



R20mm

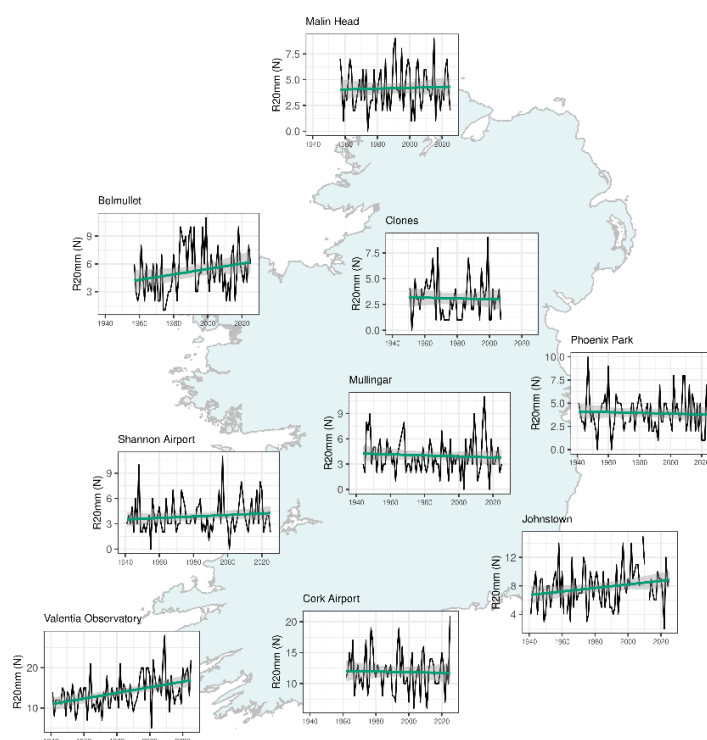
KEY MESSAGE

- There is a large degree of uncertainty in the trends of heavy rainfall days exceeding 20mm.
- The majority of stations indicate an increasing trend, but very few of these are found to be statistically significant.

DEFINITION

- Daily precipitation (R), based on 09UTC - 09UTC observations, are used to calculate this index.
- The **R20mm** index is calculated by counting the number of times the daily precipitation exceeds 20mm ($R \geq 20\text{mm}$) during the period of interest (year, season or month).

TRENDS



- Trends are less apparent for the **R20mm** index compared to lower thresholds (**R5mm** and **R10mm**, see respective factsheets).
- Valentia Observatory continues to show the strongest increasing trend, with more uncertainty elsewhere.
- Ongoing research into data rescue and homogenisation has found a collection of stations in the midlands and southeast of Ireland where statistically significant increases in R20mm have been



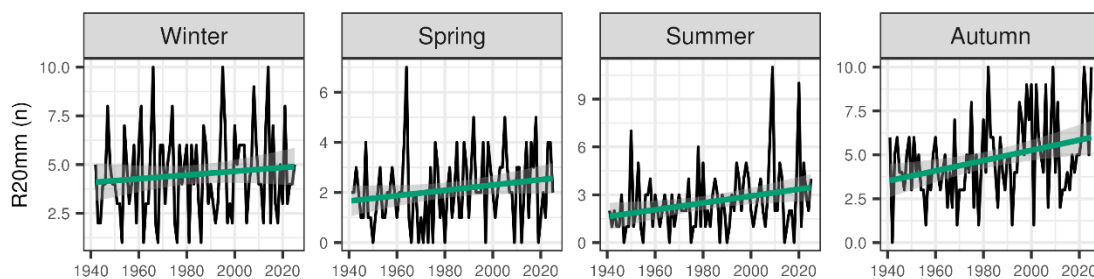
observed, (Ryan, et al. 2022). These particular stations were not used here, more research is needed to examine this further.

- Global analysis of threshold-based rainfall indices has found pockets of the globe where significant increases are occurring, such as eastern Europe or central USA, (Dunn, et al. 2020).

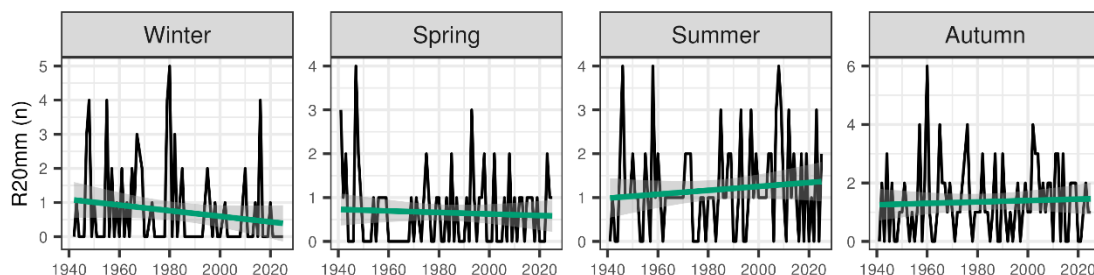
SEASONALITY

- The increase in R20mm for Valentia Observatory is seen to some extent in most seasons, shown below, though trends are less certain than for annual values.
- The lack of a signal in the east is evident for all seasons, shown below at Phoenix Park.

Valentia Observatory



Phoenix Park



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](https://doi.org/10.1002/joc.7475).