

Aug. 9, 2016



R E S U M E
Avi Ostfeld
ATS Staff Academic Chair

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Web page: www.technion.ac.il/~avi/avi.htm (pdf files password: timna)
Google scholar: <http://scholar.google.co.il/citations?user=og7iUDgAAAAJ&hl=en&oi=ao>

ACADEMIC DEGREES

D.Sc. 1994, Civil Engineering, Technion, Haifa, Israel.
M.Sc. 1990, Civil Engineering, Technion, Haifa, Israel.
B.Sc. 1987, Agricultural Engineering, Technion, Haifa, Israel.

ACADEMIC APPOINTMENTS

May 15 – present Vice Dean, Irwin and Joan Jacobs, Graduate School, Technion – Israel Institute of Technology.
Dec. 14 – present Professor, Civil and Environmental Engineering, Technion, Haifa, Israel.
Jun. 12 – Jun. 13 Affiliate Professor, Zhejiang University, China.
Jul. 09 – Dec. 14 Associate Professor, Civil and Environmental Engineering, Technion, Haifa, Israel.
Jul. 09 - Oct. 09 Visiting Professor, Research Center for Environmental Quality Management (RCEQM), Graduate School of Engineering, Kyoto University, Japan.
Apr. 08 - Oct. 08 Visiting Professor, Department of Civil and Environmental Engineering, University of Illinois at Urbana - Champaign.
Mar. 07 Tenure - Technion, Haifa, Israel.
Jul. 03 – Jun. 09 Senior Lecturer, Civil and Environmental Engineering, Technion, Haifa, Israel.
Oct. 00 - Jun. 03 Lecturer, Civil and Environmental Engineering, Technion, Haifa, Israel.

- Sep. 96 - Sep. 97 Research Associate, Civil Engineering, the University of Arizona, Tucson, AZ, USA.
- Apr. 94 - Jul. 96 Research Associate, Water Research Institute, Technion, Haifa, Israel.

PROFESSIONAL EXPERIENCE

- Nov. 97 - Oct. 00 Project Manager/Senior Engineer at TAHAL – Consulting Engineers Ltd., on water resources development and water supply projects in Israel for the Water Commission, Mekorot Water Company Co., and private agencies in Israel and abroad.
- Oct. 85 - Aug. 87 Trainee, Kapam Ltd., Haifa, Israel. Participation in Irrigation and Agricultural Engineering projects in Israel and abroad.
- Jul. 85 - Oct. 85 Research Assistant, Agricultural Engineering, Technion, Haifa, Israel. Participation in Drainage and Soil Conservation Engineering projects.

RESEARCH INTERESTS

Water distribution systems security. Development and application of early warning detection system methodologies for monitoring stations allocation.

Evolutionary optimization. Development and application of evolutionary optimization techniques (e.g., Genetic Algorithms, Ant Colony, Cross Entropy) to water distribution systems and water resources management.

Reliability of water distribution systems. Development and application of reliability models for water distribution systems reliability simulation and management.

Management of multi-quality water distribution systems.

Integration of Geographical Information Systems with water resources models.

Modeling and management of surface water quantity and quality.

Development and application of machine learning techniques in water resources management.

TEACHING EXPERIENCE

Technion: Introduction to Engineering Hydrology (undergraduate); Water Resources Systems Engineering 1 (mutual graduate and undergraduate); Surface Hydrology (mutual graduate and undergraduate); Water Resources Systems Engineering 2 (mutual graduate and undergraduate); Introduction to Hydraulics and Hydrology (undergraduate); Project in Water Engineering (undergraduate); Advanced Hydraulics (graduate); Advanced Seminar in Environmental and Water Engineering (graduate); Advanced Topics in Hydrodynamics and Water Resources (graduate); Seminar in

Environmental Engineering (undergraduate); Hydraulics (undergraduate, as teaching assistant).

University of Illinois at Urbana-Champaign: Environmental Systems I (undergraduate/graduate, Fall 2008); Independent study (graduate, Summer 2008).

College of Civil Engineering and Architecture, Zhejiang University Hangzhou, China: special short course on water resources systems (graduate + faculty, Summer 2012).

TECHNION ACTIVITIES

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|-------------------|--|
| Dec. 15 - present | Member of the preparatory senate committee |
| Dec. 14 - present | Representative of the Faculty of Civil and Environmental Engineering at the Technion Senate |
| Oct. 13 – Mar. 15 | Chair graduate, Civil and Environmental Engineering M.Sc programs for Environmental Engineering, Water, and Agriculture. |
| Jan. 09 – Apr. 15 | Head of the Center for Environmental and Water Resources Engineering. |
| Jun. 09 – Feb. 11 | Chairperson of the Faculty of Civil and Environmental Engineering on preparing the Self-Evaluation Reports Submitted to The Council for Higher Education (MALAG) and for the Technion internal International Evaluation Committee. |
| Jan. 08 - present | Head of the Grand Water Research Institute Mitchell Family Foundation Water Resources Management Laboratory. |
| Mar. 07 - Apr. 15 | In charge of the undergraduate Civil Engineering B.Sc. program for Water Engineering. |
| Nov. 06 - Mar. 07 | Civil and Environmental Engineering Undergraduate (first year) vice dean assistant. |
| Jan. 02 - Dec. 05 | Civil and Environmental Engineering Council Academic Secretary. |
| Apr. 94 - Jul. 96 | Coordinator, Water Research Institute, Technion, Haifa, Israel. |
| Nov. 91 - Feb. 92 | Coordinator, Task Committee for "Creation of a Water Research Institute at the Technion", Samuel Neaman Institute for Advanced Studies in Science and Technology, Technion, Haifa, Israel. |

PUBLIC PROFESSIONAL ACTIVITIES

- Mar. 15 Member, Research database for water distribution systems, EWRI-ASCE task committee.
- Aug. 14 Science advisor to the U.S.-Israel Binational Science Foundation.
- Feb. 13 Elected Control Group Member, Planning and Management, EWRI-ASCE council.
- Feb. 13 Member of the appointed Israeli National Professional Committee on Water Security.
- Dec. 12 Advisory board director of Peak Dynamics (Energy Management in Water Systems) <http://www.peak-dynamics.com/>
- Oct. 12 Associate Editor, Water Resources Research.
- Feb. 12 Member, Planning and Management, EWRI-ASCE council.
- Nov. 11 Member, Cloud Computing, EWRI-ASCE task committee.
- Sep. 11 Member of the Editorial Board, Urban Water
Member of the advisory board of Visenti (Improving Infrastructure Management) <http://www.visenti.com/about.html>
- Jul. 11 Chair, Standing Committee on Water Distribution Systems Analysis, ASCE.
- Jan. 11 Management Committee Member of the IWA Hydroinformatics Specialist Group.
- Nov. 10 Core member of the IEEE Systems Technical Committee on Monitoring Critical Infrastructures.
- Jul. 10 Chief Editor, Journal of Water Resources Planning and Management Division, ASCE.
- Jul. 10 Member of the EWRI Planning & Management Council Awards Committee.
- May. 10 Vice Chair, Environmental Cyber-Sensing, EWRI-ASCE task committee.
- May. 10 Member, Emerging and Innovative Technologies, EWRI-ASCE task committee.
- Nov. 08 Editor Integrated Water Management category, Journal of Water Science and Technology, International Water Association (IWA).

- Oct. 08 Member of the Editorial Board, Engineering Optimization.
- Jan. 08 Guest Editor in collaboration with Prof. Dimitri Solomatine (UNESCO-IHE Institute for Water Education), Special Issue on Data Driven Modeling and Evolutionary Optimization for River Basin Management, Journal of Hydroinformatics, IAHR (International Association for Hydraulic Research) & IWA (International Water Association), Vol. 10, No. 1.
- Jan. 07 Chair of the Standards Institution of Israel Committee on Water Security Models for Faults Handling and Surveillance Equipment Locations.
- Jul. 06 Editor, Special issue on Drinking water Distribution Systems Security, Journal of Water Resources Planning and Management Division, American Society of Civil Engineers (ASCE).
- Nov. 06 Member of the Israeli Steering Committee on a Drainage Engineering Manual preparation for Drainage Engineers, Ben-Zvi (Ed.).
- Feb. 05 Associate Editor, Journal of Water Resources Planning and Management Division, American Society of Civil Engineers (ASCE).
- Dec. 04 Vice Chair of the International Water Association (IWA) Watershed and River Basin Management Specialist Group.
- Jun. 03 Member of the Task Committee on Integrated Water Resources Management, American Society of Civil Engineers (ASCE).
- May 02 Member of the Task Committee on Water and Environmental Planning and Management, American Society of Civil Engineers (ASCE).
- Member of the Task Committee on Evolutionary Computation, American Society of Civil Engineers (ASCE).
- Member of the Environmental and Water Resources Systems Education Task Committee, American Society of Civil Engineers (ASCE).
- Oct. 01 Member of the IWA Watershed and River Basin Management Specialist Group.
- Oct. 00 In-charge of the Water Research Institute and the Water Resources and Environmental Engineering Departmental Seminars.

- Jun. 94 Member of the Water Resources Systems Committee, American Society of Civil Engineers (ASCE).
- Jun. 94 Member of the Task Committee on Integration of Reliability, Uncertainty, and Optimization in Hydraulics, American Society of Civil Engineers (ASCE).
- Jan. 94 - present Reviewer of the Journal of Water Resources Planning and Management Division, ASCE; Journal of Hydrology; Engineering Optimization; Water Resources Research; Advances in Water Resources; Journal of Environmental Modelling and Software; Urban Water; Civil Engineering and Environmental Systems; Journal of the American Water Works Association; Journal of Environmental Management; Environmental Science & Technology; Water SA, International Journal of Applied Mathematics and Computer Science (AMCS), IEEE Transactions on Evolutionary Computation (annual average of 20 reviews).

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Fellow, Environmental and Water Research Institute (EWRI).
- Fellow, International Water Association (IWA).
- Fellow, American Society of Civil Engineers (ASCE).
- Japan Society of Hydrology and Water Resources (JSHWR).
- Member, American Chemical Society (ACS).
- The Operations Research Society of Israel (ORSIS).
- American Geophysical Union (AGU).
- Israel Association for Water Resources (IAWR).
- The Israeli and International Water Association (IWA).
- Agricultural Engineering Division, the register of Engineers and Architects in Israel.

HONORS

- Feb. 16 ASCE/EWRI 2016 Service to the Profession Award.
- May 13 Fellow, Environmental and Water Research Institute (EWRI).
- Jan. 13 Outstanding Reviewer Award for 2012 for the Journal of Environmental Modelling and Software (EMS).
- Aug. 12 Fellow, International Water Association (IWA).
- Mar. 12 Fellow, American Society of Civil Engineers (ASCE).
- Apr. 12 EWRI-ASCE Planning & Management Council's Award for Outstanding Achievement.

- Mar. 10 Second Best Poster Award: *Housh M.* Ostfeld A. and Shamir U. "Optimal Management of Israeli National Water Systems Under Uncertainty" in Partnership to Build Capacity for Integrated, International Water Resource Management, ISE - Jordan Water Week 2010, Amman, Jordan.
- Jun. 09 International Visiting Scholarship Award, Research Center for Environmental Quality Management (RCEQM), Graduate School of Engineering, Kyoto University, Japan.
- Sep. 09 Best CCWI09 Paper Award: *Preis A.*, Whittle A., Ostfeld A., and *Perelman L.* (2009). "On-line hydraulic state estimation in urban water networks using reduced models", in Integrating Water Systems, Boxall and Maksimovic (Eds.), Taylor and Francis Group, London, proceedings of Computing and Control in the Water Industry 2009 (CCWI09), Sheffield, UK, pp. 319-324.
- Feb. 07 The Henri Gutwirth Research Grant.
- May 06 Recognized D.WRE (Diplomate, Water Resources Engineer), American Academy of Water Resources Engineers.
- Jun. 03 The Aharon Arenson Ltd. Prize for Outstanding Lectureship, Faculty of Civil and Environmental Engineering, Technion.
- Jun. 02 The Aharon Arenson Ltd. Prize for Outstanding Lectureship, Faculty of Civil Engineering, Technion.
- Jan. 02 The Karney Volovelsky Academic Lectureship Award, Technion.
- May 01 The Michael Winer Career Development Chair of the Water Research Institute, Technion.
- Jan. 01 The Samuel and Esther August Academic Lectureship Award, Technion.
- Jun. 92 The Simha Blas Scholarship Award.
- Jun. 92 The Ziva and Albert Ben David Prize for the Outstanding Assistant in teaching in the Fall Semester, 1992.
- Jan. 92 The Wolf Foundation Scholarship Award for Research Students.
- Jun. 91 The Gruenspan Prize for Research.
- Mar. 90 The Miriam and Aaron Gutwirth Scholarship for Excellence Award.

GRADUATE STUDENTS

Completed Theses

- 1998 MSc, Mataeb G. Stanislav, "Inclusion of demand - pressure head relationships in simulation and management of water distribution systems", with Mordechai H. Diskin - primary advisor.
- 2003 MSc, Shani Salomons, "Development of a calibration model for CE-QUAL-W2". Currently – Water Transportation Engineer at Elia Ben-Shabat Transportation & Traffic Engineering, Haifa, Israel.
- 2003 Quirin Lutzenberger, "Hydraulic Simulation and Optimization of Water Distribution Networks", H. Orth (primary advisor), Avi Ostfeld, Ruhr-Universität Bochum, Germany.
- 2003 MSc, Eli Elias, "An approximated model for optimal design and operation of the Israeli National System: quantity and quality" (Final Paper Track). Currently – TAHAL – Consulting Engineers Ltd., Israel.
- 2004 MSc, Ami Preis, "A machine learning model for quantity - quality flow predictions in watersheds". Currently – Post doctorate, MIT, USA.
- 2004 MSc, Shahar Shlomi, "Development of methodologies for optimal groundwater monitoring", with Hillel Rubin - primary advisor.
- 2005 MSc, Doron Levin, "Analysis of primary - secondary sludge ratio and influences on wastewater treatment costs", with Noah Galil - primary advisor. Currently – Water Engineer at BALASHA-JALON Consulting Engineers Ltd., Haifa, Israel.
- 2005 MSc, Lina Perelman, "Multi - objective design of water distribution systems". Currently – Assistant Professor, the University of Texas at Austin, USA.
- 2006 MSc, Zohar Sofer, "Reliability assessment of in - house graywater reuse", with Eran Friedler - primary advisor. Currently – Wastewater Engineer, Kalbinyan-Termak Ltd., Israel
- 2008 PhD, Ami Preis, "Water distribution systems security – multi - objective management". Currently – Founder of Visenti Pte. Ltd.
- 2008 MSc, Karnit Goldwaser, "Calibration and application of AVGWLF to Lake Kinneret watershed", with Eran Friedler - adjacent advisor.
- 2008 MSc, Yuri Mayorchik, "Optimal design and operation of pressure surge control devices in water distribution systems". Currently – Water Engineer at TAHAL Consulting Engineers Ltd.

- 2009 MSc, Shay Herer, "Development of tools for evaluating water hammer solutions" (Final Paper Track).
- 2010 MSc, Mashor Housh, for completing the requirements for the Master's degree during PhD direct track studies, with Uri Shamir - adjacent advisor. Currently – Faculty member (Lecturer) Haifa University.
- 2011 MSc, Ziv Ohar, "Optimal booster chlorination stations layout in water systems for minimizing disinfection by products" (cum lauda). Currently – Research Assistant, Technion, with Avi Ostfeld.
- 2011 PhD, Lina Perelman, "Water Distribution Systems Aggregation". Assistant Professor, the University of Texas at Austin, USA.
- 2011 PhD, Mashor Housh, "Optimal multi-year management of regional water resources systems under uncertainty", with Uri Shamir - adjacent advisor. Currently – Faculty member (Lecturer) Haifa University.
- 2012 MSc, Ariel Krapivka, "A hybrid optimization model for water distribution systems design." Currently – Water Engineer – TAHAL Consulting Engineers, Ltd.
- 2012 MSc, Eyal Price , for completing the requirements for the Master's degree during PhD direct track studies. Currently – Water Engineer – TAHAL Consulting Engineers, Ltd.
- 2013 PhD, Dimitri Tukarev, "Development of a hydrodynamic model for managing water supply reservoirs", with Hillel Rubin – primary advisor.
- 2013 MSc, Jonathan Arad, "Water Distribution Systems Contamination Event Detection." Currently – private independent employee.
- 2014 MSc, Nurit Olikier, "Multivariate data analysis for contamination event detection in water distribution systems." Currently – PhD, Civil and Environmental Engineering, Technion, with Shlomo Bekhor.
- 2014 MSc, Olya Skulovich, "Multi-objective layout of surge control devices in water distribution systems", with Lina Perelman – adjacent advisor. Currently – Research Assistant, Technion, with Avi Ostfeld.
- 2015 MSc, Matan Maskit, "Multi-objective operation, leakage, and water quality optimization for water distribution systems." Currently – Teaching Assistant, Civil and Environmental Engineering, Technion.
- 2015 MSc, Rafael Schwartz, "Inclusion of uncertainty in water distribution systems optimal design and operation" (summa cum laude). Currently – PhD, Civil and Environmental Engineering, Technion, with Yehuda Agnon.

- 2016 PhD (direct track), Eyal Price, "Inclusion of reliability and leakage in multi-objective operation of multi-quality water distribution systems." Currently – Water Engineer – TAHAL Consulting Engineers, Ltd.
- 2016 MSc, Nathan Sankary, for completing the requirements for the Master's degree during PhD direct track studies. Currently – PhD Student.

With Prof. Barbara Minsker and Prof. Arthur R. Schmidt, primary advisors, University of Illinois at Urbana-Champaign:

- 2013 PhD, Andrea Zimmer, "Hydraulic modeling and evolutionary optimization for enhanced real-time decision support of combined sewer overflows."

Theses in Progress

- 2018 PhD (direct track), Nathan Sankary, "Inclusion of uncertainty in sensor network optimal design and operation for water distribution systems security."
- 2018 MSc, Ron Lifshitz, "Dynamic district metering areas optimization for water distribution systems."

RESEARCH GRANTS

- 2001 Mekorot Israel National Water Company Co., "Optimal selection of water distribution systems devices and their calibration", 117000 NIS (two years), Avi Ostfeld, Yehuda Agnon, Michael Saldkevitch.
- 2002 Water Commission, "A GIS based hydrological model for estimating pollutant loads to Lake Kinneret from its watershed", 179860 NIS, Avi Ostfeld; extension of 40000 NIS, Avi Ostfeld, Eran Friedler (three years).
- 2002 The Grand Water Research Institute, "Innovative systems for early warning in drinking water distribution networks", 22000 \$ (two years), Avi Ostfeld, Avner Kessler.
- 2002 The Grand Water Research Institute, "Lake Kinneret watershed contamination transports – a GIS based hydrological model", 15000 \$ (two years), Avi Ostfeld.
- 2002 The Grand Water Research Institute, "Optimal monitoring of pumped groundwater for water supply in semiarid populated areas", 24000 \$ (two years), Hillel Rubin, Avi Ostfeld.
- 2002 The Grand Water Research Institute, "Effects of water resources management policies, including pumping and recharge, on the salinization process in the coastal aquifer", 24000 \$ (two years), Uri Shavit, Avi Ostfeld, Shmuel Assoulin.

- 2003 Technion's Counter Terrorism Competition, "Early warning monitoring system (EWMS) for drinking water distribution systems security", 7500 \$ (one year), Avi Ostfeld.
- 2004 The Grand Water Research Institute: "Development of a quantity - quality model for Lake Kinneret using clustering recognition and machine learning", 7000 \$ (one year), Avi Ostfeld, Lea Kronaveter.
- 2005 The Grand Water Research Institute, Research Focus on: "Integrative membrane treatment of municipal wastewater for unlimited use", 100000 \$ (one year), Robert Armon, Carlos Dosoretz, Eran Friedler, Noah Galil, Michal Green, Avi Ostfeld, Rafi Semiat, Avi Shaviv.
- 2005 The Grand Water Research Institute, Research Focus on: "On - line monitoring of particulate contaminants in drinking water supplies", 70000 \$ (one year) Israel Schechter, Yechezkel Kashi, Avi Ostfeld.
- 2005 NATO Science for Peace (SfP) project: "Drinking water supply systems security using online monitoring", 271000 EURO (three years), Kevin Lansey (NATO country project director), David Walt (Co - director) - USA (45000 EURO); Avi Ostfeld (Partner NATO country project director), Israel Schechter (Co - director), Yechezkel Kashi (Co - director) - Technion, ISRAEL (226000 EURO).
- 2006 Mekorot, Israel National Water Co.: "Analysis of the hydraulic and Limnological system of Eshkol reservoirs", 647000 NIS (two years), a joint Kinneret Limnological Laboratory (KLL) and Technion – Israel Institute of Technology project (KLL – Ami Nishri, Allon Rimmer, Assaf Sukenik, Tamar Zohary, Gideon Gal, Ilia Ostrovsky, and Yosi Yacobi; Technion – Hillel Rubin, Yehuda Agnon, and Avi Ostfeld).
- 2006 Water Commission, "Development of an optimal management model for Lake Kinneret watershed", 40000 NIS, Avi Ostfeld (one year).
- 2006 Institute for Future Defense Technologies Research Named for The Medvedi, Shwartzman and Gensler families: "Water distribution systems security using online contamination monitoring", 25000 \$, Avi Ostfeld (PI), Israel Schechter, Yechezkel Kashi (one year).
- 2007 MAGNET project: "Development of data driven models for Biofouling prediction", 150000 NIS, Avi Ostfeld (one year, to be extended to additional two years).
- 2007 Mekorot, Israel National Water Co.: "Toxic Cyanobacteria predictions in Lake Kinneret ", 51750 NIS, Avi Ostfeld (one year).
- 2007 Tahal, Consulting Engineers Ltd.: "Theoretical and empirical investigation into the effects of blending desalinated water with other water sources", 70000 NIS, Ori Lahav, Avi Ostfeld, Menahem Rebhun (1.5 years).

- 2008 Institute for Future Defense Technologies Research Named for The Medvedi, Shwartzman and Gensler families: "Water distribution systems security using online contamination monitoring", 145000 NIS, Avi Ostfeld (PI), Israel Schechter, Yechezkel Kashi (two years).
- 2008 MAGNET project: "Development of data driven models for Biofouling prediction", 162250 NIS, Avi Ostfeld and Eran Friedler (year two, to be extended to year three).
- 2008 Grand Water Research Institute: "Inclusion of desalinated water sources in optimizing the operation of water distribution systems", 4000 \$, Avi Ostfeld.
- 2008 Water Authority: "Protecting water distribution systems from deliberate contamination intrusions", 328920 NIS, Avi Ostfeld (three years).
- 2008 Member of COST (European Cooperation in the field of Scientific and Technical Research) initiative on Intelligent Monitoring, Control and Security of Critical Infrastructure Systems (IntelliCIS).
- 2009 Institute for Future Defense Technologies Research Named for The Medvedi, Shwartzman and Gensler families: "Water distribution systems security using online contamination monitoring", 60000 NIS, Avi Ostfeld (PI), Israel Schechter, Yechezkel Kashi (third year).
- 2009 Israeli Ministry of Industry and Trade MAGNET project: "Development of data driven models for Biofouling prediction", 234634 NIS, Avi Ostfeld (third year).
- 2010 Mekorot Water Company Co., "Optimal operation of the Kishon system", 50000 NIS, Avi Ostfeld (two years).
- 2010 Technion Research and Development and Lando/Ben-David, "Topological clustering analysis for water distribution systems", 2000 \$, Avi Ostfeld (one year).
- 2011 American Society of Civil Engineers (ASCE) Chief Editor support, 10000 \$, Avi Ostfeld (one year).
- 2011 Technion's Counter Terrorism Competition, "Extreme Impact Contamination Events Sampling for Water Distribution Systems Sensor Design and Operation", 29500 \$ (one year), Avi Ostfeld.
- 2011 Water Authority: "Water distribution systems security - contamination event response enhancement and vulnerability index development", 282900 NIS, Avi Ostfeld (three years).
- 2012 Umbrella Cooperation Program: "Water quality event detection for urban water sustainability", 8000 \$ (one year) Avi Ostfeld and Prof. Dr.-Ing.

Holger Schüttrumpf, Institute of Hydraulic Engineering and Water Resources Management, RWTH, Aachen.

- 2012 Technion's Counter Terrorism Competition, "Mobile Sensors Utilization for Water Distribution Systems Security", 65500 \$ (three years), Avi Ostfeld.
- 2012 Water Authority: "Modeling of complex contaminants in water distribution systems", 360000 NIS, Avi Ostfeld (three years).
- 2013 MOST/BMBF: "Water quality event detection for urban water security and urban water management based on hydrotoxicological investigations (W³-Hydro)", 281000 EURO (Israel), 439000 EURO (Germany), Avi Ostfeld, Holger Schüttrumpf (three years).
- 2013 Grand Water Research Institute, "Mobile sensors operation for water distribution systems water quality monitoring and security", 22500 \$ (two year), Avi Ostfeld.
- 2013 United States Binational Science Foundation (bsf): "Remote mobile sensors operation for water quality and security enhancements of drinking water distribution systems", Avi Ostfeld, Katherine M. Banks, and Marshall Porterfield, 224400 \$ (four years).
- 2014 Robert Shilman Technion foundation for global security research – cooperation with Northeastern university: "Resilient supply-chain design and operation – the restbed of the Israeli national water system", 25000 \$ (one year), Avi Ostfeld.
- 2014 Water Authority: "Optimal disinfection of water distribution systems post a contamination event." 420000 NIS (three years), Avi Ostfeld.
- 2015 Grand Technion Energy Program: "Smart grid integration at the water-energy nexus." 420000 NIS (on year), Guy Ramon, Avi Ostfeld, and Yitzhak Birk.
- 2016 Technion's Counter Terrorism Competition, "Optimal decontamination of water distribution systems following a contamination event: a systems approach", 10300 \$ (one year), Avi Ostfeld.

Judged as very good and worthy of support:

- 2003 United States Binational Science Foundation (bsf): "Early warning monitoring systems for drinking water distribution systems security", Avi Ostfeld, Kevin Lansey, not funded but judged as very good and worthy of support.
- 2005 United States Binational Science Foundation (bsf): "Innovative water quality sampling methodologies for water distribution systems control", Avi Ostfeld, Kevin Lansey, not funded but judged as very good and worthy of support.

- 2007 United States Binational Science Foundation (bsf): "Water distribution systems security management through monitoring and control", Avi Ostfeld, Kevin Lansey, not funded but judged as very good and worthy of support.
- 2009 Israeli Science Foundation (isf): "Water distribution systems security: extreme impact contamination events sampling for sensor placement", Avi Ostfeld, not funded but judged as very good and worthy of support.
- 2010 United States Binational Science Foundation (bsf): "Sensor networks for real time control of water distribution systems", Avi Ostfeld, Andrew Whittle (MIT), not funded but judged as very good and worthy of support.
- 2011 Israeli Science Foundation (isf): "Operation of mobile sensors for quality and security of water distribution systems", Avi Ostfeld, not funded but judged as very good and worthy of support.

PUBLICATIONS

[Graduate students/research assistants - in italics; Current annual impact factor (5-year impact factor)]

Theses

1. Ostfeld A. (1990), "Management of a regional water supply system with sources of different qualities", M.Sc. Thesis, 178 p., Civil Engineering, Technion - Haifa, Israel.
2. Ostfeld A. (1994), "Optimal design of reliable multiquality water supply systems", D.Sc. Thesis, 164 p., Civil Engineering, Technion - Haifa, Israel.

Refereed papers in professional journals

Published papers

1. Ostfeld A. and Shamir U. (1993). "Optimal operation of multiquality networks I: steady state conditions", Journal of Water Resources Planning and Management Division, ASCE, Vol. 119, No. 6, pp. 645 – 662,
[http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(1993\)119:6\(645\)](http://dx.doi.org/10.1061/(ASCE)0733-9496(1993)119:6(645))
2014 annual impact factor 2.676 (5-year impact factor 2.982)
2. Ostfeld A. and Shamir U. (1993). "Optimal operation of multiquality networks II: unsteady conditions", Journal of Water Resources Planning and Management Division, ASCE, Vol. 119, No. 6, pp. 663 – 684,
[http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(1993\)119:6\(663\)](http://dx.doi.org/10.1061/(ASCE)0733-9496(1993)119:6(663))
2.676 (2.982)
3. Ostfeld A. and Shamir U. (1996). "Design of optimal reliable multiquality water supply systems", Journal of Water Resources Planning and Management Division, ASCE, Vol. 122, No. 5, pp. 322 – 333,

- [http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(1996\)122:5\(322\)](http://dx.doi.org/10.1061/(ASCE)0733-9496(1996)122:5(322))
2.676 (2.982)
4. Kessler A., Ostfeld A., and Sinai G. (1998). "Detecting accidental contaminations in municipal water networks", *Journal of Water Resources Planning and Management Division, ASCE*, Vol. 124, No. 4, pp. 192 – 198, [http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(1998\)124:4\(192\)](http://dx.doi.org/10.1061/(ASCE)0733-9496(1998)124:4(192))
2.676 (2.982)
 - 4a. Ostfeld A. and Kessler A. (1999) Closure on "Detecting accidental contaminations in municipal water networks", *Journal of Water Resources Planning and Management Division, ASCE*, Vol. 125, No. 5, pp. 308 – 310, [http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(1999\)125:5\(308\)](http://dx.doi.org/10.1061/(ASCE)0733-9496(1999)125:5(308))
2.676 (2.982)
 5. Argaman Y., Papkov G., Ostfeld A., and Rubin D. (1999). "Single - sludge Nitrogen removal model: calibration and verification", *Journal of Environmental Engineering, ASCE*, Vol. 125, No. 7, pp. 608 – 617, [http://dx.doi.org/10.1061/\(ASCE\)0733-9372\(1999\)125:7\(608\)](http://dx.doi.org/10.1061/(ASCE)0733-9372(1999)125:7(608))
1.267 (1.485)
 6. Ostfeld A., *Muzaffar E.*, and Lansey K. E. (1999). "Analytical ground-water flow solutions for channel-aquifer interaction", *Journal of Irrigation and Drainage Engineering, ASCE*, Vol. 125, No. 4, pp. 196 – 202, [http://dx.doi.org/10.1061/\(ASCE\)0733-9437\(1999\)125:4\(196\)](http://dx.doi.org/10.1061/(ASCE)0733-9437(1999)125:4(196))
0.974 (1.244)
 7. Ostfeld A. (2001). "Reliability analysis of regional water distribution systems", *Urban Water Journal, Elsevier Science*, Vol. 3, No. 3, pp. 137 – 144, [http://dx.doi.org/10.1016/S1462-0758\(01\)00035-8](http://dx.doi.org/10.1016/S1462-0758(01)00035-8)
1.794 (1.939)
 8. Ostfeld A., *Muzaffar E.*, and Lansey K. E. (2001). "HANDSS: the Hula aggregated numerical decision support system", *Journal of Geographic Information and Decision Analysis (GIDA)*, Vol. 5, No. 1, pp. 16 – 31.
Not available (not available)
 9. Ostfeld A, *Kogan D.*, and Shamir U. (2002). "Reliability simulation of water distribution systems - single and multiquality", *Urban Water Journal, Elsevier Science*, Vol. 4, No. 1, pp. 53 – 61, [http://dx.doi.org/10.1016/S1462-0758\(01\)00055-3](http://dx.doi.org/10.1016/S1462-0758(01)00055-3)
1.794 (1.939)
 10. Ostfeld A. (2002). "IPCLASS – an interactive program for calibrating activated sludge systems", *Journal of Environmental Modelling and Software, Elsevier Science*, Vol. 17, No. 8, pp. 703 – 719, [http://dx.doi.org/10.1016/S1364-8152\(02\)00030-0](http://dx.doi.org/10.1016/S1364-8152(02)00030-0)
4.420 (4.359)

11. Ostfeld A. and *Preis A.* (2003). "Lake Kinneret watershed contamination transports: a GIS based hydrological model", *Water Science and Technology*, Vol. 48, No. 10, pp. 63 – 70,
<http://www.iwaponline.com/wst/04810/wst048100063.htm>
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Submitted papers

Sankary N. and Ostfeld A. (2016). "Mobile sensors for contaminant early warning enhancement in water distribution systems", Journal of Water Resources Planning and Management Division, ASCE (revised submission stage). 2.676 (2.982)

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Review papers

105. *Ostfeld A. and Shamir U. (1993). "Incorporating reliability in optimal design of water distribution networks – review and new concepts", *Journal of Reliability Engineering and System Safety*, Vol. 42, No. 1, pp. 5 – 11, [http://dx.doi.org/10.1016/0951-8320\(93\)90049-5](http://dx.doi.org/10.1016/0951-8320(93)90049-5) 2.410 (2.693)*

106. Ostfeld A. (2005). "A review of modeling water quality in distribution systems", *Urban Water Journal*, Vol. 2, No. 2, pp. 107 – 114,
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107. Solomatine D. and Ostfeld A. (2008). "Data driven modeling: some past experiences and new approaches", *Journal of Hydroinformatics*, Vol. 10, No. 1, pp. 3 – 22, <http://dx.doi.org/10.2166/hydro.2008.015>
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Books

1. Ostfeld A. (2004). "Optimal monitoring stations allocations for water distribution systems security", In *Water Supply Systems Security* (Mays L., Ed.), McGraw-Hill, Inc., Chapter 16, pp. 16.1-16.15 (chapter contribution)
2. Ostfeld A. and Tyson J. M. (Eds.) (2005). "River basin restoration and management", *Water and Environmental Management Series*, IWA publication, 94p (editor)
3. Ostfeld A. (2005). "Watershed management – a physically based approach versus data driven modeling" In *River Basin Restoration and Management* (Ostfeld A. and Tyson J. M., Eds.) *Water and Environmental Management Series*, IWA publication, pp. 49-53 (chapter contribution)
4. Ostfeld A. and Preis A. (2005). "A data driven model for flow and contaminants runoff predictions in watersheds." In *River Basin Restoration and Management* (Ostfeld A. and Tyson J. M., Eds.) *Water and Environmental Management Series*, IWA publication, pp. 62-70 (chapter contribution)
5. Lansey K., Choi C., Ostfeld A., and Pepper I. (Eds.) (2010). "Water Distribution Systems Analysis 2010." *The 12th water distribution systems analysis symposium*, ASCE publication, Tucson, AZ (Editor)
6. Ostfeld A. (2010). "Evolutionary Computation for Single and Multiobjective Water Distribution Systems Optimal Design: Review of Some Recent Applied Methodologies." In *Handbook of Research on Hydroinformatics: Technologies, Theories and Applications* (Tagelsir M., Ed.), IGI Global publication, Hershey PA 17033-1240, USA, pp. 332-345 (chapter contribution)
7. Hakim S., Clark B., and Ostfeld A. (Eds.) (2011). "Protecting Water and Wastewater Facilities", Rowman and Littlefield, Lanham, Maryland 20706, USA, ISBN 978-1-4614-0188-9, 527p (editor)
8. Ostfeld A. (2011). "Water Distribution Systems Security Modeling" In *Protecting Water and Wastewater Facilities* (Hakim S., Clark B., and Ostfeld A., Eds.), Rowman and Littlefield, Lanham, Maryland 20706, USA (chapter contribution)

9. Ostfeld A. (Ed.) (2011). "Ant Colony Optimization - Methods and Applications" IN-TECH publications, ISBN 978-953-307-157-2, 342p, <http://dx.doi.org/10.5772/577> (editor)
10. Ostfeld A. (Ed.) (2012). "Water Supply Systems Analysis – Selected Topics" IN-TECH publications, ISBN 978-953-51-0889-4, 149p, <http://dx.doi.org/10.5772/2882> (editor)
11. Ostfeld A. (2014). "Water Distribution Networks." In E. Kyriakides and M. Polycarpou (Eds.), Intelligent Monitoring, Control, and Security of Critical Infrastructure Systems, Studies in Computational Intelligence 565, Berlin: Springer-Verlag, pp. 101-124

Research reports or case reports

1. Reliability assessment of single and multiquality water distribution systems (The Water Research Institute, Technion - Haifa, Israel); Ostfeld, Kogan, Shamir; 1996.
2. Detecting accidental contaminations in municipal water networks (The Water Research Institute, Technion - Haifa, Israel); Ostfeld, Kessler; 1996.
3. Calibration of advanced mathematical models for upgrading activated sludge plants through improved design and operation (The Water Research Institute, Technion - Haifa, Israel); Argaman, Brener, Papkov, Ostfeld; 1996.
4. Decision support system for arid land wetland and riparian zones (Civil Engineering, the University of Arizona, Tucson, AZ, USA); Ostfeld and Lansey; 1997.
5. Management of multiquality water distribution systems using heuristic combinatorial techniques (Civil Engineering, Technion - Haifa, Israel); Ostfeld; 2001.
6. A GIS based hydrological model for estimating pollutant loads to Lake Kinneret from its watershed (Civil Engineering, Technion - Haifa, Israel); Ostfeld, Perelman, Preis, Rimmer, Salingar; 2002.
7. Management of multiquality water distribution systems using heuristic combinatorial techniques (Civil and Environmental Engineering, Technion - Haifa, Israel); Ostfeld; 2002.
8. Backups selection for water distribution systems (Civil and Environmental Engineering, Technion - Haifa, Israel); Ostfeld; 2002.
9. Innovative systems for early warning monitoring in drinking water distribution networks (Civil and Environmental Engineering, Technion - Haifa, Israel); Ostfeld, Kessler; 2002.

10. Effects of water resources management policies, including pumping and recharge, on the salinization process in the coastal aquifer (Civil and Environmental Engineering, Technion - Haifa, Israel); Shavit, Assouline, Ostfeld, Kislev; 2002.
11. Optimal monitoring of pumped groundwater for water supply in semiarid populated areas (Civil and Environmental Engineering, Technion - Haifa, Israel); Rubin, Shlomi, Ostfeld; 2002.
12. A GIS based hydrological model for estimating pollutant loads to Lake Kinneret from its watershed (Civil Engineering, Technion - Haifa, Israel); Ostfeld, Friedler, Perelman, Preis, Rimmer, Salingar; 2003.
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15. Effects of water resources management policies, including pumping and recharge, on the salinization process in the coastal aquifer (Civil and Environmental Engineering, Technion - Haifa, Israel); Shavit, Assouline, Ostfeld, 2003.
16. Development of a quantity - quality model for Lake Kinneret using clustering recognition and machine learning (Civil and Environmental Engineering, Technion - Haifa, Israel); Ostfeld, Tubaltzev, 2004.
17. Lake Kinneret water quality management and optimization support system - Phase 2, Final report. [IOLR-KLL Report T10/2005, Zohary T., Gal G. and J. Antenucci. [Eds], Chapter 3: Calibration of CAEDYM using a Genetic Algorithm, by Ostfeld A., Gal G., and Salomons E.
18. Probability estimation of Blue Algae's blooms in Lake Kinneret, Interim Report (Mekorot Water Company Co., Kinneret Limnological Laboratory, Civil and Environmental Engineering – Technion), Teltsch B. (Ed.), Rom M., Kronaveter L., Ostfeld A., 2005.
19. Drinking water supply systems security using online monitoring, Final Report, Kevin Lansey (NATO country project director), David Walt (Co - director) – USA, Avi Ostfeld (Partner NATO country project director), Israel Schechter (Co - director), Yechezkel Kashi (Co - director) - Technion, ISRAEL, 2008.

Other publications

1. Ostfeld A. (1998). "Israel's water sector - coping with scarce resources", World Markets Series, Business Briefing: Israel at 50, pp. 130 – 133.

2. Ostfeld A. (2006). "Enhancing water distribution systems security through modeling", Editorial, Journal of Water Resources Planning and Management Division, ASCE, Vol. 132, No. 4, pp. 209 – 210,
[http://dx.doi.org/10.1061/\(ASCE\)0733-9496\(2006\)132:4\(209\)1.709](http://dx.doi.org/10.1061/(ASCE)0733-9496(2006)132:4(209)1.709) (1.757)
3. Ostfeld A. and Solomatine D. (2008). "Prologue: special issue on data driven modeling and evolutionary optimization for river basin management", Prologue, Journal of Hydroinformatics, Vol. 10, No. 1, p 1.,
<http://dx.doi.org/10.2166/hydro.2007.0181.153> (1.459)

CONFERENCES

(Speakers underlined, graduate students/research assistants - in italics)

Plenary or invited talks

International

1. Ostfeld A. and Shamir U. (1991). "Optimal operation of multiquality distribution systems: steady state conditions", Water Quality Modeling in Distribution Systems Special Workshop, EPA, Cincinnati, Ohio, USA.
2. *Shlomi S.*, Rubin H., Ostfeld A., and Shoemaker C. (2002). "Developing a methodology for selecting wells sampled for the evaluation of groundwater quality", the 18th Umbrella joined Technion and Aachen University Symposium, Aachen, Germany.
3. Ostfeld A. (2003). "Modeling water quality in distribution systems", Keynote lecture at the International Conference on Advances in Water Supply Management (CCWI03), Imperial College, London, UK.
4. Ostfeld A. (2004). "Optimal simultaneous design and operation of multiquality water distribution systems under unsteady hydraulics", Invited Keynote lecture at ACTUI2004: "Decision Support in the Water Industry Under Conditions of Uncertainty", University of Exeter, Exeter, Devon, UK.
5. Ostfeld A. (2007). "Cross boundary integrated water resources management – quantitative methodologies, tools, examples", Invited Keynote lecture, Multinational Agricultural Research and Development (MARD), Balancing Water Scarcity and Growing Demands in Agriculture, Dead Sea, Jordan.
6. Ostfeld A. (2007). "Water distribution systems security enhancement through modeling", Invited Plenary lecture, Water Management Challenges in Global Change CCWI2007 and SUWM2007 Conference, De Montfort University, Leicester, United Kingdom.
7. Ostfeld A. (2007). "Standardization of models for water distribution systems security", Invited Plenary lecture, International Workshop Agreement (IWA), The Standards Institution of Israel, Tel-Aviv, Israel.

8. Ostfeld A. (2009). "2nd forum on water infrastructure security", Invited Plenary lecture, International Workshop, Università degli Studi di Cassino, Italy.
9. Ostfeld A. (2009). "Modeling water resources systems: traditional and new perspectives", Invited lecture, The Dahlia Greidinger Memorial Symposium 2009 on Crop Production in the 21st Century: Global Climate Change, Environmental Risks and Water Scarcity, Technion-IIT, Haifa, Israel.
10. Ostfeld A. (2009). "Water resources systems management – networks, hydrology, surface water", Invited lecture, New Developments in Water Research One Day bi- National Conference March 24, 2009 Technion- IIT, Haifa, Israel.
11. Ostfeld A. (2009). "On Greywater reuse in Israel: potential and feasibility", Invited lecture, the 1st GEGES Global COE Workshop in FY2009, Kyoto University, Kyoto, Japan.
12. Ostfeld A. (2009). "Integrated water resources management – quantitative methodologies, tools, examples", Invited lecture, 31st Kyoto University Environmental Sanitary Engineering Research Symposium, the Association of Environmental & Sanitary Engineering Research of Japan, Vol. 23, No. 3, p. 1, Kyoto, Japan.
13. Ostfeld A. (2009). "Water resources systems analysis using evolutionary hybrid optimization methodologies", Invited lecture, Disaster Prevention Research Institute (DPRI), Kyoto University, Kyoto, Japan.
14. Ostfeld A. (2009). "Calibration of CE-QUAL-W2 using a hybrid genetic instance based algorithm", Invited lecture, annual Japan Society for Water Environment (JSWE) symposium, Tokyo, Japan.
15. Ostfeld A. (2009). "Integrated water resources systems management – concepts and examples", Invited lecture, Institute of Industrial Science, University of Tokyo, Tokyo, Japan.
16. Ostfeld A. (2010). "Simulation and optimization of watersheds – review of recent methodologies and future directions", Invited lecture, Workshop on Climate Change Impacts on Watershed Management: Challenges and Emerging Solutions Science, IWA World Water Congress and Exhibition, September 2010, Montreal, Canada.
17. Ostfeld A. (2010). "Drinking water distribution systems security modeling: review and challenges", Invited Keynote lecture, IntelliCIS COST Action IC0806 Intelligent Monitoring, Control and Security of Critical Infrastructure Systems, September 2010, Novi Sad, Serbia.
18. Ostfeld A. (2011). "Water distribution systems security modeling", Invited Plenary lecture, Watermatex 2011, 8th IWA Symposium on Systems Analysis and Integrated Assessment, June 2011, San Sebastian, SPAIN.

19. Ostfeld A. (2011). "Modeling and simulation in water distribution system engineering", Invited talk, The 25th Umbrella Symposium & The German-Israeli forum for Science and Technology, June 2011, Aachen, Germany.
20. Ostfeld A. (2011). "Water resources systems analysis: methodologies and applications", Plenary lecture, International Conference on Drinking Water Safety, Security and Sustainability, October 2011, Hangzhou, China.
21. Ostfeld A. (2011). "Systems analysis for integrated water resources planning and management – Overview and Case Studies", Keynote lecture, in Sustainable Water Management in the 21 Century – Policy and Practice, CINADCO, Centre for International Agricultural Development Cooperation, November 2011, Shefayim, Israel
22. Ostfeld A. (2012). "Optimal urban water distribution systems management", Keynote lecture, in International Workshop on Urban Water Safety, Tsinghua University, April 2012, Beijing, China
23. Ostfeld A. (2012): "Water distribution systems modeling." Invited presentation, Jinan Water Utility, China, April 2012
24. Ostfeld A. (2012). "Science and application of water management." Keynote lecture, in the Chamber of Engineers 21st Annual Engineering Conference on: "Water: a 21st Century Challenge", May 2012, Malta, Italy
25. Perelman L. Arad J., Housh M., Olikier N., and Ostfeld A. (2012). "Water distribution systems event detection." Invited paper and presentation at COMPENG IEEE Workshop on Complexity in Engineering, June 11-13, Aachen, Germany.
26. Ostfeld A. (2012). "Water distribution systems optimization: problems and solutions." Keynote talk, Water Distribution System Academic Salon, Zhejiang University, August 2012, Hangzhou, China.
27. Ostfeld A. (2013). "Water distribution systems: theory and applications." Invited talk at the Second IntelliCIS Training School on Simulation - based Design of Complex Infrastructure March, 2013, RWTH Aachen University, Aachen, Germany.
28. Ostfeld A. (2013). "Past successes, current state of the art, and future challenges for water resources systems analysis." Invited talk at panel discussion, EWRI annual conference, May 2013, Cincinnati, Ohio, USA.
29. Ostfeld A. (2013). "Smart urban water management." Invited talk at workshops on: Water challenges in Mexico: Present and future situation; Approaches, technologies and solutions (Knowledge, Technology, Implementation, Policy and Regulation), SEMANA DE LA INNOVACIÓN CIENCIA Y TECNOLOGIA INSTITUTO POLITÉCNICO NACIONAL SECRETARÍA DE INVESTIGACIÓN Y POSGRADO, October 2013, Mexico City, Mexico.

30. Ostfeld A. (2013). "Water distribution systems security: overview and challenges." Invited talk at FACIES: Workshop on Online Identification of Failure and Attack on Interdependent Critical Infrastructures, December 2013, Florence, Italy.
31. Ostfeld A. (2014). "Water distribution systems optimization." ERA-2014 Conference (<http://era.citedi.mx/portal2014>) Tijuana, B.C. México, April 09 – 11, 2014, in Advances in Computing Science, Control and Communications, Garcia M. G., Sidorov G., and Kumar S. (Eds.), Vol. 69, pp. 89-98.
32. Ostfeld A. (2014). "Management of water distribution systems: overview and challenges." Universidad de los Andes, Bogota, Colombia, May 19 – 22, 2014, special conference in preparation to the 18th Water Distribution Systems Analysis (WDSA) conference in 2016, Cartagena de Indias, Caribbean Sea City, Colombia.
33. Ostfeld A. (2014). "Water distribution systems modelling: overview and challenges." FP7 EFFINET Workshop on "Efficient Integrated Real-time Monitoring and Control of Drinking Water Networks", September 30, 2014, Cornellà de Llobregat, Barcelona, Spain
34. Ostfeld A. (2014). "Water distribution systems security enhancement through monitoring." CRITIS 2014, 9th International Conference on Critical Information Infrastructures Security, October 13-15, 2014, Limassol, Cyprus.
35. Ostfeld A. (2015). "Challenges and limitations of current modeling approaches for water distribution systems security." In Secure Cyber Physical [SCy-Phy] Systems Week, June 22-23, 2015, Singapore.
36. Ostfeld A. (2015). "Water distribution systems security enhancements through modeling: review and challenges." CCWI 2015, The 13th Computer and Control for Water Industry Conference, 2 - 4 September 2015, De Montfort University, UK.
37. Ostfeld A. (2015). "Water resources system analysis: tools and challenges." In EXPO 2015, joint meeting on "Managing Water Quality for Public Health", Politecnico di Torino, Technion Institute of Technology, University of Torino, 14 - 15 October 2015, Torino, Italy.

National

1. Rubin H., Ostfeld A., and *Dveyrin D.* (2002). "Groundwater contaminants monitoring design for early warning", special international symposium on Stressed Aquifers – Causes and Management, Sde-Boker, Israel.
2. Ostfeld A. (2003). "An early warning detection system for drinking water distribution systems security", Mekorot Water Company Co.

3. Ostfeld A. (2003). "Optimal layout of early warning detection stations for water distribution systems security", visit to the Technion of Military Attaches from Latin America and Europe, December 2003.
4. Ostfeld A., Gal G., and *Salomons E.* (2005). "Automated CAEDYM calibration", Invited lecture at the 'Kinneret Model Day' marking the completion of the Kinneret Ecosystem Modelling Project, Nof Ginosar, Lake Kinneret, Israel.
5. Ostfeld A. (2010). "Water distribution systems security – review and applications", Mekorot Water Company Co.
6. Ostfeld A. (2012). "Water distribution systems event detection", Technion – University of Toronto Joint Workshop on Response and Protection of Infrastructure to Extreme Loadings, Technion, Haifa, Israel.
7. Ostfeld A. (2013). "Incorporating transient analysis modeling in water distribution systems management", Hydraulic Surge and Air Control Symposium, Kibbutz Kfar Charuv, Ramat Hagolan, Israel.
8. Ostfeld A. (2013). "Drinking water distribution systems security modeling", Special session on Water Security and Modeling as Ultimate Tools for the Water Manager, Water Technology and Environmental Control Exhibition and Conference (WATEC), Tel-Aviv, Israel.

Papers in conference proceedings

1. Ostfeld A. and Shamir U. (1993). "Modeling multiquality networks", proceedings of the AWWA annual conference, San Antonio, Texas, USA, pp. 151 - 160.
2. Ostfeld A. and Shamir U. (1994). "Designing optimal reliable multiquality water supply systems", proceedings of the EWRI annual conference, ASCE, Denver, Colorado, USA, pp. 270 - 274.
3. Ostfeld A. and Shamir U. (1995). "Water quality modeling in distribution systems: overview and state of - the art in methods of solutions", proceedings of the EWRI annual conference, ASCE, Cambridge, Massachusetts, USA, pp. 698 - 701.
4. Kessler A., Ostfeld A., and Sinai G. (1997). "Detecting accidental contaminations in municipal water networks", proceedings of the EWRI annual conference, ASCE, Houston, Texas, USA, pp. 732 - 737.
5. Ostfeld A., Lansey K. E., Salingar Y., and Maddock T. III (1997). "Development of a decision support system for the Lake Hula project", ESRI Annual User's Conference, San Diego, California, published at: <http://www.esri.com>

6. Ostfeld A. and Kessler A. (1998). "Detecting accidental contaminations in municipal water networks: application", proceedings of the EWRI annual conference, ASCE, Chicago, Illinois, USA, pp. 272 - 278.
7. Ostfeld A. and Shamir U. (1998). "Using back - up sub - systems for design and operation of reliable multiquality systems", proceedings of the EWRI annual conference, ASCE, Chicago, Illinois, USA, pp. 303 - 306.
8. Ostfeld A. (2000). "Reliability analysis of regional water distribution systems - a case study", proceedings of the EWRI annual conference, ASCE, Minneapolis, Minnesota, USA, [http://dx.doi.org/10.1061/40517\(2000\)194](http://dx.doi.org/10.1061/40517(2000)194)
9. Muzaffar E., Ostfeld A., and Lansey K. (2000). "An overview of HANDSS: Hula aggregated numerical decision support system", proceedings of the EWRI annual conference, ASCE, Minneapolis, Minnesota, USA, [http://dx.doi.org/10.1061/40517\(2000\)30](http://dx.doi.org/10.1061/40517(2000)30)
10. Ostfeld A. (2001). "Reliability simulation of water distribution systems", in *Water Software Systems: Theory and Applications*, Ulanicki B., Coulbeck B., and Rance J. P. (Eds.), Proceedings of the CCWI01 Conference, Vol. 1, pp. 289 - 300.
11. Ostfeld A. and Kessler A. (2001). "Protecting urban water distribution systems against accidental hazards intrusions", Proceedings of the IWA Second Conference, Berlin 2001, Published on CD.
12. Ostfeld A. (2001). "Activated sludge systems calibration - an interactive approach", Proceedings of the IWA Second Conference, Berlin 2001, Published on CD.
13. Ostfeld A., *Salomons E.*, and Shamir U. (2002) "Optimal operation of water distribution systems under water quality unsteady conditions", Proceedings of the annual EWRI ASCE Conference, Roanoke, Virginia, published on CD.
14. Rubin H., Ostfeld A., and *Dveyrin D.* (2002). "Optimal monitoring of pumped groundwater for water supply in semiarid populated areas", Proceedings of the annual EWRI ASCE Conference, Roanoke, Virginia, published on CD.
15. Berger D. and Ostfeld A. (2002). "Application of CE-QUAL-W2 to Lake Kinneret", Proceedings of the 5th International Conference on Hydroinformatics, Cardiff, UK, Vol. 1, pp. 528 - 333.
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111. *Olikier N.* and Ostfeld A. (2015). "Water quality event detection in water networks through multiple sensors data." EWRI Conference, 17-21 May 2015, Austin, Texas, USA, Conference proceedings, pp. 902-906, <http://dx.doi.org/10.1061/9780784479162.085>
112. *Ohar Z., Lahav O., and Ostfeld A.* (2015). "Optimal sensors location using contamination detailed chemistry reactions." EWRI Conference, 17-21 May 2015, Austin, Texas, USA, Conference proceedings, pp. 820-828, <http://dx.doi.org/10.1061/9780784479162.076>
113. *Ohar Z., Ostfeld A., Lahav O., and Birnhack L.* (2015). "Modelling heavy metal contamination events in water distribution systems." 13th international CCWI conference (CCWI2015), 2-4 September 2015, Leicester, UK, in *Procedia Engineering*, Vol. 119, 2015, pp. 328-336, <http://dx.doi.org/10.1016/j.proeng.2015.08.892>
114. *Salomons E.* and Ostfeld A. (2015). "A multi-objective approach for minimizing water network disinfection time and disinfectant quantity." 13th international CCWI conference (CCWI2015), 2-4 September 2015, Leicester, UK, in *Procedia Engineering*, Vol. 119, 2015, pp. 347-351, <http://dx.doi.org/10.1016/j.proeng.2015.08.894>
115. *Taormina R., Galelli S., Tippenhauer N. O., Salomons E., and Ostfeld A.* (2016). "Simulation of cyber-physical attacks on water distribution systems with EPANET." Inaugural Singapore Cyber Security R&D Conference, Singapore University of Technology and Design, Singapore, <http://ebooks.iospress.nl/volumearticle/42059> <http://dx.doi.org/10.3233/978-1-61499-617-0-123>
116. *Nuesser L., Hartmann S., Salomons E., Skulovich O., Ostfeld A., Hollert H. and Seiler T. B.* (2016). "Can zebrafish larvae behavior be used for on-line contamination event detection in water distribution systems?" SETAC Europe 26th Annual Meeting, Nantes, France (Platform presentation, 31% acceptance rate).
117. *Taormina R., Galelli S., Tippenhauer N. O., Ostfeld A., and Salomons E.* (2016). "Assessing the effect of cyber-physical attacks on water distribution systems." EWRI Conference, 22-26 May 2016, West Palm Beach, Florida, USA, pp. 436-442 <http://dx.doi.org/10.1061/9780784479865.046>
118. *Price E. and Ostfeld A.* (2016). "A graph theory modelling approach for optimal operation of water distribution systems under water quality constraints." EWRI Conference, 22-26 May 2016, West Palm Beach, Florida, USA, pp. 497-504, <http://dx.doi.org/10.1061/9780784479865.052>

119. Salomons E. and Ostfeld A. (2016). "Slug flow optimal disinfection of water distribution networks following a contamination event." EWRI Conference, 22-26 May 2016, West Palm Beach, Florida, USA, pp. 516-522, <http://dx.doi.org/10.1061/9780784479865.054>
120. Sankary N. and Ostfeld A. (2016). "Incorporating operational uncertainty in early warning system design optimization for water distribution system security." 18th Water Distribution Systems Analysis Conference, 24-28 July 2016, Cartagena de Indias, Caribbean Sea City, Colombia.
121. Ostfeld A. and Salomons E. (2016). "Water age clustering for water distribution systems." 18th Water Distribution Systems Analysis Conference, 24-28 July 2016, Cartagena de Indias, Caribbean Sea City, Colombia.

Participation in organizing conferences

1. Environmental Water Research Institute, ASCE, First Symposium on Environmental and Water Resources Systems Analysis, Roanoke, Virginia, USA, May 2002, Session proposer and session moderator of: "Reliability Integration in Optimal Planning, Design, and Operation of Water Networks", session moderator of: "Decision Support Systems for Water Supply Management Strategies".
2. The IWA 9th International Specialized Conference on Watershed and River Basin Management, IWA, Edinburgh, Scotland, September 2002, Member of the organizing and program committee, session moderator of: "Water Supply Sources".
3. ASCE-EWRI (Environmental Water Research Institute) Annual Conference, Philadelphia, USA, June 2003, Member of the organizing and program committee of Water Distribution Systems Analysis, and moderator of four sessions.
4. CCWI03 (Computing and Control for the Water Industry & WATERSAVE Network, London, UK), September 2003, Member of the Scientific and Advisory Committee, and session chair of: "Network optimization I", and of "Water Economics."
5. IWA 4th World Water Congress, 20th – 24th September 2004, Marrakech, Morocco, workshop organizer and chair on "River Basin Management Using Machine Learning", and chair of sessions on "Systems for Circumstances: Modeling and Decision Support I & II."
6. The first International Mediterranean Modeling Multi-conference (13M), Genova, Italy, October, 2004, Member of the International Program Committee.
7. Decision Support in the Water Industry Under Conditions of Uncertainty, ESPRC Research Network Seminar ACTUI2004, 24th – 25th March 2004, University of Exeter, UK, Chair of Part Three: "General Decision Support".

8. ASCE-EWRI (Environmental Water Research Institute) Annual Conference, Salt Lake City, Utah, USA, June 2004, Member of the organizing and program committee of Water Distribution Systems Analysis, and moderator of: "Transient Analysis and Leak Detection".
9. International Conference on Hydro-Science and Engineering, Cairns, Australia, May – June 2004, member of the organizing committee for sessions on "Current Problems of Water Distribution Systems".
10. CCWI05 [Computer and Control in the Water Industry, Exeter, England], September 2005, member of the International Technical Committee, and chair of session on: "Steady-state and Transient Analysis, Modeling and Simulation".
11. 1st Open International Conference on Modeling & Simulation June 12th – 15th 2005 – ISIMA / Blaise Pascal University – France, Member of the International Program Committee.
12. The Annual Operations Research Society of Israel (ORSIS) Conference, May 2004, session organizer and session chair of: "Application of Operation Research to Natural Resources Systems".
13. The IWA 10th International Specialized Conference on Watershed and River Basin Management, IWA, Calgary, Canada, September 2005, Member of the organizing and program committee, and moderator of two sessions: "Monitoring and Modelling" and "Pollution Sources and Control/Water Resources Management".
14. The 8th Annual Water Distribution System Analysis Symposium, University of Cincinnati, Cincinnati, Ohio, USA, August 2006, Member of the international program committee.
15. Challenges in Water Research for Israel and the Region, Dedication of the Grand Water Research Institute Building, May 2005, Member of the Conference Organizing and of the Poster Session and Competition Committees.
16. Watermatex 2007: May 2007, Washington DC, USA: IWA Specialist Groups Conference on Systems Analysis and Integrated Assessment and on Watershed and River Basin Management, joint initiative with Prof. Peter Vanrolleghem, Chair of the IWA specialist group on Systems Analysis and Integrated Assessment.
17. US70, a National Symposium on Methods and Models for Decision Making in Water Resources Systems, the Grand Water Research Institute, November 2006, symposia organizer.
18. Waters in protected areas, Dubrovnik, Croatia, 2007, Member of the scientific committee.

19. The 9th Annual Water Distribution System Analysis Symposium, EWRI-ASCE Conference, Tampa, Florida, USA, May 2007, Member of the program committee.
20. Member of the Invited Scientific Committee for Water Management Challenges in Global Change CCWI2007 and SUWM2007 Conference, De Montfort University, Leicester, United Kingdom, and chair of sessions on Water Quality and Treatment, and on Hydraulic Modelling of Steady State and Transients.
21. International conference on water distribution systems, Kruger National Park, South Africa 2008, Member of the conference International Advisory Committee.
22. International Water Research (IWA) 11th International River Basin and Watershed Management Special Conference, September 2008, Budapest, Hungary, Member of the Program Committee.
23. Track chair of the Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Honolulu, Hawaii, USA, May 2008.
24. Track chair of the 11th Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Kansas City, Missouri, USA, May 2009.
25. CCWI09 [Computer and Control in the Water Industry, Sheffield, England], September 2009, member of the Scientific Advisory Committee.
26. The 12th Annual Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Tucson, Arizona, USA, September 2010, Member of the program and organizing committee.
27. Track chair of the Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Providence, RI, USA, May 2010.
28. Member of session's organization for Environmental Cyber-Sensing, EWRI-ASCE Conference, Providence, RI, USA, May 2010.
29. Track chair of the 13th Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Palm Springs, California, USA, May 2011.
30. Member of the WATERMATEX2011 International Scientific Committee for the WATERMATEX symposium, San Sebastian, Spain, June 2011.
31. CCWI11 [Computer and Control in the Water Industry, Exeter, England], September 2011, member of the International Scientific Committee, and moderator of: "Systems Modeling, Optimization and Decision Support."
32. International Water Research (IWA) 12th International River Basin and Watershed Management Special Conference, September 2011, Recife, Brazil, Member of the Program Committee.

33. The first annual Technion Environmental, Water, and Agricultural Engineering departmental symposium on Water Resources, Hydrology, and Marine Systems, January 2012 (with Uri Shavit and Carlos Dozoretz).
34. Track chair of the Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Albuquerque, NM, USA, May 2012.
35. Member of session's organization for Environmental Cyber-Sensing, EWRI-ASCE Conference, Albuquerque, NM, USA, May 2012.
36. Program Co-Chair jointly with Zheng Wu, 2013 Cloud Technology Symposium, EWRI-ASCE Conference, Cincinnati, Ohio, USA, May 2013.
37. Track chair (together with Morris Maslia and Kelly Brumbelow) of the 15th Water Distribution Systems Analysis Symposium, EWRI-ASCE Conference, Cincinnati, Ohio, USA, May 2013.
38. CCWI13 [Computer and Control in the Water Industry, Perugia, Italy], September 2013, member of the International Scientific Committee.
39. 1st Workshop on Computational Intelligence and Critical Infrastructures (CICS 2013), as part of the AIAI2013 9th International Conference on Artificial Intelligence Applications and Innovations, Cyprus, September 2013, member of the program committee.
40. The IWA 12th International Specialized Conference on Watershed and River Basin Management, IWA, San-Francisco, USA, September 2014, member of the program committee.
41. Member of the international scientific committee of the 16th Water Distribution Systems Analysis Conference, Bari, Italy, July 2014.
42. Member of the scientific program committee of the 9th IWA Symposium on Systems Analysis and Integrated Assessment, Gold Coast, Australia, 2015.
43. CCWI15 [Computer and Control in the Water Industry, Leicester, UK], September 2015, member of the International Scientific Committee.
44. 43rd Annual Conference on Science and the Environment, Hebrew University of Jerusalem, 2015, member of the program and scientific committee.
45. Watermatex 2015 [9th IWA Symposium on Systems Analysis and Integrated Assessment, Queensland, Australia, June 2015], member of the Scientific Committee.
46. Member of the organizing committee of the 17th Water Distribution Systems Analysis Conference, Cartagena, Colombia, July 2016.
47. Member of the organizing committee of the International Conference on Oil, Gas and Petrochemistry (Petrochemistry-2016,

<http://petrochemistry.madridge.com/themes.php>), Dubai, United Arab Emirates (UAE), December, 2016.

48. Member of the advisory committee of IWPE-2017 (Wuhan) conference.
49. Member of the program committee of HASE 2017, Singapore, January 2017.
50. Member of the international scientific committee of the 38th World Congress of IAHR (International Association for Hydro-Environment Engineering and Research), Panama, 2019.

SPECIAL PROFESSIONAL ACTIVITIES

Ostfeld A., "Flood Reservoirs", a one day course at the joint Israeli, Palestinian, and Jordanian, Regional Operational Hydrology Training project, Ramala, March 2000.

October 2014 - Member of the User Advisory Group (UAG) for the FP7 SAFEWATER project on detection and mitigation of CBRN events in drinking water.

Conference presentations/seminars with abstract only

(Speakers underlined, graduate students/research assistants - in italics)

Shlomi S., Ostfeld A., Rubin H., and Shoemaker C. A. (2003). "A polygonal cells approach for optimal selection of monitoring wells", AGU Fall 2004 Meeting.

Shlomi S., Ostfeld A., Rubin H., and Shoemaker C. A. (2004). "Optimal selection of pumping wells for groundwater contamination monitoring", the Annual Operations Research Society of Israel (ORSIS) Conference (abstract in Hebrew).

Preis A. and Ostfeld A. (2004). "A machine learning model for quantity - quality flow predictions in watersheds", the Annual Operations Research Society of Israel (ORSIS) Conference (abstract in Hebrew).

Rom M., Kronaveter L., and Ostfeld A. (2005). "Use of data driven modeling for Blue Algae predictions in Lake Kinneret". Early project results presentation at a one day colloquium on "Causes and Processes Involved at the Instability of the Phytoplankton Population at Lake Kinneret", Nof Ginosar, Lake Kinneret, Israel.

Markel D., Evans B., *Goldwasser K.*, Ostfeld A., Friedler E., and Somma F. (2007). "Using a GIS-based load transfer model (AVGWLF) for improving management of Lake Kinneret watershed, Israel", EGU General Assembly 2007, Geophysical Research Abstracts, 9, 10939.

Housh M., Ostfeld A., Shamir U. (2008). "Optimal multi-year management of a water supply system under uncertainty", the Annual Operations Research Society of Israel (ORSIS) Conference (abstract in Hebrew).

Kronaveter L., Rom M., and Ostfeld A. (2008). "A neural network learning system for prediction of toxic Cyanobacteria in Lake Kinneret", the Annual Operations Research Society of Israel (ORSIS) Conference (abstract in Hebrew).

- Perelman L. And Ostfeld A. (2010). "Sampling of rare events in large water supply systems for systems security", 12th Annual International Symposium on Water Distribution Systems Analysis, Tucson, Arizona, USA, published on CD.
- Housh M., Ostfeld A., Shamir U (2011). "Optimal multi-year management of a water supply system under uncertainty: robust counterpart approach", the Annual Operations Research Society of Israel (ORSIS) Conference (abstract in Hebrew).
- Arad J., Perelman L., and Ostfeld A (2011). "Water security event detection in water distribution systems through water quality indicators", the 19th International Conference of Environmental Indicators, Haifa, Technion.
- Housh M., Ostfeld A., and Shamir U. (2011). "Optimal management of a water supply system under uncertainty: stochastic approach", EWRI ASCE Conference, Palm Springs, California, USA.
- Housh M., Ostfeld A., and Shamir U. (2011). "Optimal management of a water supply system under uncertainty: the Info-Gap approach", EWRI ASCE Conference, Palm Springs, California, USA.
- Housh M., Ostfeld A., and Shamir U. (2011). "Limited multi-stage programming: a case study for multiyear management of water supply system", EWRI ASCE Conference, Palm Springs, California, USA.
- Ostfeld A. (2011). "Decomposition for optimal reliable design and operation of water distribution systems", EWRI ASCE Conference, Palm Springs, California, USA.
- Ostfeld A. (2011). "Drinking water distribution systems security modeling and challenges", EWRI ASCE Conference, Palm Springs, California, USA.
- Zimmer A., Minsker B., Schmidt A., and Ostfeld A. (2011). "Hydraulic modeling and evolutionary optimization for enhanced real-time decision support of combined sewer overflows." AGU Fall 2011 Meeting.
- Zimmer A., Minsker B., Schmidt A., and Ostfeld A. (2013). "Computationally implicit sewer hydraulics for real-time decision support." EWRI Conference, 19-23 May 2013, Cincinnati, Ohio, USA.
- Shamir U., Housh M., and Ostfeld A. (2014). "Management of water systems under hydrological uncertainty." Dooge Nash International Symposium, Dublin, Ireland.
- Oliker N. and Ostfeld A. (2014). "Water quality event detection from multiple sensors." EWRI Conference, 1-5 June 2014, Portland, Oregon, USA.
- Ostfeld A. (2014). "Management of water distribution systems." Environmental & Hydraulics/Hydrology Lyles School of Civil Engineering Seminar, August 25, 2014 Purdue University, West Lafayette, USA.

Ostfeld A. (2014). "Management of water distribution systems." Zachry Department of Civil Engineering Seminar, August 27, 2014 Texas A&M University, College Station, USA.

Zimmer A., Ostfeld A., Schmidt A., and Minsker B. (2014). "Improving computational efficiency of model predictive control genetic algorithms for real-time decision support." AGU Fall Meeting, 15-19 December, 2014, San Francisco, USA.

Salomons E. and Ostfeld A. (2015). "Multi-objective optimal disinfection for water distribution systems following a contamination event." EWRI Conference, 17-21 May 2015, Austin, Texas, USA.

Rasekh A., Sankary N., Wu R., Oliker N., Ostfeld A., Banks M. K., and Porterfield M. (2015). "Use of computer modeling for operation of inline mobile sensors in water distribution systems." EWRI Conference, 17-21 May 2015, Austin, Texas, USA.

Cofalla C., Döring R., Nüßer L., Steffens S., Thomas-Benjamin Seiler T.-B., Oliker N., Salomons E., Ostfeld A., Hollert H., and Schüttrumpf H. (2015). "Contaminants in urban water cycle detection by hydrotoxicological experiments." 9th International SedNet conference, 23-26 September 2015, Kraków, Poland.

Galelli S., Taormina R., Tippenhauer N., Salomons E., and Ostfeld A. (2016). "Vulnerability of water supply systems to cyber-physical attacks." Session HS5.6 Water Resources Management and Policy in a Changing World, Geophysical Research Abstracts Vol. 18, EGU2016, 17–22 April 2016, Vienna, Austria.

Wu R., Rasekh A., Cheng L., Aghashahi M., Vaddiraju S., Ostfeld A., and M. Katherine Banks K. M. (2016). "Development of an inline mobile sensor for monitoring trace contaminant in water distribution system." EWRI Conference, 22-26 May 2016, West Palm Beach, Florida, USA.