



WETTEST DAY (Rx1DAY)

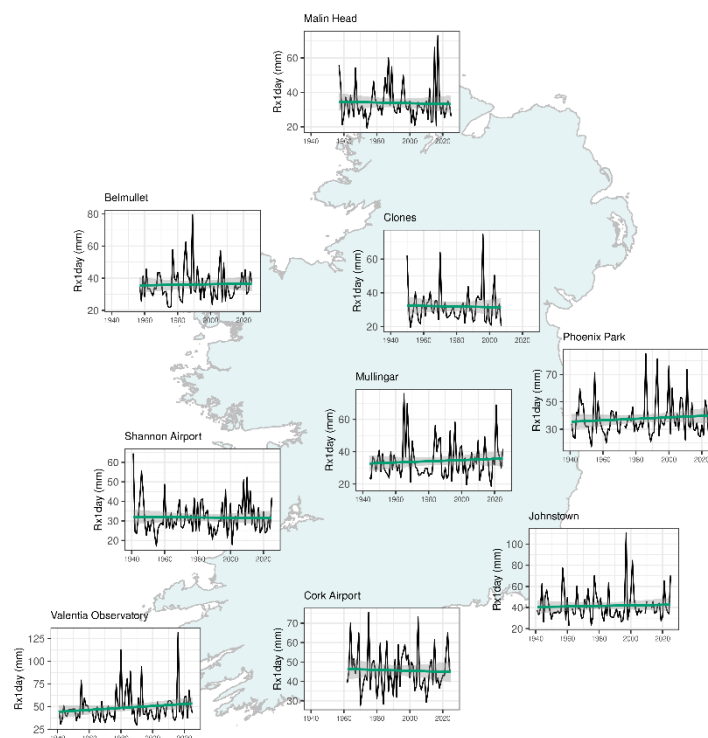
KEY MESSAGE

- There is a large degree of uncertainty in trends of the heaviest rainfall days at most stations, with large year-to-year variability in the index.

DEFINITION

- Daily precipitation (R), based on 09UTC - 09UTC observations, are used to calculate this index.
- The **Rx1day** index is calculated by finding the maximum daily precipitation (in mm) during the period of interest (year, season or month).

TRENDS



- There is no clear indication of an increase or decrease in the **Rx1day** index, see graphs above, with large year-to-year variability.
- Ongoing research into data rescue and homogenisation found that, while the majority of stations are exhibiting some form of an increasing trend in **Rx1day**, just one station was found to be statistically significant, (Ryan, et al. 2022).
- Global analysis of heavy rainfall extremes has found pockets of the globe where significant increases are occurring, such as eastern Europe or central USA, (Dunn, et al. 2020).



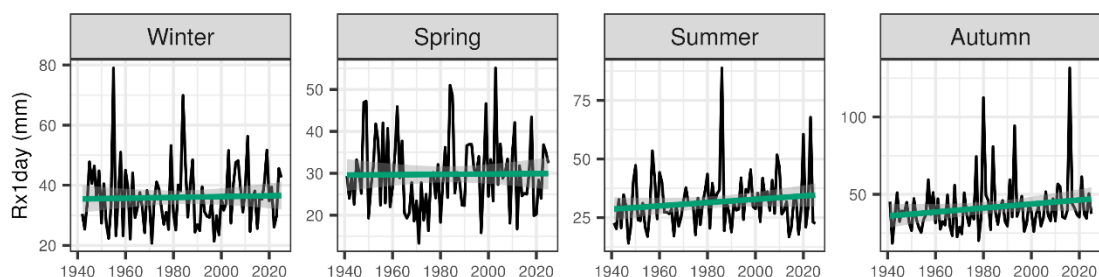
Table 1: Mean value of Rx1day in mm during thirty-year periods at 8 stations.

Station	1961-1990	1991-2020
Belmullet	37.4	35.0
Cork Airport	45.2	45.2
Johnstown	39.7	41.7
Malin Head	34.8	33.4
Mullingar	35.2	33.2
Phoenix Park	35.2	40.2
Shannon Airport	30.9	32.4
Valentia Observatory	49.2	49.9

SEASONALITY

- Seasonally separated **Rx1day**, shown below for Valentia Observatory, indicates a small increase for autumn but this was not found to be statistically significant.

Valentia Observatory



DATA ACCESS

Data for this index can be downloaded through the webpage 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

Dunn, Robert JH, Lisa V Alexander, Markus G Donat, Xuebin Zhang, Margot Bador, Nicholas Herold, Tanya and Allan, Rob Lippmann, Enric Aguilar, Abdoul Aziz Barry, and others. 2020. "Development of an updated global land in situ-based data set of temperature and precipitation extremes: HadEX3." *Journal of Geophysical Research: Atmospheres* e2019JD032263. doi:<https://doi.org/10.1029/2019JD032263>.

Ryan, Ciara, Mary Curley, Séamus Walsh, and Conor Murphy. 2022. "Long-term trends in extreme precipitation indices in Ireland." *International Journal of Climatology* (Wiley Online Library) 42 (7): 4040-4061. doi:10.1002/joc.7475.