We are grateful for the dedicated rainfall observing of all these individuals, and the thousands of others who are too numerous to name. Thanks to their collective efforts, the work of the BRO, the Met Office, the National Meteorological Archive and the subsequent transcription of the observations in 2020 by thousands of online volunteers in the *Rainfall Rescue* project, we can now make detailed reconstructions of variations of rainfall across the British and Irish Isles over nearly two centuries.

The detailed UK monthly rainfall series now extends back to 1836, covering the entire reign of Queen Victoria through to King Charles III. The wettest year on record for the UK average is 1872 (1438mm), and the driest is 1855 (787mm), compared to a 1961–1990 climatological average of 1084mm. The wettest month in total is October 1903 (220mm), although February 2020 experienced 214mm and, being a shorter month, has more rain per day on average. It was during that very wet month in 2020 that we first planned how to transcribe the ten-year sheets, fortuitously enabled by a pandemic lockdown, which gave many people the spare time to rescue rainfall observations first noted down on paper decades or centuries earlier.

Figure 3 shows how many rain gauges have monthly data available from 1836 to 2023. The improvement in coverage achieved by the *Rainfall Rescue* project before 1961 is striking, but we also note the recent decline in observations with concern. There are more data available for the 1880s than for the most recent decade. We note that these newly rescued observations have only undergone some basic quality control steps, and many were taken before observation methods were standardised. However, the new detailed rain gauge-based reconstructions show substantial agreement with independent estimates (e.g. fig. 5 in Harvey *et al.*, 2023).

Most of the observers who provided their monthly rainfall totals actually recorded the amount of rain that fell each day. Huge quantities of these daily rainfall observations are also still stored on paper in the National Meteorological Archive. A recent effort has scanned 380 000 sheets (Met Office, 2024),

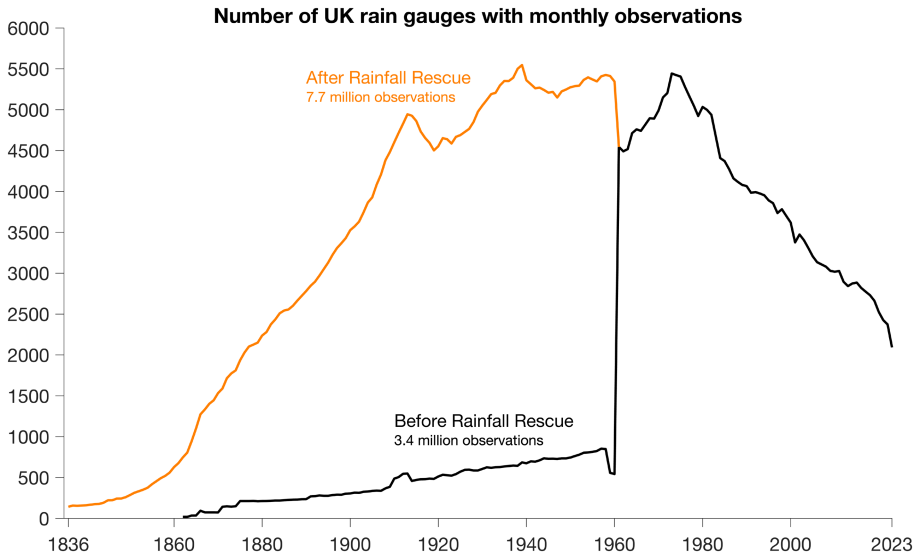


Figure 3. The number of rain gauges with monthly data used by the Met Office to reconstruct variations in rainfall from 1836 to 2023. The Rainfall Rescue *project more than doubled the total number of observations available, with the number available before 1961 increasing by a factor of 9 (from around 0.5 million to 4.5 million).*

probably containing a total of at least 100 million daily rainfall measurements. Future efforts will attempt to turn these hand-written observations into digital data to enhance the historical reconstructions of variations in daily rainfall across the UK back to the 1870s.

Author contributions

Ed Hawkins: Conceptualization; investigation; writing – original draft; writing – review and editing; visualization; data curation. **Stephen Burt:** Conceptualization; investigation; writing – original draft; writing – review and editing. **Richard Meats:** Conceptualization; writing – original draft; visualization; writing – review and editing; investigation; data curation. **Mike Baldock:** Conceptualization; investigation; writing – original draft; writing – review and editing. **Gill Hersee:** Conceptualization; investigation; writing – original draft; writing – review and editing. **Jacqui Huntley:** Conceptualization; investigation; writing – original draft; writing – review and editing. **John O'Grady:** Conceptualization; writing – original draft; writing – review and editing; investigation. **Stephen Packman:** Writing – review and editing; validation; data curation. **Catherine Ross:** Writing – review and editing; writing – original draft; investigation; conceptualization. **Ian Scrimgeour:** Conceptualization; investigation; writing – original draft; writing – review and editing. **Tim Silk:** Conceptualization; investigation; writing – original draft; writing – review and editing.

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Data availability statement

The numbers of observations shown in Figure 3 are taken from the HadUK-Grid dataset: https://catalogue.ceda.ac.uk/uuid/4dc8450d889a491ebb20e724debe2dfb/.

Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.
Data S1.

References

BBC. 2024. Anglesey man has measured the rainfall every day since 1948. https://www.bbc.co.uk/news/uk-wales-68005382 (Accessed 26 September 2025).

Burt S. 2010. British rainfall 1860–1993. *Weather* **65**: 121. https://doi.org/10.1002/wea.603

Burt S. 2013. An unsung hero in meteorology: Charles Higman Griffith (1830–1896). *Weather* **68**: 135. https://doi.org/10.1002/wea.2059

Burt S, **Hardaker P**. 2010. Symons gravesite re-dedication – a unique and memorable Society event. *Weather* **65**: 340–342. https://doi.org/10.1002/wea.743

Folland CK, **Wales-Smith BG**. 1977. Richard Towneley and 300 years of regular rainfall measurement. *Weather* **32**: 438–445. https://doi.org/10.1002/j.1477-8696.1977.tb04501.x

Frazer I. J. 2023 Rain God. https://www.raingod.com.au/ (Accessed 26 September 2025).

Harvey B, **Hawkins E**, **Sutton R**. 2023. Storylines for future changes of the North Atlantic jet and associated impacts on the UK. *Int. J. Climatol.* **43**(10): 4424–4441. https://doi.org/10.1002/joc.8095

Hawkins E, **Burt S**, **McCarthy M** ***et al***. 2023. Millions of historical monthly rainfall observations taken in the UK and Ireland rescued by citizen scientists. *Geosci. Data J.* **10**: 246–261. https://doi.org/10.1002/gdj3.157

Kendon M, **McCarthy M**, **Jevrejeva S** ***et al***. 2023. State of the UK Climate 2022. *Int. J. Climatol.* **43**(S1): 1–82. https://doi.org/10.1002/joc.8167

Meats, R. 2025a. British rainfall obituaries. https://github.com/rjmeats/BritishRainfall/blob/master/Obituaries/BR_Obituaries.pdf (accessed 9 September 2025).

Meats, R. 2025b. Symons BAAS inspections 1862–1876. https://github.com/rjmeats/BritishRainfall/tree/master/BritishAssociationReports (accessed 9 September 2025).

Met Office. 2020. Ten-year rainfall. https://digital.nmla.metoffice.gov.uk/SO_d383374a-91c3-4a7b-ba96-41b81cfb9d67/ (Accessed 26 September 2025).

Met Office. 2024. Daily rainfall. https://digital.nmla.metoffice.gov.uk/index.php?name=SO_9903efdf-7f99-4cae-a723-8b3f426eea20 (Accessed 26 September 2025).

Mill HR. 1919. The British Rainfall Organization and the meteorological office. *Symons's Meteorol. Mag.* **54**: 73–74.

Mill HR. 1938. The scientific work of George James Symons, F.R.S. *Meteorol. Mag.* **73**: 165–168. https://digital.nmla.metoffice.gov.uk/IO_1c922c6a-d093-4bf2-a979-3e1ab8afd627/ (Accessed 26 September 2025).

Prince, C. L. 1885 Observations upon the topography & climate of Crowborough Hill, Sussex, together with other subjects of collateral interest. https://archive.org/details/cu31924004006460 (Accessed 26 September 2025).

Stow FW. 1870. Rain gauge experiments at Hawsker, near Whitby, Yorkshire, in Symons British Rainfall. Edward Stanford: London, Vol. **1870**, pp 9–22.

Symons, G. 1865. http://storage.lib.uchicago.edu/pres/2014/pres2014-0568-02.pdf (Accessed 26 September 2025).

Townley R. 1694. VI. A letter from Richard Townley, of Townley in Lancashire, Esq; containing observations on the quantity of rain falling monthly, for several years successively: communicated to the Royal Society. *Philos. Trans.* **18**: 51. https://doi.org/10.1098/rstl.1694.0014

Walker M. 2010. The man behind the British Rainfall Organization. *Weather* **65**: 117–120. https://doi.org/10.1002/wea.595

Whistlecraft, O. n.d. https://digital.nmla.metoffice.gov.uk/SO_c2e13ee1-92ae-4025-80ea-1afed9e87c51 (Accessed 26 September 2025).

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