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The IPCC AR6 assessment: What's in it for FEWS?

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Working Group I - The Physical Science Basis







The WG-1 report in numbers

Author Team

234 authors from 65 countries

28% women, 72% men

30% new to the IPCC

Why a new report?

- Science has evolved
 - (most papers are newby's)
- Climate has evolved
 - (we've seen a lot of events)
- Society has evolved
 - (we have a Paris treaty now)

Government Distribution

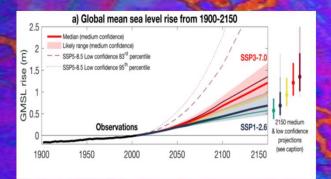
Display of warming levels Many projections plotted for 1.5, 2, 3 and 4° warming Global mean temperature in CMIP6 SSP3-7.0 (20-yr GSAT means) SSP1-2.6 (20-yr GSAT means) 3 -(°C) 2000 2020 2040 2060 2080 2100 AR6 Technical Summary Fig TS.5 Some new features in AR6 WG1

Display of warming levels

Many projections plotted for 1.5, 2, 3 and 4° warming

Discussion of low-likelihood (extreme) sea level scenarios

Makes use of "calibrated" confidence language Likely = 17 – 83% range



AR6 Technical Summary Box TS.4

Some new features in AR6 WG1

Display of warming levels

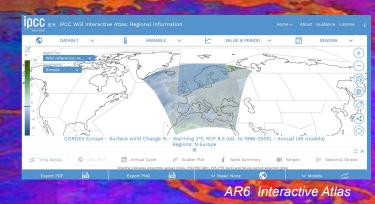
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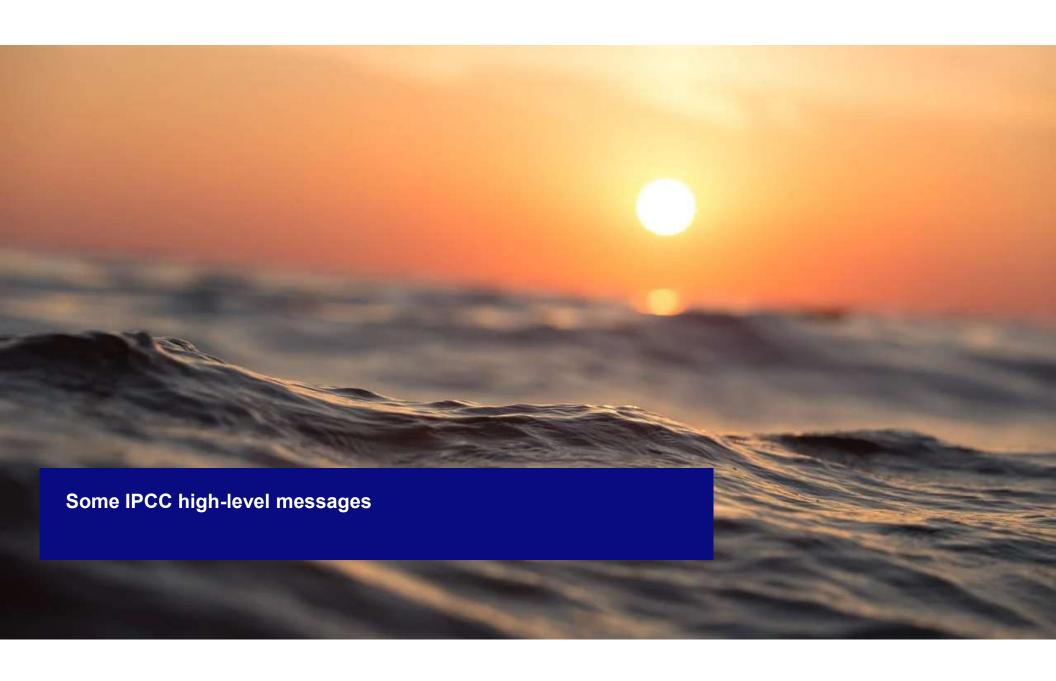
Makes use of "calibrated" confidence language Likely = 17 – 83% range

Regional and impact-oriented focus
Interactive Atlas
Many "Climatic Impact-drivers"

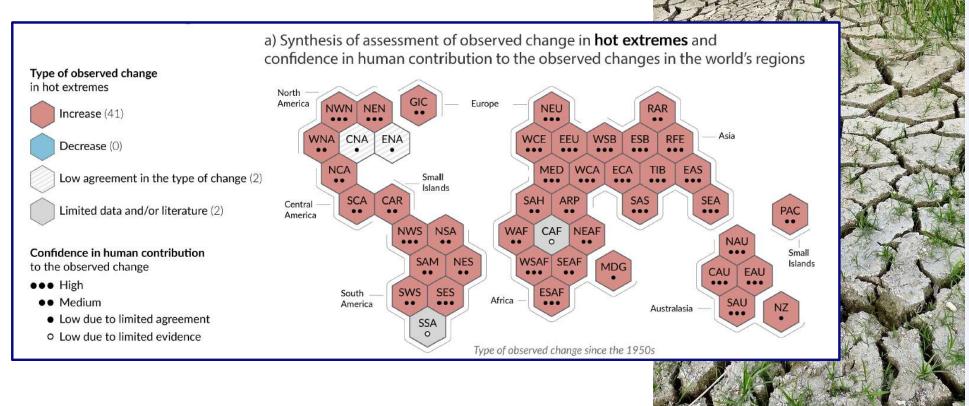
Some new features in AR6 WG1





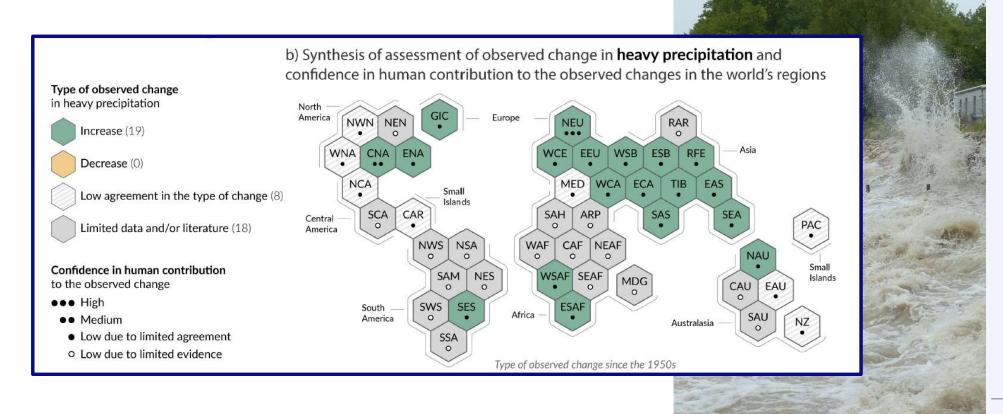


Climate change is **already** affecting every inhabited region on Earth, in multiple ways.



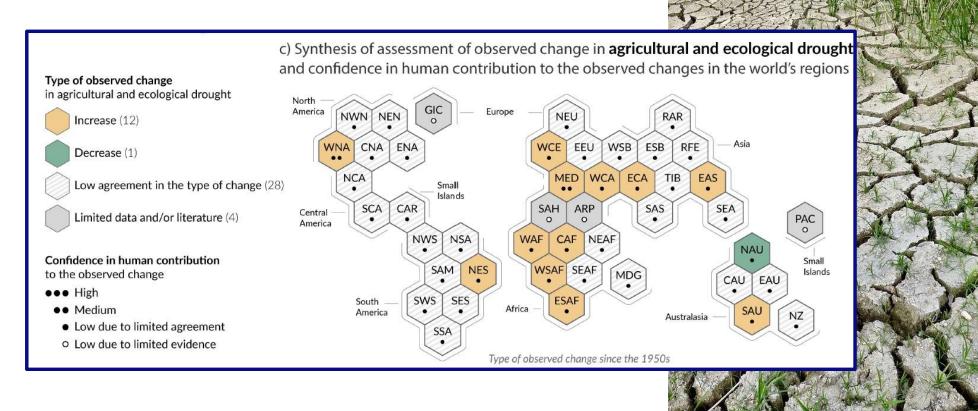
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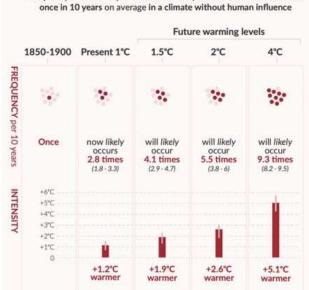


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Climate change is well on its way. And every degree of warming counts

Extreme temperature over land

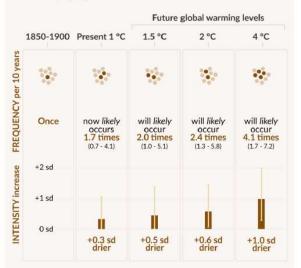
Frequency and intensity of an extreme temperature event that occurred once in 10 years on average in a climate without human influence



Agricultural & ecological droughts in drying regions

10-year event

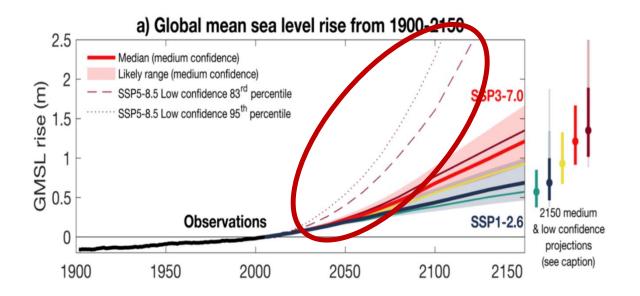
Frequency and increase in intensity of an agricultural and ecological drought event that occurred once in 10 years on average across drying regions in a climate without human influence







Different types of Sea Level Rise scenarios





Low likelihood storyline = SSP5-8.5 *Medium confidence* processes + *Low confidence* evidence

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Technical Summary



Interactive Atlas

- Observations and model projections
- Global and regional

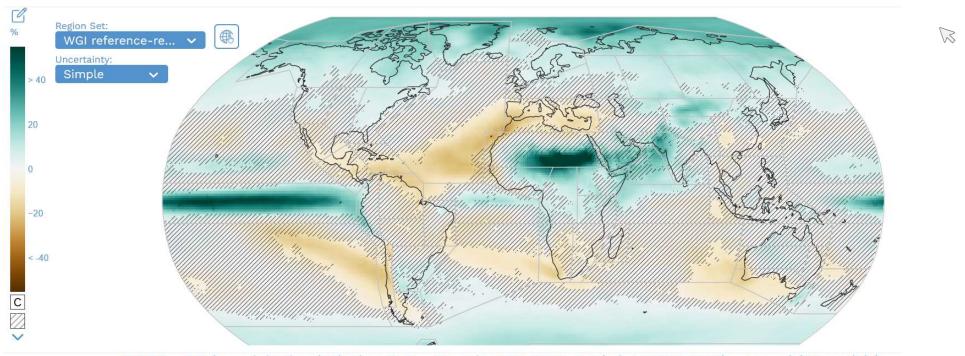




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Multiple hydrometeorological quantities

Mean precipitation change @2 °C

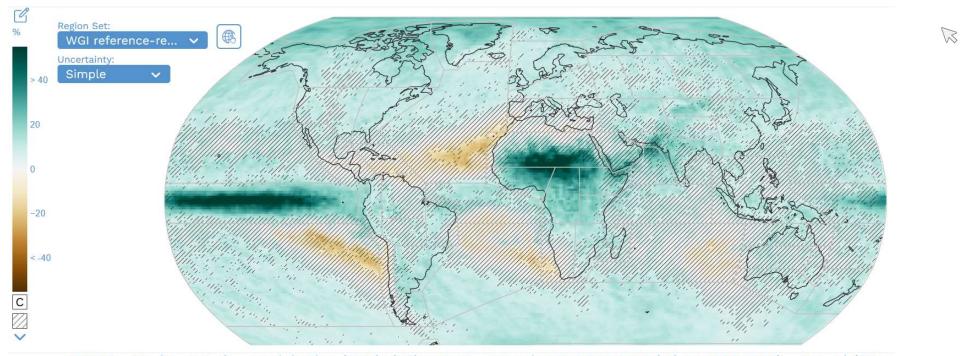


CMIP6 - Total precipitation (PR) Change % - Warming 2°C SSP5-8.5 (rel. to 1850-1900) - Annual (33 models)

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Multiple hydrometeorological quantities

Max 1day precipitation change @2 °C

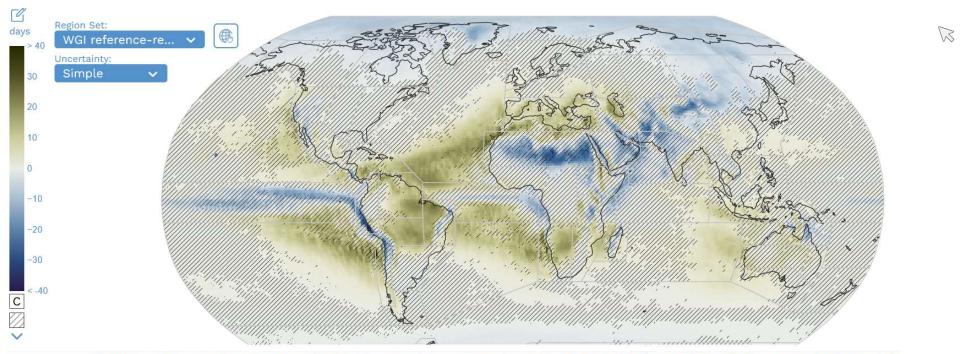


CMIP6 - Maximum 1-day precipitation (RX1day) Change % - Warming 2°C SSP5-8.5 (rel. to 1850-1900) - Annual (33 mg

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Multiple hydrometeorological quantities

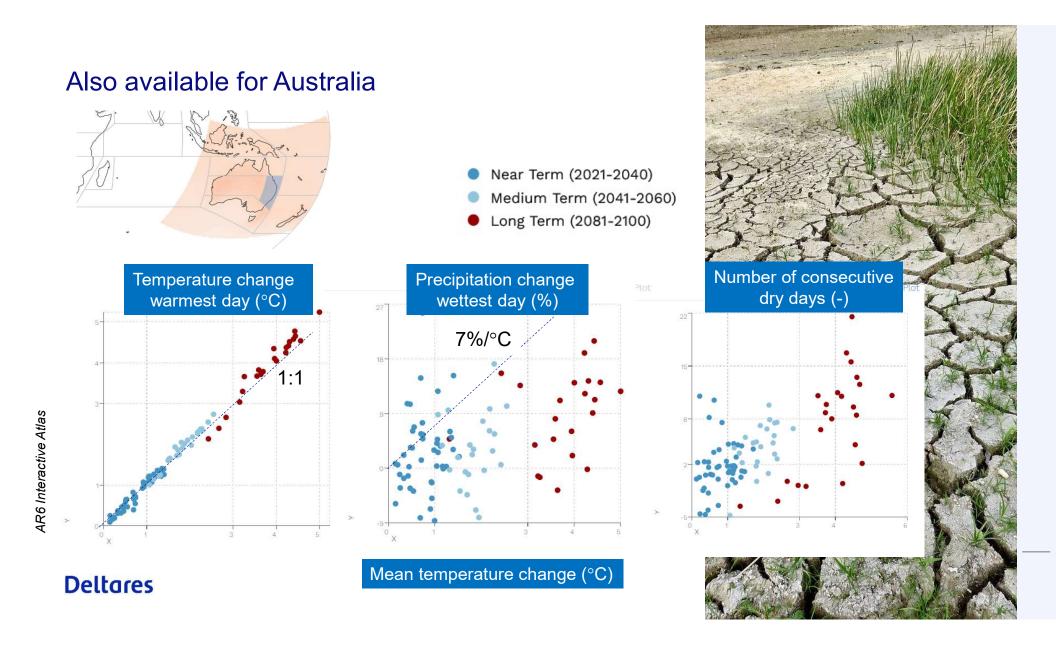
Change in consecutive dry days @2 °C

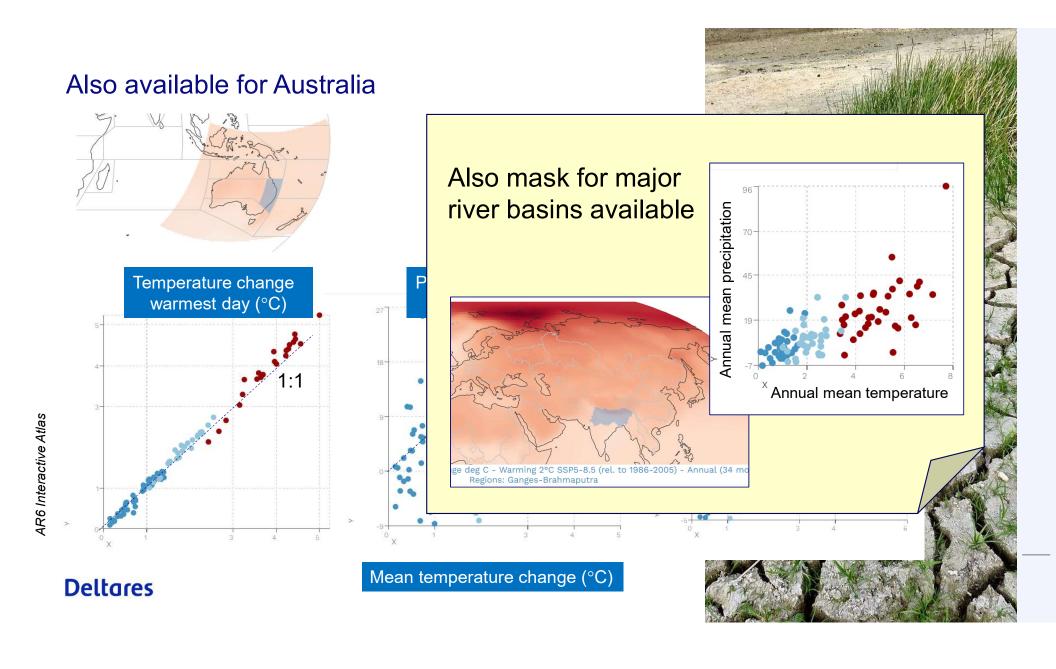


CMIP6 - Consecutive Dry Days (CDD) Change days - Warming 2°C SSP5-8.5 (rel. to 1850-1900) - Annual (32 models

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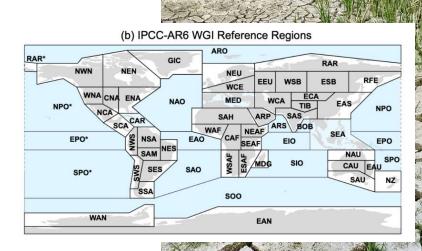
Basic information on region-specific climate change Near Term (2021-2040) Medium Term (2041-2060) Long Term (2081-2100) Number of consecutive Precipitation change Temperature change dry days (-) warmest day (°C) wettest day (%) 1:1 7%/°C AR6 Interactive Atlas Mean temperature change (°C) **Deltares**





Underlying data

- Current aggregation: reference regions
- Github access to
 - Monthly data
 - All individual models, scenarios, regions
- Soon available
 - All model data at standardized 2, 1, 0.5 degree



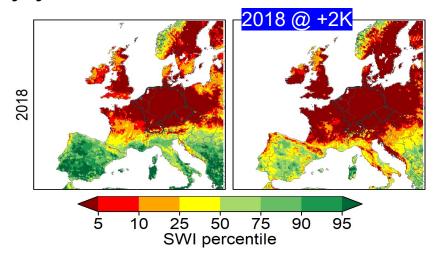
https://interactive-atlas.ipcc.ch/regional-information/about#datasets

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Connect weather and climate: weather scenarios

• Example: dry year 2018



 Future climate analogues of past extreme events

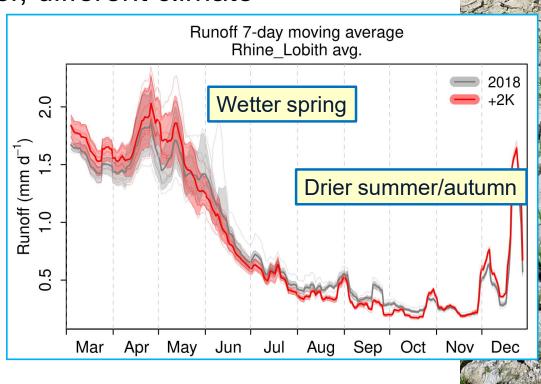
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Aalbers et al, subm



Connect weather and climate: weather scenarios

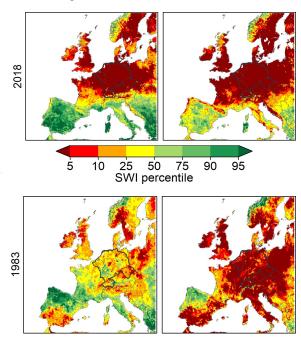
• Same weather, different climate



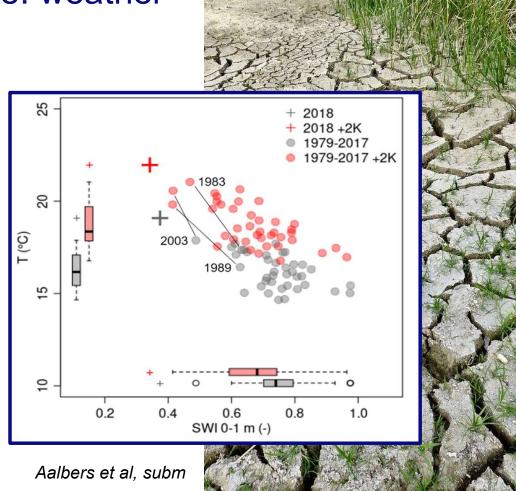


Connect weather and climate: weather scenarios

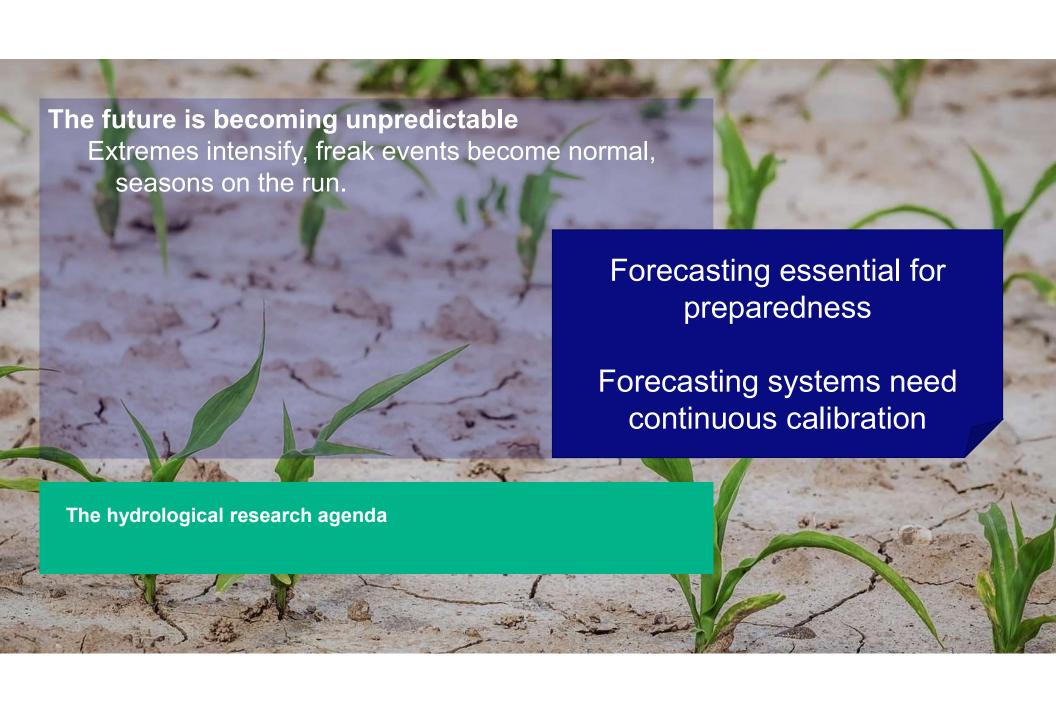
Not all years behave similarly

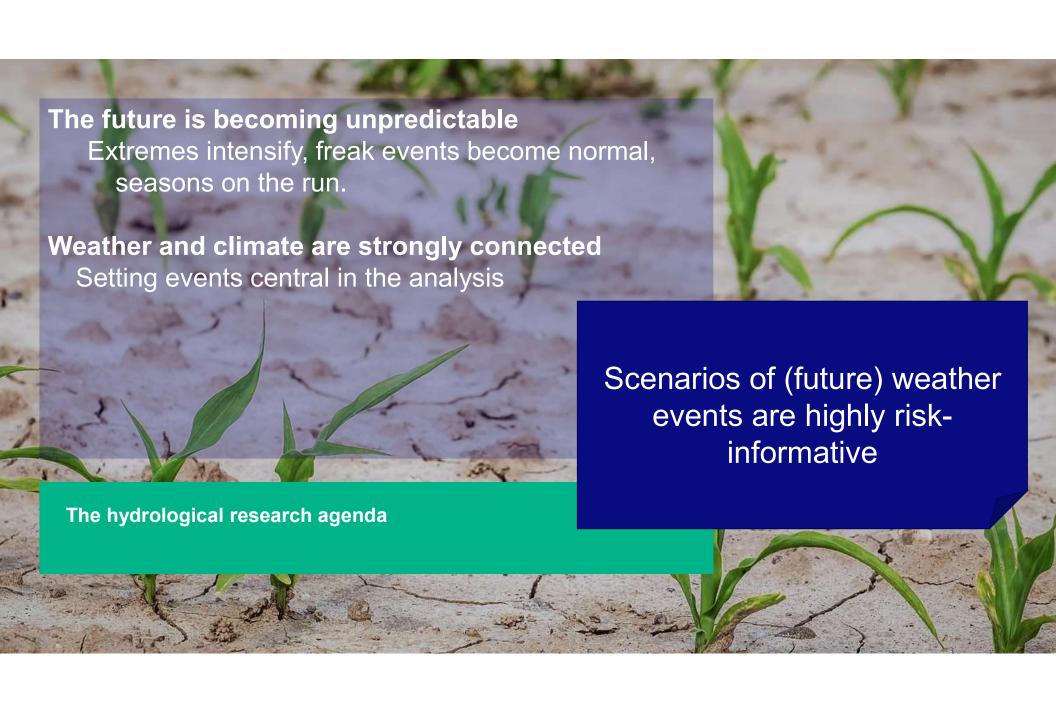


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More information

- 7 take-aways Deltares: https://www.deltares.nl/en/news/seven-take-aways-from-the-ipcc-wg-i-report-on-global-climate-change/
- Regional Factsheets: https://www.ipcc.ch/report/ar6/wg1/#Regional
- Interactive Atlas: https://interactive-atlas.ipcc.ch/
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