

Timing of rates and magnitude of sea-level rise projection families

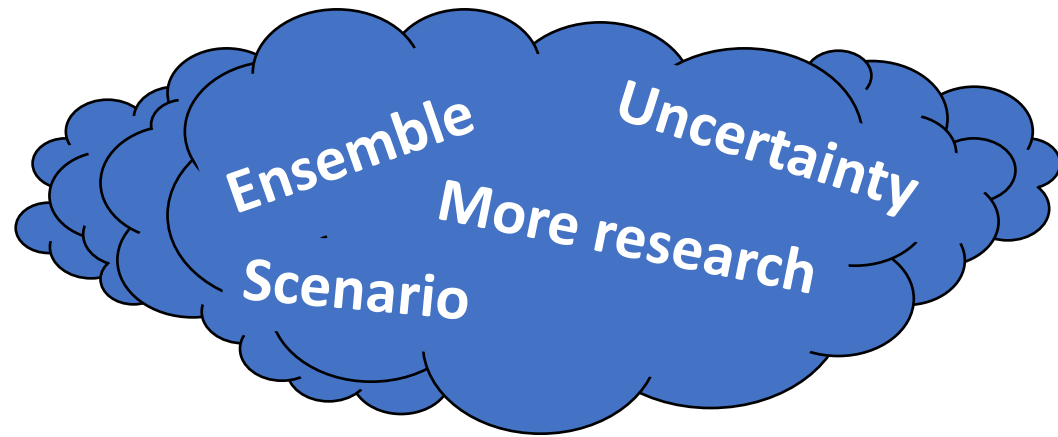
Aimée Slangen, Marjolijn Haasnoot, Gundula Winter
NIOZ, Deltares & Utrecht University



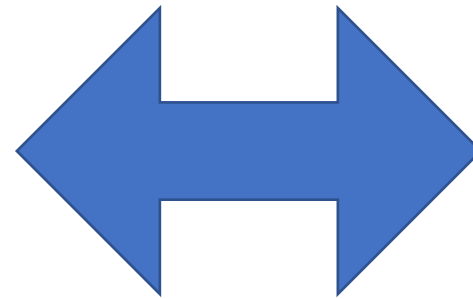
Utrecht University



Scientists vs decision makers



Scientist



“ How much will sea-levels rise, when, how fast, where? “



Decision maker



How can we help decision makers?

By finding commonalities in the large set of published sea-level projections

Two-step process:

1. Can we identify families of SLR projections?
2. Can we determine *when* rather than *if* SLR will rise with x m for each family?



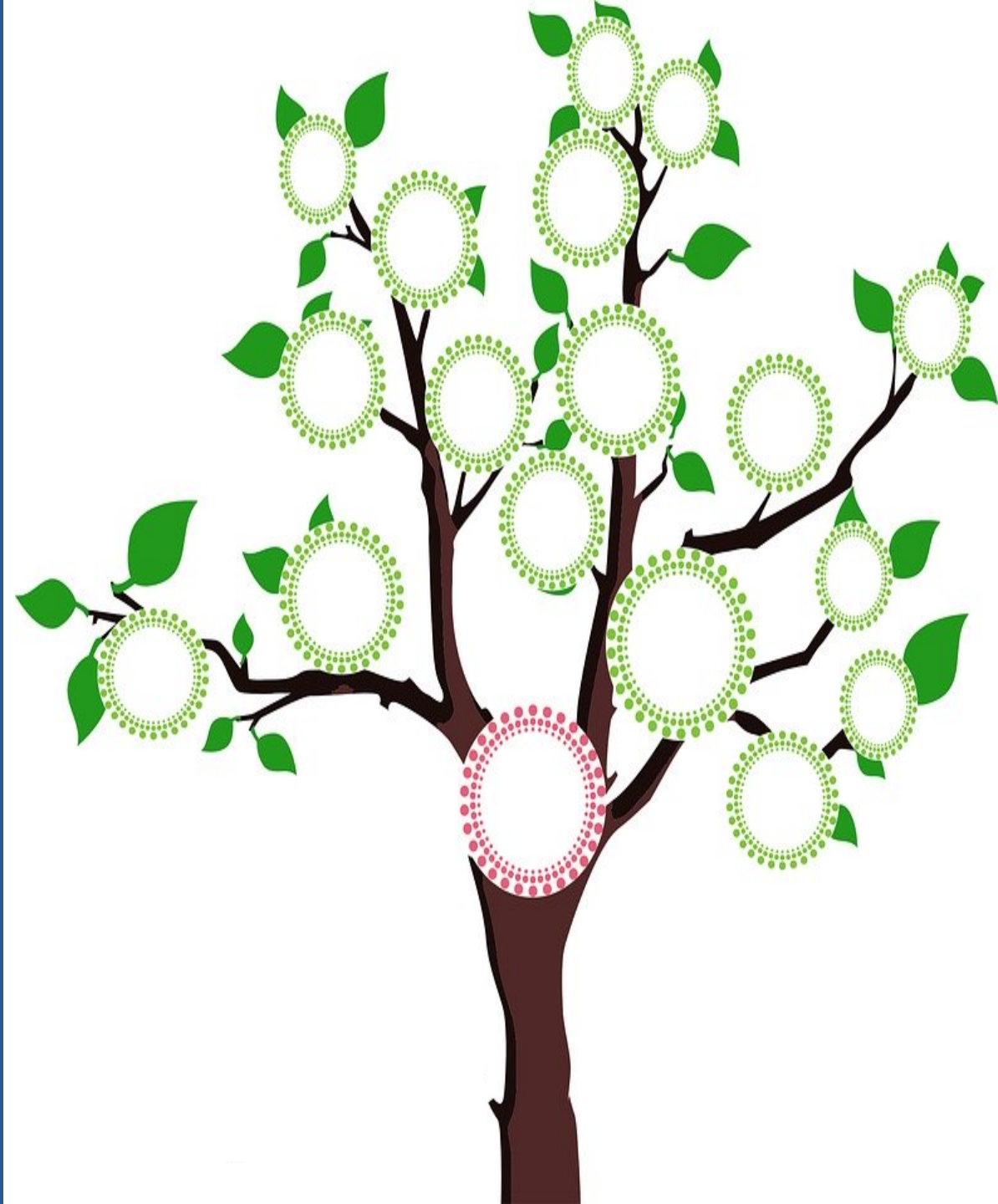
Q1. SLR familie tree

SLR contributions (sources/methods):

- Ocean density changes
- Glacier
- Icesheets

Approaches:

- Structured expert judgement
- Semi-emperical models
- Process-based models
- Reduced-complexity models





Q2. *when* rather than *if*

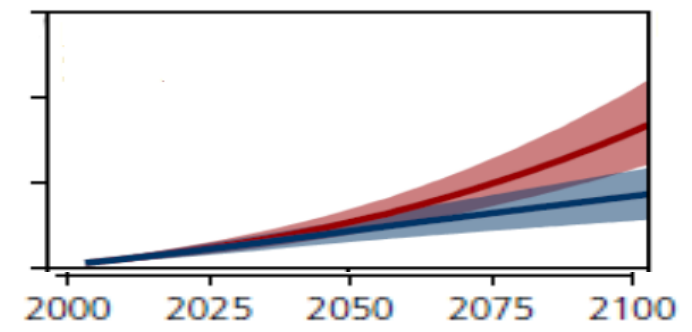
-IF-
[X - Y] cm in 2100



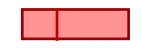
-WHEN-
[X] cm is exceeded in 2040-2060



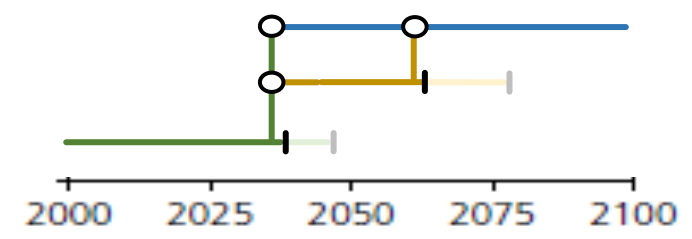
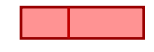
If, when and how much to adapt?



0.25 m SLR



0.5 m SLR



Adaptation Pathways

First results

- We identified 8 SLR families
- For some SLR thresholds it is a matter of time, but they will be crossed
- Range in time is small for SLR up to 0.5 m
- For higher SLR, the timing range increases
- What this means for decision making depends on preferred lifetime, and lead time for planning and implementation

Contact us for questions/suggestions!