Homogenisation and analysis of an expanded long-term monthly rainfall network for the Island of Ireland (1850-2010)

Supplementary Information

SI 1.0 Bridging of discontinuous stations

Bridging was required for three of the new series and ten stations in the CRU archive because of station closures/moves. Bridging was undertaken using seasonal regression on overlapping records to derive adjustment factors. For each station, details on derived regressions and adjustment factors are given in SI Table 1. All regression models were significant at the 0.05 level. For these stations appropriate bridging stations could be found in close proximity. The poorest regressions were derived for Roches Point, Derry, Belfast and Ardara where a lack of suitable local bridging stations meant candidates were derived from further afield. However, with the exception of Enniscorthy, all seasonally derived correction factors are <10% but typically much lower (SI Table 1).

For the three discontinuous series the majority of bridging steps result in seasonally derived adjustments that are typically within ±5% (SI Table 1). For Rathdrum and Athboy, bridging with Shillelagh and Frankville House respectively show larger adjustments (Shillelagh winter and spring; Frankville House all seasons). For Rathdrum, available records were transcribed from 1908-1958 and extended to 1875-2010. Records at Shillelagh were seasonally adjusted and used to infill missing records at the primary station for the period 1919-1925 using seasonal regressions derived for the overlapping period 1909-1940 (R^2 > 0.66 for all seasons). Longer records available for Bray were next used to extend the record to 1875 using seasonal adjustments developed for the overlapping period 1908-1915 (R^2 0.67 in spring; 0.98 in winter). Finally, the extended series was updated to 2010 by bridging to the composite series from local records through seasonal adjustments developed over the period 1941-1958 (R^2 > 0.90 in all seasons).

At Athboy transcribed records cover the period 1932-1968. Bridging facilitated reconstruction of the series from 1890-2010. Data from Summerhill House was used to extend the record to 1896 using seasonal adjustments developed from the overlapping period 1932-1950 (R^2 ranging from 0.72 in winter to 0.85 in autumn). Records for Frankville House were then used to extend adjusted series back to 1890 using adjustment factors developed for the overlapping period 1896-1940. Composite series derived from local stations were used to update the record to 2010 based on seasonal adjustments derived from the period 1941-1968 (R^2 ranges from 0.90 in summer to 0.94 in spring and autumn). Finally, for Strokestown hard copy records were transcribed from 1908 to station closure in 1961. A composite of local stations were used to update the record to 2010 based on seasonal adjustment factors derived from the overlapping period 1944-1968. Seasonal regressions for this site had R^2 values of 0.95 in winter and summer and 0.98 in spring and autumn.

SI Table 1 Bridging metrics for 13 stations (3 archived stations followed by 10 CRU stations). Details of the donor station(s) are provided together with overlapping years on which seasonal regression models were derived. The quality of the bridging is shown by the amount of explained variance (R^2), Mean Absolute Error (MAE) and derived seasonal Correction Factor (CF). All regression models are significant ($p<0.05$).

Primary station	Donor Station(s)	Overlapping	Winter	Spring	Summer	Autumn
520 Rathdrum 1908-1958	Bray	1908-1915	R^2= 0.983	R^2 = 0.865	R^2 = 0.983	R^2 = 0.678
		N=8	CF x 1.014	CF x 0.990	CF x 0.986	CF x 0.979
			MAE -0.65	MAE 0.15	MAE -0.57	MAE 0.10
	Shillelagh	1909-1940	R^2= 0.665	R^2 = 0.689	R^2 = 0.676	R^2 = 0.799
		N=25	CF x 0.855	CF x 0.877	CF x 0.992	CF x 0.955
			MAE 2.82	MAE 1.16	MAE 0.39	MAE -1.36
	624, 1024, 1124 Roundwood	1943-1958	R^2 =0.945	R^2 =0.928	R^2 = 0.868	R^2 = .949
		N=16	CF x 0.986	CF x 0.948	CF x 1.00	CF x 0.945
			MAE -0.84	MAE -1.48	MAE 0.32	MAE -1.00
1031 Athboy 1932-1968	231 Frankville House	1896-1940	R^2 = 0.775	R^2 = 0.826	R^2 = 0.779	R^2 =0 .832
		N= 33	CF x 1.188	CF x 1.125	CF x 1.094	CF x 1.177
			MAE 0.28	MAE -0.21	MAE 0.66	MAE -0.29
	Summerhill House	1932-1950	R^2 = 0.719	R^2 = 0.822	R^2 =0 .723	R^2 =0 .852
		N=18	CF x 0.951	CF x 0.971	CF x 0.968	CF x 0.957
			MAE 0.15	MAE 1.14	MAE 0.68	MAE 0.31
	2931 Warrenstown; 1731 Ballivor GS; 431 Dunsany Castle; 931 Kells; 2531 Navan; 2531 Navan	1941-1968	R^2 =0 .921	R^2 = .9359	R^2 =0 .8962	R^2 =0 .942
		N=27	CF x 0.993	CF x 0.992	CF x 0.971	CF x 1.041
			MAE 0.08	MAE 0.28	MAE 0.40	MAE 0.04
229 Strokestown 1908-1961	Strokestown GS; Tulsk GS; Elphin, Dromod, Drumsna	1941-1961	R^2 = 0.951	R^2 = 0.976	R^2 =0 .952	R^2 = 0.978
		N=18	CF x 0.956	CF x 0.957	CF x 0.938	CF x 0.952
			MAE -0.03	MAE 0.02	MAE 0.18	MAE 0.49
119 Birr 1845-2000	Birr	1958-2000	R^2 = 0.996	R^2 = 0.997	R^2 =0 .994	R^2 = 0.997
		N=53	CF x 0.999	CF x 1.00	CF x 0.9936	CF x 0.997
			MAE 0.29	MAE 0.58	MAE -0.43	MAE 0.07
841 Ardara 1870-1994	441 Glenties	1941-1994	R^2 = 0.73	R^2 = 0.86	R^2 =0 .63	R^2 = 0.83
		N=55	CF x 0.94	CF x 0.93	CF x 0.911	CF x 0.94
			MAE 2.54	MAE 4.72	MAE 6.93	MAE 5.27
Belfast 1819-1976	Hillsborough	1961-1976	R^2 = 0.80	R^2 = 0.82	R^2 =0.88	R^2 = 0.84
		N=16	CF x 0.83	CF x 0.85	CF x 0.81	CF x 0.85
			MAE 0.53	MAE 0.78	MAE 0.70	MAE 4.92
3106 Cappoquinn 1870-1994	1106 Cappoquinn	1945-1994	R^2 = 0.97	R^2 = 0.98	R^2 =0.98	R^2 = 0.95
		N=49	CF x 1.00	CF x 0.99	CF x 0.99	CF x0.98
			MAE 1.23	MAE 0.54	MAE 0.89	MAE 1.28
Derry 1861-1976	Coleraine Cutts	1961-1976	R^2 = 0.92	R^2 = 0.66	R^2 =0.39	R^2 = 0.86
		N=16	CF x 0.98	CF x 0.99	CF x 0.96	CF x0.99
			MAE 1.23	MAE 0.54	MAE 0.89	MAE 1.28
2715 Enniscorthy 1870-1994	4015 Enniscorthy Brownswood	1966-1994	R^2 = 0.92	R^2 = 0.85	R^2 =0.79	R^2 = 0.89
		N=29	CF x 0.74	CF x 0.75	CF x 0.83	CF x 0.83
			MAE -0.02	MAE 2.41	MAE 1.64	MAE 1.07
3205 Killarney 1861-1994	3205 Killarney	1969-1994	R^2 = 0.74	R^2 =0.93	R^2 = 0.78	R^2 = 0.81
		N=26	CF x 1.19	CF x 0.93	CF x 1.10	CF x 1.13
			MAE 9.21	MAE 4.54	MAE 3.07	MAE 7.53
636 Markree 1833-1995	Markree	1940-1995	R^2 = 0.94	R^2 = 0.96	R^2 =0.97	R^2 = 0.96
		N=56	CF x 1.01	CF x 1.01	CF x1.01	CF x 1.02
			MAE 0.82	MAE 2.04	MAE 2.60	MAE 2.40
Roches Point 1890-1990	Cork	1890-1990	R^2 =0 .70	R^2 = 0.67	R^2 =0.63	R^2 = 0.68
		N=101	CF x 1.14	CF x 1.07	CF x 0.97	CF x 1.07
			MAE 4.02	MAE 2.78	MAE 5.15	MAE 33.61

112	7412 Waterford	1966-1994	$R^2 = 0.80$	$R^2 = 0.95$	$R^2 = 0.61$	$R^2 = 0.57$
Waterford	Adamstown	N=28	CF x 1.03	CF x 1.09	CF x 1.01	CF x 1.01
1843-1994			MAE 0.18	MAE 3.17	MAE 2.23	MAE 11.47

SI 2.0 Station Metadata

Metadata Contents list

Note: All metadata contained in these tables has been directly transcribed from original source.

Station name and County	Composite Stations, Period ,Correction factors (CF) ,Gauge information where available: Gauge Diameter-Rim height above ground ,altitude above sea level in feet	Station Notes
Ardara, Donegal	Londonderry (Tabony) 1870-1994 CF 1.57 - Inver Globe 1875-1882 CF 1.34 - Londonderry (Tabony) 1883-1886 CF 1.57 - Killybegs 1887-1909 CF 1 - Killybegs Rockmount 1910-1931 CF 0.987 - Londonderry (Tabony) 1932-1934 CF 1.57 - Dunkineely 1935-1940 CF 1.42 - Londonderry (Tabony) 1941-1950 CF 1.57 - Ardara, Wooodhill 1951-1980 CF 1 - Bridged to 2010 using Glenties Hatchery 1923-2013 Winter CF 0.94, Spring CF 0.93, Summer CF 0.91, Autumn CF 0.94.	Constructed by Briffa (1984) using the 10 year sheets of the rainfall Archives of the UK Met Office before 1940 and post 1940 from the Irish Met service. Also records from Tabony were used for certain periods. Update in Jones and Conway 1997 up to 1994 using data from Met Eireann. Ardara was updated from Glenties Hatchery stno 441 from 1994-2010 for this research.
Killarney, Kerry	Valentia 1861-1881 CF 0.91 - Killarney, Kerry 1882-1899 CF 0.93 - Killarney Asylum 1900-1971 CF 1 - Valentia 1972-1976 CF 0.91 - Killarney Asylum 1976-1980 CF 1 - Killarney stno 3205 1968-2013 Winter CF 1.19, Spring CF 0.93, Summer CF 1.10, Autumn CF 1.13.	Constructed by Briffa (1984) using the 10 year sheets of the rainfall Archives of the UK Met Office before 1940 and post 1940 from the Irish Met service. Also records from Tabony were used for certain periods. Update in Jones and Conway 1997 up to 1994 using data from Met Eireann. Killarney was updated from Killarney stno 3205 from 1994-2010 for this research.
Cappoquinn, Waterford	Cappoquinn 1870-1877 CF 1.39 - Clonmel, Glenam 1878-1878 CF 1.45 - Cappoquinn 1879-1879 CF 1.39 - Clonmel , Glenam 1880-1884 CF 1.45 - Cappoquinn, Mt Melleray 1885-1907 CF 1.25 - Lismore Castle 1908-1908 CF 1.45 - Cappoquinn, Mt Melleray 1922-1925 CF 1.15 - Cork (Tabony) 1926-1926 CF 1.31 - Knockaderry Res no 1 1927-1930 CF 1.37 - Knockaderry Res no 2 1931-1933 CF 1.32 - Lismore Castle 1934-1940 CF 1.31 - Knockaderry Res no 1 1941-1943 CF 1.28 - Cappoquinn, Mt Melleray 1944-1973 CF 1 - Knockaderry Res no 1 1974-1978 CF 1.28 - Cappoquinn, Mt Melleray 1944-1980 Winter CF 1, Spring CF 0.99, Summer CF 0.99, Autumn CF 0.98.	Constructed by Briffa (1984) using the 10 year sheets of the rainfall Archives of the UK Met Office before 1940 and post 1940 from the Irish Met service. Also records from Tabony were used for certain periods. Update in Jones and Conway 1997 up to 1994 using data from Met Eireann. Cappoquinn was updated from Cappoquinn (Mount Mellery) stno 1106 from 1994-2010 for this research.

Station name and County	Composite Stations, Period ,Correction factors (CF) ,Gauge information where available: Gauge Diameter-Rim height above ground ,altitude above sea level in feet	Notes
Belfast, Antrim	Linen Hall 1812-1831 CF 1.2 11 inch gauge 4ft above ground ALT 12 - Corsewell Pt 1832-1835 CF 1.17 11 inch gauge 4ft above ground ALT 12 - Linen Hall 1836-1859 CF 1.2 5 inch gauge 4 ft 9 inch above ground ALT 17 - Queens College 1860-1904 CF 1.2 5 inch gauge 4 ft 9 inch above ground ALT 17 - Queens College 1905-1955 CF 1.17 - Lagmore Reservoir 1956-1977 5 inch gauge 1 ft above ground ALT 58. Updated using Hillsborough Winter CF 0.83, Spring CF 0.85, Summer CF 0.81, and Autumn CF 0.85.	Constructed by Tabony 1980. 1832-1835 incomplete, 1871-1874 missing, moved to Royal Academic Institute. 1902 estimates, Inspections in 1919 & 1927 good. 1958 inspection; over exposed NE & SE non- standard turf wall. Records bridged from 1977 to 2010 using records at Hillsborough station for this research. The ratio of 1.173 between Lagmore and Queens College is obtained from an overlap 1939-1955. The raising of the ratio to 1.208 before 1905 when Queens College gauge was elevated is obtained from overlap between Queens College and Springfield 1899-1910. The ratio between Linen Hall and Queens College was 1.06 over the period 1860-1903, but 0.91 in period 1852-1859. The homogenised record has been created by assuming a ratio of 1, then higher altitude of Queens College cancelling the effect of the raised suite of the gauge. The Belfast record before 1860 must therefore be open to considerable doubt. The missing data from the Linen Hall from 1832-1835 was obtained from Corsewell Point based on the overlap with the complete Belfast record from 1840-1960.
Derry, Derry	Londonderry Literary Association 1861-1864 CF 1.08 12 inch gauge 40 ft above ground ALT 50 - Londonderry, Moneydigs 1865-1910 CF 1.05 5 inch gauge 1 ft above ground ALT 80 - Limavady, Drenagh 1861-1933 5 inch gauge, 1 ft 6 inch above ground ALT 60 - Londonderry, Moneydigs 1934 onward CF 1.05 5 inch gauge 1 ft above ground ALT 121. Updated to 2010 using Coleriane, Winter CF 0.98, Spring CF 0.99, Summer CF 0.96, and Autumn CF 1.28.	Constructed by Tabony 1980. Howard gauge in middle of lawn,1916-50 rejected, 1956 NP high, 1958 inspection of gauge poor but very good site, 1898 gauge moved 42 yards south, 1925-37 missing, New gauge in almost same place as original .1965 inspection no better site. Records bridged from 1976 to 2010 using records at Coleraine station for this research.

Station name and County	Composite Stations, Period ,Correction factors (CF) ,Gauge information where available: Gauge Diameter-Rim height above ground ,altitude above sea level in feet	Notes
Phoenix Park Dublin	Phoenix Park 1837-1852 CF 1.04 gauge 8ft above ground ALT 167 - Phoenix Park 1853-1854 CF 1.05 gauge 10ft above ground ALT 159 - Phoenix Park 1855-1860 CF 1.035 gauge 3ft and 10ft above ground ALT 159 - Phoenix Park 1861-1862 CF 1.035 gauge 6 ft 6 inch above ground ALT 166 - Phoenix Park 1863 CF 1.05 gauge 10 ft above ground ALT 159 - Phoenix Park 1864 CF 1.04 gauge 7 ft above ground ALT 166 - Phoenix Park 1865-1869 CF 1.04 gauge 10 ft above ground ALT 169 - Phoenix Park 1870-1872 CF 1.05 gauge 10 ft above ground ALT 170 - Phoenix Park 1873 CF 1.05 gauge 10ft above ground ALT 159 - Phoenix Park 1874-1875 CF 1.05 gauge 10ft above ground ALT 170 - Phoenix Park 1876-1877 CF 1.01 gauge 2ft 7 inch above ground ALT 170 - Phoenix Park 1878-1879 CF 1.015 gauge 3ft above ground ALT 163 - Phoenix Park 1880-1892 CF 1 gauge 1ft above ground ALT 164 - Phoenix Park 1893 onward CF 1 1ft above ground ALT 155.	Constructed by Tabony 1980. Some of these changes in altitude may be due to re-surveys.the multiplying factors used are related to the height of the rim of the gauge above ground and are determined from overlaps with gauges at Trinity College and Monkstown. Inspection 1906 very clear open site. 1913 the observatory is in an open filed surrounded by plantation of firs. No conspicuous object within distance. Gauge moved 2.4m NW 1920.1924 Inspection satisfactory.1936 gauge moved 91m East. Records appended and updated from 1994 to 2010 from Phoenix Park station records for this research.
Birr, Offaly	Port Arlington 1845-1861 CF 1.095 15 inch square gauge 12 ft above ground ALT 236 - Birr Castle 1862-1872 8 inch gauge 8 inch above ground ALT 200 - Birr Castle 1873-1879 8 inch gauge 8 inch above ground ALT 183 - Birr Castle 1880-1883 8 inch gauge 8 inch above ground, ALT 180 - Birr Castle 1884-1886 8 inch gauge 11 inch above ground ALT 170 - Birr Castle 1887-1889 8 inch gauge 8 inch above groundALT 180 - Birr Castle 1890-1909 8 inch gauge 11 inch above ground ALT 180 - Birr Castle 1910-1914 8 inch gauge 1ft above ground ALT 183 - Birr Castle 1915-1932 8 inch gauge 1ft above ground ALT 175 - Birr Castle 1933-1940 8 inch gauge 1ft above ground ALT 173 - Birr SWS 1941- onward 8 inch gauge 1ft above ground ALT 173- Bridged and updated from 2000 to 2010 using records at current Birr station, Winter CF 0.99 , Spring CF 1.00, Summer CF .99, Autumn CF 0.99.	Constructed by Tabony 1980. The ratio of 1.095 comes from an overlap 1866-1885. From 1862 to 1865, Port Arlington was too high. Gauge change around 1860 from 15 inch square to 8 inch round. Comparison with neighbouring stations suggests no corrections for changes of gauge before 1865.1872 estimated. 1941 onwards regarded as continuation of Birr Castle. Records updated from 2000 to 2010 from records at Birr station for this research.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Valentia, Kerry	Knightstown, Valentia Island 1861-1865 CF 1.025 8 inch gauge 2ft 6 inch above ground 38 - Valentia Observatory, Valentia Island 1866 - 1875 CF 1.025 8 inch gauge 3 ft above ground ALT 11 - 1876-1879 CF 1.025 8 inch gauge & 2 ft above ground 12 - 1880-1892 CF 1.025 11 inch gauge 2 ft above ground ALT11 - Valentia Observatory, Mainland 1893 CF 1.01 8 inch gauge 2 ft above ground ALT 40 - 1894 -1908 8 inch gauge 2 ft above ground ALT 32 - 1909 8 inch gauge 2 ft above ground ALT 62 - 1910-1913 8 inch gauge 2 ft above ground ALT 45 - 1914-1920 11 inch gauge 2ft 8 inch above ground ALT 30 - 1921-1932 8 inch gauge 1ft above ground ALT 30 - 1933-1940 8 inch gauge 1ft 3 inch above ground ALT 30.	Constructed by Tabony 1980 Met Service Monthly weather report station moved from Valentia Island to mainland in 1892.Values from 1921 onwards are as published for Valentia. From 1893-1920 values have been increased by 1% to account for the elevated height of the rim of the gauge above ground. For the change to mainland station, values have been adjusted to take account of a change in average rainfall of 1380mm on the island to 1400mm on mainland site. Knightstown records from 1861-1865 has been regarded as homogenous Appended to 2010 for this research using current station records at Valentia no correction factor needed.
Cork Airport, Cork	Royal Institute (RI) 1836-1845 CF 1.28 - Royal Institution 1846-1851 CF 0.86 - Royal Institution 1852-1884 CF 1.28 - Royal Institution 1836-1884 10 inch gauge 50ft above ground ALT 68 - University College (UCC)1885-1975 - University College 1862-1869 8 inch gauge 5ft above ground ALT 59 1870-1875 8 inch gauge 1ft above ground ALT 65 1876-1975 8 inch gauge 1ft above ground ALT 65.	Constructed by Tabony 1980. New funnel 1877 inspection satisfactory 1931-1940. The UCC gauge in middle of plot of grass in Botanic gardens 1909 Dr Mills report gauge in good condition, free exposure, the RI gauge was on apex of a roof. Changes in altitude at the two stations, as given by the 10 year sheets are clearly due to re-surveys. From 1862-1875 when the UCC gauge was 1.68m above ground, the ratio UCC/RI =1.234.No significant seasonal variation in then ratio was found. Comparisons between UCC and Inistogue suggest that lowering the UCC gauge from 1.8m to 0.3m increases the rainfall by 3.7%.This value has low confidence but seems reasonable. Station prior to 1961 was UCC at an altitude of 17 metres after 1961 records were found to be from Cork Airport at an altitude of 155 metres above sea level. Thus the ratio between UCC gauge at 0.3m and the RI =1.234 x1.037=1.28.Comparisons between the RI and Waterford between 1862-1875 give a ratio of 1.25 a level which is generally maintained to the start of the Waterford record in 1841. 1846-1851 there is a marked discontinuity when the ratio drops to 0.844.The RI is recording far too much perhaps due to use of incorrect measure. 1846-1851 the ratio UCC/RI has been taken as 1.28 x 0.844/1.25=0.864.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Waterford, Waterford	Inistogue 1843-1859 CF 0.995 5 inch gauge 4 ft above ground ALT 116 - 1860-1869 CF 0.995 5 inch gauge 4 ft above ground ALT 316 - 1870 - 1899 CF 0.995 5 inch gauge 4 ft above ground ALT 400 - 1905-1924 CF 0.985 5 inch gauge 1 ft above ground ALT 400 - Brook Lodge 1875-1878 5 inch gauge 3 ft 8 inch above ground ALT 175 - 1879-1899 5 inch gauge 1 ft above ground ALT 100 - 1900-1931 CF 0.985 5 inch gauge 1 ft above ground ALT 104 - Gortmore 1906-1909 5 inch gauge 1ft 6 inch above ground ALT 100 - 1910-1912 5 inch gauge 1 ft above ground various - 1913-1917 5 inch gauge 1 ft above ground various - 1918 5 inch gauge 1 ft above ground ALT 120 - 1919 5 inch gauge 1 ft above ground ALT 120 - 1920-1948 CF 0.953 5 inch gauge 1 ft 2 inch above ground ALT 137 - Tycor 1938-1971. Bridged and Updated to 2010 using Waterford, Adamstown Winter CF 1.03, Spring CF 1.09, Summer CF 1.01, and Autumn CF 1.01.	Constructed by Tabony 1980. Constructed by Tabony 1980. In 1909 Dr Mill's report: Gauge on open lawns excellently exposed in garden. Records very carefully kept and diagrams for each year and for years total kept in separate book. Dr Mills gauge in open lawns excellent exposure. In this position a year previously less well exposed. In 1.1 m enclosure Camden glass. A number of altitude changes-gauge moved 2 km south Gauge moved north. 1936 inspection site too sheltered moved to centre of new site. Gortmore/Tycor overlap is for 11 years 1938-1948.The Gortmore/Insitogue overlap is for the period 1906-1924 and Brook Lodge/Inistogue overlap is for 1880-1899 and 1910 to 1919. 15 added to Inistogue before 1899 because of the elevated rain gauge. No adjustments were made as a result of the reported changes of altitude in the early part of the Inistogue record. Bridged up to 2010 using records at Waterford Adamstown stno 7412 for this research.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Markree Castle, Sligo	Constructed by Tabony 1980 using Markree Castle records. Wall gauge 1833-1859 2ft 7 inch square gauge 16ft above ground ALT 145- 1860-1869 2 ft square gauge 16 ft 3 inch above ground ALT 145 - 1870-1873 2ft 7 inch square gauge 16 ft 3 inch above ground ALT 148 - 1875 2ft 3 inch square gauge 16 ft 3 inch above ground ALT 148 - 1876 2ft 3 inch square gauge 16 ft 3 inch above ground ALT 148 - 1880-1882 2ft 7 inch square gauge 16 ft 7 inch above ground ALT 148 - 1883 2ft 7 inch square gauge 16 ft 7 inch above ground 148 - 1884-1886 2ft 7 inch square gauge 16 ft 7 inch above ground ALT 148.Comments: The two gauges overlapped in year 1870-73,1875-76, 1880-82 and 1884-86.The effect of the leak in the wall gauge from 1880-1882 is clearly discernible. The remaining 9 years overlap have steady ratio of 1.119. No seasonal variation in the ratio was found. . No seasonal variation in the ratio was found. Remarks: 1883 wall gauge records missing leak discovered. 1877-1879 estimates form wall gauge, 1884 part estimates from wall gauge. 1884-1886 Wall gauge shows signs of leakage, record ended in 1886 - Lawn Gauge 1870-1873 5 inch gauge 6 inch above ground -1874-1883 5 inch gauge 6 inch above ground -1884-1902 5 inch gauge 1ft above ground -1903-1905 5 inch gauge 1ft above ground -1906-1915 5 inch gauge 1ft above ground -1916-1917 5 inch gauge 1ft above ground -1918-onward 5 inch gauge 1ft above ground - Records bridged from 1994 to 2010 from records at new Markree station Winter CF 1.01, Spring CF 1.01, Summer CF 1.01, Autumn CF 1.02	1824 Station established in 1824 as astronomical and meteorological station. Astronomy ceased during 1914-18 war as German astronomer was interred. (Telescopes erected in Jesuit College Hong Kong) Met observations continued by his assistant until 01/07/19511833 rainfall 1833-1863 original square gauges (1 square yard) on top of library 16' above ground. 1875-1881 comparison 5" gauge, 6 inches above ground gave a correction figure of- multiply by 1.2045 (Total rainfall 1833-1863= 37.254in (original) becomes 44.87 in corrected). Further detailed info re temp and sunshine averages for these years in file. A history of station from "Symons's Magazine" 1902 in this file.28/03/1939 observations observer to continue after threat of closure. 3 observations per day from now on.26/05/1951 observations observer to retire. (50 years). Will wait until new observer is appointed. 03/07/1951 observations new observer instructed on 3rd and 4th July25/10/1951 inspection satisfactory06/07/1953 inspection screen and gauge need replacing. Bigger enclosure needed. Observer to continue.12/10/1953 enclosure new enclosure laid out.16/10/1953 enclosure fencing complete. New gauge, G-min, screen and thermometers installed.17/10/1953 observations begin at new enclosure.

Station name and County	*Notes, Continued*	*Notes, Continued*
Markree Castle, Sligo	Comparison readings from old enclosure to be taken.25/01/1954 observations comparison readings too variable.02/12/1954 observations comparison readings cease.01/07/1957 rainfall amounts are lower than neighbouring sites rainfall since 1947.17/07/1957 inspection all in order including rain-gauge. No evidence of shading. Higher rainfall in other stations may be due Ox mountains and Lough Gill27/02/1958 inspection all in order. Rain-gauge has not been moved more than a few feet since 1916. Old gauge examined but no fault found. Youngest trees in area over 30 years old.09/12/1959 inspection usual high standard28/06/1960 inspection all in order.21/11/1966 observations observer died.19/01/1967 inspection new observer extra instruction given. Dependable.06/01/1970 Some readings missed (A Week?)04/03/1981 Station old astronomers derelict cottage being renovated and will leave enclosure almost at the front door. (No objection at moment) 04/04/1984 inspection exposure very good.	Excellent station.01/04/1985 observations 10 days missing in April 1985 due observers fear of bull near enclosure.01/04/1985 observations 10 days missing in April 1985 due observers fear of bull near enclosure.12/04/1985 observations note stating regret at break in continuity and looking forward to receiving observations from new site at Colooney.18/04/1985 Station new climate station established at Colooney 2 miles away. Observer from Markree moved here. Screen gauge and rain-recorder. OBEs commence 19/04/1985.22/04/1985 observations new observer in Markree. One daily observation of rainfall and temperature.1874-1876 Casella 2147 (110 ft above sea level, 4" above ground) added in Dec 31 to Jan 1st rainfall (.178) ,Records entered to preceding day, recorded by Master of the Workmen (Jan20th -Jan 27th) and thereafter by Anna Doberck, on gauge Casella 2147 (110 ft above sea level, 5.5" above ground) 1877-1882 Records entered to preceding day, recorded by E Sallis on (148 ft above sea level, 16ft above ground)upper gauge1883-1897 Records entered to preceding day, recorded by A Marsh on (148 ft above sea level, 16ft above ground)upper gauge1888-1892 Records entered to preceding day, recorded by E Reynolds and F W Henkel on (148 ft above sea level, 16ft above ground)upper gauge and additional entries from lower 5" gauge level gauge (1 ft off ground 130 ft abs) from Jan-Dec1888-1892 Records entered to preceding day, recorded by E Reynolds and F W Henkel on (148 ft above sea level, 16ft above ground)upper gauge and additional entries from lower 5" gauge level gauge (1 ft off ground 130 ft abs) gauge level gauge (1 ft off ground 130 ft abs) from Jan-Dec 1893-1897 Records entered to preceding day, recorded by A Marsh and E Reynolds on (148 ft above sea level, 16ft above ground)upper gauge and additional entries from lower 5 gauge level gauge (1 ft off ground 130 ft abs) from Jan-Dec1898-1902 Records entered to preceding day, recorded by E Reynolds and F W Henkel on (148 ft above sea level, 16ft above ground)upper gauge and additional entries from lower 5" gauge level gauge (1 ft off ground 130 ft abs) from Jan-Dec1903-1940 Records entered to preceding day, recorded by JR Armstrong on (148 ft above sea level, 16ft above ground)upper gauge and additional entries from lower 5" gauge level gauge (1 ft off ground 130 ft abs) from Jan-Dec gauge shows signs of leakage , record ended,1833-1869 Wall X1.119.1870 onward Lawn.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Armagh observatory, Armagh	Armagh Observatory 1838-2010 ALT 62	Continuous records 1838-2010, see Butler, *et. al* (1998) for details. Records provided to this research by Armagh Observatory no correction factor needed.
Malin Head, Donegal	Malin Head S.W.S.(Old Site) Stno145 1890-1975 ALT 72 Malin Head (manual) 1976-2010 ALT 72	From 1890 throughout the period covered, the observations taken at Malin Head consistently recorded the following: barometer and thermometer readings, wind direction and force, extreme wind force, weather, rainfall, sea disturbance and general remarks. Three-times-daily readings were taken at 08:00, 14:00, and 18:00 GMT from 1890 until 1905. We do not have the registers for 1906-1908. From 1909 until 1920, the forms changed slightly to allow readings to be taken at 07:00, 13:00, 18:00 and 21:00 GMT, although measurements were not always taken at each of these times. Reading were made at the telegraphic reporting station (Lloyds tower at a height of 230ft and basically on the top of a cliff, In 1921 it moved to the coast guard station and it was at a height of approx 20ft above sea level. The position of the gauge changed a few times on this site. From 1921 until May 1940, the following fields were added: cloud form and amount, direction and speed of upper cloud, visibility, and a weather diary. 'Temperature and humidity' was added as a field in 1931. Readings during this time were most often taken at 01:00, 07:00, 10:00, 15:00, 18:00 and 21:00, though rarely at all 6 times. From June 1940, readings were also occasionally taken at 04:00 and at 13:00 GMT. In 1946 three-times-daily readings were taken at 07:00, 13:00, and 18:00 GMT, until 1950. From 1951 the times changed to 06:00, midday and 18:00, and on some occasions a fourth reading was taken at 21:00 GMT. From 1954 until April 1955 they were taken at 09:00, midday, 18:00 and at 21:00. In May 1955 a new station opened in Malin Head, and from then on readings were taken on the hour.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Roches Point, Cork	Bridged and updated to 2010 using records at Cork Airport Winter CF 1.14, Spring CF 1.07, Summer CF 0.97, and Autumn CF 1.07.	From July 1873, the registers recorded measurements of the following phenomena: barometer and thermometer readings, wind direction and force, amount of cloud, weather, rain, sea disturbance, and general remarks on the appearance of the weather or on any exceptional phenomena. The daily observations were taken at 8:00, 14:00, and 18:00 GMT, and in August of 1905, duration of bright sunshine was added to the list of fields. In July 1908, the times of readings were changed to 7:00, 13:00, and 18:00 GMT, and from January 1909 until January 1915 they were taken a fourth time daily at 21:00 GMT, with the added field of extreme wind force. In February 1915, 'direction of upper cloud form and amounts' was added as a field and remained on the form until 1920. We do not have the monthly registers from 1921-1925, but we do have the summary of observations for readings taken at 7am which gives averages for mean pressure, temperature and humidity, cloud form and amount, visibility, and wind. In 1926, measurements taken at 7:00, 13:00, 18:00, and 21:00 GMT recorded: barometer and thermometer readings, wind direction and force, weather, visibility, cloud form and amount, direction and speed of upper cloud, mean cloud, rainfall, duration of sunshine, and weather diary. From 1948 until 1956, the same readings were taken most commonly at 9:00, 15:00, 18:00, and 21:00 GMT.
Dublin Airport, Dublin	No details available.	No metadata available.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Mullingar, Westmeath	Archived station records transcribed from hard copies at Met Éireann Belvedere Gardens, Mullingar 5 inch gauge 1ft above ground ALT 367 New station 1950 Mullingar Town Stno 2222.	01/01/1943 station opened 01/01/1949 observations new observation hours From 01/01/1949.31/08/1949 surroundings hedge to W interfering with sunshine19/03/1957 rain gauge funnel replaced28/05/1968 surroundings repairs complete07/11/1973 surroundings old station ceases @0900z new station at a new location began @ 1000zNew Station Co-ordinates....Lat 53.32N....Long 07.22W. Old Station Co-ordinates.....Lat 53.31N....Long 07.21W01/03/1991 station ceased to be manned 24 hours06/01/1998 station aws AGI aws came into use 01/07/2002 rain tbrg replaced (0.1mm)09/10/2004 rain tbrg replaced (0.1mm)18/08/2005 rain tbrg replaced (0.1mm)28/06/2006 rain tbrg replaced (0.1mm)28/06/2007 rain tbrg replaced (0.1mm)08/04/2008 station aws AGI aws replaced by TUCSON aws, last observations at 0900UTC#31/07/2008 rain tbrg 0.1 replaced16/02/2009 rain tbrg 0.2 replaced24/07/2009 station aws serviced24/07/2009 rain tbrg 0.1 replaced04/03/2010 rain tbrg 0.2 gauge replaced29/06/2010 station aws serviced29/06/2010 rain tbrg 0.1 replaced30/08/2011 station aws serviced30/08/2011 rain tbrg 0.1 replaced.30/08/2011 rain tbrg 0.2replaced.25/07/2012 station aws serviced25/07/2012 rain tbrg 0.1 replaced./25/072012 Rain tbrg 0.2 replaced. When the original site was selected in Mullingar there were 4 possible sites and from this one was selected. There are photos of the site and plans of the layout too. Nearest objects to gauge -shrubs 8ft-house 28ft-orchard 12ft-garden 3 ft,

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Rathdrum, Wicklow	Archived station records transcribed from hard copies at Met Éireann. Avondale House, Wicklow 1908-1956 5 inch gauge 3 inch above ground ALT 420 - Coolatin Shillelagh, Wicklow 1909-1940 5 inch gauge 7 inch above ground ALT 400 Winter CF 0.85, Spring CF 0.877, Summer CF 0.99, Autumn CF 0.95-Fassaroe Bray Wicklow 1872-1915 10 inch square gauge 5ft above ground ALT 250 Winter CF 1.01, Spring CF 0.99, Summer CF 0.98, Autumn CF 0.97 - Updated to 2010 using neighbouring Stations within 30 km - Vartry Lodge stno 624, Roundwood stno 1024, Filter Beds, Roundwood stno 1124, Roundwood, Valve Tower 1940-2012 Winter CF 0.98, Spring CF 0.94, Summer CF 1.00, Autumn CF 0.94.	Missing records 1918-1924 in filled from Coolatin Shillelagh using regression corrections factors as stated.
Athboy, Meath	Archived station records transcribed from hard copies at Met Éireann-Athboy, Frayne 1932-1968 5 inch gauge 9 ft above ground ALT 310 - Athboy, Frankville 1890-1940 8 inch gauge changed to 5 inch gauge in 1936 1ft 3 inch above ground ALT 227 Winter CF 1.18, Spring CF 1.12, Summer CF 1.0O9, Autumn CF 1.17 - Summerhill Gardens, Enfield 1896-1940 5 inch gauge 1 ft above ground ALT 370 Winter CF 0.95,Spring CF 0.97,Summer CF 0.96, Autumn CF 0.95- Updated to 2010 using neighbouring Stations within 30 km: Athboy, Frankville, stno 231 Summerhill, Enfield stno 331, Dunsany Castle stno 431, Kells, Headfort stno 931, Athboy, Frayne stno 1031, Ballivor G.S.stno 1731, Oldcastle, G.E. Schools stno 1931 , Navan, stno 2531 Warrenstown stno 2931, 1941-2010 Winter CF 0.99,Spring CF 0.99,Summer CF 0.97, Autumn CF 1.04.	Frayne, Athboy - nearest objects to gauge - shrubs 8ft-house 28ft-orchard 12ft-garden 3 ft. Frayne, Athboy station missing sporadic monthly data in years 1897 1906 1907 1908 1909 1910 1911 1913 1916 1918 1922 1923 1924. No open station at Athboy since 1993.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Strokestown, Roscommon	Archived station records transcribed from hard copies at Met Éireann Castlenode Strokestown Stno 229 1908-1961 5 inch gauge 2ft above ground ALT 150 –Bridged from 1961 to 2010 using neighbouring donor stations at stno 3729 Scramoge 4229 Strokestown G.S. 4829, Strokestown Elphin st stno1529 Albert lock Winter CF 0.95, Spring CF 0.95, Summer CF 0.93, Autumn CF 0.95.	
Foulkesmills, Wexford	Archived station records transcribed from hard copies at Met Éireann Foulkesmills, Lograigue st no.108, 1874-2012 5 inch gauge 13 inch above ground ALT 210 - Infilled some monthly missing data 1907-1914 from donor station at Ballyhyland,Wexford 1871-1918 5 inch gauge 12 inch above ground ALT 365 Winter CF 1.01,Spring CF 1.01,Summer CF 1.02, Autumn CF 1.04.	Station missing monthly data years in 1907 and 1914 sporadically so in filled from donor station at Ballyhyland Wexford after seasonal regression corrections monthly data used because of issues with missing daily data

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Portlaw, Waterford	Archived station records transcribed from hard copies at Met Éireann Portlaw, Waterford stno 1612 1841-1994 5 inch gauge 48 inch above ground ALT 25 - New station opened 1994-2012 at Portlaw stno 8212 5 inch gauge 12 inch above ground situated 100 metres from old gauge within same grounds.	Date ElementWs309/168: Portlaw Co. Waterford 1612 from 1841 observations, Note on 03/10/1948. Readings date back to 1841. 1861 observations readings being taken by the Malcolmsons since 1861, 13978 inspections Observer had been gardener with original owners and continued to take readings when new owners (Irish Tanneries) took over 5 years ago. 5" gauge with rim 12" above ground in poor state with dent in rim. Good exposure on lawn. 30' high Trees 90' to S. and 25' high house 120' away. 14139 values being entered to day of reading rather the previous day as instructed.14215 rain-measure requested by observer. Present one too small. Request repeated as urgent in Feb and March 103914341 New owners requested to supply new gauge and measure. Refused to supply at first but then agreed15676 rain-measure reported broken16056 observations now done by office staff all queries for 1942 and 1943. The new gauge is M.O. Type in the same position with very good exposure. Rain-measure unsatisfactory and replacement ordered. No readings at weekends or holidays.16778 offices moved to Mayfield House which is nearer to the gauge.17129 gauge in good order. Office closed on Saturdays17746 readings erratic for August 1948. Observer on holidays.19227 mm rain-measure received19309 rainfall for august and September too high. Observer was now measuring with an mm rain-measure and dividing by 2 thinking this would give him the reading in inches.

Station name and County	*Notes Continued*	*Notes Continued*
Portlaw, Waterford	19341 10mm rain-measure 5" capacity received 19511 return doubtful. Not accepted. Observer had been absent. 19645 August rainfall satisfactory. July too high.19758 readings now in mm 20010 gauge in good order and records up to date. Plants in border too high and close to gauge. Observers will rectify.21155 rain-measure reported broken. Replacement issued 07/01/195822775 gauge in good order and records up to date. Gauge is now on lawn clear of plants. No weekend readings.23043 rain-measure requested 23686 rim of gauge out of shape and only 7" above ground. To be rectified by observer. (Gauge belongs to Irish Tanneries) records up to date.rim of gauge fractured and repairs unsuccessful. Gauge issued on loan. Records up to date. Rain-measure reported broken. Replacement received 21/08/196723761 rim of gauge fractured and repairs unsuccessful.	Gauge issued on loan. Records up to date. 24701 rain-measures reported broken. Replacement received 21/08/196725204 paid observer to take readings at weekends.25178 10mm rain-measure 5" capacity received25323 drip tube loose. To be repaired locally.25884 drip tube broken off. Screen, gauge, rain-recorder and class A pan at hospital site subject to some interference. Sunshine recorder at safe co.co. Site. 1991 good station/observer. (New observer in training). 1994 excellent station/observer. 1996 thermometers and screen broken. Rain-gauge, rain-recorder, evaporimeter ok. G-min issued. 1997 new site being sought due vandalism. Only sunshine and rainfall reports at moment. 1998 exposure very good. Excellent station/observer. Screen, dry, and wet, max, min, g-min, gauge, rain-recorder, sunshine recorder all in order. 2000 exposure very good.

Station name and County	*Notes Continued*	*Notes Continued*
Portlaw, Waterford	Gauge replaced. Records up to date.26338 new observer will not be able to take weekend readings.26694 gauge in good order and records up to date. 27068 gauge in good order and records up to date. 27689 drip tube loose. Replacement to be issued. Records up to date.28438 gauge in good order and records up to date. New observer. Rain-measure issued.30233 gauge in good order and records up to date. No weekend readings.30707 observer has been made redundant by Irish tanneries but continues to take readings. To be paid from 01/07/198330860 observer could not be contacted 30957 exposure good. Gauge in good order and records up to date. Keen observer.31579 exposure good.	Gauge in good order and records up to date. Keen observer. New site required as he only has access in afternoons.31594 permission sought and granted by phone call to move gauge to observer's large garden.31245 gauge in order and had been read. Observer not present. 31923 gauge in good order and records up to date. Good site in well attended large garden.32395 gauge in good order and records up to date. Good site in well attended large garden.32615 gauge reported broken and replacement requested.34144 Not seen. Observer not present. New gauge and measure needed 34425 station closed 1994. Old station moved to new in 1994-2012 within same grounds 100 yards of old gauge. New file and station number allocated as gauge is too far from original site. (WS309/1535 Portlaw-Mayfield 2) station number 120316/ old number 031215 Air Ministry-Dept of Transport and Power-Meteorological

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
University College Galway, Galway	Archived station records transcribed from hard copies at Met Éireann University College Galway 1861-1965 5 inch gauge 14 inch above ground ALT 64 – New station at University College Galway stno 3927 1965-2011 ALT 45	1965 40' x 40' enclosure surrounded by 8' high wire mesh supported by concrete posts. Established 5" rain-gauge Rain-recorder. Screen, max, min, dry, wet. G-min. 2", 4", 8" soil.max received. 1966 Good observations. Replaced rain-recorder float. Deputy observer for last 2 weeks of July. 1967 Good observations. Anemo has been installed by college. 1969 Good observations. 1970 instruments moved to new site at regional hospital. Wooden "post and rail" fence. 1971 good. G-min and soil temps broken. Not to be replaced due interference. Rain-gauge, recorder and screen ok. 1972 New deputy observer. Good observations. 1976 Good observations. 1977 Good observations. 1979 rain-recorder interfered with. Pen-arm damaged. Replacement requested. 1980 good. No inner can in rain-gauge.1983 very good exposure. Good station. 1984 good station/observer. Sunshine recorder adjusted (to be moved to new site shortly). 1985 good station/observer. 1987 good station/observer. Screen, gauge, rain-recorder and class A pan at hospital site subject to some interference. Sunshine recorder at safe co.co. Site. 1991 good station/observer. (new observer in training). 1994 excellent station/observer. 1996 thermometers and screen broken. Rain-gauge, rain-recorder, evaporimeter ok. G-min issued. 1997 new site being sought due vandalism. Only sunshine and rainfall reports at moment. 1998 exposure very good. excellent station/observer. Screen, dry, and wet, max, min, g-min, gauge, rain-recorder, sunshine recorder all in order. 2000 exposure very good. Due vandalism new secure site proposed. Rain gauge replaced. Thermometers supplied. Dry readings taken from undamaged max. 2004 everything located at good secure fenced site. Rain-recorder need new base plate and float chamber when being installed. 2006 exposure/observer/station good. Rain-recorder to be removed. 2009 excellent station/observer. 2012 Closed. After 46 years (1966-2012) the excellent Mr Gaffney calls it a day.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Drumsna, Leitrim	Archived station records transcribed from hard copies at Met Éireann Albert Lock stno1529 continuous records to date missing monthly values 1921 and 1949 in filled from donor station at Strokestown 5 inch gauge 24 inch above ground ALT 148 Winter CF 1.09, Spring CF 1.08, Summer CF1.05,Autumn,CF 1.12.	1876 gauge appears to have been in existence since 1876. Funnel in a wooden box type. Always considered too low for publication. 1938 record again too low for publication (note from Met Office). 1939 records of Drumsna have never appeared in British rainfall. 1942 5" gauge 1' above ground leaking. Very exposed open flat country. Partly shaded by fencing. New gauge installed in a sheltered position nearby for comparison. 1943 new gauges are now official instruments here and Drumshambo. Received 5" rain measure. 1944 gauge in good order and records up to date. Protective fencing for rain-gauge completed. 1947 gauge in good order and records up to date. 1954 gauge in good order and records up to date. Protective fencing in poor condition. 1956 gauge in good order and records up to date. 1959 received 5" rain measure. 1959 gauge in good order and records up to date. Bushes to NE need cutting. 1963 gauge in good order and records up to date. Nearby bushes do not affect gauge but may do in future. 1963 received 5" rain measure. 1965 gauge in good order and records up to date. New mm measure issued. 1967 gauge in good order and records up to date. Protective fencing in poor condition. 1967 Protective fencing in very bad condition. 1968 query re low readings. Is gauge blocked or defective? Gauge sited on low ground and may be sheltered. 1969 defective gauge replaced. 1971 up to date. Gauge drip tube missing. Gauge replaced. 1972 up to date. Gauge drip tube loose. Gauge replaced. 1974 gauge in good order and records up to date. Weeds and grass around gauge cut back.

Station name and County	*Notes Continued*	
Drumsna, Leitrim	1976 gauge in good order and records up to date. 1981 gauge in good order and records up to date. Observer retires after 45 years. New observer. Rain-measure replaced. Protective fence needs repair/replaced. 1983 gauge in good order and records up to date. Very good station. 1984 Fair exposure. Very close to bushes. Gauge in good order and records up to date. Rain-measure issued. 1985 Fair exposure. Sheltered by trees and bushes. Gauge in good order and records up to date. 1988 gauge in good order and records up to date. Good site. Well kept. 1993 exposure good. Gauge in good order and records up to date. Rain-measure issued. 1994 Fair exposure. A bit close to hedge. Grass had just been cut and hedge trimmed. Gauge in good order and records up to date. Rain-measure issued. 1997 Fair exposure. A bit close to hedge. Gauge moved 3 yards away. Gauge in good order and records up to date. Rain-measure issued. 1999 exposure good. Gauge in good order and records up to date. 2001 exposure good. Up to date. Faulty gauge replaced. Rain-measure issued. 2003 Fair exposure. Gauge in good order and records up to date. Good station. 2005 Fair exposure. Gauge in good order and records up to date. 2009 Fair exposure. Faulty gauge replaced. 2011 Fair exposure. Gauge in good order and records up to date.	
Shannon, Clare	Rebogue Engine Station, Limerick 1861-1879 CF 1.16 - Ennis Clare 1875-1895 CF 0.97 10 inch square gauge 3ft 2 inch above ground ALT 21 - Foynes, Coonanes 1914-1915 5 inch gauge 1ft above ground ALT 50 - 1916-1930 8 inch gauge 1ft above ground ALT 50 - 1931-1933 5 inch gauge 1ft above ground ALT 50 - 1914-1918 8 inch gauge 1ft above ground ALT 50 - Victoria Terrace, Limerick 1895-1905 5 inch gauge 1ft above ground ALT 60 - 1906-1913 5 inch gauge 1ft above ground, ALT 52 - 1914-1918 5 inch gauge 1ft above ground, ALT 51 - Shannon Airport 1941- onwards - Nenagh Castle Lough 1875 - 1961 - Knightsown, Valentia Island 1861-1865 CF 1.025 8 inch gauge 2ft 6 inch above ground ALT 38 - Valentia Observatory, Valentia Island 1866-1875 CF1.025 8 inch gauge 1 ft above ground ALT11-1876-1879 CF1.025 8 inch gauge 2 ft above ground ALT 12-1880-1892 1.025 11 inch gauge 2 ft above ground ALT 11	Constructed by Tabony 1980. 1906 Moved to George Street. 1909 Dr Mills report .In small garden at safe distance from houses and walls. The Limerick Rebogue records are supported by a second gauge kept there. Ennis is used as intermediate station to find the ratio between Rebogue and Foynes. Similar results could have been obtained using Jane Ville or Newcastle West. Shannon and Foynes being opposite side of estuary are assumed to have same average annual rainfall.

Station name and County	*Composite Stations, Period ,Correction factors ,Gauge Diameter-Rim height above ground ,altitude above sea level in feet*	*Notes*
Enniscorthy, Wexford	Enniscorthy, Ballyhyland 1870-1890 CF 1.2 - Enniscorthy, Ballyhyland. 1891-1894 CF 0.9 - Enniscorthy, Ballyhyland 1895-1901 CF 1.2 - Enniscorthy, Woodbrook 1902-1942 CF 0.89 -Waterford (Tabony) 1943-1943 CF 1.19 - Enniscorthy, Woodbrook 1944-1945 CF 0.88 - Waterford (Tabony) 1946-1958 CF 1.19 - Enniscorthy, Woodbrook. 1959-1980 CF 1 - Enniscorthy, Brownswood 1983-2013 Winter CF 0.74, Spring CF 0.75, Summer CF 0.83, Autumn CF 0.83.	Constructed by Briffa (1984) using the 10 year sheets of the rainfall Archives of the UK Met Office before 1940 and post 1940 from the Irish Met service. Also records from Tabony were used for certain periods. Update in Jones and Conway 1997 up to 1994 using data from Met Eireann. Enniscorthy was updated from Enniscorthy, Brownswood stno 4015 from 1994-2010 for this research.