

# The critical need to foster computational reproducibility

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*Analysis of Hydrologic Systems Research Group*

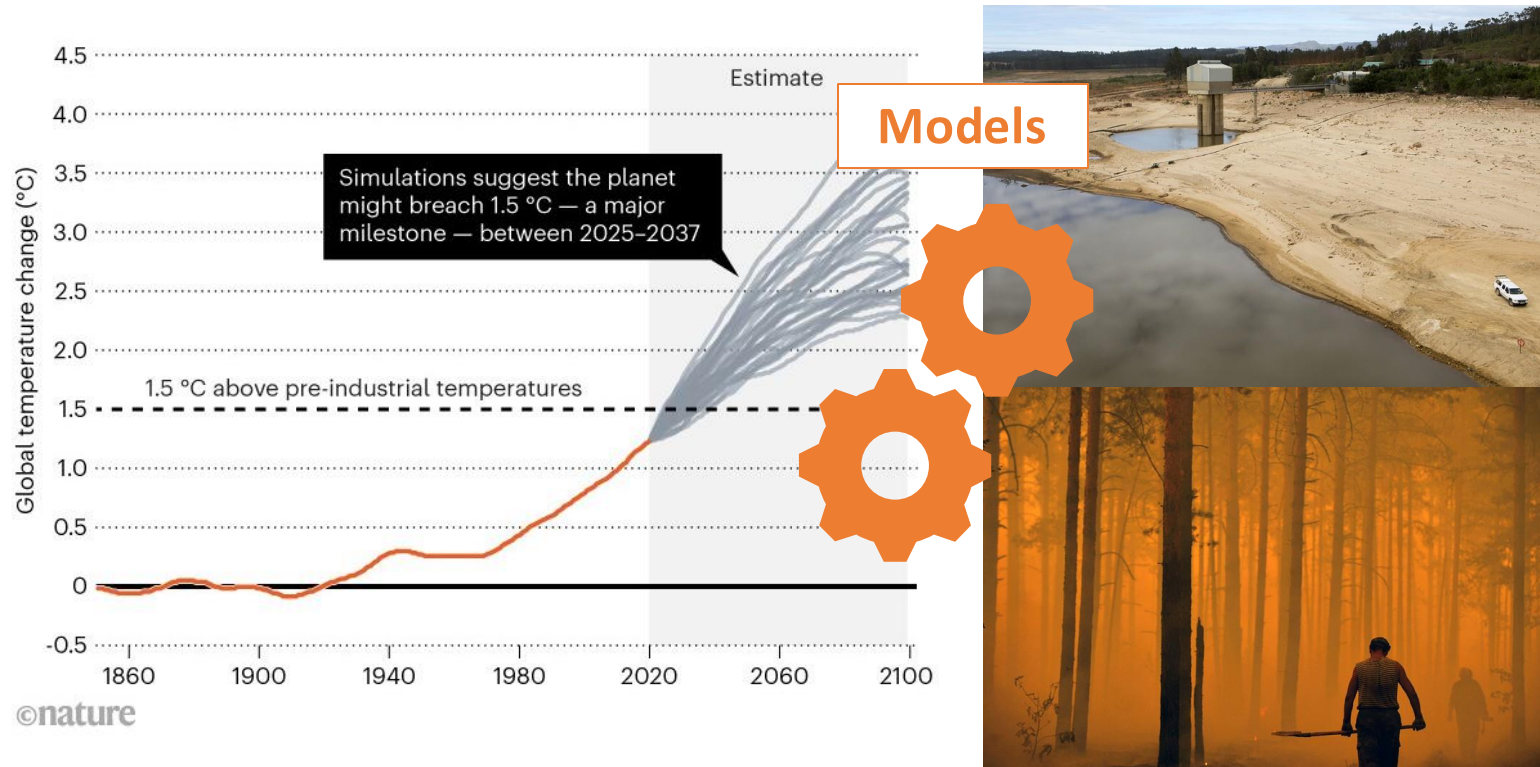
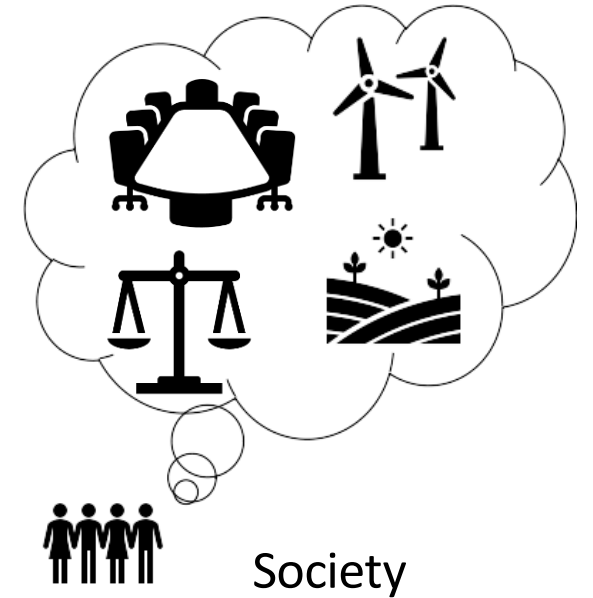
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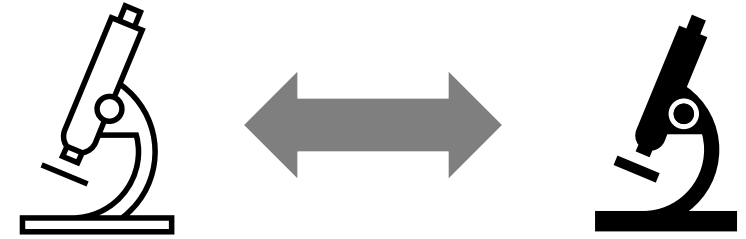
# Model results are highly relevant to stakeholders and decision/policy makers

The most recent IPCC report features **194** different models



# What is computational reproducibility?

- Highly debated topic



- Here we follow Goodman et al (2016) in what they call "methods reproducibility"

-> Replication of the same results with the same computational methods (model)

# We asked over 300 scientists and reproducibility is an issue



## Perception of reproducibility



Reinecke et al. 2022 ERL: [doi.org/10.1088/1748-9326/ac5cf8](https://doi.org/10.1088/1748-9326/ac5cf8)

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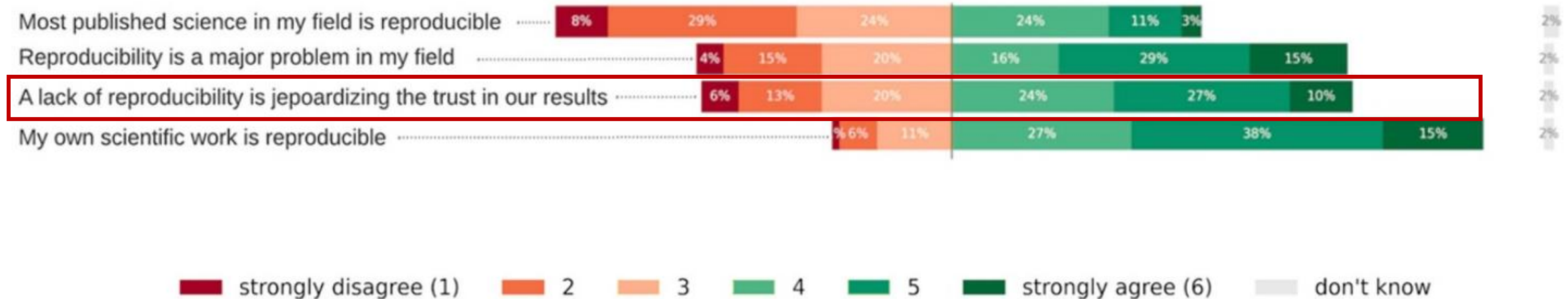
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# There are different reasons for this lack - but one of the major ones is availability

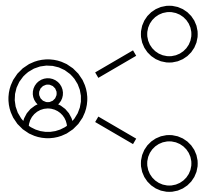


## Reasons for a lack of reproducibility



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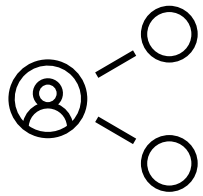
# How can we then foster reproducibility?



Sharing



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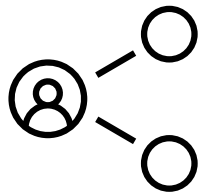


Sharing

Specialized staff

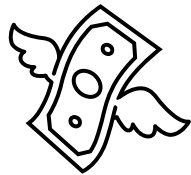
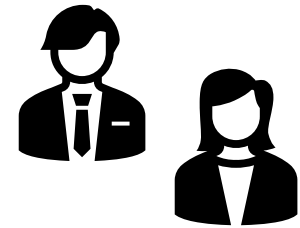


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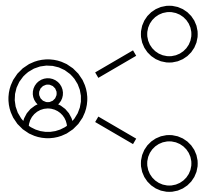
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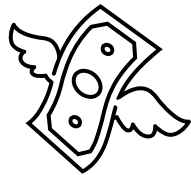
Change in  
funding

# How can we then foster reproducibility?



Sharing

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Change in  
funding



Hurdles

# Conclusions

- Without reproducible science we jeopardize the trust in our models and eventually the trust in decisions
- For details have a look at our ERL publication

*Environ. Res. Lett.* 17 (2022) 041005

<https://doi.org/10.1088/1748-9326/ac5cf8>

**ENVIRONMENTAL RESEARCH  
LETTERS**

**PERSPECTIVE**

## The critical need to foster computational reproducibility

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