

County Kilkenny long term rainfall analysis

Report prepared by Barry Coonan, Climate Services Division, Met Éireann, 5th July 2024

Long term average data has been compiled by Met Éireann which allows comparison of the 30-year period from 1961-1990 with the subsequent 30-year period 1991-2020. The average annual rainfall for the country is 1,288mm over the years 1991-2020, an increase of 7% over the previous 30 years. The largest increase in rainfall has been seen in April, June and July up 16%, 15% and 28% respectively, though it should be noted that the average rainfall amounts across these months tends to be lower than at other times of the year, particularly from October to January. For more details of this analysis please see climatological note 22 – Long-term rainfall averages for Ireland 1991-2020.

For county Kilkenny the average annual rainfall over the 30 years to 2020 is 1,017mm, up 5% between the two 30-year periods. Similar to the national picture, though rainfall amounts tend to be lower in April, June and July than in October and the winter months, these months have recorded increases of 12%, 24% and 25% between 1961-1990 and 1991-2020 in county Kilkenny. See table 1 below for more details.

Ireland	Annual	Spring	Summer	Autumn	Winter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1991-2020 (mm)	1,288	256.4	281.8	368.9	380.3	132.9	106.0	94.9	82.2	79.4	85.4	93.0	103.4	99.4	129.8	139.6	141.9
1961-1990 (mm)	1,203	247.7	247.5	352.4	355.1	130.5	93.8	97.4	70.7	79.6	74.5	72.8	100.2	105.8	127.5	119.2	130.7
difference (%)	7%	4%	14%	5%	7%	2%	13%	-3%	16%	0%	15%	28%	3%	-6%	2%	17%	9%

County Kilkenny	Annual	Spring	Summer	Autumn	Winter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1991-2020 (mm)	1,017	208.7	232.1	299.0	276.5	97.8	74.7	72.6	69.5	66.6	74.1	73.7	84.3	80.2	110.4	108.4	105.0
1961-1990 (mm)	971	208.5	198.0	273.3	292.0	107.7	79.8	75.9	62.3	70.3	59.8	58.9	79.2	84.2	99.3	89.8	103.8
% difference	5%	0%	17%	9%	-5%	-9%	-6%	-4%	12%	-5%	24%	25%	6%	-5%	11%	21%	1%

Table 1: Long term average annual, seasonal and monthly rainfall amounts for Ireland and county Kilkenny presenting the periods 1991-2020 and 1961-1990.

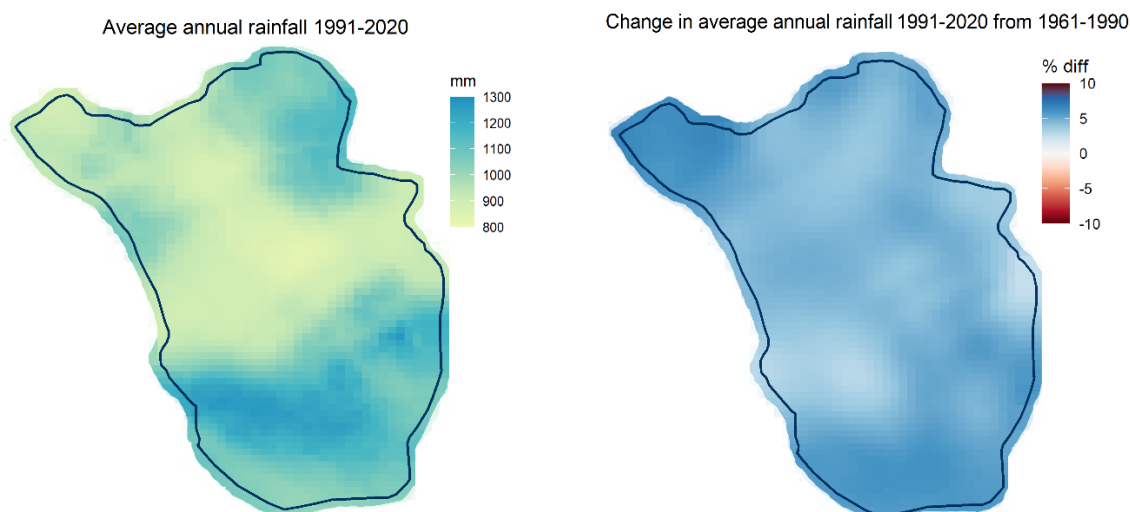


Figure 1: Distribution of average annual rainfall over the 30-year period 1991-2020 across county Kilkenny and the percentage change in annual rainfall between this period and the previous 30-year period 1961-1990.

Average rainfall amounts from 1991-2020 ranges from approximately 1226mm to 875mm with more elevated areas of the county in the south and north-east recording more rainfall than lower lying areas. All areas of the county have noted an increase in rainfall between the two 30-year periods with increases ranging from approximately 3% to 6%.

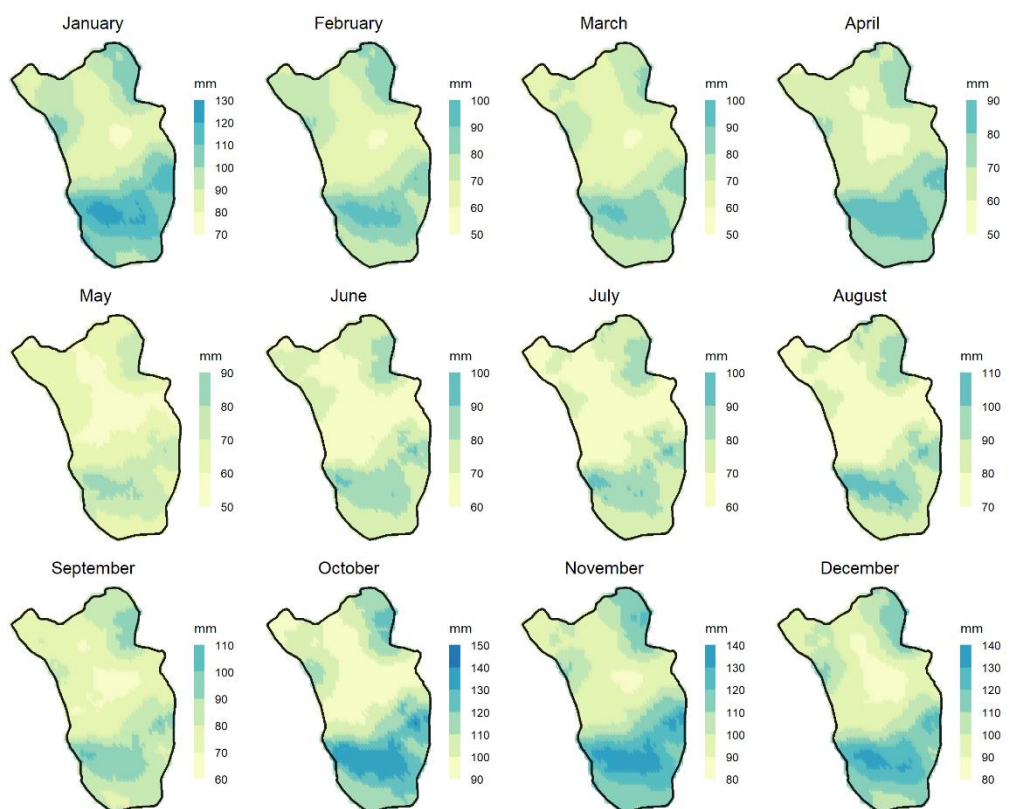


Figure 2: Average monthly rainfall by month over the period 1991-2020 for county Kilkenny.

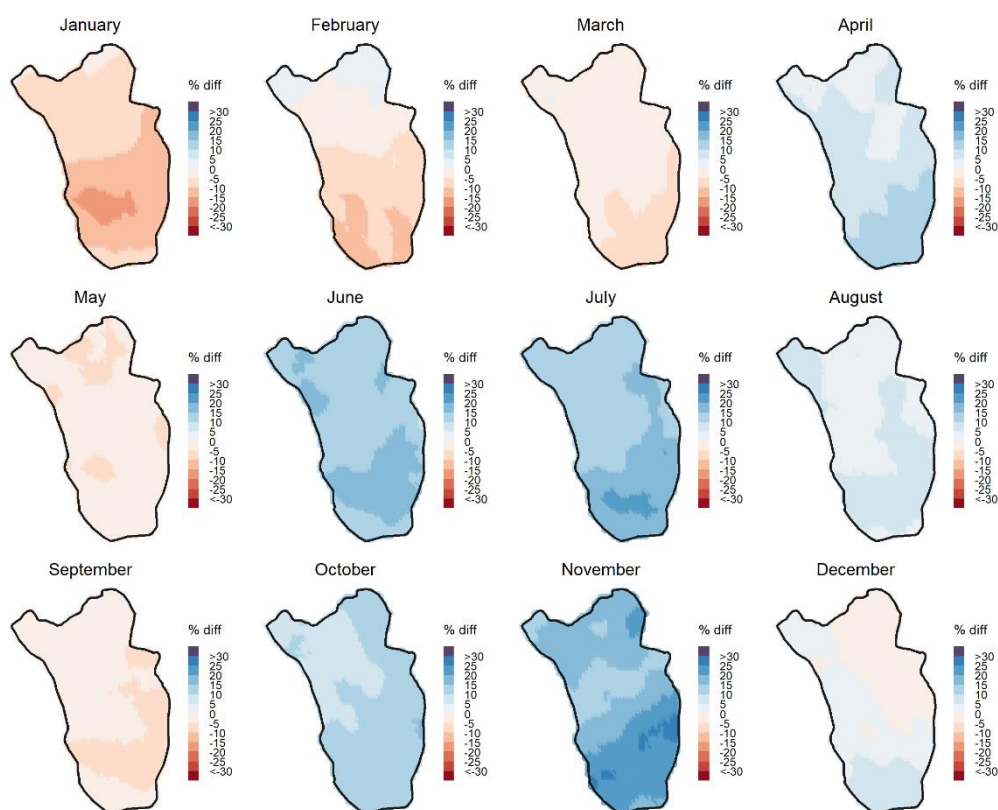


Figure 3: Change in average monthly rainfall by month between the period 1991-2020 and 1961-1990 for county Kilkenny.

As presented in table 1 above averaged monthly rainfall amounts vary across the year with October and the winter months being wetter than the spring and summer months. Across the year though in any month the wetter areas tend to be the same higher elevation areas – see figure 2 and 3 above.

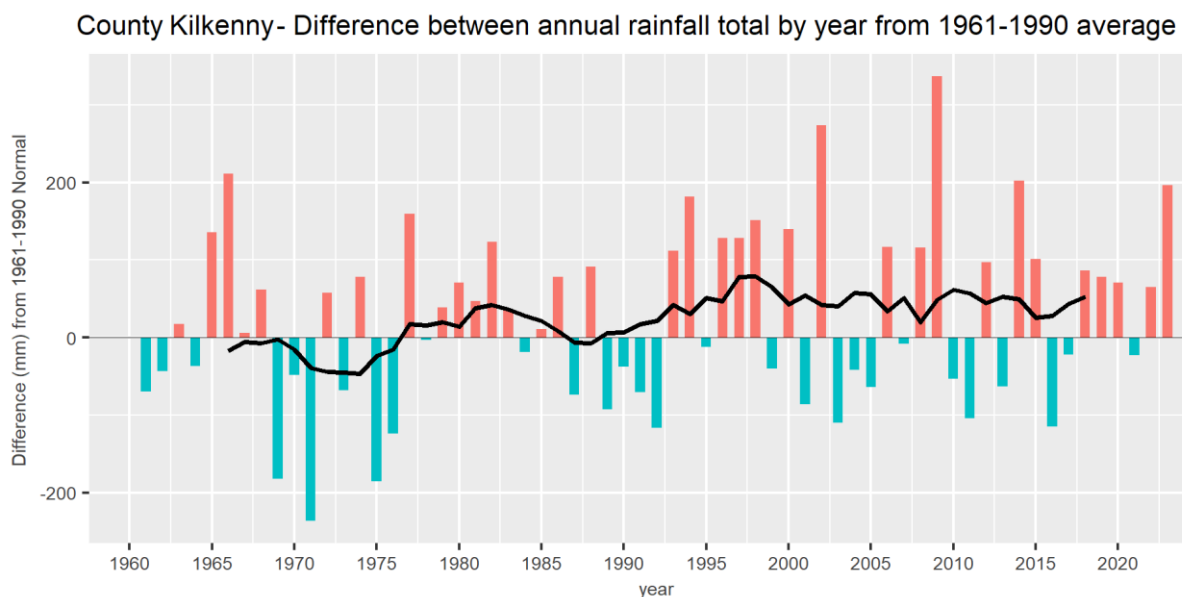


Figure 4: Annual rainfall amounts for 1961 to 2023 county Kilkenny relative to a 30-year baseline period 1961-1990 are shown here. Red bars indicate annual rainfall amounts greater than the 30-year long term average period 1961-1990 while cyan bars show lower than average rainfall amounts. The black line is a 10-year average of the anomaly values.

Rainfall amounts are extremely variable from year to year as can be seen in figure 4 above. Though the general trend is for increasing rainfall amounts, any particular year can be drier than the norm, for example 2021 had a lower than average annual rainfall amount recorded across the county.

The variation in monthly rainfall by year from 1961 to 2023, figure 5 on the next page, reflects the large variability seen in the annual values. In any particular year the monthly rainfall can be extreme, but clearly it doesn't necessarily mean that the same month of the following year will also have a higher than average rainfall amount.

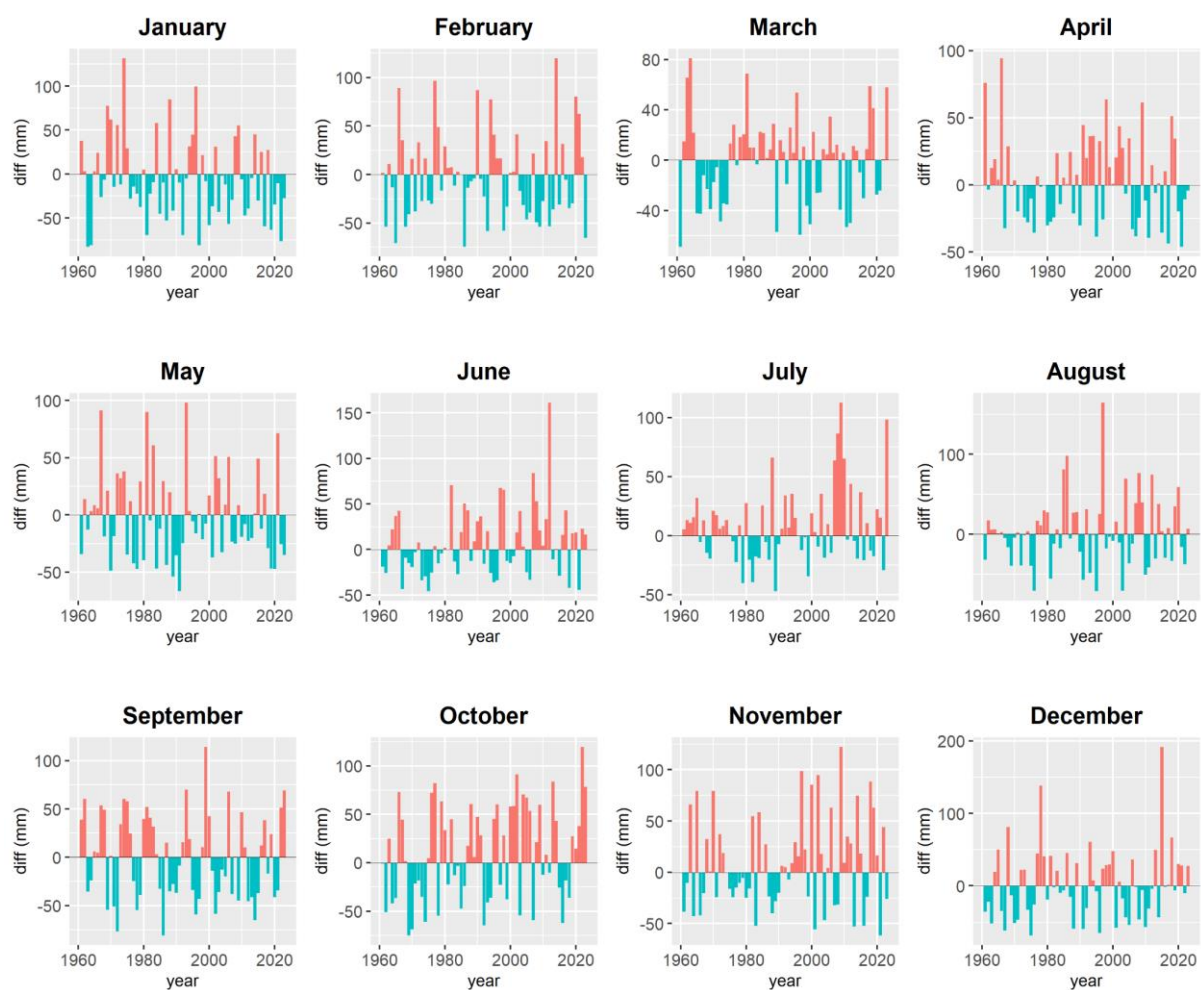


Figure 5: Monthly rainfall amounts for 1961 to 2023 county Kilkenny relative to a 30-year baseline period 1961-1990 are shown here. Red bars indicate rainfall amounts greater than the 30-year long term average period 1961-1990 while cyan bars show lower than average rainfall amounts.