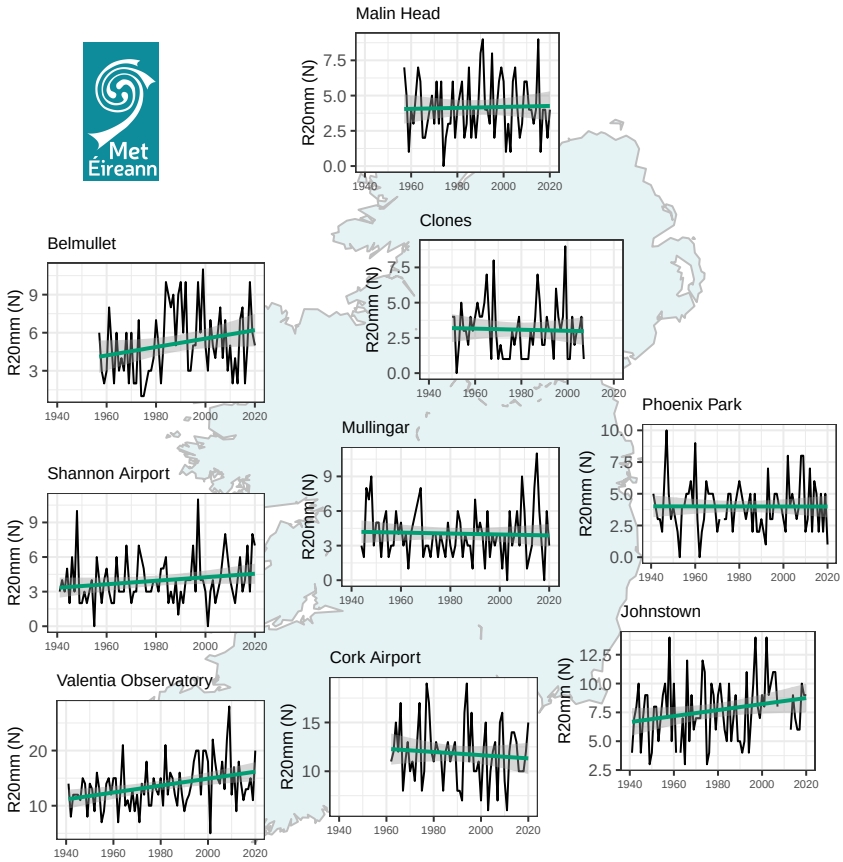
R20mm

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 $\geq$ 20mm) during the period of interest (year, season or month)

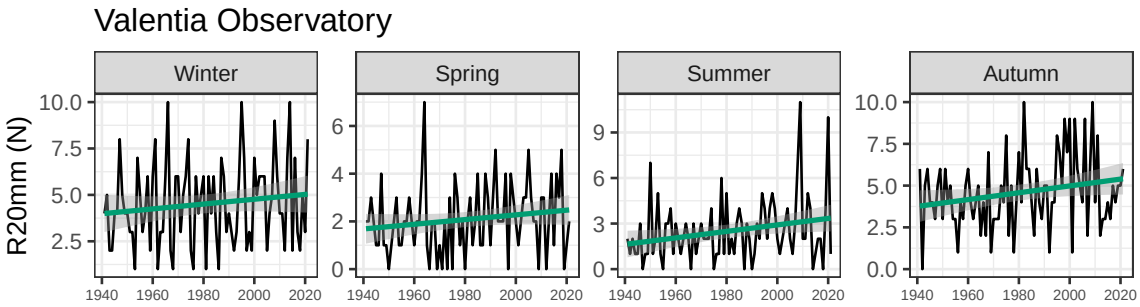


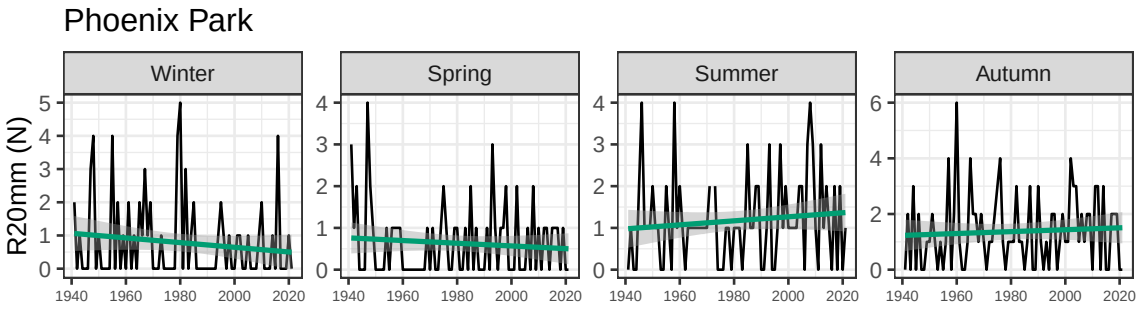
Trends

- 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 south east of Ireland where statistically significant increases in **R20mm** have been observed, [Ryan et al., 2021]. 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.





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.