



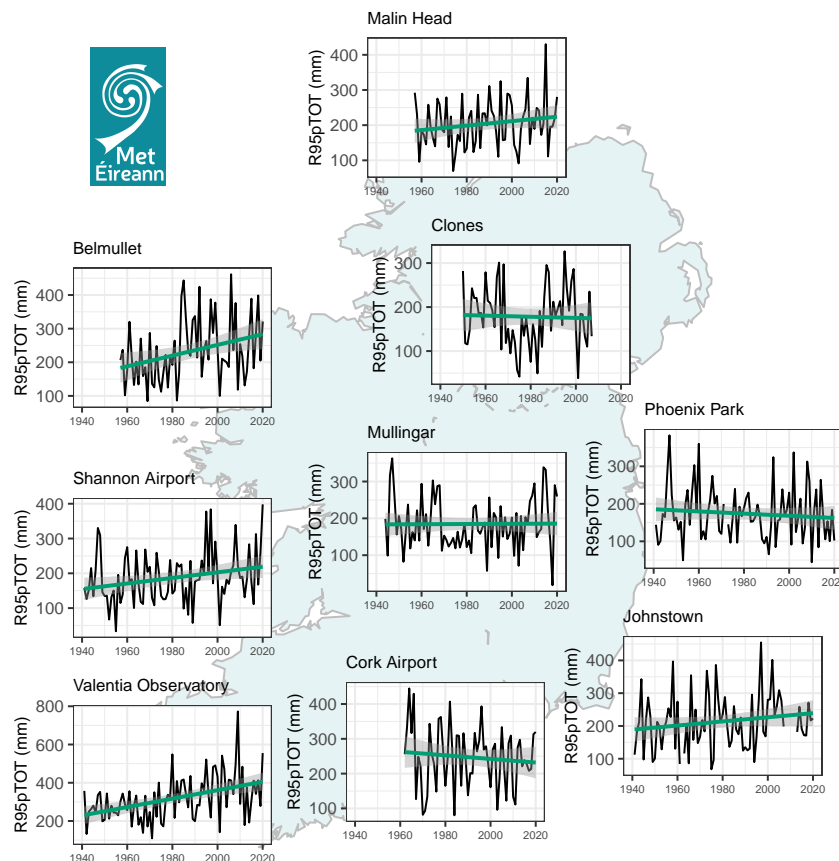
Rainfall on Very Wet Days (R95pTOT)

Key Message

- Some stations (particularly in the west) are seeing increases in the amount of rain falling from “very wet days”, but many stations do not have significant long-term trends.

Definition

- Daily precipitation (**R**), 09UTC - 09UTC observations, are used to calculate this index.
- The **R95pTOT** index is calculated by summing the accumulated rainfall (in mm) on “very wet days”.
- Where a very wet day is defined as being greater than the 95th percentile of “wet days” ($R \geq 1\text{mm}$) during the 1961-1990 reference period. Some of the thresholds are shown in Table 1.





Trends

- There is a small increase in **R95pTOT** at western coastal stations, see graphs above, with less of a signal in other locations.
- Ongoing research into data rescue and homogenisation has found a collection of stations in the south east of Ireland where a statistically significant increases in **R95pTOT** has been found, [Ryan et al., 2021]. Some of these stations were not used here, more research is needed to examine this further.
- Analysis of percentile-based rainfall indices identified that **R95pTOT** is increasing on average globally, particularly in areas such as eastern Europe or central USA, [Dunn et al., 2020] (referred to as R95p in the paper).

Thresholds

- The thresholds for percentile-based precipitation indices at the stations shown in the map above are listed in the following table.

Table 1: Thresholds for percentile based rainfall indices at nine stations.

| Station | R95pTOT (mm) | R99pTOT (mm) |
|----------------------|--------------|--------------|
| Belmullet | 16.1 | 25.9 |
| Clones | 14.7 | 23.7 |
| Cork Airport | 23.5 | 38.0 |
| Johnstown | 20.0 | 32.8 |
| Malin Head | 15.6 | 24.8 |
| Mullingar | 15.9 | 25.3 |
| Phoenix Park | 15.6 | 28.2 |
| Shannon Airport | 15.4 | 24.9 |
| Valentia Observatory | 22.2 | 35.2 |

Data Access

Data for this index can be downloaded through the web-page below (or the QR code in the header):

- <https://www.met.ie/climate/climate-change-indices-etccdi/>

For further information contact Met Éireann Climate Enquiries: enquiries@met.ie

References

- Robert JH Dunn et al. Development of an updated global land in situ-based data set of temperature and precipitation extremes: HadEX3. *Journal of Geophysical Research: Atmospheres*, 125(16):e2019JD032263, 2020. doi: <https://doi.org/10.1029/2019JD032263>.
- Ciara Ryan et al. Long-term trends in extreme precipitation indices in Ireland. *International Journal of Climatology*, 2021. doi: <https://doi.org/10.1002/joc.7475>.