



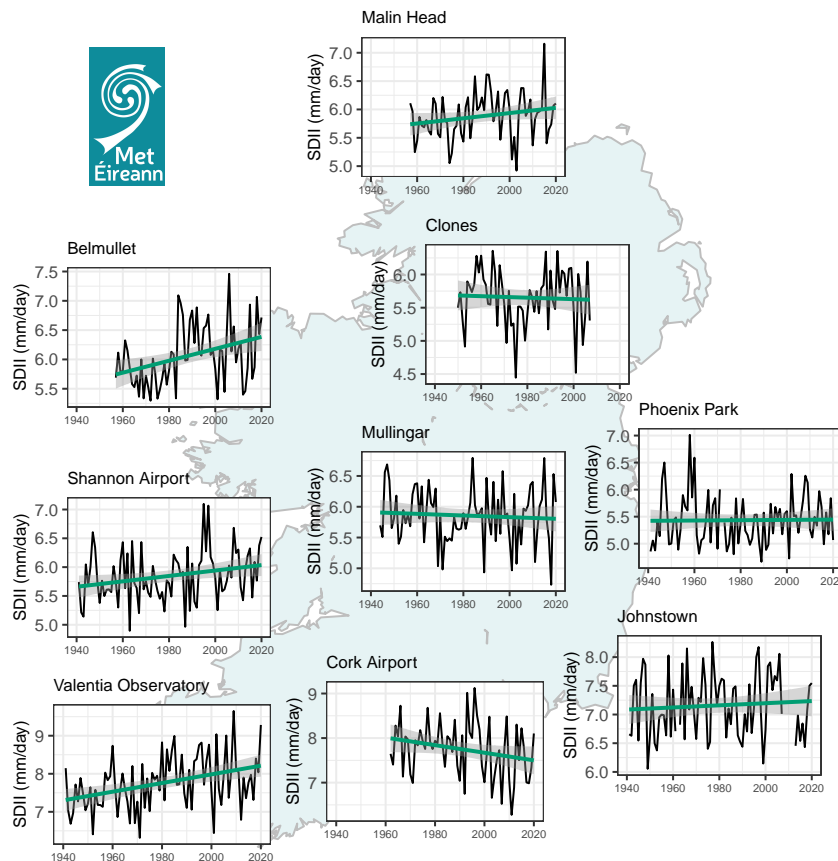
Average Daily Rainfall Intensity (SDII)

Key Message

- Most stations (particularly in the west) are seeing increases in average daily rainfall intensity, but a minority of these are found to be statistically significant long-term trends.

Definition

- Daily precipitation (**R**), based on 09UTC - 09UTC observations, are used to calculate this index.
- The Simple Daily Intensity Index (**SDII**) is the average rainfall rate on “wet days” ($R \geq 1\text{mm}$), measured in mm/day, during the period of interest (year, season or month).





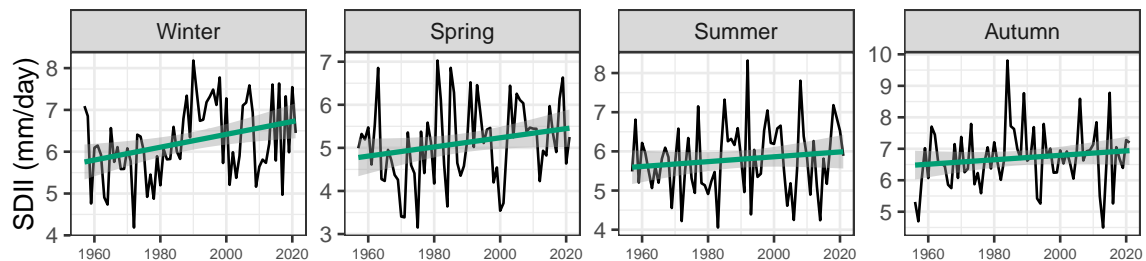
Trends

- There have been increases in **SDII** at certain Met Éireann's synoptic weather stations along the west coast (similar to those seen for **PRCPTOT**), see graphs above.
- Meanwhile stations further east and inland do not tend to exhibit significant trends.
- Ongoing research into data rescue and homogenisation indicate that many of these trends remain but can become weaker when time series are extended and homogenised, [Ryan et al., 2021].
- Also, a collection of stations in the south east of Ireland were found to have relatively small but statistically significant increases in **SDII**, [Ryan et al., 2021]. These stations were not used here and further research is needed in this area.
- Global analysis of climate indices has found pockets of the globe where **SDII** is significantly increasing, such as eastern Europe or central USA, [Dunn et al., 2020].

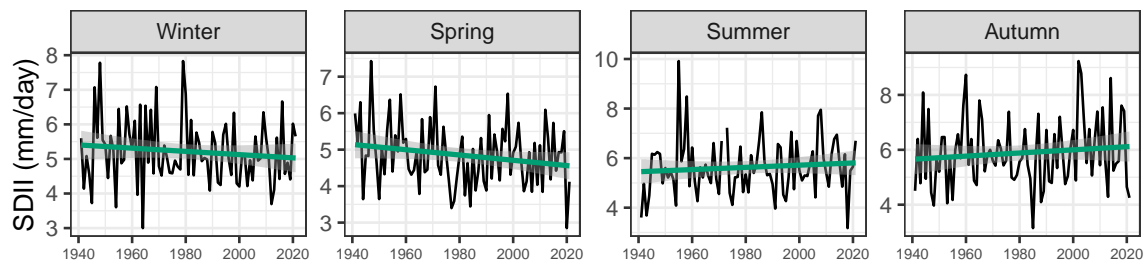
Seasonality

- The increase in **SDII** at these western stations is present in most seasons, shown below for Belmullet.
- The lack of a signal in the east is evident for all seasons, shown below for Phoenix Park.

Belmullet



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>.