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Research Associate
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Education

University of Cincinnati	PhD 2004	Cincinnati, OH
University of Florence	M.S. 1995	Florence, Italy

Relevant Professional Experience

- 6/11-Present Research Associate, **Warren Pinnacle Consulting, Inc.** Focus on applying and refining the SLAMM model to evaluate changes in tidal marsh area and habitat type in response to sea level rise and supporting bioaccumulation modeling projects. Recent projects include predictions of marsh changes in the Gulf of Mexico and Mid-Atlantic coastal areas.
- 6/10-10/10 Research Engineer, **WTSIM, Bordeaux, France.** Characterization of survival curves of aging water mains to improve predictions and asset management. Time series analysis of continuous real time water demands in drinking water distributions systems.
- 06/04-06/10 Research Engineer, **Cemagref, France.** Principal investigator for Cemagref in the collaborative EU research project *SECUREAU* on improving security in DWDS. Development of a design framework for optimal early warning sensor location selection against contaminations in DWDS. Algorithms for contamination source detection, areas affected identification and protocols to assist decontamination procedures. Served as the representative from France in the Management Committee of the European COST Action *IntelliCIS* whose goal is to provide opportunities for creating strong research networks in the area of monitoring, control and security of critical infrastructure systems.
- 09/08-01/09 Visiting Professor, **Department of Sanitary and Environmental Engineering, Federal University of Santa Catarina, Florianopolis, Brazil.** Quantification and prediction of water losses in a municipal drinking water distribution system integrating field data and modeling.
- 05/06-06/06 Visiting Researcher, **Federal Universities of Sao Paulo and Mato Grosso do Sul, Departments of Civil and Environmental Engineering, Brazil.** Given seminars to academics and practitioners on residual maintenance in DWDS. Invited speaker to the VI Serea Conference in Joao Pessoa. Worked on the preparation of a bilateral research proposal CAPES-COFECUB
- 09/97-03/04 Graduate Research Assistant, **College of Engineering, Department of Civil and Environmental Engineering, University of Cincinnati, Cincinnati.** Developed a design framework to optimally determine disinfectant source locations and injection schedules in DWDS to maintain residuals. Developed a design method for I/O selection and feedback control algorithm to monitor and maintain automatically in real time chlorine residuals in DWDS. Extended EPANET software to accommodate multi-species chemical reactions. Developed a model framework to assess residual maintenance effectiveness on protecting consumers. Investigated the fate of contaminants in the waters of the Corpus Christi Bay using PHREEQC.

Computer Experience

Proficiency with SLAMM, EPANET, MATLAB, SAS, C programming and Microsoft Office .

Relevant Coursework

Environmental System Analysis, Statistical Principles for Environmental Systems, Physical Principles of Environmental Systems, Chemical Principles of Environmental Systems, Organic Compounds in Natural Waters, Modeling Surface Water Quality, Groundwater Hydrology, Geochemistry of Natural Waters.

Selected Publications

- M. Propato, F. Sarrazy and M.E. Tryby (2010). "Linear Algebra and Minimum Relative Entropy to Investigate Contamination Events in Drinking Water Systems." *A.S.C.E. Journal of Water Resources Planning and Management*, 136(4): 483-492
- M.E. Tryby, M. Propato and S.R. Ranjithan (2010). "Monitoring Design for Source Identification in Water Distribution Systems." *A.S.C.E. Journal of Water Resources Planning and Management*, (in press).
- M. Propato, Y. Le Gat and E. Renaud (2010). "Analysis and estimation models of residential water demands from hourly monitored data." *A.S.C.E. 12th Annual Water Distribution System Analysis Symposium*, Tucson, TX, USA
- O. Piller, D. Gilbert and M. Propato (2010). "The Battle of the Water Calibration Networks – Cemagref Contribution." *12th A.S.C.E. Annual Water Distribution System Analysis Symposium*, Tucson, TX, USA
- P.B. Cheung, N. Abe, G.V. Girol and M. Propato (2009). "Night Flow Analysis and Modeling for Leakage Estimation in a Water Distribution System." *Computing and Control in the Water Industry*, Sheffield, UK
- Ostfeld et al. (2008) "The Battle of the Water Sensor Networks (BWSN): A Design Challenge for Engineers and Algorithms." *A.S.C.E. Journal of Water Resources Planning and Management*, 134(6): 556-568
- M. Propato (2006). "Contamination in water networks: general mixed-integer linear models for sensor location design." *A.S.C.E. Journal of Water Resources Planning and Management*, Special Issue on Drinking Water Distribution Systems Security, 132(4): 225-233.
- M. Propato and J.G. Uber (2004). "Vulnerability of water distribution systems to pathogen intrusion: How effective is a disinfectant residual?" *Environmental Science and Technology*, 38(13): 3713-3722.
- M. Propato and J.G. Uber (2004). "Booster System Design using Mixed Integer Quadratic Programming." *A.S.C.E. Journal of Water Resources Planning and Management*, 130(4): 348-352.
- M. Propato and J.G. Uber (2004). "Linear Least-Squares Formulation for Operation of Booster Disinfection Systems." *A.S.C.E. Journal of Water Resources Planning and Management*, 130(1): 53-62.
- F.A. Bignone, R. Livi and M. Propato (1998). "Long Transients Dynamics in Biochemical Networks." *Nuovo Cimento D*, 20(1): 91-102.
- F.A. Bignone, R. Livi and M. Propato (1997). "Complex Evolution in Genetic Networks." *Europhysics Letters*, 40(5): 497-702.
- F.A. Bignone, R. Livi and M. Propato (1997). "Dynamical Stability and Finite Amplitude Perturbations in Coupled Genetic Networks." *Physica D*, 108(4): 379-396.