

Reconciliation in the Climate Change Debate
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From *“speaking truth to power”* towards
“working deliberatively within imperfections”

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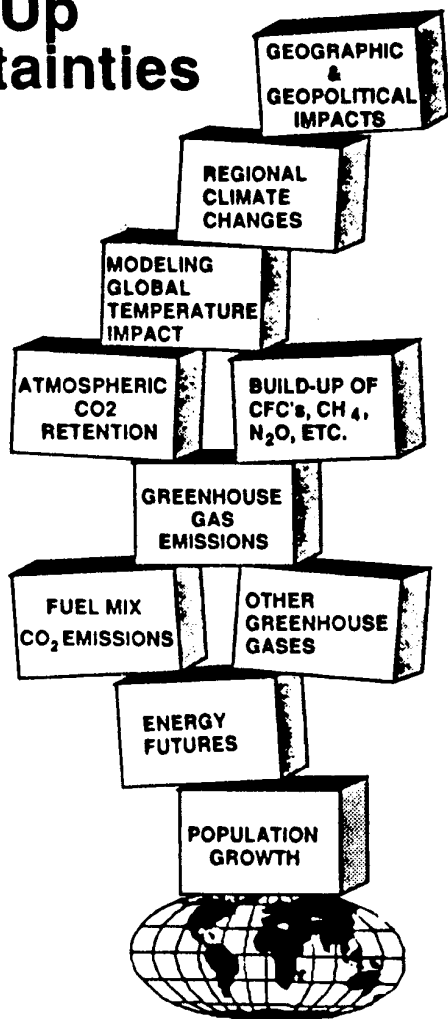


Research in Ecological Economics, Eco-Innovation & Tool
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Université de Versailles Saint-Quentin-en-Yvelines, France

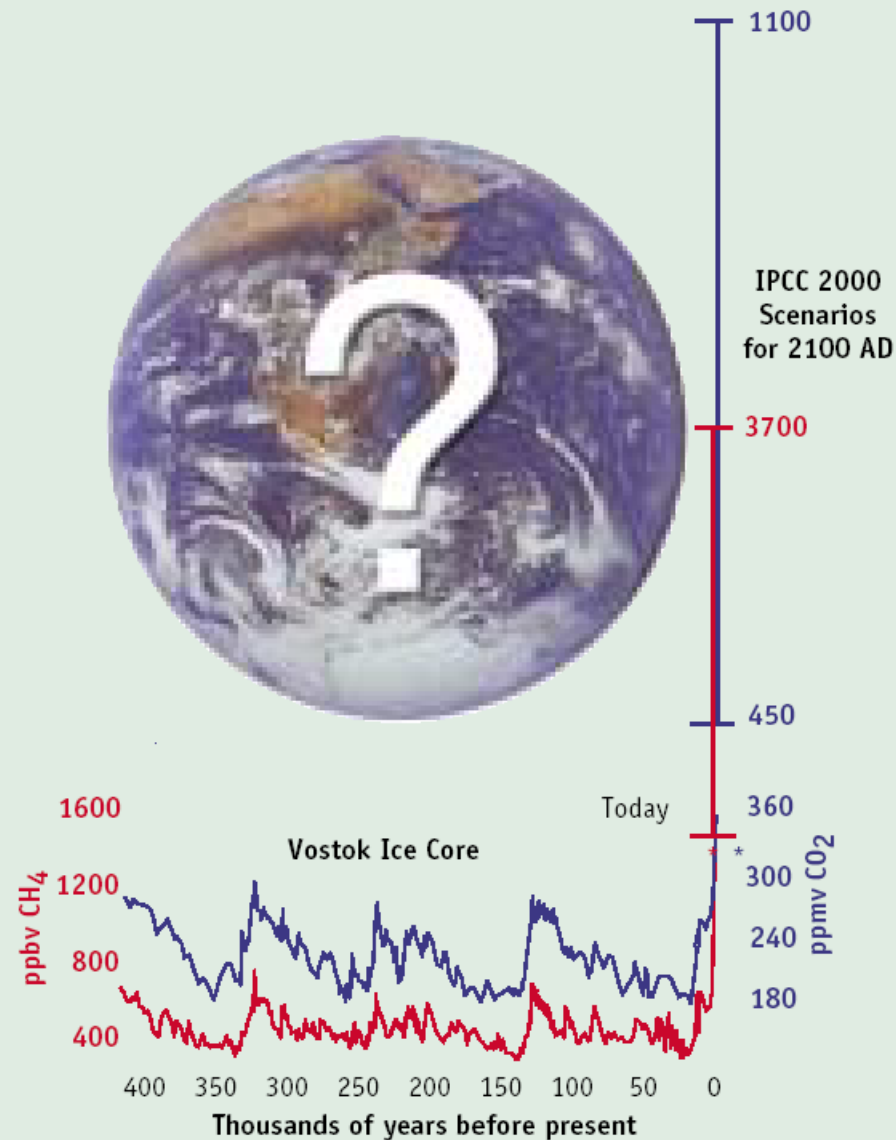


GLOBAL CLIMATE CHANGE

Piling Up Uncertainties



Sailing into terra incognita?



A practical problem:

Protecting a strategic fresh-water resource

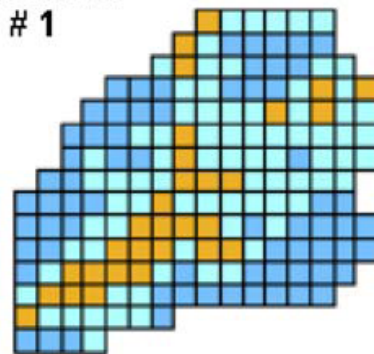
5 scientific consultants addressed same question:

“which parts of this area are most vulnerable to nitrate pollution and need to be protected?”

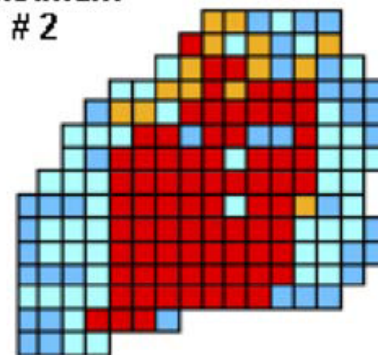
(Refsgaard, Van der Sluijs et al, 2006)

<http://cxdd.broceliande.kerbabel.fr/?q=node/388/194>

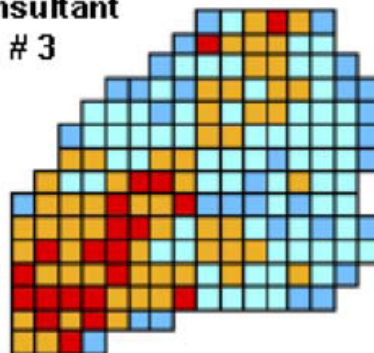
Consultant
1



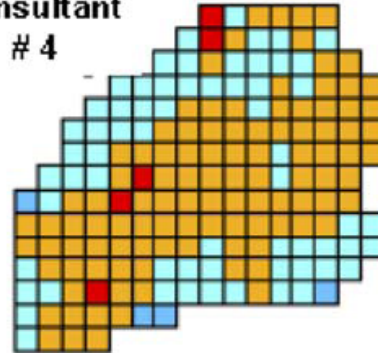
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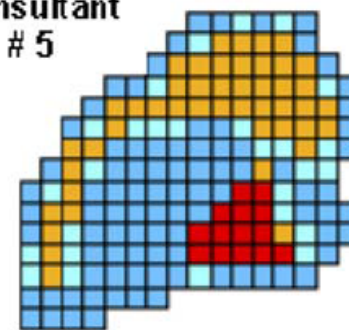
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vulnerable areas

- Very vulnerable
- Vulnerable
- Less vulnerable
- Well protected

Fig. 1. Model predictions on aquifer vulnerability towards nitrate pollution for a 175 km² area west of Copenhagen [11].

3 understandings of uncertainty

'deficit view'

- Uncertainty is provisional
- Reduce uncertainty, make ever more complex models
- *Tools*: quantification, Monte Carlo, Bayesian belief networks

'evidence evaluation view'

- Comparative evaluations of research results
- *Tools*: Scientific consensus building; multi disciplinary expert panels
- focus on robust findings

'complex systems view / *post-normal* view'

- Uncertainty is intrinsic to complex systems
- Uncertainty can be result of production of knowledge
- Acknowledge that not all uncertainties can be quantified
- Openly deal with deeper dimensions of uncertainty
(problem framing indeterminacy, ignorance, assumptions, value loadings, institutional dimensions)
- *Tools*: Knowledge Quality Assessment
- Working deliberatively within imperfections



Former chairman IPCC on objective to reduce climate uncertainties:

- *"We cannot be certain that this can be achieved easily and we do know it will take time. Since a fundamentally chaotic climate system is predictable only to a certain degree, our research achievements will always remain uncertain. Exploring the significance and characteristics of this uncertainty is a fundamental challenge to the scientific community."* (Bolin, 1994)



How to act upon such uncertainty?

- Bayesian approach: 5 priors. Average and update likelihood of each grid-cell being red with data (but oooops, there is no data and we need decisions now)
- IPCC approach: Lock the 5 consultants up in a room and don't release them before they have consensus
- Nihilist approach: Dump the science and decide on an other basis
- Precautionary robustness approach: protect all grid-cells
- Academic bureaucrat approach: Weigh by citation index (or H-index) of consultant.
- Select the consultant that you trust most
- Real life approach: Select the consultant that best fits your policy agenda
- Post normal: explore the relevance of our ignorance: working deliberately within imperfections

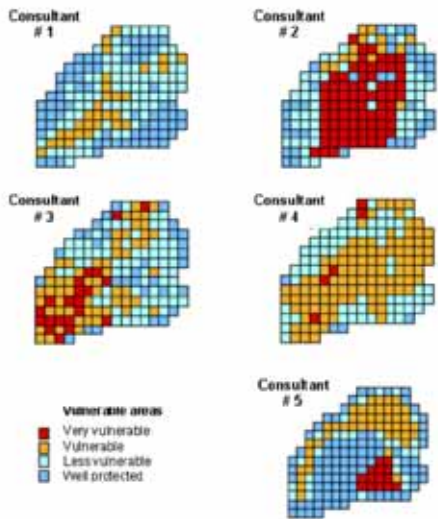


Fig. 1. Model predictions on aquifer vulnerability towards nitrate pollution for a 175 km² area west of Copenhagen [11].



How does science-policy interface cope with uncertainties

Two strategies dominate:

- **Overselling certainty** to promote political decisions (enforced consensus), or
- **Overemphasising uncertainty** to prevent political action

- Both promote decision strategies that are **not fit for meeting the challenges** posed by the uncertainties and complexities faced.

- Need for a third voice next to alarmists and skeptics: PNS is crucial to cope with uncertainty, scientific dissent & plurality in science for policy.



Further reading

- Jeroen P. van der Sluijs, Rinie van Est, Monique Riphagen (2010) **Beyond consensus: reflections from a democratic perspective on the interaction between climate politics and science**, *Current Opinion in Environmental Sustainability*, 2 (5-6) 409–415
<http://dx.doi.org/10.1016/j.cosust.2010.10.003>
- Jeroen P. van der Sluijs, Rinie van Est and Monique Riphagen (red.) (2010). **Room for Climate Debate, Perspectives on the interaction between climate politics, science and the media**. Den Haag, Rathenau Instituut. 98 pp
http://www.rathenau.nl/uploads/tx_tferathenau/Room_for_climate_debate.pdf
- J.P. van der Sluijs (2010). **Uncertainty and complexity: the need for new ways of interfacing climate science and climate policy**. In: P. Driessen P. Leroy, and W. van Vierssen, *From Climate Change to Social Change: Perspectives on Science – Policy Interactions*, International Books, Utrecht, 31-49.
http://www.precautionaryprinciple.eu/sites/default/files/BookChapterJvdS_Driessen_ea_bookFinal.pdf
- Arthur C. Petersen, Albert Cath, Maria Hage, Eva Kunseler, and Jeroen P. van der Sluijs (in press). **Post-Normal Science in Practice at the Netherlands Environmental Assessment Agency**, *Science Technology & Human Values*
<http://dx.doi.org/10.1177/0162243910385797>
- J.P. van der Sluijs, *Anchoring amid uncertainty; On the management of uncertainties in risk assessment of anthropogenic climate change*, Ph.D. Thesis, Utrecht University, 1997, 260 pp.
<http://www.projects.science.uu.nl/nws/publica/PhDThesisJeroenvanderSluijs1997.pdf>
- Climate change adaptation under uncertainty: resilience, robustness
www.nusap.net/adaptation
- www.jvds.nl
- NUSAP.net www.nusap.net

