



Klimawandel: von den globalen Änderungen zu den lokalen Konsequenzen

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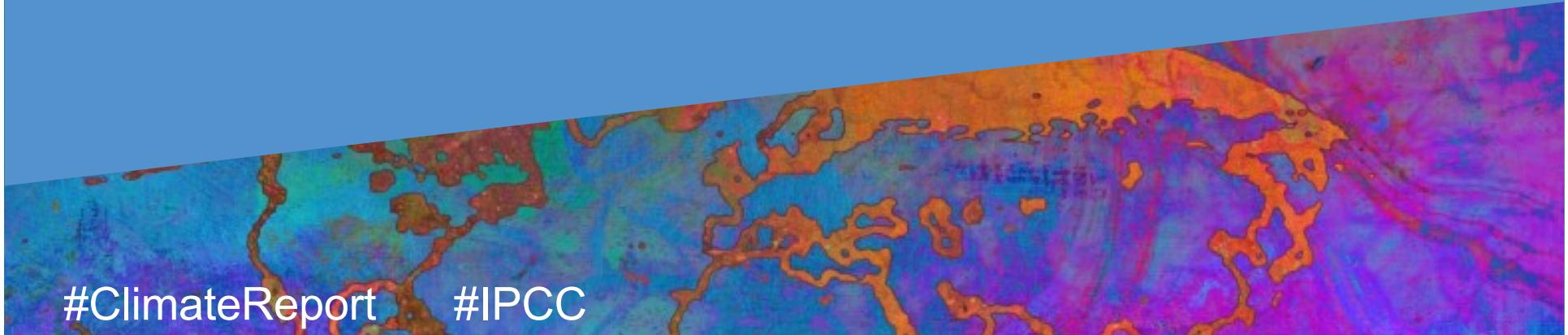
SIXTH ASSESSMENT REPORT
Working Group I – The Physical Science Basis

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Key messages of the IPCC Working Group I Contribution to the 6th Assessment Report

#ClimateReport #IPCC





[Credit: NASA]

“Recent changes in the climate are widespread, rapid, and intensifying, and unprecedented in thousands of years.

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[Credit: Yoda Adaman | Unsplash]

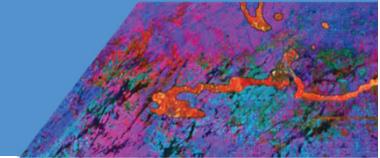
“ It is indisputable that human activities are causing climate change, making extreme climate events, including heat waves, heavy rainfall, and droughts, more frequent and severe.



[Credit: Hong Nguyen | Unsplash]

“ Climate change is already affecting every region on Earth, in multiple ways.

The changes we experience will increase with further warming.



Climate change is already affecting every inhabited region across the globe, with human influence contributing to many observed changes in weather and climate extremes

Figure SPM.3

Type of observed change in heavy precipitation

Increase (19)

Decrease (0)

Low agreement in the type of change (8)

Limited data and/or literature (18)

Confidence in human contribution to the observed change

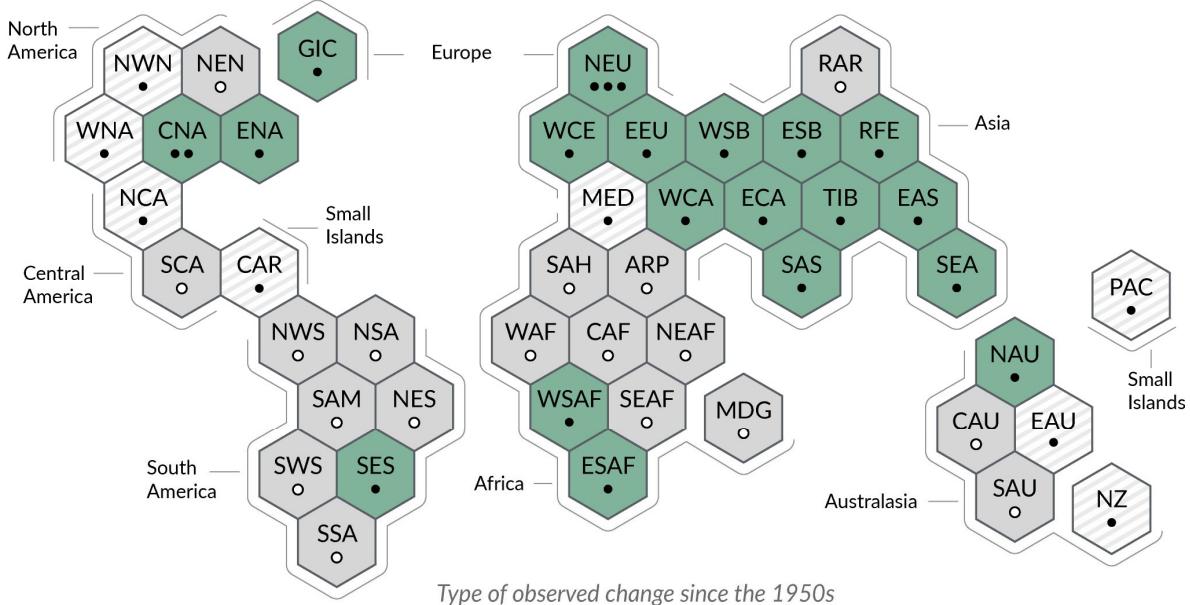
●●● High

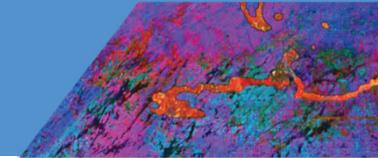
●● Medium

● Low due to limited agreement

○ Low due to limited evidence

b) Synthesis of assessment of observed change in **heavy precipitation** and confidence in human contribution to the observed changes in the world's regions





Climate change is already affecting every inhabited region across the globe, with human influence contributing to many observed changes in weather and climate extremes

Figure SPM.3

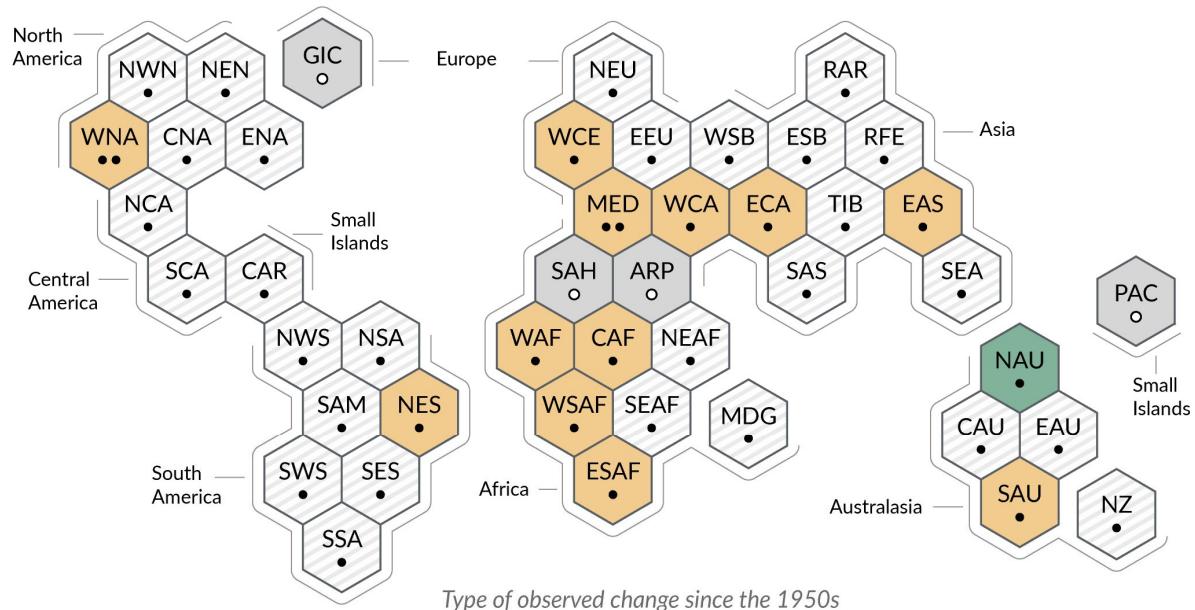
Type of observed change
in agricultural and ecological drought

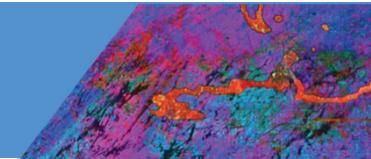
- ◆ Increase (12)
- ◆ Decrease (1)
- ◆ Low agreement in the type of change (28)
- ◆ Limited data and/or literature (4)

Confidence in human contribution
to the observed change

- High
- Medium
- Low due to limited agreement
- Low due to limited evidence

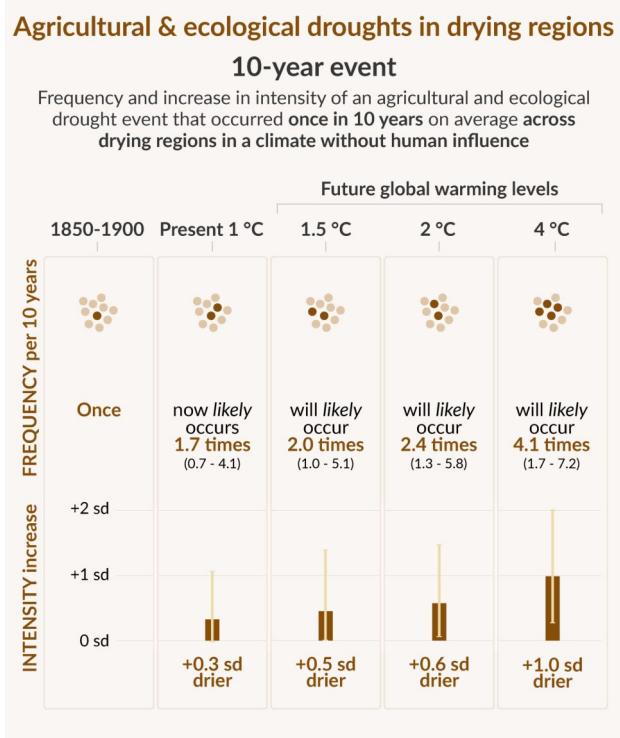
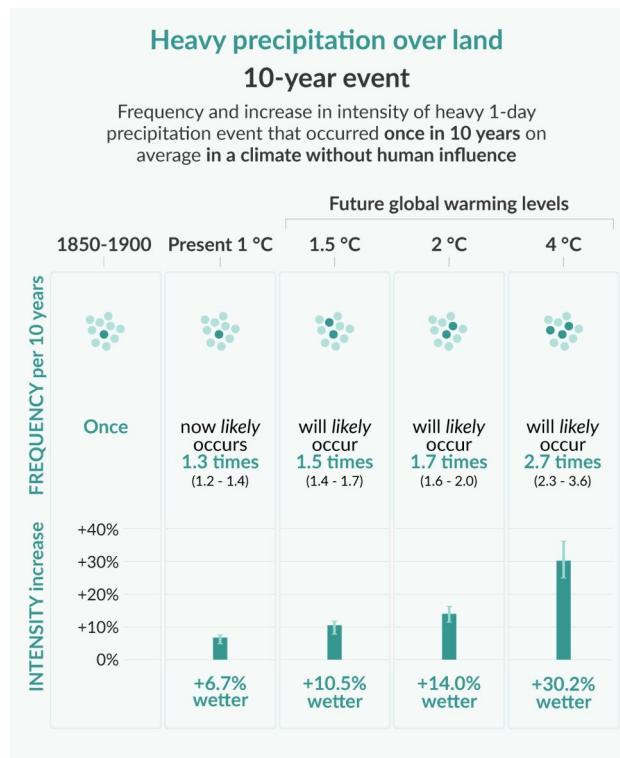
c) Synthesis of assessment of observed change in **agricultural and ecological drought** and confidence in human contribution to the observed changes in the world's regions

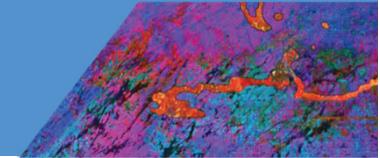




Projected changes in extremes are larger in frequency and intensity with every additional increment of global warming

Figure SPM.6





Regional fact sheet - Europe

Common regional changes



Observations have a seasonal and regional pattern consistent with projected increase of precipitation in winter in Northern Europe. A precipitation decrease is projected in summer in the Mediterranean extending to northward regions. Extreme precipitation and pluvial flooding are projected to increase at global warming levels exceeding 1.5°C in all regions except the Mediterranean. (high confidence)

Western & Central Europe (WCE)

- Projected increase in pluvial flooding at global warming of 1.5°C (medium confidence) and 2°C and above (high confidence).
- Observed increasing trend in river flooding and projected further increase at 2°C and above of global warming (high confidence).
- Projected increases in hydrological, agricultural and ecological droughts at mid-century warming levels of 2°C or above, regardless of the greenhouse gas emissions scenario (medium confidence).



[Credit: Peter John Maridabile | Unsplash]

“ Unless there are immediate, rapid, and large-scale reductions in greenhouse gas emissions, limiting warming to 1.5°C will be beyond reach.

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Klimänderungen in Luxemburg



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Entwicklung der Temperaturen



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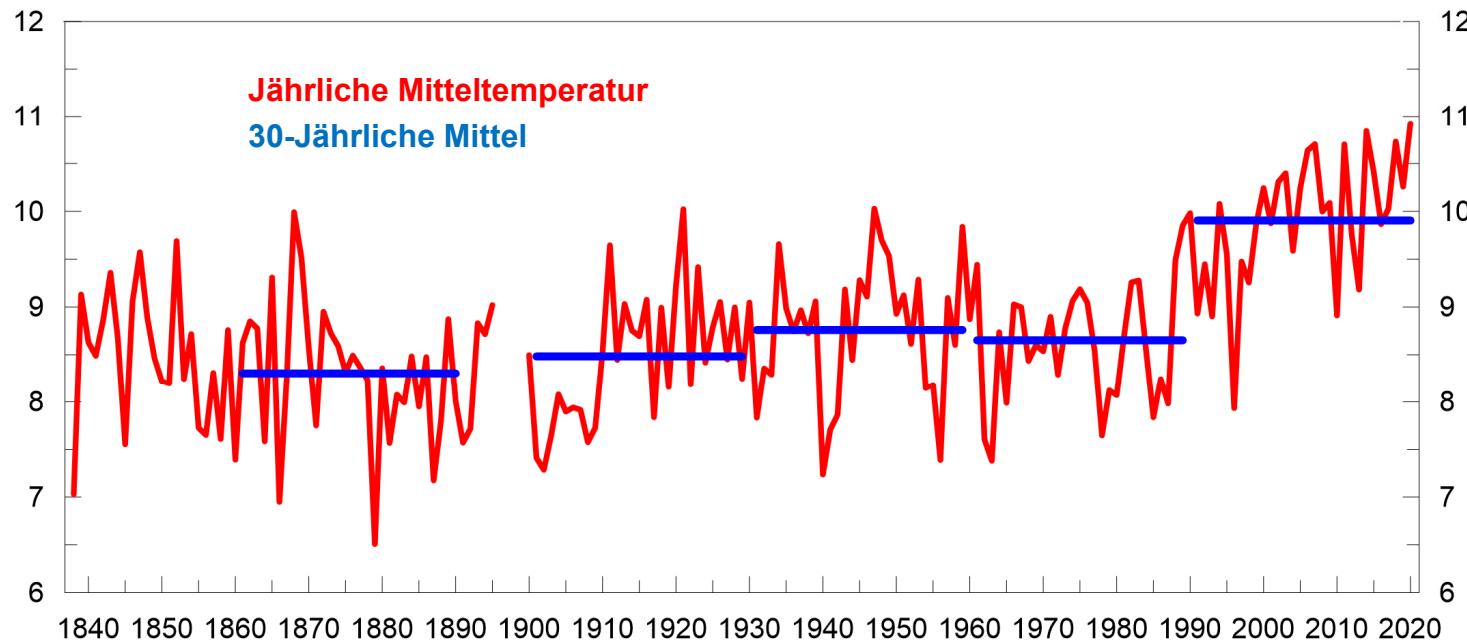


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Jährliche mittlere Temperaturen in Luxemburg
von 1838 bis 2020 (in °C, Rohdaten)



- Durch den menschengemachten Klimawandel sind die Temperaturen in Luxemburg zwischen 1861-1890 und 1991-2020 um 1.6°C gestiegen.
- 10 wärmste Jahre alle im Zeitraum 2002-2020
- Jedes der letzten drei Jahrzehnte war sukzessive wärmer als jedes vorangegangene Jahrzehnt seit 1840.

Entwicklung der Niederschläge



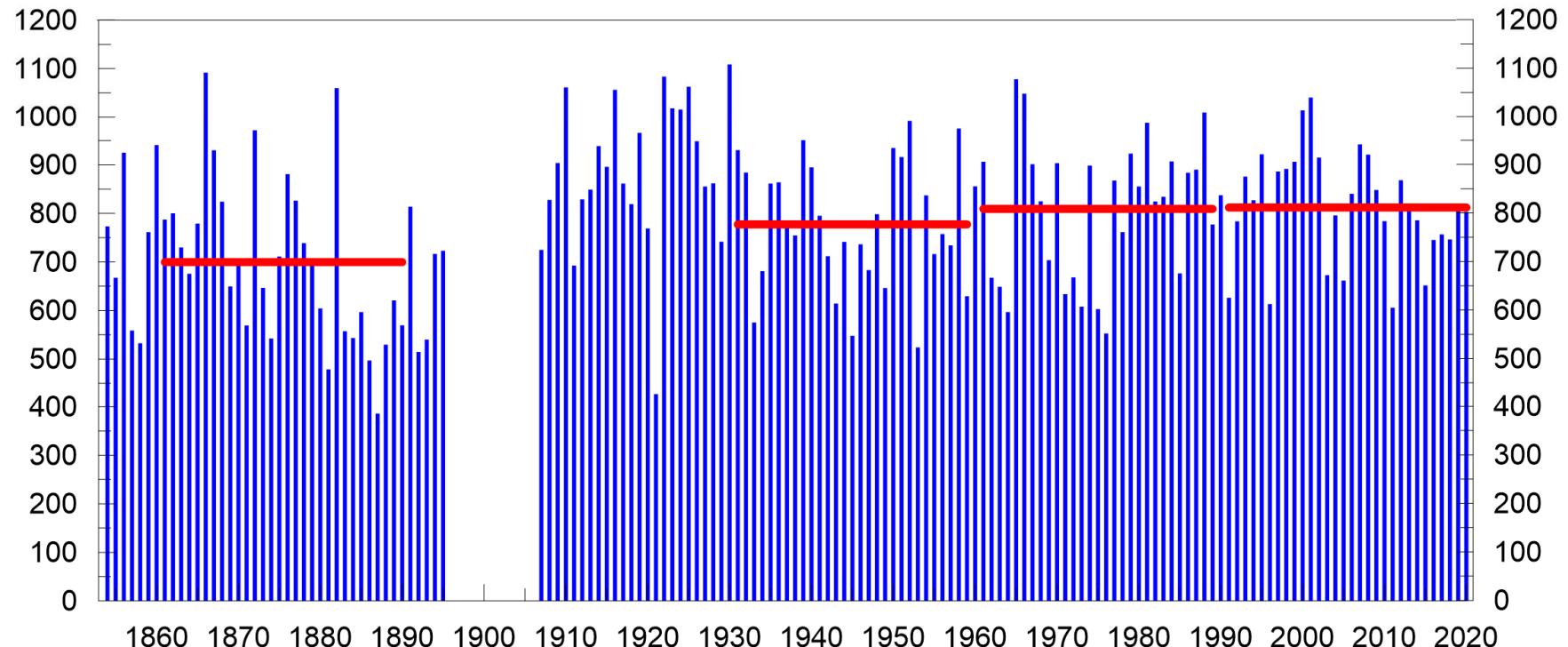
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Jährliche mittlere Niederschlagssummen
in Luxemburg von 1854 bis 2020 (in l/m², Rohdaten)



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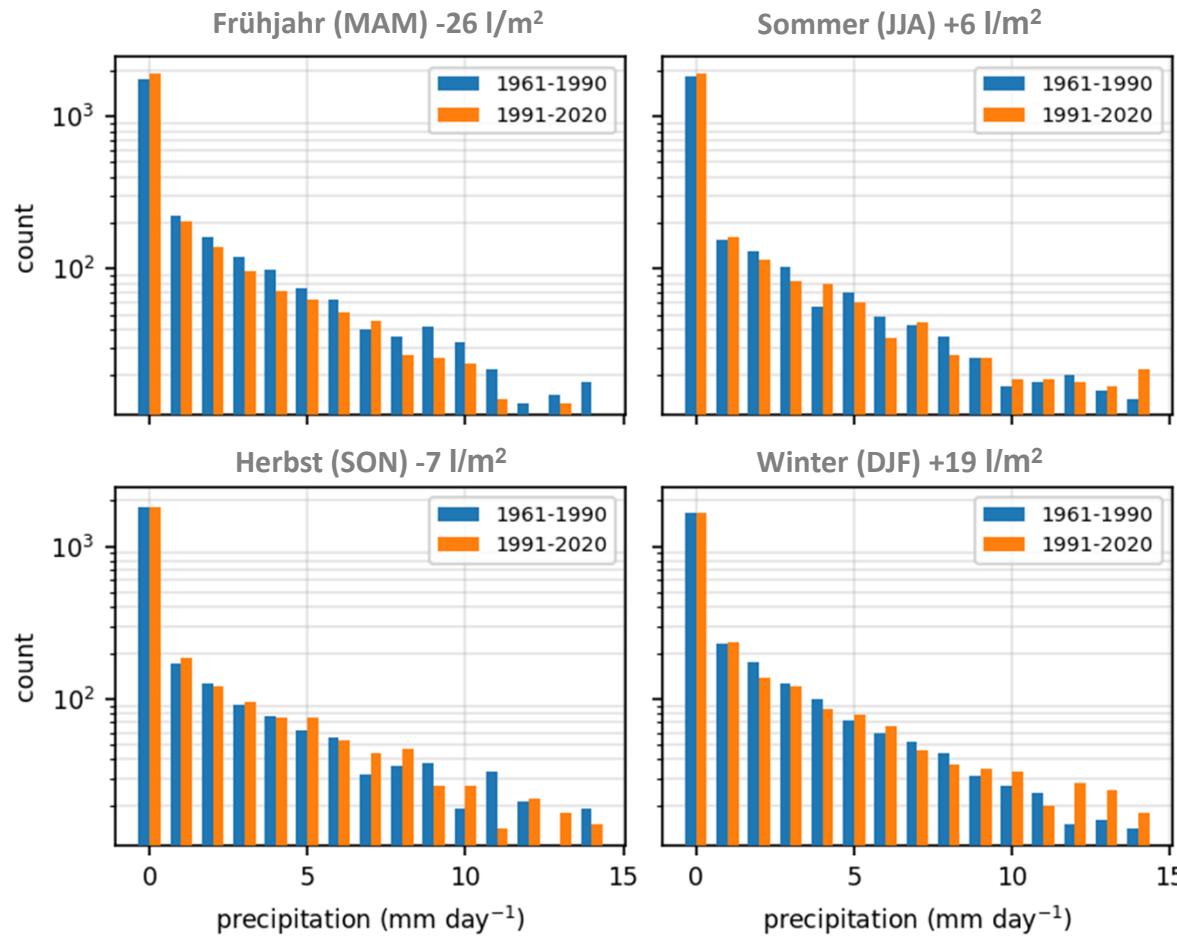


- Mittelwert des Landes 1991-2020: 812 l/m^2
- Keine klare Tendenz der Entwicklung der mittleren Jahresniederschläge

Saisonale Änderungen des Niederschlages



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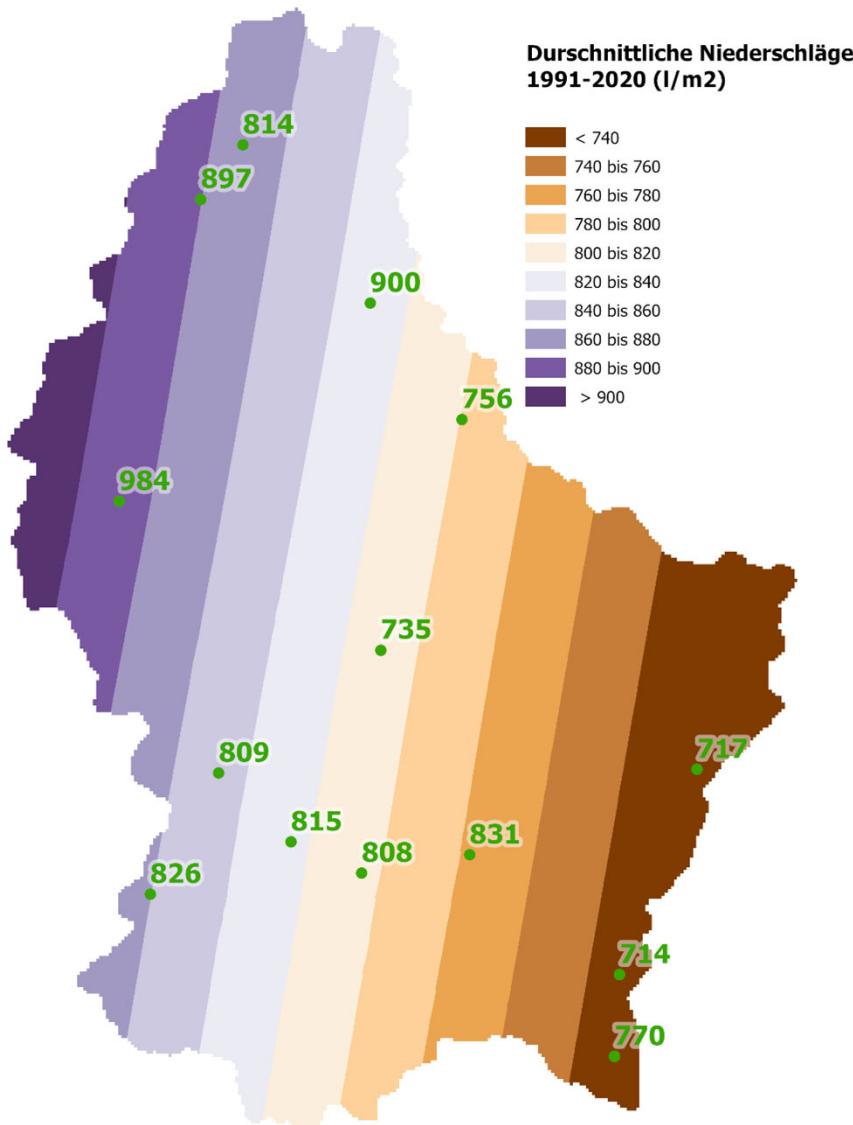


- Signifikante Abnahme in Frühjahr in Luxemburg-Stadt (-26 l/m²)
- Leicht Signifikante Zunahme im Winter in Luxemburg-Stadt (+19 l/m²)
- Zunahme der Tage mit Starkniederschlägen vor allem im Sommer und Winter (+5 Tage)

Mittlere klimatische Niederschlagsverteilung



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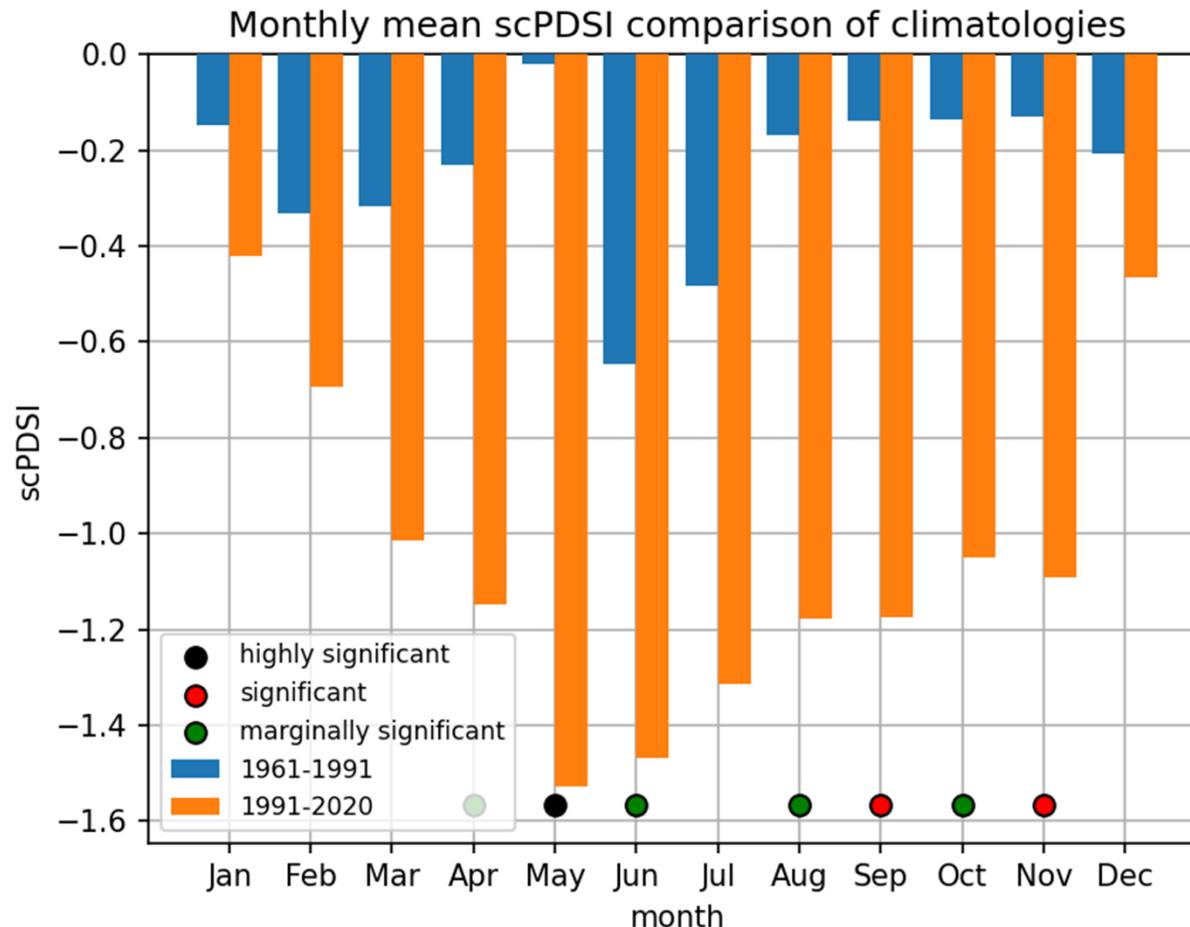


- Zeitraum 1991-2020
- Starker Gradient von Nord-West nach Süd-Ost
- Differenz von 984 L/m^2 in Arsdorf und 714 L/m^2 in Remich

Monatliche Veränderungen der Dürren



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- Signifikante Zunahme eines Indexes für Dürren in den Monaten von April bis November (außer Juli)
- Wenn Index grösser als 0.5 ist, deutet dies auf eine Dürre hin
 - 1961-1990 : Nur Juni und Juli grösser oder gleich 0.5 im Mittel
 - 1991-2020 : 10 Monate (außer Januar und Dezember) grösser als 0.5 im Mittel



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