

Compound storm surge and coastal precipitation in ensemble RCM simulations

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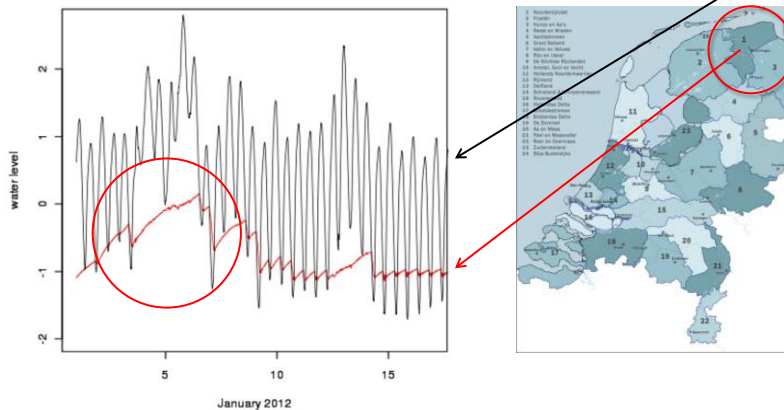
Klaas-Jan van Heeringen

Jan Gooijer



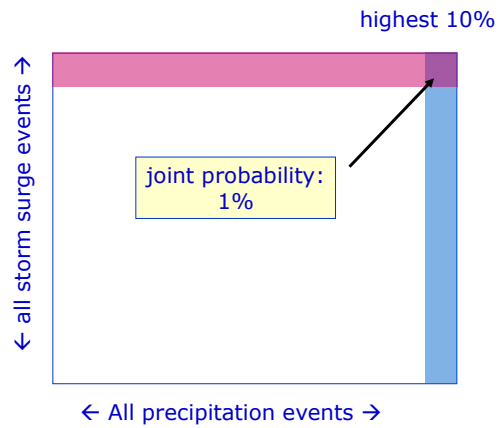
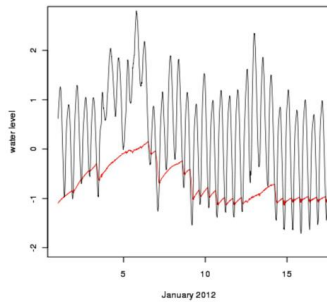
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Near-flooding event Jan 2012: a compound event



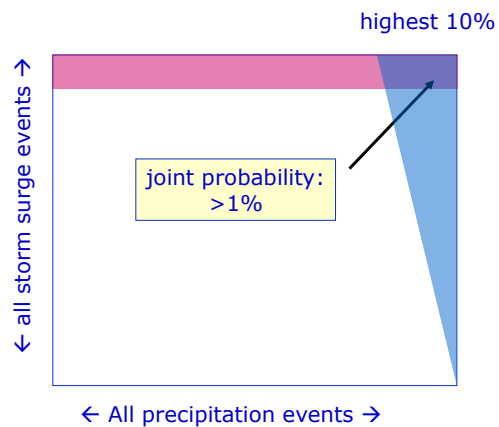
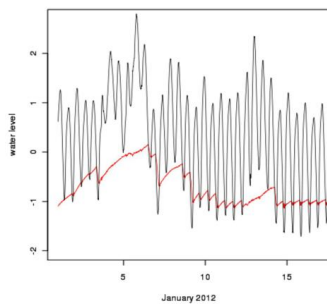
Conceptual picture of compounding extremes

Probability simultaneous surge and intense precipitation

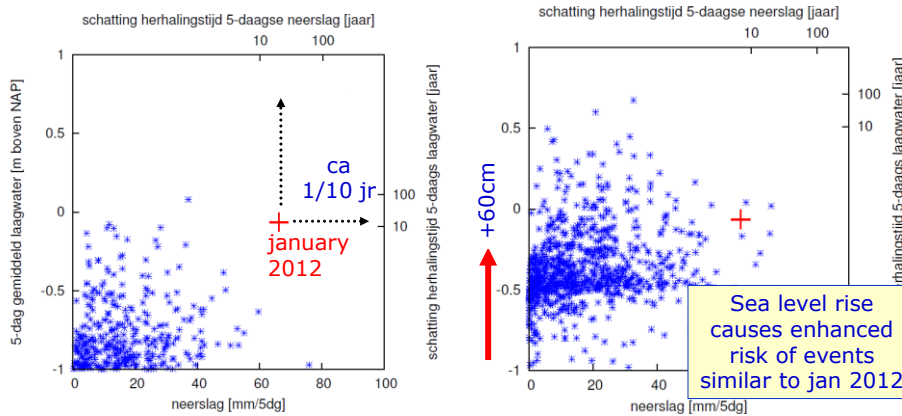


Conceptual picture of compounding extremes

Probability simultaneous surge and intense precipitation



Quick exploration of results for future climate



Present day climate

End 21st century



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Available tools and data

A regional climate model (RACMO2)

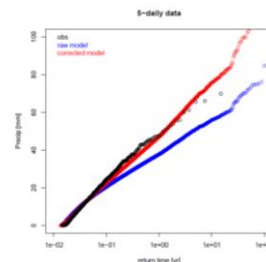
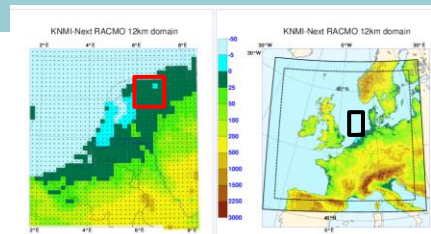
- @12km
- 1950 – 2000, 16 members = 800 yrs
- **precipitation** averaged over target domain
- storm surge derived from **wind** + astronomical tide

Local precipitation observations

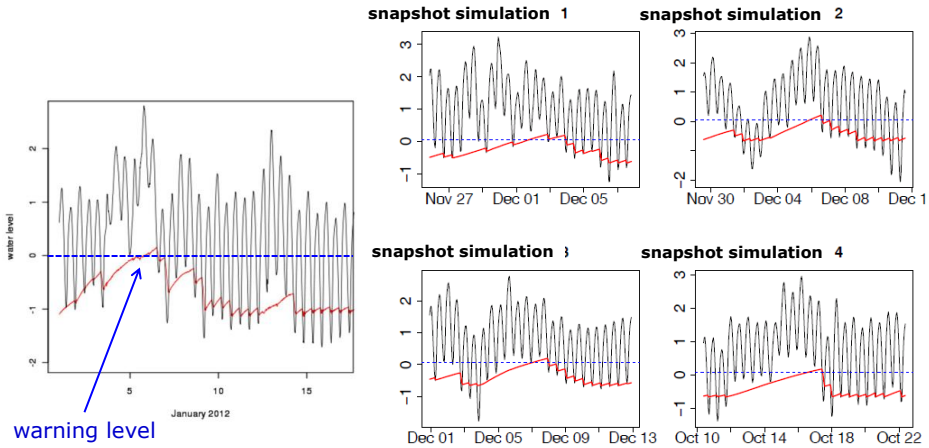
- for statistical bias correction

Hydrological model of Noorderzijlvest water system

- including water management
- to generate time series of inland water level

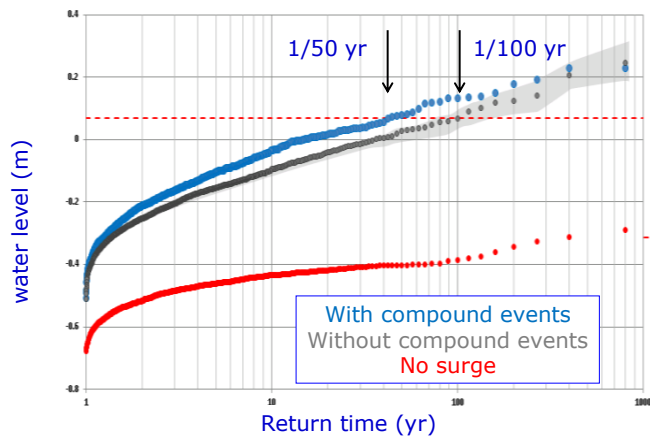


Realistic simulations of similar events



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Local water level at Lauwersmeer



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Lessons learnt

- Compounding events are very specific to local conditions
- The (scientific) question about compounding events is very different from reproducing adequate water levels

