TOTAL PRECIPITATION (PRCPTOT)

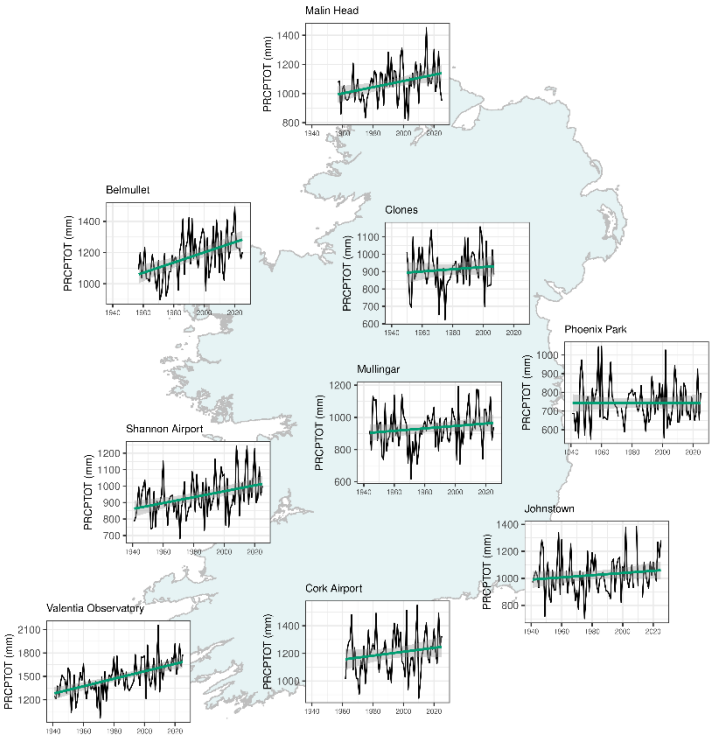
KEY MESSAGE

- Some stations (particularly in the west) are observing increases in total annual rainfall.
- There is large year-to-year and spatial variability in total precipitation, with many in land/eastern stations not exhibiting significant long-term trends.

DEFINITION

- Daily precipitation (R), from 09UTC - 09UTC observations, are used. In particular this index considers only “wet days” (R ≥ 1mm) when calculating the value of the index.
- The Total Precipitation (**PRCPTOT**) index is the total accumulated precipitation (in mm) from “wet days” during the period of interest (year, season or month).

TRENDS



- **PRCPTOT** has increased at many stations along the west coast in recent years, see graphs above. While stations further inland and on the east coast exhibit less of a trend in this index.
- Average **PRCPTOT** has increased by 7.2% between 1961-1990 and 1991-2020 at the 8 of the 9 stations shown in the map above that remain open today (also shown in table below), which is

similar to results found in other research [(Coonan, Curley and Ryan 2024), (Cámaro-Garcia, Dwyer and Gault 2021)].

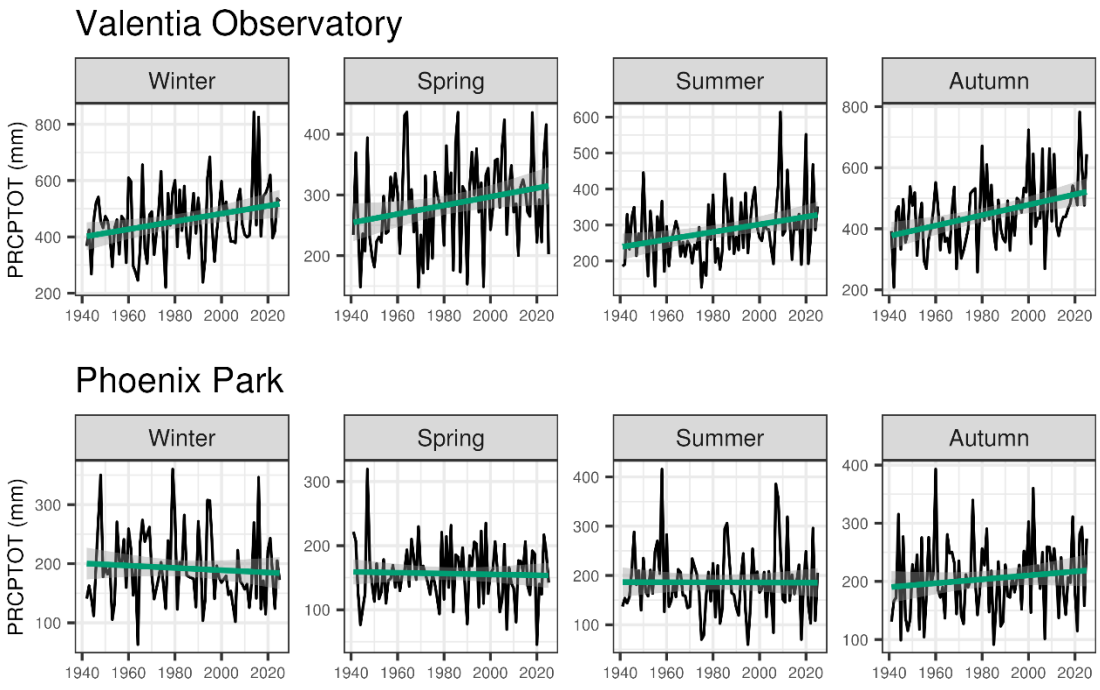
- Research into data rescue and homogenisation has found that while these increasing trends do remain, the level of statistical significance can change depending on the time period considered,[(Ryan, et al. 2022), (Noone, et al. 2016)].
- Globally the **PRCPTOT** index is increasing on average but with a large amount of spatial variability, (Dunn, et al. 2020).

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

Station	1961-1990	1991-2020
Belmullet	1109.4	1227.0
Cork Airport	1176.2	1206.7
Johnstown	980.4	1034.5
Malin Head	1026.8	1105.2
Mullingar	901.1	951.1
Phoenix Park	725.4	738.5
Shannon Airport	894.3	987.9
Valentia Observatory	1399.6	1592.6

SEASONALITY

- The increase in **PRCPTOT** at these western stations is generally most apparent in winter but can be seen in other seasons also, shown below for Valentia Observatory.
- 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 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

Cámaro-Garcia, Walther, Ned Dwyer, and Jeremy Gault. 2021. "Climate Status Report for Ireland 2020." *EPA Research Report 386*.

Coonan, Barry, Mary Curley, and Ciara Ryan. 2024. "Long-term rainfall averages for Ireland, 1991--2020." *Met Éireann, Climatological Note No. 22*.

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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.