Curriculum Vitae

Bartholomeus Johannes Josephus Martinus van den Hurk





Acting as co-chair of WG2

My vision on the IPCC assessment process

Managing the impacts of climate change is a topic of increasing interest and intensity in many societal debates and decision processes. IPCC plays a noticeable role in providing scientific evidence underlying these debates, complementing locally available information sources. Effective adaptation not only relies on evidence on physical drivers, societal impacts and practical solutions, but also on the legal, ethical, economic and social aspects that govern societal changes. Scientists need to engage in the societal dialogues in order to tune their knowledge assessments towards improved uptake, making complexity manageable, and supporting policy development that is consistent with local conditions. This requires a strong representation of vulnerable regions and a multidisciplinary composition of the author teams, a pro-active scoping process and engagement via regional workshops, and a much stronger collaboration across the traditional IPCC working groups, particularly between WG1 and WG2.

The role of WG2

Already today, climate impacts and adaptation are at the heart of societal capability to deal with climate change in a closing window of opportunities. The effect of mitigation actions will only slowly emerge, and in the meanwhile the world is facing an increasing disparity in exposure and vulnerability to adverse climate effects, both within and between countries. Raising the participation of the global South to the creation of the evidence base will help decisions and investments to cope with climate risks. We will have to find solid grounds to improve fair distribution of risks and responsibilities. We need to increasingly exploit context-specific information and experiences and adopt principles of equity to shape effective adaptation strategies for all. Monitoring of progress on adaptation action, urban hotspots, climate finance, attributing weather impacts to climate change, societal awareness, and loss & damage negotiations are clearly on the agenda for the upcoming IPCC assessment cycle.

My personal profile

Trained as a physical climate researcher I have always been engaged in the transfer of climate information to societal actors, in order to support their activities to improve climate resilience and contribute to a sustainable future. As climate researcher at the Dutch Meteorological Service (KNMI) I have made a pronounced contribution to the Dutch climate change scenarios. These are a leading guidance for Dutch adaptation policies rooted in the long-term experience with water safety and water resource management. As IPCC Lead Author I contributed to the Interactive Climate Atlas in AR6 (WG 1), which contributes to the training of scholars and societal uptake of relevant climate information. Being curious about how climate information is used in practice, a few years ago I made a professional transfer from KNMI to Deltares, a well-known research institute on water and subsoil. This transfer has always felt as a personal

contribution to bridging the gap between WG1 to WG2, to engage with communities worldwide that develop and utilize climate information into the core of the societal sectors where climate change is felt most prominently: national and international actors dealing with urban planning, food security, water safety, public health, ecological quality and sustainable land management. I like to work in multidisciplinary research teams, developing storylines and narratives that provide a motivation and mandate to societal decision makers. I always try to facilitate tight relationships within my teams, strengthening both the content and the personal engagement. I'm keen to give each team member the opportunity to contribute optimally to the greater outcome of the group. I am committed to building WG2 reports with a rigorous and policy relevant scientific base, jointly with equally committed author teams that are well connected to each other and to the world that is seeking the #howto to cope with climate change.



Personal details

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Degrees, Education, Language and Media skills

2014	Professor "Climate Interactions with the socio-ecological system" at VU University Amsterdam
2005	Professor "Regional Climate Analysis" at Utrecht University
1996	PhD Land surface modelling Wageningen University
1989	MSc Environmental science Wageningen University

	Language
Dutch	Native
English	Very good (reading/writing/speaking/understanding)
German	Fair (reading/speaking/understanding)
French	Fair (speaking/understanding)



Professional career

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Work address

Deltares PO Box 177 2600 MH Delft The Netherlands Bart.vandenHurk@deltares.nl



March 2019 - present: Scientific Director

By participating and initiating Deltares projects, and by providing a linking pin to state-of-theart weather and climate research, I am charged to improve the institute's profile on topics where weather and water come together. This includes using and broadening my scientific and stakeholder networks, engaging in national and international initiatives to develop and communicate applicable and science-based climate information, and participate in the definition and implementation of new tools and concepts. Since November 2021 I'm cochairing the Deltares Science council with a formal role as Scientific Director.



June 2014 - Feb 2019: Manager R&D Weather and Climate modelling KNMI

After a brief interim leadership of the former KNMI group Global Climate Research I have been appointed as manager of the R&D group Weather and Climate Modelling since mid September 2014. The KNMI Management Team consists of 9 group leaders and 4 business unit managers. In 2016 I've occupied the (rotating) chair of the MT.

The research group consisted of approximately 45 people, of which about half externally funded, and works on the development of EC-Earth, Harmony, Lotos-EUROS and other applications. It has a strong track record in providing climate services (including the Climate Explorer and various Copernicus C3S and Hor2020 projects) and doing demand driven research for the Ministry of Infrastructure & Environment.

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September 1995 - 2002: Series of Postdoc contracts 2003 - mid 2014: Senior researcher Regional and Global Climate

Just after my Wageningen PhD I was recruited on a postdoc position at KNMI by Anton Beljaars in September 1995. Since then I have developed a scientific career addressing modelling land surface processes in regional and global climate models, data assimilation of soil moisture, and constructing regional climate change scenarios. By acquiring new research grants (including a European FP4 project on soil moisture data assimilation ELDAS) I was able to fund my own projects for a number of years. Frequent work visits to ECMWF have been devoted to the co-development of the land surface module HTESSEL/CTESSEL.

In 2003 I became a permanent staff member at KNMI, and since then I am strongly involved with the KNMI global modelling project EC-Earth, maintenance of stakeholder contacts concerning climate change and national Water Safety policy, acquiring research grants (including a Hor2020 project on water-oriented climate services IMPREX), and (co-)author of approximately 180 peer-reviewed scientific publications.



Interaction climate and the socio-ecological system Institute for Environmental Studies, VU University Amsterdam (IVM)

work address Institute for Environmental Studies (Vrije Universiteit Amsterdam) De Boelelaan 1085 1081HV Amsterdam The Netherlands

This chair is appointed on behalf of Deltares. Here new climate information concepts are codeveloped and tested with IVM staff, including Future Weather, Forecast Based Financing, and Physical Climate Storylines. Since my appointment 5 students got a PhD degree here, and 6 students are currently working on their thesis.



2005 - 2013: Buys Ballot Chair, Institute for Marine and Atmospheric research, Utrecht University (IMAU)

Also this chair was on behalf of KNMI, and I have been teaching masters students and supervising PhD-students (of which 8 have been granted a PhD). Also I have been involved in several research networks and member of various national and international boards and panels.



Board memberships and committees

2022 – present	Board member of Stichting Climate Adaptation Services Member of Scientific Advisory committee of European Climate Risk Assessment program (EUCRA)
2021	Member of evaluation committee TUD Civil Engineering
2020	Chair of evaluation committee NWO Polar Research Program
2019 – present	Scientific Review Committee (SRC) of UK Hadley Centre
2021 – present	Member of expert team on Droughts (Ministry I&W, Delta Commissioner)
2021 – present	Co-chair of European Knowledge Hub on Sea Level Rise
2020 – present	Guest editor HESS/NHESS/BGC special issue on Compound Events
2019 – present	Chair of Dutch Deltaprogram Signal team
2018 – present	Member of the national Expert core Team on Water Safety (ENW)
2018 - 2021	Lead Author of the IPCC 6 th Assessment Report, Working Group 1;
	Atlas chapter, Technical Summary, Summary for Policy Makers
2016 - 2023	Vice-chair European COST action on Compound Events DAMOCLES



Major Research grants (as PI)

EU	CLIMate risk And vulnerability Assessment framework and toolboX (CLIMAAX) (2022): HorEur programme REmote Climate Effects and their Impact on European sustainability, Policy and Trade (RECEIPT) (2019): H2020 programme Improving prediction and management of hydrological extremes (IMPREX) (2015): H2020 programme European system for land data assimilation (ELDAS) (1999). 4th Framework Programme Improvement of sub-seasonal probabilistic forecasts of European high-impact weather events using machine learning techniques (2018) SWM-EVAP: Smart Water Management in a complex environment: improving the monitoring and forecasting of surface evaporation (2017) Learning to Adapt: Informing Decision-Making and Action under Uncertainty (2015). Theme The New Delta Mechanism of European summer drying in present and future climate conditions (2005). Theme Climate Variability of ALW EC-IMAGE: Feedbacks between climate and anthropogenic forcings (2009). Theme Sustainable Earth
Copernicus	Metrics and Access to Global Indices for Climate Projections (C3S-MAGIC) (2016)
Utrecht Univ	<i>Interaction between vegetation and climate at a range of scales</i> (2009). Programme Focus & Mass
Deltares	Precipitation scenarios in the Rhine basin (2009). (PhD project) Extreme precipitation in the Jakarta region (2012). Joint Cooperation Programme Indonesia
BSIK	<i>Tailoring Climate Change Scenarios</i> (2004). BSIK program Climate Changes Spatial Planning (Klimaat voor Ruimte)



PhD students

Robert Leander (thesis defense May 2009) Sjoukje Philip (thesis defense Nov 2009) Mxolisi Shongwe (thesis defense Jan 2010) Erwin Wolters (thesis defense March 2012) Saskia van Pelt (2nd promoter: Pavel Kabat) (thesis defense Jan 2014) Alexander Bakker (thesis defense Jan 2015) Christiana Photiadou (thesis defense June 2015) Samuel Sutanto (2nd promoter: Prof. Th. Röckmann) (thesis defense July 2015) Zun Yin (2nd promoter: Prof. H. Dijkstra) (thesis defense December 2015) Erin Coughlan (thesis defense October 2018) Konstantinos Bischiniotis (thesis defense July 2020) Giorgia di Capua (thesis defense August 2021) Sonu Khanal (2nd promoter: Walter Immerzeel) (thesis defense November 2021) Siswanto (thesis defense May 2023) Emma Aalberts Henrique Moreno Chiem van Straaten Tim Busker (2nd promoter: Jeroen Aerts) Ted Buskop



Leisure and hobbies

Music	Founder and leader of music theatre group during study/PhD period. Composed theatre music of >10 shows
	A Capella choir leader and singer since approximately 2000. Arranged >100 modern songs for a capella
	Conductor of ad hoc KNMI orchestra (2015-2016) and Deltares (2020- present), only few performances
Farming	I am board member of the cooperative farm Willemshoeve in Soest, where approximately 250 families jointly operate a farm for producing vegetables
Sports Other	Cycling (commuting daily 35km); mountain bike; running Constructing furniture, drumming in Samba-band, DIY



Peer-reviewed publications

(H-index May 2023: Mendeley/Scopus 61; total publications 188)

PhD thesis

Van den Hurk, B.J.J.M. (1996): Sparse canopy parameterizations for meteorological models; PhD-thesis, Dept. of Meteorology, Wageningen Agricultural University, 274 pp.

Selected Peer reviewed publications

- Van den Hurk, BJJM, Marina Baldissera Pacchetti, Alessio Ciullo, Liese Coulter, Suraje Dessai, Ertug Ercin, Henrique Goulart, Raed Hamed, Stefan Hochrainer-Stigler, Elco Koks, Patryk Kubiczek, Anders Levermann, Reinhard Mechler, Maarten van Meersbergen, Benedikt Mester, Robin Middelanis, Katie Minderhoud, Jaroslav Mysiak, Sadhana Nirandjan, Christian Otto, Paul Sayers, Jana Sillmann, Jacob Schewe, Theodore G. Shepherd, Dana Stuparu, Thomas Vogt and Katrien Witpas (2023): Climate impact storylines for assessing socio-economic responses to remote events; Climate Risk Management,
 - https://www.sciencedirect.com/science/article/pii/S2212096323000268
- Henrique Moreno Dumont Goulart, Karin van der Wiel, Christian Folberth, Esther Boere and **Bart van den Hurk** (in press): Increase of simultaneous soybean failures due to climate change; Earth Futures; http://dx.doi.org/10.1029/2022EF003106
- Taro Kunimitsu, Marina Baldissera Pacchetti, Alessio Ciullo, Jana Sillmann, Theodore G. Shepherd, Ümit Taner, **Bart van den Hurk** (in press): Representing storylines with causal networks to support decision making: framework and example; Climate Risk Management; https://doi.org/10.1016/j.crm.2023.100496
- Khanal, S., S. Tiwari, A. Lutz, **B. van den Hurk** and W. Immerzeel (2023): Historical climate trends over the High Mountain Asia region derived from ERA5 reanalysis data; J. Applied Meteorol. And Climatol. 62, 263-288; DOI: 10.1175/JAMC-D-21-0045.1
- van den Hurk, B.J.J.M., White, C.J., Ramos, A.M., Ward, P.J., Martius, O., Olbert, I., Roscoe, K., Goulart, H.M.D., Zscheischler, J., Consideration of compound drivers and impacts in the disaster risk reduction cycle, ISCIENCE (2023), doi: https://doi.org/10.1016/j.isci.2023.106030.
- Siswanto, G. van der Schrier, and **B. van den Hurk** (2022): Observed increase of urban short duration rainfall extremes as surface temperature rise: the Jakarta case; Journal of the Meteorological Society of Japan, doi: https://doi.org/10.2151/jmsj.2022-023
- Gutiérrez, J.M., R.G. Jones, G.T. Narisma, L.M. Alves, M. Amjad, I.V. Gorodetskaya, M. Grose, N.A.B. Klutse, S. Krakovska, J. Li, D. Martínez-Castro, L.O. Mearns, S.H. Mernild, T. Ngo-Duc, **B. van den Hurk**, and J.-H. Yoon, 2021: Atlas. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1927–2058, doi:10.1017/9781009157896.021
- Van den Hurk, Bart, Sandy Bisaro, Marjolijn Haasnoot, Robert Nicholls, Katrin Rehdanz and Dana Stuparu (2022): Living with sea-level rise in North-West Europe: science-policy challenges across scales; Climate risk management; https://doi.org/10.1016/j.crm.2022.100403
- Ringsmuth, Andrew K., Bart van den Hurk, Ilona M. Otto, Christopher P.O. Reyer, Jeroen C.J.H. Aerts, Magnus Benzie, Emanuele Campiglio, Timothy R. Carter, Stefan Fronzek, Franziska Gaupp, Lukasz Jarzabek, Richard J.T. Klein, Hanne Knaepen, Glada Lahn, Piotr Magnuszewski, Reinhard Mechler, Irene Monasterolo, Jaroslav Mysiak, Jana Sillmann, Dana Stuparu, Chris West: Lessons from COVID-19 for transboundary climate risk management and resilience; Climate Risk Management; https://doi.org/10.1016/j.crm.2022.100395; https://www.sciencedirect.com/science/article/pii/S221209632200002X
- Di Capua, G, Dr Sarah Sparrow, Dr Kai Kornhuber, Dr Efi Rousi, Dr Scott Osprey, Professor David Wallom, Professor **Bart van den Hurk**, Dr Dim Coumou (2021): Drivers behind the 2010 atmospheric wave train leading to Russian heat wave and Pakistan flooding; npj Clim Atmos Sci 4, 55 (2021). https://doi.org/10.1038/s41612-021-00211-9
- Busker, T., T. Haer, H. de Moel, B. van den Hurk, M. Schmeits, K. Meyers, D. Gijsbert Cirkel and J. Aerts (2022): Blue-green roofs with forecast-based operation to reduce the impact of weather extremes; Journal of Environmental Management 301, https://doi.org/10.1016/j.jenvman.2021.113750.
- Stewart Ibarra, A.M., C. Hewitt, Y.T. Winarto, S. Walker, V.W. Keener, J. Bayala, I. Christel, H. Bloomfield, K. Halsnæs, D. Jacob, G.P. Brasseur, T. Haigh, **B. van den Hurk** (2021): Resilience through climate services; One Earth, Volume 4, Issue 8, 2021, Pages 1050-1054, ISSN 2590-3322, https://doi.org/10.1016/j.oneear.2021.08.002.(https://www.sciencedirect.com/science/article/pii/S259033222 100419X)
- Marjolein Mens, Bennie Minnema, Koen Overmars and **Bart van den Hurk** (2021): Dilemmas in developing models for long-term drought risk management: the case of the National Water Model of the Netherlands; Environmental Modelling and Software; https://doi.org/10.1016/j.envsoft.2021.105100

- Sillmann, J., Theodore G. Shepherd, **Bart van den Hurk**, Wilco Hazeleger, Olivia Martius, Jakob Zscheischler (2020): Event-based storylines to address climate risk;
 - https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2020EF001783
- Iturbide, M., Gutiérrez, J. M., Alves, L. M., Bedia, J., Cerezo-Mota, R., Cimadevilla, E., Cofiño, A. S., Di Luca, A., Faria, S. H., Gorodetskaya, I. V., Hauser, M., Herrera, S., Hennessy, K., Hewitt, H. T., Jones, R. G., Krakovska, S., Manzanas, R., Martínez-Castro, D., Narisma, G. T., Nurhati, I. S., Pinto, I., Seneviratne, S. I., van den Hurk, B., and Vera, C. S.: An update of IPCC climate reference regions for subcontinental analysis of climate model data: definition and aggregated datasets, Earth Syst. Sci. Data, 12, 2959–2970, https://doi.org/10.5194/essd-12-2959-2020, 2020.
- Williams, D., M. Manez Costa, D. Kovalevsky, B. van den Hurk, B. Klein, D Meissner, M. Pulida Velazquez, Joaquin Andreu, S. Suarez Alminana (2020): Climate change adaptation in the European water sector: learnings of IMPREX for climate services; Climate Services 19 (2020), 100180; https://www.sciencedirect.com/science/article/pii/S2405880720300327#
- Zscheischler, J., Martius, O., Westra, S., E. Bevacqua, C. Raymond, R.M. Horton, B. van den Hurk, A. AghaKouchak, A. Jézéquel, M.D. Mahecha, D. Maraun, A.M. Ramos, N.N. Ridder, W.Thiery & E. Vignotto. A typology of compound weather and climate events. Nat Rev Earth Environ (2020). https://doi.org/10.1038/s43017-020-0060-z
- Haasnoot, Marjolijn; Kwadijk, Jaap; Van Alphen, Jos; Le Bars, Dewi; van den Hurk, Bart; Diermanse, Ferdinand; van der Spek, Ad; Essink, Gualbert; Delsman, Joost; Mens, Marjolein: "Adaptation to uncertain sea-level rise; how uncertainty in Antarctic mass-loss impacts the coastal adaptation strategy of the Netherlands"; ERL 15-3; DOI 10.1088/1748-9326/ab666c (https://iopscience.iop.org/article/10.1088/1748-9326/ab666c)
- Bischiniotis, K., H. de Moel, M. van den Homberg, A. Couasnon, J. Aerts, G. Guimarães Nobre, E. Zsoter, and **B. van den Hurk** (2020): A framework for comparing permanent and forecast-based flood risk-reduction strategies; Science of The Total Environment 720, https://doi.org/10.1016/j.scitotenv.2020.137572.
- Dammeier, L.C., J.M. Loriaux, Z.J.N. Steinmann, D.A. Smits, I.L Wijnant, **B. van den Hurk**, M.A.J. Huijbregts (2019): Climatology or technology? Space, time and size dependencies of greenhouse gas payback times of wind turbines in Northwestern Europe; Environ. Sci. Technol. 2019, 53, 15, 9289-9297; https://doi.org/10.1021/acs.est.9b01030
- Bischiniotis, K., **Bart van den Hurk**, Ervin Zsoter, Erin Coughlan de Perez, Manolis Grillakis & Jeroen C. J. H. Aerts (2019) Evaluation of a global ensemble flood prediction system in Peru, Hydrological Sciences Journal, 64:10, 1171-1189, DOI:10.1080/02626667.2019.1617868
- Bischiniotis, K., **B. van den Hurk**, E. Coughlan de Perez, T. Veldkamp, G.G. Nobre, J. Aerts (2018): Assessing time, cost and quality trade-offs in forecast-based action for floods; International Journal of Disaster Risk Reduction 40, 1-13.
- Coughlan de Perez, E., van Aalst, M., Choularton, R., **van den Hurk, B.**, Mason, S., Nissan, H. & Schwager, S., (2019), From rain to famine: assessing the utility of rainfall observations and seasonal forecasts to anticipate food insecurity in East Africa; Food Security. 11, 1, p. 57-68 12 p.
- Shepherd, T. G., E. Boyd, R. A. Calel, S. C. Chapman, S. Dessai, I. M. Dima-West, H. J. Fowler, R. James, D. Maraun, O. Martius, C. A. Senior, A. H. Sobel, D. A. Stainforth, S. F. B. Tett, K. E. Trenberth, B. J. J. M. van den Hurk, N. W. Watkins, R. L. Wilby, D. Zenghelis, 2018: Storylines: An alternative approach to representing uncertainty in climate change. Climate Change 151, 555-571, https://doi.org/10.1007/s10584-018-2317-9
- Van den Hurk, BJJM, Chris Hewitt, Daniela Jacob, Francisco Doblas-Reyes, Ralf Döscher and Janette Bessembinder (2018): The match between Climate Services demands and Earth System Models supplies; Climate Services 12, 59-63, https://doi.org/10.1016/j.cliser.2018.11.002
- Lopez, A., Coughlan de Perez, E., Bazo, J., Suarez, P., van den Hurk, B., & van Aalst, M. (2018). Bridging forecast verification and humanitarian decisions: A valuation approach for setting up action-oriented early warnings. Weather and Climate Extremes. Weather, Climate and Society, https://doi.org/10.1016/j.wace.2018.03.006
- Coughlan de Perez, Erin ,Maarten van Aalst, Konstantinos Bischiniotis, Simon Mason, Hannah Nissan, Florian Pappenberger, Elisabeth Stephens, Ervin Zsoter and **Bart van den Hurk** (2018): Global predictability of temperature extremes; Environmental Research Letters, https://doi.org/10.1088/1748-9326/aab94a
- Jakob Zscheischler, S. Westra, **B. van den Hurk**, P. Ward, A. Pitman, A. AghaKouchak, D.N. Bresch, M. Leonard, T. Wahl, X. Zhang, S.I. Seneviratne (2018): Future climate risk from compound events; Nature Climate Change 8, 469–477 (2018)
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- Haughton N, Abramowitz G, Pitman A J, Or D, Best M, Johnson H R, Balsamo G, Boone A, Cuntz M, Decharme B, Dirmeyer P, Dong Z, Haverd V, van den Hurk B, Nearing G, Pak B, Santanello J A, Stevens L E and Vuichard N 2016 The plumbing of land surface models: is poor performance a result of methodology or data quality? J. Hydrometeorol. 17 1705–23 Online: http://journals.ametsoc.org/doi/pdf/10.1175/JHM-D-15-0171.1
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