

Prof. Arthur Petersen



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Curriculum Vitae Prof. Arthur Petersen

Professor Arthur C. Petersen (1970) is Chief Scientist at the PBL Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving, PBL); Professor of Science and Environmental Public Policy in the IVM Institute for Environmental Studies at the VU University Amsterdam; Visiting Professor in the Centre for the Analysis of Time Series and the Grantham Research Institute on Climate Change and the Environment at the London School of Economics and Political Science (LSE); and Research Affiliate in the Political Economy & Technology Policy Program of the Center for International Studies at the Massachusetts Institute of Technology (MIT).

At IVM, Petersen co-leads the research theme 'Science and Values for Environmental Governance' within the Department of Environmental Policy Analysis. This research theme focuses on the role of scientific knowledge and values for addressing complex environmental problems, and specialises in three key areas: communicating scientific uncertainty; values and sustainability transitions; and producing sustainability science.

Over the past years, Petersen's research has mainly been directed at managing uncertainties related to scientific knowledge. Following his studies in physics and philosophy, he obtained a PhD degree in atmospheric sciences at the Utrecht University in 1999 (download 1st dissertation), and another PhD degree in philosophy of science at the VU University Amsterdam in 2006 (download 2nd dissertation). Currently, his research focuses on methodological questions pertaining to a wide range of models and on political science questions related to dealing with uncertainty in policymaking. Furthermore, over the past decade he has been active in the Intergovernmental Panel on Climate Change (IPCC) - both as an expert and as a member of Dutch government delegations to IPCC meetings - to reflect on the

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assessment of uncertainties in climate science. In a blog on the LSE website he has briefly summarised his views on this topic.

Besides his professional jobs, Petersen has been active within Pugwash (or Pugwash Conferences on Science and World Affairs in full), an organisation that brings together, from around the world, influential scholars and public figures concerned with reducing the danger of armed conflict and seeking cooperative solutions for global problems such as those related to poverty alleviation and protection of the environment. Presently, Petersen is Chair of Pugwash Netherlands.

Expertise

Methodology; political science; philosophy of science; science and technology studies; atmospheric sciences; scientific uncertainty; value-ladenness of assumptions; science–policy interface; sustainability assesment

Academic training

2006	PhD, Philosophy of Science, VU University Amsterdam
1999	PhD, Atmospheric Sciences, Utrecht University
1995	MA, Philosophy of Science, VU University Amsterdam
1993	MSc, Theoretical Physics, VU University Amsterdam

Professional employment history

2011-present	Special Professor of Science and Environmental Public Policy, Department of Environmental Policy Analysis, Institute for Environmental Studies - Instituut voor Milieuvraagstukken (IVM), Faculty of Earth and Life Sciences (FALW), VU University Amsterdam
2011-present	Chief Scientist, PBL
2010-present	Deputy Head, Department of Information, Data and Methodology , PBL
2009-present	Visiting Professor, Centre for the Analysis of Time Series and Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science (LSE)

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2009-present	Research Affiliate, Political Economy & Technology Policy Program, Center for International Studies, Massachusetts Institute of Technology (MIT)
2003-present	Programme Director, Methodology and Modelling Programme, PBL
2001-2010	Senior Policy Analyst, PBL Netherlands Environmental Assessment Agency, The Hague/Bilthoven
2009	Director of Climate Science, The Matrix Project, H+N+S Landscape Architects
2008	Visiting Scholar, MIT Center for International Studies
1999-2001	Postdoctoral Research Associate, Faculty of Philosophy VU University Amsterdam

Recent projects

2010-2013: Principal Investigator (project leader) of double postdoc project awarded by Netherlands Organisation for Scientific Research (NWO) and Knowledge for Climate (KvK). Project title: *Bridging the gap between stakeholders and climate modellers: Demand-driven adaptation assessment for uncertain changes in weather extremes*. Co-PIs: Matthijs Hisschemöller (IVM, VU University Amsterdam) and Wilco Hazeleger (KNMI).

Selected publications

Hogendoorn, D., Laws, D.W., Lividikou, D. and **Petersen, A.C.** (2012), 'Framing an uncertain climate: Adaptation and water management practice in the Netherlands', in H.A. Karl, L. Scarlett, J.C. Vargas-Moreno & M. Flaxman (eds.), *Restoring Lands – Coordinating Science, Politics and Action: Complexities of Climate and Governance*, Dordrecht: Springer, pp. 305–334.

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Petersen, A.C., van Bree, L. and Tuinstra, W. (2011), 'Framing air pollution and health problems: How to include stakeholder perspectives?', in R. Lidskog and G. Sundqvist (eds.), *Governing the Air: The Dynamics of Science, Policy, and Citizen Interaction*, Cambridge, MA: MIT Press, pp. 273–292.

Vasileiadou, E., Heimeriks, G. and **Petersen, A.C.** (2011), 'Exploring the impact of the IPCC Assessment Reports on science', *Environmental Science & Policy* 14: 1052–1061.

van der Sluijs, J.P., **Petersen, A.C.** and Funtowicz, S.O. (2011), 'Reflective approaches to uncertainty assessment and communication', in J. Lentsch and P. Weingart (eds.). *The Politics of Scientific Advice: Institutional Design for Quality Assurance*, Cambridge, UK: Cambridge University Press, pp. 259–269.

Petersen, A.C. (2011), 'Climate simulation, uncertainty, and policy advice: The case of the IPCC', in G. Gramelsberger and J. Feichter (eds.). *Climate Change and Policy: The Calculability of Climate Change and the Challenge of Uncertainty*, Dordrecht: Springer, pp. 91–111.

Petersen, A.C., Cath, A., Hage, M., Kunseler, E. and van der Sluijs, J.P. (2011), 'Post-normal science in practice at the Netherlands Environmental Assessment Agency', *Science, Technology, & Human Values* 36: 362–388.

Kloprogge, P., van der Sluijs, J.P. and **Petersen, A.C.** (2011), 'A method for the analysis of assumptions in model-based environmental assessments', *Environmental Modelling & Software* 26: 289–301.

Beusen, A.H.W., de Vink, P.J.F. and **Petersen, A.C.** (2011), 'The dynamic simulation and visualization software MyM', *Environmental Modelling & Software* 26: 238–240.

Visser, H., Büntgen, U, D'Arrigo, R. and **Petersen, A.C.** (2010), 'Detecting instabilities in tree-ring proxy calibration', *Climate of the Past* 6: 367–377.

McCray, L.E., Oye, K.A. and **Petersen, A.C.** (2010), 'Planned adaptation in risk regulation: An initial survey of US environmental, health, and safety regulation', *Technological Forecasting & Social Change* 77: 951–959.

Hage, M., Leroy, P. and **Petersen, A.C.** (2010), 'Stakeholder participation in environmental knowledge production', *Futures* 42: 254–264.

Douguet, J.-M., O'Connor, M., **Petersen, A.C.**, Janssen, P.H.M. and van der Sluijs, J.P. (2009), 'Uncertainty assessment in a deliberative perspective', in A. Pereira Guimaraes and S. Funtowicz (eds.), *Science for Policy*, Oxford: Oxford University Press, pp. 15–47.

Wardekker, J.A., **Petersen, A.C.** and van der Sluijs, J.P. (2009), 'Ethics and public

perception of climate change: Exploring the Christian voices in the US public debate', *Global Environmental Change* 19: 512–521.

Knol, A.B., **Petersen, A.C.**, van der Sluijs, J.P. and Lebret, E. (2009), 'Dealing with uncertainties in environmental burden of disease assessment', *Environmental Health* 8: 21 (13 pp).

Visser, H. and **Petersen, A.C.** (2009), 'The likelihood of holding outdoor skating marathons in the Netherlands as a policy-relevant indicator of climate change', *Climatic Change* 93: 39–54.

de Vries, H.J.M. and **Petersen, A.C.** (2009), 'Conceptualizing sustainable development: An assessment methodology connecting values, knowledge, worldviews and scenarios', *Ecological Economics* 68: 1006–1019.

Swart, R., Bernstein, L., Ha-Duong, M. and **Petersen, A.C.** (2009), 'Agreeing to disagree: Uncertainty management in assessing climate change, impacts and responses by the IPCC', *Climatic Change* 92: 1–29.

Petersen, A.C. (2008), 'The practice of climate simulation and its social and political context', *Netherlands Journal of Geosciences* 87: 219–229.

Wardekker, J.A., van der Sluijs, J.P., Janssen, P.H.M., Kloprogge, P. and **Petersen, A.C.** (2008), 'Uncertainty communication in environmental assessments: Views from the Dutch science–policy interface', *Environmental Science & Policy* 11: 627–641

van der Sluijs, J.P., **Petersen, A.C.**, Janssen, P.H.M., Risbey, J.S. and Ravetz, J.R. (2008), 'Exploring the quality of evidence for complex and contested policy decisions', *Environmental Research Letters* 3: 024008 (9 pp).

Ha-Duong, M., Swart, R., Bernstein, L. and **Petersen, A.C.** (2007), 'Uncertainty management in the IPCC: Agreeing to disagree', *Global Environmental Change* 17: 8–11.

Petersen, A.C. (2006), 'Simulation uncertainty and the challenge of postnormal science', in J. Lenhard, G. Küppers and T. Shinn (eds.), *Simulation: Pragmatic Constructions of Reality – Sociology of the Sciences*, vol. 25, Dordrecht: Springer, pp. 173–185.

Janssen, P.H.M., **Petersen, A.C.**, van der Sluijs, J.P., Risbey, J.S. and Ravetz, J.R. (2005), 'A guidance for assessing and communicating uncertainties', *Water Science & Technology* 52: 125–131.

Petersen, A.C. (2004), 'Models and geophysiological hypotheses', in S.H. Schneider, J.R. Miller, E. Crist and P.J. Boston (eds.), *Scientists Debate Gaia: The Next Century*, Cambridge, MA: MIT Press, pp. 37–44.

Books

Petersen, A.C. (2012), *Simulating Nature: A Philosophical Study of Computer-Simulation Uncertainties and Their Role in Climate Science and Policy Advice*, Second Edition, Boca Raton, FL: CRC Press.