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Climate scenarios

communicating uncertainties





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KNMI'06 scenarios

Set of generic climate scenarios for impact, adaptation studies, etc.

Air circulation patterns

<div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 10px; height: 100%; background: linear-gradient(to top, orange, green);"></div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">changed</div> </div>	<div style="display: flex; justify-content: center; align-items: center;"> <div style="width: 40px; height: 40px; background-color: yellow; border-radius: 50%; display: flex; align-items: center; justify-content: center; margin: 0 10px;"> G+ </div> <div style="width: 40px; height: 40px; background-color: red; border-radius: 50%; display: flex; align-items: center; justify-content: center; margin: 0 10px;"> W+ </div> </div>	<div style="display: flex; justify-content: center; align-items: center;"> <div style="width: 40px; height: 40px; background-color: green; border-radius: 50%; display: flex; align-items: center; justify-content: center; margin: 0 10px;"> G </div> <div style="width: 40px; height: 40px; background-color: purple; border-radius: 50%; display: flex; align-items: center; justify-content: center; margin: 0 10px;"> W </div> </div>	<p style="font-size: small;">Global temperature in 2050 compared to 1990</p>
	<div style="display: flex; justify-content: center; align-items: center;"> <div style="width: 100%; height: 20px; background: linear-gradient(to right, green, purple);"></div> </div> <p style="font-size: 24px; font-weight: bold; text-align: center;">+ 1°C + 2°C</p>		

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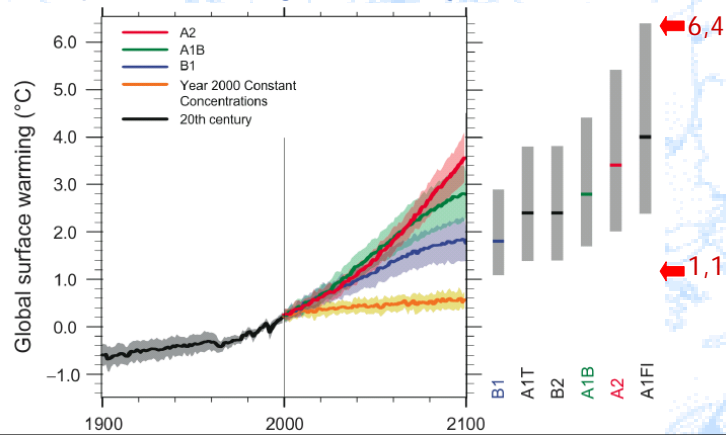
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Uncertainties



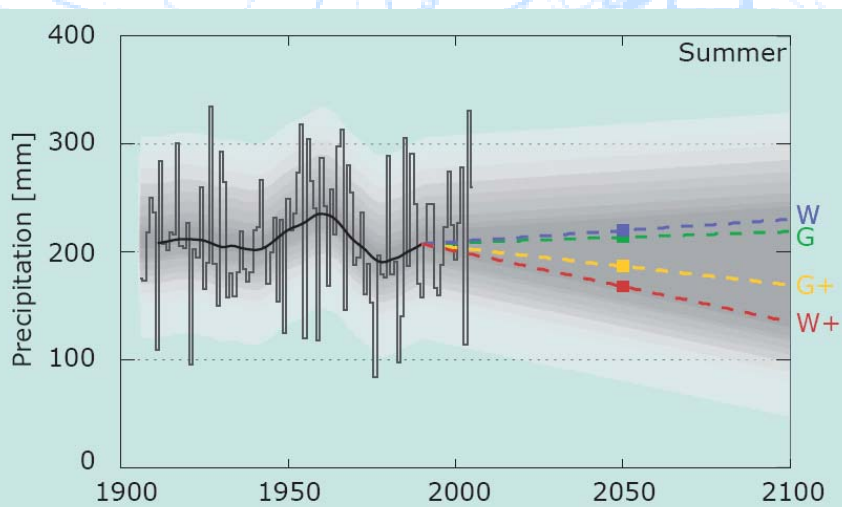
Included in KNMI'06 scenarios:

- Soc.-econ.-techn. developments
- Incomplete knowledge climate system



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Natural variability



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Sea level rise (1)



- Al Gore: 6 m?
- Policy document: 60 cm up to 2100
- IPCC: 18-59 cm between 1990-2100
- WB21 scenarios: 20-110 cm between 1990-2100
- KNMI'06 scenarios: 35-85 cm between 1990-2100

What to believe? Why this difference?

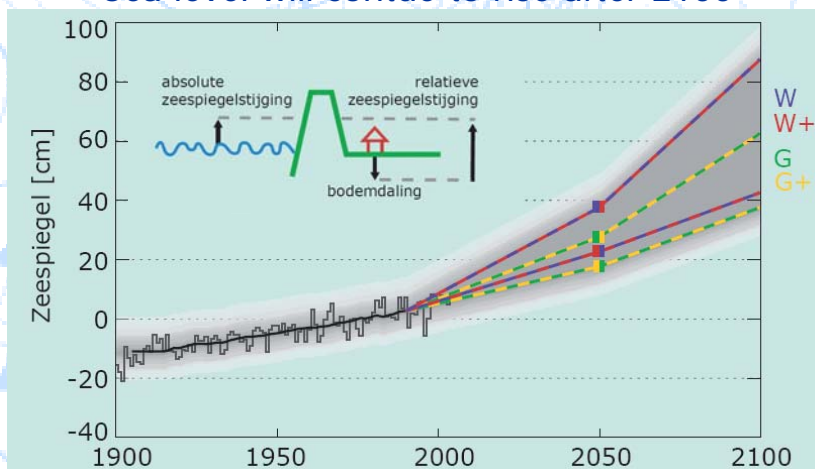
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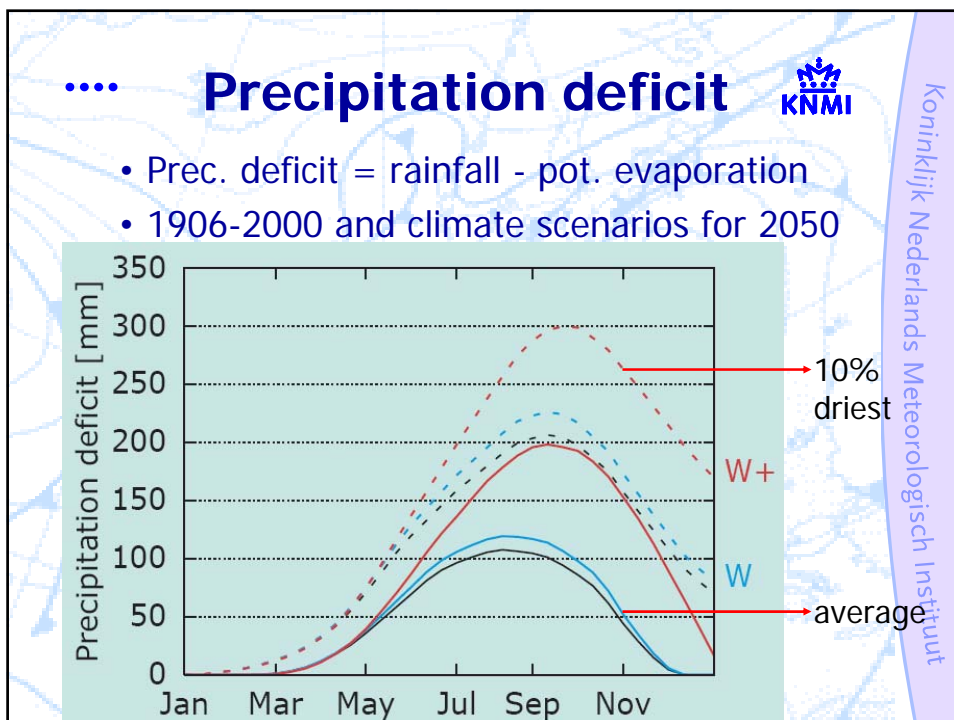
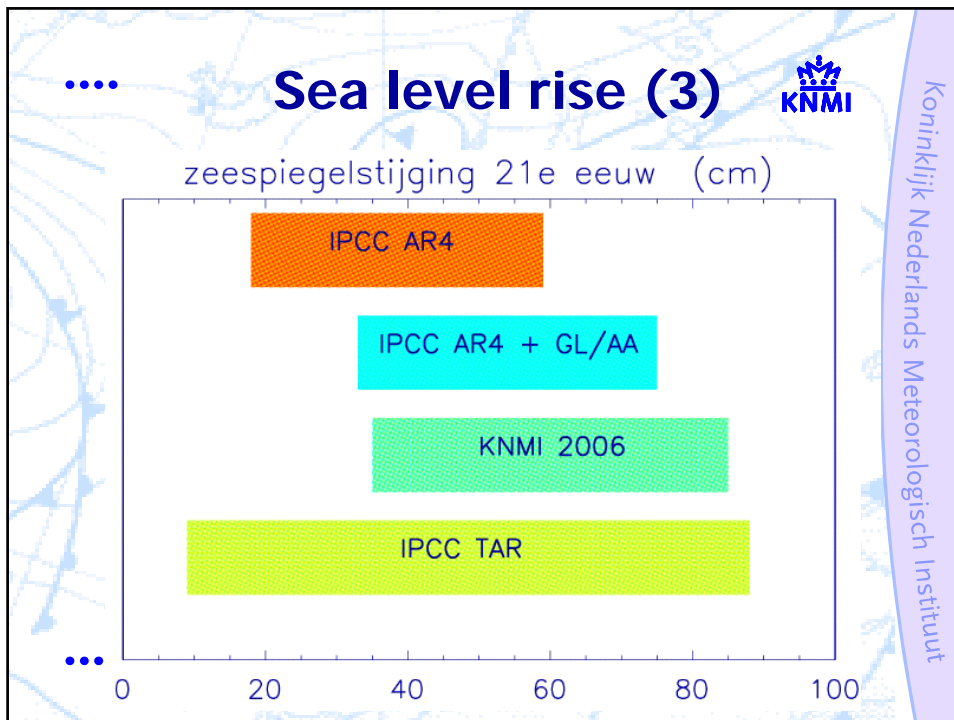
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Sea level rise (2)



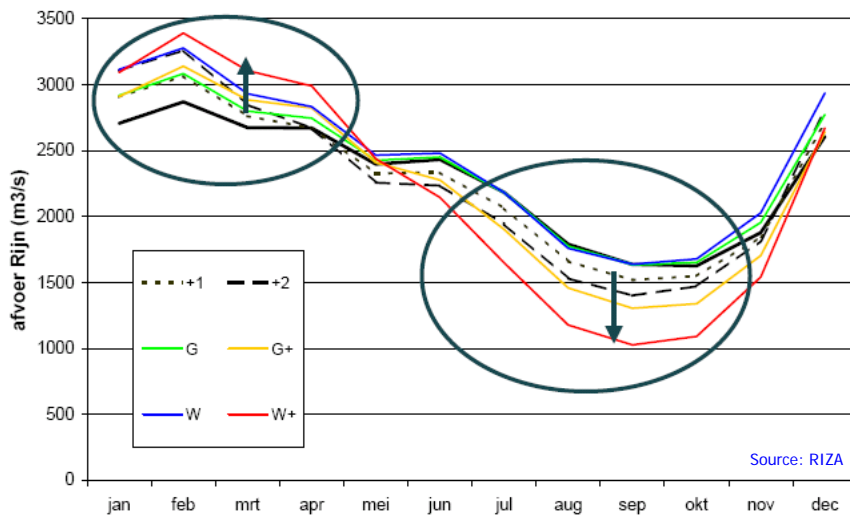
- WB21: relative SLR; KNMI'06: absolute SLR
- Sea level will continue to rise after 2100





.... Average river discharges

Rhine: current situation and around 2050



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.... Sources of uncertainty for users

- Soc.-econ.-techn. developments
- Natural variability/stochastic uncertainty
- Incomplete knowledge climate system: known and unknown
- Different interpretation of same data
- Different methods to calculate effects, adaptation measures, etc.

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Some remarks



- Limited and even number of climate scenarios
- Mention uncertainties
- Promote consistent use of climate scenarios
- Explain differences between sources of information
- Mention ranges (+ if possible probabilities)
- Direct contact with users
- Foresee incorrect use of climate information

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