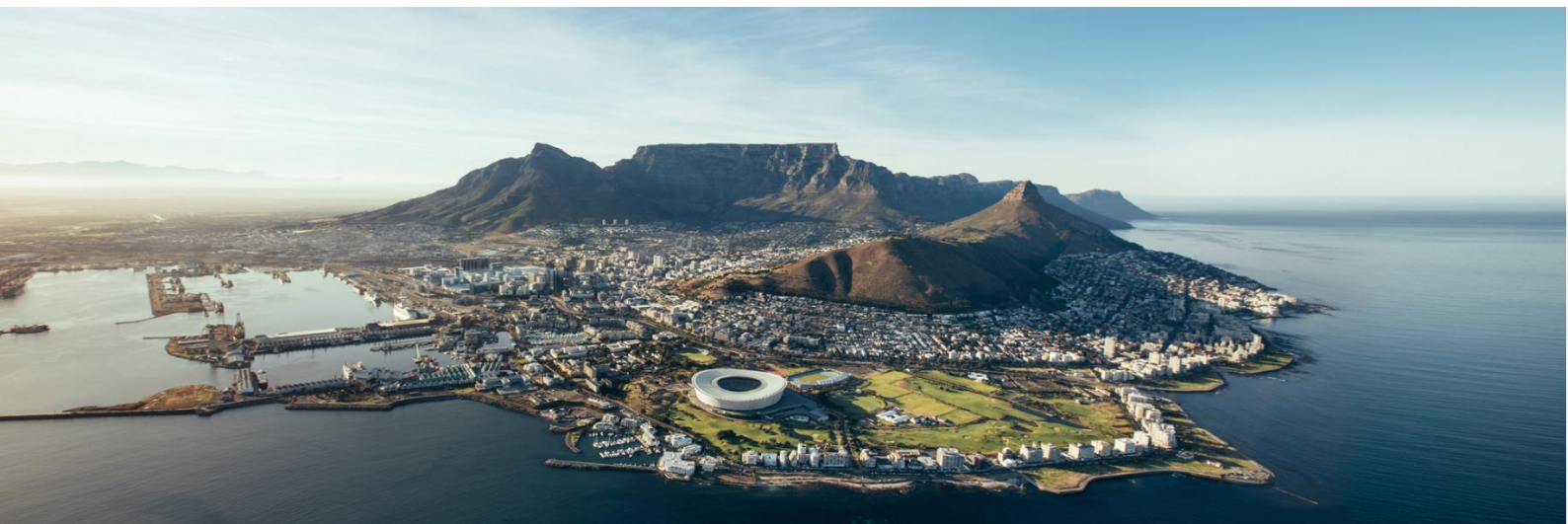




The **8th** IWA Water Resource Recovery Modelling Seminar,
Stellenbosch, South Africa,
18- 22 January 2022

Sponsors:



Jacobs



WRRMOD 2022+ PRELIMINARY PROGRAMME (Venue: Protea Hotel, Marriott, Stellenbosch)

Wednesday 18 Jan			
Activity	Time	Details	Speakers
Introductions	09:30 – 10:00	Introduction to YWP Workshop	Eugene Fotso Simo
	10:00 – 12:30	Presentations and Discussion	
	12:30 – 13:30	Lunch break	
	13:30 – 15:00	Presentations and Discussion	
	15:00 – 15:30	Coffee break	
	15:30 – 17:00	Final Presentations & Wrap- up	
YWP Social	17:00	YWP Social Event	
Thursday 19th January			
Activity	Time	Details	Speakers
Parallel Full-Day Workshops (8h30 - 17h00). Themes provided below.	08:30 – 10:00	Presentations and Discussion	Added with the themes below.
	10:00 – 10:30	Coffee break	
	10:30 – 12:00	Presentations and Discussion	
	12:00 – 13:00	Lunch break	
	13:00 – 14:30	Presentations and Discussion	
	14:30 – 15:00	Coffee break	
	15:00 – 16:30	Presentations and Discussion	
	16:30 – 17:00	Wrap-up	
Welcome Reception	17:00 – 19:00	Welcome Reception & Outdoor Activity	
	19:30	Dinner	

Friday 20th January			
Activity	Time	Details	Speakers
Welcome Address	08:30 – 08:45	IWA Address	K Vairavamoorthy
	08:45 – 9:00	Introduction to WRRmod2022+	E Musvoto
Conference Presentations	09:15 – 10:45	Session 1: Intensification <i>Evaluating extracellular polymeric substance model approaches for improved sludge settling prediction</i> <i>Leveraging Full-Scale Pilot Testing and Modeling of Continuous Flow DAS for Meeting Long Term Treatment and Capacity Needs</i> Discussions	K.N. Ngo, T. Wadhawan, B. Sturm, R. Faraj, Joshua P. Boltz, J. Hinojosa, P. Pham, A. Massoudieh, I. Takács, J. Jimenez Blair Wisdom, Dan Freedman, Rudy Maltos, Alyssa Mayer, Ron Latimer, Wendell Khunjar, Will Martin and Alonso Griborio
	10:45 – 11:15	Session 2: Case Studies for Resource Recovery <i>Evaluation of resource recovery alternatives in South African (waste)water treatment plants.</i> <i>Development and Implementation of a Precipitation Model in CFD for Struvite with a Low-Grade Magnesium Oxide By-product.</i>	Xavier Flores-Alsina, Elham Ramin, David Ikumi, Damien Batstone, Barbara Brouckaert, Chris Brouckaert, Sven Sotemann, Krist V. Gernaey K. Olaciregui-Arizmendi, V. B. Aguilar-Pozo, G. S. Larraona, P. Grau, S. Astals, J.M. Chimenos, A. López, J. Gómez, E. Ayesa, B. Elduyey-Echave, Manel Garrido-Baserba, David L. Sedlak, Korneel Rabaey, Diego Rosso, Maria Molinos-Senante, Oliver Schraa, Mirzaman Zamanzadeh, Vrunda Patel, Irene Barnosell, Manel Poch
	11:15 – 13:15	Discussions Lunch break Session 3: Micropollutant Removal/ Water reuse <i>Integration of biological and ozonation models for the Eindhoven WWTP for optimal micropollutants removal, minimal bromate formation, and improved effluent quality</i> <i>Tracking Micropollutants of Concern in the Bellville Wastewater</i> Discussions	Giacomo Bellandi, Roberta Muoio, Saba Daneshgar, Elena Torfs, Ruud Schemen, Peter van Dijk, Stefan Weijers, Usman Rehman, Wim Audenaert J. Matesun, D. Ikumi, L. Petrik, E. Musvoto
	13:15 – 14:45	Discussions Lunch break Session 3: Micropollutant Removal/ Water reuse <i>Integration of biological and ozonation models for the Eindhoven WWTP for optimal micropollutants removal, minimal bromate formation, and improved effluent quality</i> <i>Tracking Micropollutants of Concern in the Bellville Wastewater</i> Discussions	Giacomo Bellandi, Roberta Muoio, Saba Daneshgar, Elena Torfs, Ruud Schemen, Peter van Dijk, Stefan Weijers, Usman Rehman, Wim Audenaert J. Matesun, D. Ikumi, L. Petrik, E. Musvoto
	14:45 – 16:15	Discussions Lunch break Session 3: Micropollutant Removal/ Water reuse <i>Integration of biological and ozonation models for the Eindhoven WWTP for optimal micropollutants removal, minimal bromate formation, and improved effluent quality</i> <i>Tracking Micropollutants of Concern in the Bellville Wastewater</i> Discussions	Giacomo Bellandi, Roberta Muoio, Saba Daneshgar, Elena Torfs, Ruud Schemen, Peter van Dijk, Stefan Weijers, Usman Rehman, Wim Audenaert J. Matesun, D. Ikumi, L. Petrik, E. Musvoto
	16:15 – 16:45	Discussions Lunch break Session 3: Micropollutant Removal/ Water reuse <i>Integration of biological and ozonation models for the Eindhoven WWTP for optimal micropollutants removal, minimal bromate formation, and improved effluent quality</i> <i>Tracking Micropollutants of Concern in the Bellville Wastewater</i> Discussions	Giacomo Bellandi, Roberta Muoio, Saba Daneshgar, Elena Torfs, Ruud Schemen, Peter van Dijk, Stefan Weijers, Usman Rehman, Wim Audenaert J. Matesun, D. Ikumi, L. Petrik, E. Musvoto
	16:45 – 17:15	Reports from Saturday YWP Workshop- presentation of common vision and potential position paper.	E Fotso Simo
Poster	17:15 - 18:30	Poster Session	
Dinner	19:00		

Saturday 21st January			
Activity	Time	Details	Speakers
Keynote Address	08:15 – 08:45	<i>A historical perspective of the origins of wastewater modelling</i>	P Dold
	08:45 - 09:15	<i>Future Perspective: Evolutions in WRRF modelling</i>	Proposal by SC
Conference Presentations	09:00 – 10:30	Session 4: Hybrid Modelling <i>The use of hybrid models and Shapley values to decode structural model errors</i> <i>Model Predictive Control for water reuse with Reverse Osmosis using a data-driven fouling mode</i> Discussions	W. Quaghebeur, B. De Baets, I. Nopens, E. Torfs D. Gaublomme, M. Vanoppen, B. De Gussemme, A. Verliefde, I. Nopens, E. Torfs
	10:30 – 11:00	Coffee break	
	11:00 – 12:30	Session 5: Model Calibration/Validation <i>Anaerobic Digestion Model Calibration to An Upflow Anaerobic Sludge Bed (UASB) Reactor</i> <i>Automatic plant-wide calibration of a water resource recovery facility</i> Discussions	T Ghoor, DS Ikumi, CJ Brouckaert and GA Ekama C. Gómez, K. Solon, I. Nopens, E. Torfs
	12:30 – 14:00	Lunch break	
	14:00 – 15:30	Session 6: Model Application in Process Design <i>Automating Process Design by Coupling Genetic Algorithms with Commercial Simulators: A Case Study for Hybrid MABR Processes</i> <i>Innovation-Stimulating WRRF Regulations: A Modelling Study</i> Discussions	Cheng Yang, Glen T. Daigger, Evangelia Belia T. Maere, C. Boisvert, D. Mendoza, F. Li, P.A. Vanrolleghem
	15:30 – 16:00	Coffee break	
Debate Session	16:00 – 16:45	Debate Topic 1: Modelling of Urban Wastewater Treatment Processes covering the entire Data-Pipeline: from Raw Data to a Digital Twin to Optimize Performance and Increase Efficiency	M. Serrao, J. Sparks, K. Mesta, J.D. Therrien, N. Covre, F. Li, N. Nicolai, P. A. Vanrolleghem
WRRmod2026	17:30 - 18:00	Selection of WRRmod2026 location	
Gala Dinner	18:30	Bus departure to Gala Dinner.	
Sunday 22nd January			
Activity	Time	Activity	Speakers
Workshop Reports	08:30 – 10:30	Reports and Discussions from Sunday Workshops: 10 - 15 Min provided for each Topic.	
	10:30 – 11:00	Coffee break	
Debate Session	11:00 - 11:45	Debate Topic 2: When and why should we validate models?	A. Filali, K. Solon, D. Bencsik, P.J. Dunlap, T. Tokutomi, M. Garrido-Baserba
Closing Session	11:45 – 12:00	Summary of WRRmod2022; OC	David Ikumi & Chris Brouckaert
	12:00 – 12:15	Outlook on WRRmod2024; Announcement of location for WRRmod2026: Tom Johnson, Leon Downing & Adrienne Menniti	Leon Downing, Adrienne Menniti & Tom Johnson
	12:15 – 13:45	Lunch and Departure from Conference	
Afternoon Technical Visit			

WORKSHOP THEMES:

1. Water reuse modelling: How to facilitate the transition to a circular water economy?

Giacomo Bellandi, Elena Torfs, Mariane Schneider, Youri Amerlinck, Eberhard Morgenroth, Stefan Weijers

2. How to build and use hybrid models for water resource recovery facilities?

S. Borzooei, A. Froemelt, D. Gaublonme, W. Quaghebeur, R. Saagi, M.Y. Schneider, E. Torfs, K. Villez, J. Zhu

3. Setting the scene for an aerobic granular sludge reactor modelling protocol

L. Strubbe, P. Carrera, N. Derlon, E. Morgenroth, E.I.P. Volcke

4. From CFD to compartmental models: Is there a way to effectively divide and conquer?

S. Daneshgar, D. Fernandes del Pozo, O. Potier, K. Gernaey, M. Yang, G. Bellandi, B. Elduayen-Echave, S. Borzooei, J. Wicks

5. How to Implement WRRF Digital Twins for Operations and Maintenance: Real World Experience

B.R. Johnson, S. Daneshgar, E. Torfs, I. Nopens, F. Polesel, R. Peeters, S. Weijers, T. Johnson, A. Menniti, K. Lesnick, J. Sparks, C. Bott, K. Villez, S. Snowling

6. Towards a Pond and Lagoon Modelling Framework for Practitioners

D. Houweling, T. Johnson, P. Vanrolleghem and Y. Comeau

7. Integrated modelling for Climate Resilient Water Resource Recovery Facilities of the Future

M. Péréme, J. Jiménez, J.P. Steyer, X. Flores-Alsina, G. Capson-Tojo;

T Mofokeng, D Ikumi;

Mohammad Azari, Sharifah Rafidah Wan Alwi, Ruben Sakrabani, Jacek Mąkinia, Mathilde Besson, Mohamad-Javad Mehrani, Frank Mnthambala, Céline Vaneeckhaute