Personal data

Name: Karsten Arnbjerg-Nielsen

Civil status: Born 02 November 1965, Danish citizen, Married, Two children

Address (work): Department of Environmental Engineering, DTU, Miljoevej, Building 113, DK-2800 Kgs. Lyngby, ☏: (+45) 4525 1450, ✉: kan@env.dtu.dk

Employment

2008-date Associate professor, Department of Environmental Engineering, Technical University of Denmark

2008-08 Market Manager, Urban water, Ramboll Denmark A/S (Part-time)

2001-07 Project Manager, Urban Water, COWI A/S

1996-01 Consulting engineer, PH-Consult ApS

1997-99 Assistant / Associate Research Professor at DTU (Part-time)

Education

1996 Ph.D., Environmental Engineering, Technical University of Denmark (DTU)

1993 M.Sc., Civil Engineering, Technical University of Denmark.

Recent academic achievements

- Reviewer for the Swedish (FORMAS), Norwegian and British (NERC) Research Councils, 2008-
- Editor of the ISI journal Water Science and Technology for the topic Climate Change, 2008-
- Co-author on 3 of 11 reports published by the Danish EPA forming the scientific basis for the Danish National Strategy for adaptation to Climate Change, published 2008.
- Head of Innovation Board for COWI Water and Environment, 2006-2007 (400 employees).
- Member of the Danish Water Pollution Committee, Danish Engineering Society (IDA), 2005-. Member of the steering group 2008-, Chairman of the board 2009-
- Chairman on the Best Practices Committee for Urban Drainage under the Danish Water Pollution Committee, Danish Engineering Society (2004-2007), member of the board 2003-2008.
- Member of IGUR, International Group on Urban Rainfall (specialist group under the IWA/IAHR Joint Committee on Urban Drainage), 1996-date.
- Member of several Programme or Organizing Committees for national and international conferences
- Key-note speaker at Japanese-Danish workshop on climate change and water, 2010

Key research topics

- Modelling of rainfall with focus on extreme statistics
- Effect estimation and adaptation to climate change
- Risk assessment and risk management

Summary of project management

From 2002 – 2007 managing a portfolio with a total of 14 projects ranging from 0.05 to 9.0 million €. Primary clients were EU, national and regional authorities.

Summary of supervision

Graduated MSc students: 6 Supervised Post-docs: 1 PhD-students: 4

Summary of publications

Articles in international, refereed scientific journals: 20 published, 2 in progress

Books and reports published by authorities or scientific bodies: 24

Contributions to peer reviewed conference proceedings: 30+

Contributions to Danish technical journals and magazines: 50+

Selected publications

Articles in international, refereed scientific journals

1. Arnbjerg-Nielsen, K. (2010). Past, present, and future design of urban drainage systems with focus on Danish experiences. Water Science and Technology. Accepted.
2. Arnbjerg-Nielsen, K., and Fleischer, H.S. (2009): Feasible adaptation strategies for increased risk of flooding in cities due to climate change. Water Science and Technology, 60, 2, 273-281.
3. Onof, C., and Arnbjerg-Nielsen, K. (2009): Quantification Of Climate Change Impacts On High Resolution Design Rainfall For Urban Areas. Atmospheric Research, 92, 3, 350-363.
4. Madsen, H., Arnbjerg-Nielsen, K., and Mikkelsen, P.S. (2009): Update of regional intensity–duration–frequency curves in Denmark: Tendency towards increased storm intensities. Atmospheric Research, 92, 3, 343-349.
5. Schönning, C., Westrell, T., Stenstrom, T.A, Arnbjerg-Nielsen, K., Hasling, A.B., Høibye, L., Carlsen, A. (2007): *Microbial Risk Assessment of Local Handling and Reuse of Human Faeces*. Journal of Water and Health, 2007, 5, 1, 117-128.
6. Arnbjerg-Nielsen, K. (2006): Significant climate change of extreme rainfall in Denmark. Water Science and Technology, 54, 6-7, 1-8
7. Mikkelsen, P.S., Madsen, H., Arnbjerg-Nielsen, K., Rosbjerg, D., og Harremoës, P. (2005): *Selection of regional historical time series as input to urban drainage simulations at ungauged sites.* Atmospheric Research, 77, 2005, 4-17.
8. Einfalt, T., Arnbjerg-Nielsen, K. Faure, D., Jensen, N.E., Quirmbach, M., Vaes, G., Vieux, B., Golz, C. (2004): *Towards a Roadmap for use of radar rainfall data in urban drainage.* Journal of Hydrology, 299, 2004, 186-202
9. Arnbjerg-Nielsen, K., Harremoës, P. & Mikkelsen, P.S. (2002): *Disemination of regional rainfall analysis in design and analysis of urban drainage at un-gauged locations.* Water Science and Technology, 45, 2, 69-74
10. Einfalt T, Arnbjerg-Nielsen K, Spies S (2002): An enquiry into rainfall data measurement and processing for model use in urban hydrology. Water Science and Technology, 45, 2, 147 - 152
11. Thyregod, P., Madsen, H., Carstensen, J. & Arnbjerg-Nielsen, K. (1999): *Integer valued autoregressive models for tipping bucket rainfall measurements*. Environmetrics, 10, 395-411.
12. Arnbjerg-Nielsen, K., Madsen, H., Harremoes, P. (1998): *Formulating and testing a rain series generator based on tipping bucket gauges*. Water Science and Technology, 37, 11, 47-55.
13. Einfalt, T., Arnbjerg-Nielsen, K., Fankhauser, F., Rauch, W., Schilling, W., Nguyen, V.T.V., Despotovic, J. (1998): *Use of historical rainfall series for hydrological modelling - workshop summary*. Water Science and Technology, 37, 11, 1-6.
14. Mikkelsen, P.S., Madsen, H., Arnbjerg-Nielsen, K., Jørgensen, H.K., Rosbjerg, D. & Harremoës, P. (1998): *A rationale for using local and regional point rainfall data for design and analysis of urban storm drainage systems.* Water Science and Technology, 37, 11, 7-14.
15. Overgaard, S., El-Shaarawi, A.H. and Arnbjerg-Nielsen, K. (1998): *Calibration of tipping bucket rain gauges.* Water Science and Technology, 37, 11, 139-145.
16. Thyregod, P., Arnbjerg-Nielsen, K., Madsen, H., Carstensen, J. (1998): *Modelling the embedded rainfall process using tipping bucket data.* Water Science and Technology, 37, 11, 57-64.

17. Mikkelsen, P.S., Arnbjerg-Nielsen, K. and Harremoës, P. (1998): *Consequences for established design practice from geographical variation of historical rainfall data.* Water, Science and Technology, 36, (8-9), 1-6.
18. Arnbjerg-Nielsen, K., Harremoës, P. and Spliid, H. (1996): *Interpretation of regional variation of extreme values of point precipitation in Denmark.* Atmospheric Research, 42, (1-4), 99-111.
19. Arnbjerg-Nielsen, K. and Harremoës, P. (1996): *Prediction of hydrological reduction factor and initial loss in urban surface runoff from small ungauged catchments.* Atmospheric Research, 42, (1-4), 137-147.
20. Arnbjerg-Nielsen, K. and Harremoës, P. (1996): *The importance of inherent uncertainties in state-of-the-art urban storm drainage modelling from ungauged small catchments.* Journal of Hydrology, 179, (1-4), 305-319.
21. Arnbjerg-Nielsen, K., Spliid, H. and Harremoës, P. (1994): *Non-parametric statistics on extreme rainfall.* Nordic Hydrology, 25, 267-278.

Books and reports published by authorities or scientific bodies

1. Sharma, A.K., Eriksson, E., Albrechtsen, H.-J., Henze, M. og Arnbjerg-Nielsen, K. (2010). Fremtidige klimatilpasningsteknologier. (Future climate change adapatation technologies). Report to the Danish Energy Agency. ISBN 978-87-7844-867-5. http://www.ens.dk/Documents/Netboghandel%20-%20publikationer/2010/Fremtidige_klimatilpasningsteknologier.pdf
2. Arnbjerg-Nielsen, K., Olsen, D.B., Jørgensen, K.R., Christop, Hasling, A.B. (2008). Implementering af det nye badevandsdirektiv til det danske badevandsystem. (Implementation of the new Bathing Water Directive into the Danish control procedures). Danish Agency for Spatial and Environmental Planning, Copenhagen. http://www.blst.dk/NR/rdonlyres/3799E359-27CB-468F-9721-3A71B215F628/0/badevand.pdf
3. Arnbjerg-Nielsen, K., Olsen, D.B. (2008). Vurdering af risiko for smitte med virus ved badning i svømmebade og badevand. (Risk assessment of virus infections when bathing in swimming pools and bathing water). Danish Agency for Spatial and Environmental Planning, Copenhagen. http://www2.blst.dk/udgiv/Publikationer/2008/978-87-92256-67-6/pdf/978-87-92256-68-3.pdf
4. Arnbjerg-Nielsen, K. (2008): Forventede ændringer i ekstremregn som følge af klimaændringer (Anticipated changes in extreme rainfall due to climate change, in Danish). Recommendation no. 29. The Water Pollution Committee of The Society of Danish Engineers, Copenhagen. http://ida.dk/netvaerk/fagtekniskenetvaerk/spildevandskomiteen/Documents/SVK_Skrift29_final.pdf
5. Cicero and COWI (2007): Betydningen for Norden av 2 grader global oppvarming. Vurdering av sårbarhet og effekter av klimaendringer. TemaNord 2008:507, Nordisk Ministerråd. ISBN 978-92-893-1642-2. http://www.cicero.uio.no/media/6168.pdf
6. Arnbjerg-Nielsen, K., Fleischer, H.S., Hansen, J.H., Olsen, D.B., Seidelin, C., Nielsen, T., Kunnerup, T. (2007): Klimatilpasning af afløbssystemer og metodeafprøvning. Økonomisk analyse (Adaptation of urban drainage to climate change. Economic assessment, in Danish). Environmental Project 1187. Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2007/978-87-7052-584-8/pdf/978-87-7052-585-5.pdf
7. Arnbjerg-Nielsen, K., Kunnerup, T., Jensen, N.A. (2007): Klimatilpasning af afløbssystemer og metodeafprøvning. Workshop som arbejdsmetode (Adaptation of urban drainage to climate change. Handbook for municipalities, in Danish). Environmental Project 1188. Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2007/978-87-7052-586-2/pdf/978-87-7052-587-9.pdf

8. Nielsen, G.G., Fleischer, H.S., Arnbjerg-Nielsen, K. (2007): Vurdering af omkostningseffektiviteten for demonstrationsprojekterne. (Assessment of cost-efficiency for demonstration projects, in Danish). Final reporting of EU-LIFE project "Innovative demonstration project for local treatment of combined sewer overflows enabling the implementation of the Water Framework Directive". http://www.cowiprojects.dk/lotwater/pdf/kost-effektivitet_endelig.PDF

9. Kjølholt, J., Vigsø, D., Arnbjerg-Nielsen, K., Hansen, E., Ringgaard, K.W., Rasmussen, P.E. (2007): Possible Control of EU Priority Substances in Danish Waters. Technical and economic consequences examined by three scenarios. Environmental Project 1182, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publications/2007/978-87-7052-566-4/pdf/978-87-7052-567-1.pdf

10. Arnbjerg-Nielsen, K., Madsen, H. & Mikkelsen, P.S. (2006): Regional variation af ekstremregn i Danmark - ny bearbejdning (1979-2005). (Regional variation of extreme rainfall in Denmark revisited, 1979-2005, in Danish). Recommendation no. 28. Danish Water Pollution Committee, Danish Engineering Society, pp. 1-54.

11. Arnbjerg-Nielsen, K. (2006): Klimaeffekters betydning for ekstremregn og dermed funktionen af Afløbssystemer – litteraturstudie (A litterature review of climate change impacts on extreme rainfall and hence the performance of sewer systems, In Danish). Working Report 9/2006, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2006/87-7052-000-3/pdf/87-7052-001-1.pdf

12. Garnak, A., Arnbjerg-Nielsen, K., Andersen, H.V., Ohm, A., Rasmussen, P.E.., and Hall, M. (2006): Undersøgelse af udenlandske erfaringer med klimatilpasning – Hovedrapport. (International litterature review of climate change adaptation – main report, in Danish). Environmental Project 1118, Danish EPA, Copenhagen. http://www2.mst.dk/udgiv/publikationer/2006/87-7052-242-1/pdf/87-7052-244-8.pdf

13. Garnak, A., Arnbjerg-Nielsen, K., Andersen, H.V., Ohm, A., Rasmussen, P.E.., and Hall, M. (2006): Undersøgelse af udenlandske erfaringer med klimatilpasning – Bilagsrapport. (International litterature review of climate change adaptation – appendixes, in Danish). Environmental Project 1119, Danish EPA, Copenhagen. http://www2.mst.dk/udgiv/publikationer/2006/87-7052-245-6/pdf/87-7052-246-4.pdf (Please note that list of authors is erroneous – they are authoring Environmental Report 1121).

14. Andersen, U.T. Albrechtsen, H.-J. Boe-Hansen, R., Arnbjerg-Hansen, K., Clauson-Kaas, J., Enemark, H.L., Stenström, T.A. Dalsgaard, A. (2006): Risikovurdering af Giardia og Cryptosporidium. (Risk Assessment of Giardia and Cryptosporidium, in Danish). Environmental Project 1070, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2006/87-7614-986-2/pdf/87-7614-987-0.pdf

15. Arnbjerg-Nielsen, K., Hansen, L., Kjølholt, J., Stuer-Lauridsen, F., Hasling, A.B., Hansen, N.J., Stenström, T.A., Schönning, C., Westrell, T., Carlsen, A., Halling-Sørensen, B. (2005): Risikovurdering af anvendelse af lokalt opsamlet fæces i private havebrug (Risk Assessment of local handling of faeces from households, in Danish). Økologisk byfornyelse og spildevandsrensning 54, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2005/87-7614-693-6/pdf/87-7614-694-4.pdf

16. Hasling, A.B., Nielsen, G.G., Arnbjerg-Nielsen, K., Jørgensen, K.-R. Hummelshøj, E.M., Thomsen, C.D., Kjølholdt, J., and Dalgaard, O. (2004): Katalog over udvalgte spildevandsløsninger med recirkulering af næringsstoffer fra by til land. (Catalogue of selected methods for recirculation of nutrients from urban to rural areas, in Danish). Økologisk byfornyelse og spildevandsrensning 49, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2004/87-7614-155-1/pdf/87-7614-157-8.pdf

17. Arnbjerg-Nielsen, K. (2004): Principper og terminologi for mikrobielle risikovurderinger (Principles and terminology for microbial risk assessments, in Danish) Environmental Project 955, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2004/87-7614-398-8/pdf/87-7614-399-6.pdf

18. Hasling, A.B., Arnbjerg, K., Hansen, L. (2003): Vurdering af konsekvenser af forslaget til nyt badevandsdirektiv fra EU, dateret 24.10.2002 (Assessment of consequences of the draft version of the Bathing Water Directive, dated 2002.10.24, in Danish). Environmental Project 849, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2003/87-7972-929-0/pdf/87-7972-930-4.pdf

19. Arnbjerg-Nielsen, K., Hvitved-Jacobsen, T., Ledin, A., Auffarth, K., Mikkelsen, P.S., Baun, A., and Kjølholt, J. (2003): Bearbejdning af målinger af regnbetingede udledninger af Npo og miljøfremmede stoffer fra fællessystemer i forbindelse med NOVA 2003 (Analysis of concentrations of NPO, heavy pollutants and organic compounds, in Danish). Environmental Project 701, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2002/87-7972-159-1/pdf/87-7972-160-5.pdf

20. Arnbjerg-Nielsen, K., Hansen, L., Hasling, A.B., Clauson-Kaas, J., Hansen, N.J., Carlsen, A., Stenström, T.A., and Ottoson, J. (2003): Risikovurdering af anvendelse af opsamlet tagvand (Risk assessment of reuse of roof water, in Danish). Økologisk byfornyelse og spildevandsrensning 38, Danish EPA. http://www2.mst.dk/Udgiv/publikationer/2003/87-7972-747-6/pdf/87-7972-748-4.pdf

21. Arnbjerg-Nielsen, K. and Johansen, N.B. (2002): Krav til regnbetingede udledninger i forhold til Vandrammedirektivet (Using the combined approach of the Water Framework Directive on wet weather discharges , in Danish). The Water Pollution Committee of The Society of Danish Engineers, Copenhagen. http://ida.dk/netvaerk/fagtekniskenetvaerk/spildevandskomiteen/Documents/vandrammedirektivApril2002.pdf

22. Stuer-Lauridsen, F., Kjølholt, J., Baun, A., and Arnbjerg-Nielsen, K (2001): Biologiske effekter af toksiske stoffer i regnbetingede udløb (Biological effects of toxic compounds in wet weather discharges, in Danish). Environmental Project 610, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2001/87-7944-581-0/pdf/87-7944-582-9.pdf

23. Arnbjerg-Nielsen, K. Hvitved-Jacobsen,T., Johansen, N.B., Mikkelsen, P.S., Poulsen, B.K., Rauch, W., and Schlütter, F. (2000): Stofkoncentrationer i regnbetingede udledninger fra fællessystemer (Concentrations of pollutant in combined sewer overflows, in Danish). Environmental Project 532, Danish EPA, Copenhagen. http://www2.mst.dk/Udgiv/publikationer/2000/87-7909-804-5/pdf/87-7909-805-3.pdf

24. Mikkelsen, P.S., Madsen, H., Arnbjerg-Nielsen, K., Jørgensen, H.K., Rosbjerg, D. og Harremoës, P. (1999): Regional variation af ekstremregn i Danmark (Regional variation of extreme rainfall in Denmark, in Danish). Recommendation no. 26. Danish Water Pollution Committee, Danish Engineering Society, pp 1-110. ISBN 87-89220-49-8.

25. Arnbjerg-Nielsen, K. (1996): Statistical analysis of urban hydrology with special emphasis on rainfall modelling. PhD-thesis, Technical University of Den-mark. ISBN 87-89220-31-5.

Selected other scientific publications

1. Arnbjerg-Nielsen, K. (2010): Water in Urban Areas –Partnership for CC adaptation and Innovation. 4th Annual meeting of the Danish Water Research Platform, GEUS, Copenhagen, Denmark, January 28-29, 2010.
2. Gregersen, I.B., Arnbjerg-Nielsen, K. (2009). Brug af korrektionsfaktorer ved dimensionering af afløbssystemer ved hjælp af både historiske regnserier og dimensioneringsregn (Design of sewer systems using both historical rain series and design storms). 11 Nordic Waste Water Conference, Odense, Denmark, November 11-12 2009.
3. Arnbjerg-Nielsen, K. (2009). Design of urban drainage: Past, present, and future. 11 Nordic Waste Water Conference, Odense, Denmark, November 11-12 2009.
4. Arnbjerg-Nielsen, K., Mikkelsen, P.S. (2009). Design of urban drainage structures incorporating climate impacts in a risk framework. OZ-Water 2009, Melbourne, March 16-18 2009.
5. Arnbjerg-Nielsen, K., Fleischer, H.S., Gudiksen, S., and Laden, B. (2008): Identifying economically and technically feasible adaptation strategies for mitigation of flood risks in cities.

Two case studies from Denmark. 11th International Conference on Urban Drainage, Edinburgh, Scotland, UK, 2008

6. Arnbjerg-Nielsen, K. (2008): Quantification of climate change impacts on extreme precipitation used for design of sewer systems. 11th International Conference on Urban Drainage, Edinburgh, Scotland, UK, 2008
7. Johansen, N.B., Hallager, P., Laustsen, A., Nielsen, J.B., Kristensen, N.T.D., Nordemann, P., Nielsen, G.G., Arnbjerg-Nielsen, K. (2007). Enhanced local treatment of combined sewer overflows enabling the implementation of the Water Framework Directive. Proc. 6th international conference on sustainable techniques and strategies in urban water management - NOVATECH 2007, Lyon, France, 25-28 June 2007.
8. Arnbjerg-Nielsen, K., Onof, C., & May, W. (2007). Quantification of climate change impacts in urban areas caused by extreme rainfall. In: Isemer, H.-J.: Conference Proceedings from the 5th Study Conference on BALTEX, Island of Saaremaa, Estonia.
9. Arnbjerg-Nielsen, K., Onof, C. (2006): Quantification of climate change impacts on high resolution design rainfall for urban areas. In: Molnar, P.; Einfalt, T.; Burlando, P.; Sevruk, B. & Schmid, W. (Eds.): Extreme precipitation, multisource data measurement and uncertainty. Proc. 7th Int. Workshop on Precipitation In Urban Areas, Extreme Precipitation, Multisource Data Measurement and Uncertainty, St. Moritz, Switzerland, 7-10 December 2006, pp. 134-138.
10. Madsen, H., Arnbjerg-Nielsen, K., Mikkelsen, P.S., (2006): Evidence of increased storm intensities in Denmark from the augmented rain database (1997-2005). In: Molnar, P.; Einfalt, T.; Burlando, P.; Sevruk, B. & Schmid, W. (Eds.): Extreme precipitation, multisource data measurement and uncertainty. Proc. 7th Int. Workshop on Precipitation In Urban Areas, Extreme Precipitation, Multisource Data Measurement and Uncertainty, St. Moritz, Switzerland, 7-10 December 2006, pp. 129-133.
11. Arnbjerg-Nielsen, K. (2005) Significant climate change of extreme rainfall in Denmark. 10th International Conference on Urban Drainage, Copenha-gen/Denmark, 21-26 August 2005, CD-ROM conference publication.
12. Arnbjerg-Nielsen, K., Hasling, A.B., Johansen, N.B., Petersen, C.R., Andersen, H.S., Grum, M., Agerskov, F., Thyme, J., Nielsen, S., Nielsen, T.H., Petersen, H.M., Nørremark, J., and Jacobsen, B.N. (2005): How to divide runoff hydrografs into the original sources of discharge. 10th International Conference on Urban Drainage, Copenhagen/Denmark, 21-26 August 2005. CD-ROM conference publication.
13. Andersen, N.K., Hallager, P., Laustsen, A., Nielsen, J.B., Kristensen, N.T.D., Nordemann, P., Rauch, W., Arnbjerg-Nielsen, K. (2005): Full scale testing of enhanced local treatment of CSOs enabling a cost-efficient implementation of the EU Water Framework Directive. 10th International Conference on Urban Drainage, Copenhagen/Denmark, 21-26 August 2005. CD-ROM conference publication.
14. Cronqvist, C., Hallager, P., Laustsen, A., Nielsen, J.B., Kristensen, N.T.D., Nordemann, P., Rauch, W., Johansen, N.B., Arnbjerg-Nielsen, K. (2004): En-hanced local treatment of combined sewer overflows enabling the implementa-tion of the Water Framework Directive. NOVATECH 2004, volume 1, 53-60
15. Schönning, C., Westrell, T., Stenström, T.A., Halling-Sørensen, B.H., Carlsen, A., Kjølholt, J., Stuer-Lauridsen, F., Hansen, N.J., og Arnbjerg-Nielsen, K. (2003): Risk Assessment of local handling of human faeces with focus on pathogens, micropollutants and medicine. 2nd International Symposium on eco-logical sanitation, April 2003, Lübeck, Germany. GTZ, Germany
16. Mikkelsen, P.S., Madsen, H., Arnbjerg-Nielsen, K., Rosbjerg, D. & Harremoës, P. (2003): Principles for selecting historical rainfall time series as input to urban drainage simulations: Choosing between several available gauging stations in a regional network. In: 6th International workshop on precipitation in urban areas. Measured and simulated precipitation data requirements for hydrological modelling, 4-7 December 2003, Pontresina, Switzerland, ETH, Zürich.
17. Arnbjerg-Nielsen, K., Harremoës, P. and Mikkelsen, P.S. (2000): *Implementing regional rainfall analysis in design and analysis of urban drainage at un-gauged locations.* Proceedings of the fourth workshop on Urban Rainfall.

18. Einfalt, T., Arnbjerg-Nielsen, K. and Spies, S. (2000): *Rainfall data measurement and processing for model use in urban hydrology.* Proceedings of the fourth workshop on Urban Rainfall.
19. Eicher, C., Dahl, A. and Arnbjerg-Nielsen, K. (1999): *Application of the SAMBA module.* Paper 083 at the DHI Software Conference, June 1999, Helsingore, Denmark. Proceedings available on CD-ROM or thorugh http://www.dhi.dk
20. Arnbjerg-Nielsen, K., Johansen, N.B., Schlütter, F., Kaasgaard, M., Rauch, W., and Mikkelsen, P.S. (1999): *Urban pollution runoff modelling from combined sewer overflows.* In: Joliffe, I.B. and Ball, J.E. (eds.): Proceedings of the 8th International Conference on Urban Storm Drainage, Sydney, Australia, August 30 - September 3, 1, 357-364. The Institution of Engineers Australia, Sydney.
21. Loke, E., Arnbjerg-Nielsen, K. & Harremoës, P. (1999): *Artificial neural networks and greybox modelling: A comparison.* In: Joliffe, I.B. and Ball, J.E. (eds.): Proceedings of the 8th International Conference on Urban Storm Drainage, Sydney, Australia, August 30 - September 3, 1, 72-79. The Institution of Engineers Australia, Sydney.
22. Mikkelsen, P.S., Arnbjerg-Nielsen, K., Madsen, H., Rosbjerg, D. & Harremoës, P. (1999): *On the selection of historical rainfall series for use in long term simulation of urban drainage.* In: Joliffe, I.B. and Ball, J.E. (eds.): Proceedings of the 8th International Conference on Urban Storm Drainage, Sydney, Australia, August 30 - September 3, 3, 982-989. The Institution of Engineers Australia, Sydney.
23. Einfalt, T., Arnbjerg-Nielsen, K. & Fankhauser, R. (1998): *Historical rainfall series: crucial and doubtful model input.* UDM '98, 4th International Conference on Developments in Urban Drainage Modelling, 21-24 September, London, UK, pp. 1-8.
24. Thyregod, P., Madsen, H., Carstensen, J. & Arnbjerg-Nielsen, K. (1997): *Integer valued autoregressive models for rainfall measurement processes.* In: Refsgaard, J.C. & Karalis, E.A. (eds.), Operational Water Management, pp. 121-126. A.A. Balkema, Rotterdam, NL.
25. Arnbjerg-Nielsen, K. & Harremoës, P. (1996): *Assessment of uncertainties in state-of-the-art urban storm drainage.* In: 7th International Conference on Urban Storm Drainage, Hannover, 9-13 September, Proceedings, Vol. III, pp. 1497-1502. SuG-Verlagsgesellschaft, Hannover, Germany.
26. Arnbjerg-Nielsen, K., Spliid, H. & Harremoës, P. (1996): *Modelling of tipping bucket gauges: single rain events and rain series.* In: 7th International Conference on Urban Storm Drainage, Hannover, 9-13 September, Proceedings, Vol. I, pp. 115-120. SuG-Verlagsgesellschaft, Hannover, Germany.
27. Arnbjerg-Nielsen, K., El-Shaarawi, A., Spliid, H. & Harremoës, P. (1995): *Modeling of tipping bucket rain gauges: single rain events, rain series and geographical variation.* In: 6th International Conference on Environmetrics, Malaysia, December 6-9. Abstracts, pp. 9-9. Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.
28. Arnbjerg-Nielsen, K., Harremoës, P., El-Shaarawi, A.H. & Spliid, H. (1995): *Properties of extreme rainfall based on measurements from tipping bucket gauges.* Poster presented at Fifth Internationl Conference on Precipitation, June, Elounda, Crete, Greece,1 pp.
29. Mikkelsen, P.S., Arnbjerg-Nielsen, K., Harremoës, P., Madsen, H. & Rosbjerg, D. (1995): *Modelling of regional-scale spatial variation of historical rainfall data.* Poster presented at 6th International Conference on Environmetrics, Malaysia, December, 9 pp.
30. Arnbjerg-Nielsen, K. (1993): *Statistical tools applied on urban storm drainage.* In: Jensen, N. A. & Hvitved-Jacobsen, T. (eds.): Abstracts from the Fourth European Postgraduate Workshop on Urban Runoff - Sewer Systems, Treatment Plants and Receiving Waters 5th-9th July, Aalborg University, Denmark, Environmental Engineering Laboratory, Aalborg University, Aalborg, Denmark.

Selected projects

1. Project Manager. Water in urban areas – strategic partnership for adaptation to climate change and innovation. 80 partners, +13M €. Research council for Research and Innovation. 2009 –
2. Project Manager. Future climate change adaptation technologies for water. Danish Ministry of Energy and Climate. 2009 - 2010
3. Task Manager. Urban Runoff Design under influence of Climate Change. DTU Center for Climate Change, 2008 -
4. Project Manager and Specialist. Description of water to the national home page on climate change adaptation. Energistyrelsen, 2008-2008.
5. Task Manager. State-of-the-Nation. Evaluation of Danish infrastructure. Responsible for urban water evaluation. Danish Association of Consulting Engineers. 2008 - 2008
6. Project Manager. Guideline for incorporating anticipated climate change impacts into urban drainage design practice. Danish Water Pollution Committee, Danish Society of Engineers. 2008 – 2008
7. Specialist. Analysis of Danish competences on water treatment. Danish EPA. 2008 – 2008.
8. Project manager and Specialist. Analysis and design of structural changes in order to minimize future flooding risk of senior citizens home. Kolding Municipality. 2007 - 2007
9. Specialist. Quality Asurance of design manual for future urban developments in Egedal Municipality. Egedal Municipality. 2007 - 2007
10. Project Manager and Specialist. Strategy for development of water handling in the city, including possibilities for reducing flooding from two major rivers in Århus City, Aarhus Municipality. 2007- 2007
11. Specialist. Assessing the potential for a comprehensive Community strategy for the prevention of natural and man made disasters - The Community setting. European Commission, DG Environment. 2007 - 2007
12. Specialist. Quality assurance on climate change impact and mitigation strategies in Scandinavia. Nordisk Ministerråd. 2007 - 2007
13. Project Manager and Urban Drainage Specialist. Technical and economical evaluation of adaptation and mitigation strategies for handling of water in cities under the influence of climate change, Danish EPA, Roskilde Municipality and Aalborg Municipality. 2006 - 2007
14. Project Manager and Drainage Specialist. Technical adaptation and mitigation strategies for handling of water in Kolding City under the influence of climate change, Kolding Municipality. 2006- 2007
15. Project Manager and Statistician. Quantification of climate change impacts on extreme rainfall by means of three parametric approaches. Project team involves researchers from Imperial College, London, and Danish Meteorological Institute. Research Foundation of the Danish Water and Waste Water Association and six Danish municipalities. 2006 - 2007
16. Project Manager. QA of Project Management and establishment of project procedures of EU LIFE-project DOGME2000. Copenhagen EPA. 2004- 2007
17. Project Manager and Statistician. Risk Assessment of viruses in bathing water and swimming pools. Danish EPA. 2004- 2007
18. Project Manager and Urban Drainage Specialist. Project Manager. Implementation of EU-funded demonstration project on local treatment of combined sewer overflows enabling the implementation of the Water Framework Directive. Copenhagen Energy, Odense

Water, Aarhus Municipality, Copenhagen EPA, County of Funen, County of Aarhus, 2003- 2007

19. Teacher. Lectures focus on sanitation, health and integrated waste water planning. Client: Environment & Ressources, Danish Technical University, 2000 - 2007
20. Project Manager. Technical and legal consequences of implementation of new EU bathing water directive, Danish EPA. 2006-2007
21. Project Manager. Economical assessment of consequences of new EU bathing water directive, Danish EPA. 2006-2007
22. Project Manager. Execution of program for run-off measurement as part of NOVA 2003 and NOVANA. Copenhagen EPA, 2001-2007
23. Specialist. Specification of requirements for good communication of best practices in new COWI portal, COWI. 2006-2006
24. Statistician. Selection of best historical rain series for urban drainage simulations in Odense, Odense Water Ltd. 2006-2006
25. Urban Drainage Specialist. Technical and economical assessment of consequences of implementation of new EU legislation on priority substances, Danish EPA. 2006-2006
26. Urban Drainage Specialist. Quality Assurance on acceptable microbiological quality of separate storm water to bathing water areas in downtown Copenhagen, Copenhagen Energy. 2006-2006
27. Project Manager and Statistician. Revision of guidelines for extreme rain intensities used for design of sewers. Danish Water Pollution Control Committee. 2005-2006
28. Urban Drainge Specialist. Treatment of surface runoff. Assessment of legal and technical basis for water board regulation. Haldor Topsøe. 2005-2005
29. Urban Drainage Specialist. Socioeconomic assessment of value of meteorological services. Ministry of Transport and Energy. 2005-2005
30. Urban Drainage Specialist. Novel methods for collection and treatment of road runoff. QA of outputs and coaching of project manager. Copenhagen EPA. 2005-2006
31. Urban Drainage Specialist. Strategy for adaptation of sewer systems to climate change. Gentofte Municipality. 2004-2005
32. Project Manager and Statistician. Risk Assessment of protozoans in water. Danish Technical University, 2001-2006
33. Project Manager and Statistician. Identification of methods to scale results from Regional Climate Change Models to small scale extreme rainfall. Danish EPA. 2004-2005.
34. Urban Drainage Specialist. Comparative study of international experience with adaptation to Climate Change. The study provides an overview of the experience with planning of climate change adaptation initiatives in a number of developed countries as well as several international organizations. Danish EPA, 2005-2005.
35. Project Manager and Statistician. Economical and technical consequences of different limit percentile values as input to negotiations of the new bathing water directive. Danish EPA. 2005-2005.
36. Urban Drainage Specialist. Assessment of acceptable microbiological standards in relation to canoing in Aarhus River. Aarhus Municipality. 2005-2005.
37. Urban Drainage Specialist. Catalogue on alternative technical solutions for wastewater handling in connection with extended recirculation of nutrients from urban to rural areas. Danish EPA, 2002-2004
38. Statistician. Assessment of bathing water quality based on samples taken during rain. Vallø Municipality, 2003-2004

39. Urban Drainage Specialist. Design of measurement campaign to assess microbiological quality impact from construction of waste water treatment plant. Karlebo Municipality. 2003-2004.
40. Project Manager and Statistician. Methodology and terminology for microbiological risk assessments. Danish EPA. 2003-2004.
41. Urban Drainage Specialist. Environmental management in Governorates (EMG) in Beni Suef and Aswan, Egypt. Input focuses on master planning of sanitation and health. DANIDA. 2004-2004
42. Statistician. Quality Assurance on principles for selection of design rainfall for hydraulic analysis of sewer systems. Aarhus Municipality. 2004-2004.
43. Project Manager and Statistician. Risk assessment on usage of stormwater for watering in private households. Danish EPA, 2001-2003
44. Project Manager and Statistician. Risk assessment on usage of locally composted faeces for watering in private households. Danish EPA, 2001-2003
45. Statistician. Assessment of consequences of new microbiological standards for bathing water quality, including impacts from natural and point sources. Danish EPA. 2002-2003.
46. Project Manager and Statistician. Assessment of trends in extreme rain in Denmark based on SVK's measurement system. Client: Spildevandskomitéen (the Danish Wastewater Pollution Control Committee), 2002-2003
47. Urban Drainage Specialist and Statistician. Risk Analysis and Risk Management of flooding of industrial plant due to heavy rainfall. Biogen Inc. 2003-2003.
48. Statistician. Quality Assurance on modelling of design flows for River Limpopo in Gaza Province. National Road Administration, Mozambique, 2003
49. Project Manager and Urban Drainage Specialist. Concentration levels of heavy metals and organic micro pollutants. Danish EPA, 2000-2002
50. Statistician. Combined probability of high recipient water level and extreme rainfall. Svendborg municipality, 2000-2001
51. Urban Drainage Specialist. Effects in receiving waters from stormwater outlets and combined sewer overflows. Danish EPA, 2001
52. Project Manager and Urban Drainage Specialist. Practical occurrence of roughness in sewer systems. Pipeline producers, 2001
53. Statistician and Urban Drainage Specialist. Review and statistical analysis of the quality of Danish bathing water. Danish EPA, 2001
54. Urban Drainage Specialist. Toxic substances in road surface water. Danish EPA, 2000-2001
55. Urban Drainage Specialist. Assessment of hygienic risks in handling of unclean water in houses. Danish EPA, 1999-2000
56. Project Manager and Urban Drainage Specialist. Processing of measurements from on-line measurement in the river Nivå and sewer systems. The objective was to explain poor water quality in the downstream part of Nivå. Karlebo municipality, 1998-2001
57. Project Manager and Urban Drainage Specialist. Processing of measurements from on-line sensors in the river Usserød Å and sewer systems. Furthermore the project included hydraulic and water quality modelling of the river and preparation of action plan. Hørsholm, Karlebo and Birkerød municipalities and Frederiksborg county. 1996-2001
58. Project manager and teacher. Use of historic rainfall series for analysis of extreme rainfall including preparation of paradigm for calculation of stormwater run-off in urban areas. Committee on Urban Drainage, Birkerød and Hillerød municipalities, Ørestaden, Copenhagen Metro and others. 1996-2001

59. Project Manager and Urban Draiage Specialist. Event Mean Concentrations of pollutants from combined sewage. Analysis based on a national surveilance programme. Subconsultant for Danish Technical University. 1998-2000.
60. Urban Drainage Specialist. SAMBA-model and impact assessment for shutting down two wastewater treatment plants in Søllerød municipality and introduction of increased Real-time Control. Lyngby municipality, 2000
61. Urban Drainage Specialist and Statistician. Management of Urban Stormwater overflows and Treatment. Development of methods for control and analysis of an integrated system comprising sewer system, wastewater treatment plant and recipient. Eureca Project, Danish Agency for Development of Industry and Trade, 1996-1999
62. Urban Drainage Specialist and Statistician. Implementation of integrated expert system for sewer system and wastewater treatment plant. Responsible for development of software sensor for calculation of inlet and outlet at 18 locations in the sewer system based on 6 on-line sensors. Søllerød municipality, 1997-1998

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