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| Name             | Schalk Jan van Anel       |
| Year of birth    | 1978                      |
| Nationality      | Dutch                     |
| Present position | Lecturer Hydroinformatics |
| Years with firm  | From 2004 – present       |



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## EDUCATION

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|------|---|--|
| 2009 | - | PhD in Hydroinformatics, with UNESCO-IHE and Delft University of Technology  |
| 2003 | - | M.Sc Soil, Water and Atmosphere, Wageningen University, Integrated and quantitative water management. (Graduated with distinction) |

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## EMPLOYMENT RECORD

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|----------------|---|--|
| 2008 - present | - | Lecturer / Researcher Hydroinformatics, Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Delft, <a href="#">The Netherlands</a> |
| 2004 - 2009    | - | Ph.D Research Fellow, Hydroinformatics, Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Delft, <a href="#">The Netherlands</a> |
| 2004           | - | Project Officer, Netherlands Water Partnership (NWP), Delft, <a href="#">The Netherlands</a>   |
| 2003/2004      | - | Specialist water management, HydroLogic, Amersfoort, <a href="#">The Netherlands</a>   |

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## KEY QUALIFICATIONS

Dr. Ir. Schalk Jan van Anel is lecturer in hydroinformatics. He has a background in Hydrology, Computational Hydraulics and Water Management. He has been involved in national and international research projects, like the design of innovative flood reduction measures along the Dutch branches of the Rhine and the development of Earth System Models at the Potsdam-Institut für Klimafolgenforschung (PIK). He specialised in the development and application of hydrologic and hydro-dynamic models. At present he is involved in a number of research projects on operational water management and real-time flood forecasting and early warning. Case studies include Upper-Blue Nile and Awash rivers in Ethiopia, and Ganges river in Bangladesh. His Ph.D research project focused on the application of meteorological data and forecasts in operational water management.

His main research interests include Anticipatory Water Management and Flood Forecasting, Early Warning and Control. To contribute to these areas he focuses on coupling meteorological and hydrological data and models, developing hindcasting and probabilistic (ensemble based) verification and evaluation methods, decision support in real-time control with threshold based probabilistic decision rules, and optimisation of anticipatory water management strategies. Special attention is given to the applicability and adaptability of these methodologies in developing countries.

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## MAIN DISCIPLINE / SPECIALISATION

Hydroinformatics



## EXPERIENCE RECORD

### EXPERIENCE in CONSULTANCY, PROJECT ASSIGNMENTS and EDUCATION RESEARCH EXPERIENCE

- 2009 - present
- EU FLOODING ERA-NET CRUE: Decentralised Integrated ANalysis and Enhancement of Awareness through Collaborative Modelling and Management of Flood Risk (DIANE-CM)
  - UNESCO-IHE UPARF project: Operational Flood Forecasting, Warning and Response for Multi-Scale Flood Risks in Developing Cities (Foresee)
- 2008 - present
- EU FP7 ICT research project: LENVIS, Localised ENvironmental Information Services.
- 2004 - 2009
- Research project: Ph.D. Improving operational water management by enhancing the use of meteorological data and forecasts.  
Blue Nile, Lake Thana case study  
Rijnland case study  
Promoter: Prof. Roland Price  
UNESCO-IHE, Hydroinformatics and Knowledge Management Department
- 2003
- Research project at the Potsdam-Institut für Klimafolgenforschung (PIK):  
Implementing the hydrotope approach in the CLIMBER-3 earth system model of intermediate complexity.  
Developing and implementing a scheme for lateral discharge (TOPMODEL) in a global scale climate model (CLIMBER-3).
- 2001
- Research project in Hydraulics, Wageningen University: Uniform Energy Dissipation Explaining Typical Planform of River Meander Bend.  
Theoretical research to the physical laws determining the typical bend shape of meandering rivers.
- 2000
- Research project Integrated Water Management at WL|Delft Hydraulics: Exploratory research to measures to increase the discharge capacity of the river IJssel (design, modelling, effects).

### PROFESSIONAL EXPERIENCE

- 2008 - present
- Lecturer Hydroinformatics, Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Delft, The Netherlands.
- 2004 - 2009
- Ph.D Research Fellow:  
Improving operational water management by enhancing the use of meteorological data and forecasts.  
Hydroinformatics, Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Delft, The Netherlands.



- 2004  
Project Officer:  
Netherlands Water Partnership (NWP)  
Project:  
ToolBox , Global Water Partnership (GWP)  
Coordinating contributions of the Dutch water sector to the Integrated Water Resources Management case studies in the ToolBox of the GWP.  
Director: Jeroen van der Sommen
- 2003-2004  
Specialist water management:  
HydroLogic  
Consultancy, model preparation and scenario calculations for several waterboards in the Netherlands  
Projects:  
Modelling "Wieringerrandmeer"  
Evaluating the consequences to the water management of the implementation of a 800 ha lake in Noord-Holland using the SOBEK rainfall-runoff and channel flow model  
Aquarius Modelling of Smilde  
Preparing a rainfall-runoff (Aquarius) model of the Smilde area in Groningen. The model is used for daily water management and for policy development

## EDUCATIONAL EXPERIENCE

- 2005-present  
Supervision of MSc research projects:
- Blue Nile, Lake Tana 1D flood forecasting and early warning
  - Blue Nile, Khartoum, 2D flood modelling
  - Bangladesh, Ganges flood forecasting and early warning
  - Ethiopia, Awash Flood Modelling and Forecasting
- Lecturing:
- Real-time control of water systems, as part of the Hydroinformatics specialisation of the Masters Programme in Water Science and Engineering, UNESCO-IHE
  - Applications of meteorological information and forecasts in operational water management
  - Flood modelling for management
  - Flood risk management
  - Decision Support Systems

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## PUBLICATIONS



### Books

Andel, S.J. van, 2009: *Anticipatory Water Management: Using ensemble weather forecasts for critical events*, 182 pp., CRC press/Balkema, Leiden, ISBN: 978-0-415-57380-1

### International peer reviewed papers

S.J. van Andel, R.K. Price, A.H. Lobbrecht, F. van Kruiningen, and R. Mureau, 2008: Ensemble Precipitation and Water-Level Forecasts for Anticipatory Water-System Control. *J. Hydrometeor.*, 9, 776–788.

Schalk J. van Andel, Arnold H. Lobbrecht, Roland K. Price, 2008: Rijnland case study: hindcast experiment for anticipatory water-system control, *Atmospheric Science Letters*, Vol. 9, No 2, pp 57-60

Akhtar, M.K., Corzo, G.A., Andel, S.J. van, Jonoski, A., 2009: River flow forecasting with artificial neural networks using satellite observed precipitation pre-processed with flow length and travel time information: case study of the Ganges river basin, *Hydrol. Earth Syst. Sci.*, 13, 1607-1618

Andel, S. J. van, Price, R. K., Lobbrecht, A. H., Kruiningen, F. van, 2010: Modelling controlled water systems, *J. Irrig. and Drain. Eng.*, Vol. 136, No. 6, June 2010, pp. 392-404.

Popescu, I., Jonoski, A., Van Andel, S. J., Onyari, E., Quiroga, V.G. M., 2010: Integrated modelling for flood risk mitigation in Romania: case study of the Timis–Bega river basin, *International Journal of River Basin Management*, Vol. 8, Issue 3 and 4, p. 269 - 280

### Conference papers

Lobbrecht, A.H., Andel, S.J van, 2005: *Integrated urban and rural water management using modern meteorological data*, Proc. 10th International Conference on Urban Drainage, 21-26 August 2005, Copenhagen, Denmark

Andel, S. J. van, Lobbrecht, A. H., 2005: *Ensemble weather forecasts - Applicability and use in flood prevention*, Proc. Actif conference, Innovation, advances and implementation of flood forecasting technology, 17 to 19 October 2005, Tromsø, Norway

Andel, S.J. van, Lobbrecht, A.H. (2006), Ensemble weather forecasts and operational management of regional water systems, *7th International Conference on Hydroinformatics (ed. by P. Gourbesville, J. Cunge, V. Guinot & S.Y. Liong)*, Research Publishing Services, 1351-1358, Nice, France

Lobbrecht, A.H., Andel, S.J. van, Kruiningen, F. van (2006), Operational management of hydrological extremes using global-scale atmospheric models, in: *Climate Variability and*



*Change—Hydrological Impacts (Proceedings of the Fifth FRIEND World Conference held at Havana, Cuba, November 2006), IAHS Publ. 308, 2006., Havana, Cuba*

van Griensven, A., Akhtar, M.K., Haguma, D., Sintayehu, R. Schuol, J. Abbaspour K., van Andel, S.J., Price, R.K., 2007: Catchment Modelling with Internet based Global Data, 4th International SWAT conference, July 2-7, Delft, the Netherlands

Andel, S.J. van, Lobbrecht, A.H., Price, R.K., 2007: Rijnland case study: anticipatory control of a low-lying regional water system, in Thielen, J., J. Bartholmes J., and J. Schaake (Eds.) (2007) 3rd HEPEX workshop, Book of Abstracts, European Commission EUR22861EN

Andel, S.J. van, Lobbrecht, A.H., Price, R.K., 2008: Anticipatory Water Management; cost-benefit analysis, Geophysical Research Abstracts, Vol. 10, EGU2008-A-06996, 2008

Andel, S.J. van, 2008: Anticipatory water management for advanced flood control, in Flood Risk Management: Research and Practice – Samuels et al. (eds), Taylor & Francis Group, London

S.Loos, S.J.van Andel, A.H.Lobbrecht, R.K.Price, 2008: Anticipatory water management, decision support for real-time operational and long term strategic use of new meteorological forecast products in flood control, Hydropredict, International Interdisciplinary Conference on Predictions for Hydrology, Ecology, and Water Resources Management: Using Data and Models to Benefit Society, Czech Republic

Kibreab Amare Assefa, Schalk Jan Van Andel, Andreja Jonoski, Arnold Lobbrecht, 2009: Combining Different Verification Methods for Analysis of Flood Early Warnings: Fogera Plain, Lake Tana, Upper Blue Nile Case Study, 7th ISE & 8th HIC Chile, 2009

Andel, S. J. van, Assefa, K. A., Jonoski, A., Popescu, I, 2010: Decision Making for Operational Management of Water Related Risks, BALWOIS 2010 - Ohrid, Republic of Macedonia

Jonoski, A., Andel, S. J. van, Popescu, I., Almoradie, A., 2010: Distributed Information Systems Providing Localised Environmental Services for All: Case Study on Bathing Water Quality in The Netherlands, BALWOIS 2010 - Ohrid, Republic of Macedonia

Andel, S. J. van, 2010: How to Make Optimal Use of Ensemble Hydrological Predictions, 9th International Conference on Hydroinformatics, Tianjin, China