

Alyssa Marie Dausman
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EDUCATION:

FLORIDA INTERNATIONAL UNIVERSITY, Miami, FL
Doctor of Philosophy in Geosciences 2008
GPA: 3.9
Sigma Xi Scientific Research Society

UNIVERSITY OF NEW ORLEANS, New Orleans, LA
Masters in Geology, Emphasis in Hydrogeology, 2000
GPA: 4.0

TULANE UNIVERSITY, New Orleans, LA
Bachelor of Science in Geology, Cum Laude, 1996
GPA: 3.9
Honors: Phi Beta Kappa; Dean's list, fall 1994-fall 1996;
Tulane Scholar, fall 1994-fall 1996

EXPERIENCE:

U.S. GEOLOGICAL SURVEY, FLORIDA INTEGRATED SCIENCE CENTER:
WATER AND RESTORATION STUDIES-Ft. Lauderdale, FL

Hydrologist, July 2000-present

Variable-density groundwater modeling. Project chief of multiple research projects including relating canal stage to saltwater intrusion, water quality modeling in the Everglades, deep well injection modeling and quantifying model uncertainty. Duties include project management, planning field studies, computer modeling, budget management, publishing results of research, and presenting research to various audiences.

Instructor: *SEAWAT-2000* training course as part of the USGS National Training Center

Instructor: *PEST*-parameter estimation program for calibrating numerical models

GEOLOGY DEPARTMENT, University of New Orleans
Teaching Assistant, September 1997-May 1999

Taught Physical Geology labs and coordinated, planned, and organized labs and other teaching assistants.

Head Teaching Assistant-January 1998- May 1999

GEOLOGY DEPARTMENT, Tulane University

Lab Technician, January 1995-May 1995; September 1995-May 1996

Assisted faculty member with paleoclimate isotope research. Sampled corals for determination of Oxygen-16 to Oxygen-18 ratio.

TULANE UNIVERSITY / NATIONAL OCEANOGRAPHIC AND
ATMOSPHERIC ASSOCIATION, St. Croix, U.S. Virgin Islands
Diver/Research Assistant, summer 1995

Participated in an underwater drilling operation to collect coral cores for paleoclimate research. Tasks included diving, taking drilling and diving logs, and drilling for cores.

LIFEWATER INTERNATIONAL, St. Michael, Haiti
Hydrogeologist, summer 1997

Read geologic maps to site a location for a shallow ground-water well and install a pump. Assisted with the drilling operation and pump installation.

RESEARCH TOPICS RELATED TO CURRENT WORK:

- Numerically simulating variable-density groundwater flow
- Convection and conduction of heat in groundwater models
- Quantifying model uncertainty and predictive error variance
- Deepwell injection
- Submarine groundwater discharge
- Saltwater intrusion
- Regional aquifer studies to determine groundwater availability

PROJECTS RELATED TO CURRENT WORK

2004-present: Fate and transport of deep-well injectate at the South District Miami-Dade Wastewater Treatment Plant, in cooperation with the Miami-Dade Water and Sewer Department

2000-2004: Numerical simulation of saltwater intrusion in Broward County, Florida, in cooperation with the South Florida Water Management District

2003-2004: Nutrient transport through the Everglades to Florida Bay, in cooperation with South Florida Water Management District

2006-present: Development and support of SEAWAT_Version 4, in cooperation with Dr. Christian Langevin, Dr. Daniel Thorne, Dr. Weixing Guo and the U.S. Geological Survey Office of Ground Water

2006-present: Quantifying model uncertainty and predictive uncertainty in variable-density groundwater models, in cooperation with Dr. John Doherty of Watermark Numerical Computing and Dr. Michael Sukop of Florida International University

2005-present: Simulating temperature and salinity in submarine groundwater discharge, in cooperation with Dr. Michael Sukop of Florida International University

SCIENTIFIC PUBLICATIONS

Dausman, A.M., Easley, D.H., and Stoessell, R.K. (2002) Ground Water Model of the Northeastern Yucatan Peninsula, Mexico. American Water Resources Association: Annual Water Resources Conference., extended abstract.

Dausman, A.M., and Langevin, C.D. (2002) [Representing hydrodynamic dispersion in saltwater intrusion models of different temporal scales](#): American Water Resources Association. Spring Specialty Conference: Coastal Water Resources, extended abstract.

Dausman, A.M., and Langevin, C.D. (2003) [Relationship among water levels, canal stage and saltwater intrusion, Southeastern Florida, USA](#). In Proceedings of the Second International Conference on Saltwater Intrusion and Coastal Aquifers—Monitoring, Modeling, and Management. Merida, Mexico, March 27 – April 2, 2003.

Easley, D.H., Gaubert, A., Dausman, A., and Stoessell, R.K. (2003) Modeling of Salinity and Temperature Effects upon Ground Water in the Surficial Carbonate Aquifer, Yucatan Peninsula, Mexico. The Second International Conference on Saltwater Intrusion and Coastal Aquifers. Mérida, Yucatán, México.

Dausman, Alyssa and Langevin, Christian. (2005) [Movement of the saltwater interface in the Surficial Aquifer System in response to hydrologic stresses and water-management practices, Broward County, Florida](#): USGS Scientific Investigations Report: SIR 2004-5256.

Langevin, C. and Dausman, A. (2005) [Numerical simulation of saltwater intrusion in response to sea-level rise](#): In Proceedings of the Water & Environmental Resources Congress 2005—Impacts of Global Climate Change, Anchorage, Alaska.

Dausman, A.M., Langevin, C.D., Walsh, V., and Sukop, M.C. (2006) Modeling the Potential for Plume Migration from a Deep Well Injection Site. Abstract Book of the 2006 Ground Water Summit. National Ground Water Association.

Dausman, A.M., C.D. Langevin, M.C. Sukop, and Walsh, V. (2006) Development and Calibration of a Variable-Density Numerical Model of a Deepwell Injection Site near the Southeastern Florida Coast, Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract H33D.

Dausman, A.M., Langevin, C.D., and Sukop, M.C. (2007) Simulation of

submarine groundwater discharge salinity and temperature variations: implications for remote detection. A New Focus on Groundwater-Seawater Interactions. IUGG Redbook, 2007.

La Licata, I., Langevin, C.D., Dausman, A.M. (2007) Effect of tidal fluctuations on contaminant transfer to the ocean, in Sanford, W., Langevin, C.D., Polemio, M., and Povinec, P., eds., 2007, A new focus on groundwater-seawater interactions: IAHS Publication 312, Oxfordshire, United Kingdom, p. 334-341.

Dausman, A.M., Langevin, C.D., Doherty, J., Sukop, M.C., and Walsh, V. (2007) A Unique Approach to Calibrating a Variable-Density Flow and Transport Model. GSA, Vol. 39, No. 6. ISSN 0016-7592.

Langevin, C.D., Thorne, D.T., Jr., Dausman, A.M., Sukop, M.C., and Guo, Weixing (2008) [SEAWAT Version 4: A Computer Program for Simulation of Multi-Species Solute and Heat Transport: U.S. Geological Survey Techniques and Methods Book 6](#), Chapter A22, 39 p.

Dausman, A.M., Doherty, J., Langevin, C.D., and Sukop, M.C. (2008) Quantifying Data Contributions toward Reducing Predictive Uncertainty in a Variable-Density Flow and Solute/Heat Transport Model. Conference paper published in *MODFLOW and More: Ground Water and Public Policy*.

Dausman, A.M., Langevin, C.D., Sukop, M.C., and Walsh, V. (2008) Saltwater/Freshwater Interface Movement in Response to Deep-Well Injection in a Coastal Aquifer. Conference paper published in the *Program and Proceedings of the 20th Salt Water Intrusion Meeting*.

La Licata, I., Langevin, C. D., Dausman, A.M., and Alberti, L. (2008) Tidal Effects on Transient Dispersion of Simulated Contaminant Concentrations in Coastal Aquifers. Conference paper published in the *Program and Proceedings of the 20th Salt Water Intrusion Meeting*.

Dausman, A.M. (2009) Hypothesis testing of buoyant plume migration using a highly parameterized variable-density groundwater model. Abstract published in the program and proceeding of *VII Congreso Nacional De Aguas Subterranas 11 al 13 de Noviembre de 2009*. San Carlos Nuevo Guaymas, Sonora, Mexico.

Dausman, A.M., Doherty, J., and Langevin, C.D. (2009) Hypothesis testing of buoyant plume migration using a highly parameterized variable-density groundwater model at a site in Florida, USA. *Hydrogeol J* DOI: 10.1007/s10040-009-0511-6.

Dausman, A.M, Doherty, J., and Langevin, C.D. (2009) Creative use of Pilot Points to Address Site and Regional Scale Heterogeneity in a Variable-

Density Model. Conference paper published in proceedings for the PEST Conference, 2009.

Dausman, A.M., Langevin, C.D., Thorne, D.T. Jr., and Sukop, M. C. (2009) Application of SEAWAT to Select Variable-Density and Viscosity Problems. USGS Scientific Investigations Report 2009-5028.

Taniguchi, M., Dausman, A., Howard, K., Polemio, M., and Lakshmanan, E. eds. (2009) Trends and Sustainability of Groundwater in Highly Stressed Aquifers: IAHS Publication 329, Oxfordshire, United Kingdom, 312 p.

Langevin, C.D., Dausman, A.M., and Sukop, M.C., (2009). Solute and heat transport model of the Henry and Hilleke laboratory experiment: Ground Water, doi: 10.1111/j.1745-6584.2009.00596.x.

Dausman, A.M., Doherty, J., Langevin, C.D., and Sukop, M.C., (2009). Quantifying Data Worth Toward Reducing Predictive Uncertainty: Ground Water, *accepted*.

SCIENTIFIC PRESENTATIONS

Groundwater Model of the Fresh-Water/Salt-Water Lens in the Northeastern Yucatan Peninsula. *Defense of M.S. Thesis, University of New Orleans*. April, 2000. Dausman, A.M.

Groundwater Model of the Fresh-Water/Salt-Water Lens in the Northeastern Yucatan Peninsula. *Presented to the U.S. Geological Survey*. Miami-Dade, Florida. May, 2000. Dausman, A.M.

Representing Hydrodynamic Dispersion in Saltwater Intrusion Models that Differ in Temporal Resolution. *American Water Resources Association, 2002 Spring Specialty Conference: Coastal Water Resources*. New Orleans, Louisiana. Dausman, A.M., and Langevin, C.D.

Effects of Water-Level Fluctuations on the Movement of the Saltwater Interface in Palm Beach and Broward Counties. *Joint meeting between the USGS and South Florida Water Management District*. Palm Beach, Florida. March 1, 2002. Dausman, A.M., Langevin, C.D., and Garces, D.G.

Saltwater Intrusion in Broward County. *Presented to Broward County Department of Environmental Protection*. Fort Lauderdale, Florida. July, 2002. Dausman, A.M.

Saltwater Intrusion in Broward County. *DEP Watershed Monitoring Q Meeting*. Fort Lauderdale, Florida. Wed., Sept. 18, 2002. Dausman, A.M.

Groundwater Flow and Transport Modeling: Application to Submarine Groundwater Discharge, Coastal Wetland Hydrology, and Deep Well Injection. *Joint USGS/NOAA Meeting*. Miami-Dade, Florida. November 13, 2002. Dausman, A.M., and Langevin, C.D.

Issues and Concerns of Saltwater Intrusion in Broward County, Florida. *Presented to City of Ft. Lauderdale, City of Hallandale Beach, City of Hollywood, Broward County*. Fort Lauderdale, Florida. July, 2003. Dausman, A.M.

Simulating saltwater intrusion in Broward County, Florida. *SEAWAT training class*. South Florida Water Management District. August 15, 2003. Dausman, A.M.

Saltwater Intrusion in Broward County. *Annual Technical Presentations Meeting-SFWMD/USGS Cooperative Program*. Palm Beach, Florida. October, 2003. Dausman, A.M., and Langevin, C.D.

Representing Hydrodynamic Dispersion in Saltwater Intrusion Models that Differ in Temporal Resolution. *Florida International University*. Miami-Dade, Florida. Fall, 2003. Dausman, A.M.

Three-dimensional variable-density modeling using SEAWAT. *Florida International University*. Miami-Dade, Florida. Fall, 2003. Dausman, A.M.

Water Quality Modeling in the Everglades: Coupling a QW model with TIME/SICS. *Florida International University*. Miami-Dade, Florida. Spring, 2004. Dausman, A.M.

Effects of parameters changes on Solute Transport Modeling. *Florida International University*. Miami-Dade, Florida. Fall, 2004. Dausman, A.M.

Saltwater Intrusion in South Eastern Florida. *Presented to Miami-Dade County: Water and Sewer Authority and Department of Environmental Protection*. Miami-Dade, Florida. August 10, 2004. Dausman, A.M.

Saltwater Intrusion in Broward County. *Annual Technical Presentations Meeting-SFWMD/USGS Cooperative Program*. Palm Beach, Florida. Wed. October 28, 2004. Dausman, A.M., and Langevin, C.D.

Water levels, canal stage, and saltwater intrusion in Broward County Florida. *Presented to the Technical Advisory Committee for Water for Broward County, Florida*. Friday, June 10, 2005. Dausman, A.M., and Langevin, C.D.

Conceptual Model for Evaluating Fate and Transport of Deep-Well Injectate at the South District Wastewater Treatment Plant. *Presented to Miami-Dade County*. July 12, 2005. Dausman, A.M., Langevin, C.D., and Dixon, J.

Water levels, canal stage, and saltwater intrusion in Broward County Florida. *Presented to the South Florida Association of Environmental Professionals*. Wednesday, August 17, 2005. Dausman, A.M., and Langevin, C.D.

Water level, canal stage, and saltwater intrusion in Broward County, Florida. *Presented to conference: Global Climate Change: Implications for South Florida's Future*. January 20, 2006. Dausman, A.M., and Langevin C.D.

Modeling the Potential for Plume Migration from a Deep Well Injection Site. *Ground Water Summit of the National Ground Water Association*. San Antonio, Texas. April, 2006. Dausman, A.M., Langevin, C.D., Walsh, V., and Sukop, M.C.

Fun Model, Fun Lessons, Fun Results. *Presented to Florida Department of Environmental Protection's 2006 Wastewater and Underground Injection Control Annual Meeting*. May 25, 2006. Dausman, A.M. and Langevin, C.D.

Use of Preliminary Numerical Model to Determine Optimal Monitoring Well Location. *Presented to Miami-Dade County*. August 1, 2006. Dausman, A.M. and Langevin, C.D.

Calibration of a Deep-Well Injection Model. *Presented to SEAWAT Training Course*. Fort Lauderdale, Florida. February, 2007. Dausman, A. M., and Langevin, C. D.

Simulation of submarine groundwater discharge salinity and temperature variations: implications for remote detection. *A New Focus on Groundwater-Seawater Interactions. Presented to XXIV IUGG General Assembly*. Perugia, Italy. July, 2007. Dausman, A.M., Langevin, C.D., and Sukop, M.C.

A Unique Approach to Calibrating a Variable-Density Flow and Transport Model in a Carbonate Aquifer. *Presented to the Geological Society of America*. October 28, 2007. Dausman, A.M., Langevin, C.D., Doherty, J., Sukop, M.C., and Walsh, V.

Model-Independent parameter estimation: Introduction to using PEST. *2nd USGS Modeling Conference*. Orange Beach, Alabama. February, 2008. Dausman, A.M., Doherty, J., Hunt, R.J., and Fienen, M.

Fun Model, Fun Lessons, Fun Results. *The Florida Keys Wastewater Assistance Foundation*. Key Largo, Florida. April 24, 2008. Dausman, A.M., Langevin, C.D., Renken, R., Dixon, J., Walsh, V., and Sukop, M.C.

Quantifying Data Contributions toward Reducing Predictive Uncertainty in a Variable-Density Flow and Solute/Heat Transport Model. *MODFLOW and*

More: Ground Water and Public Policy, Golden, Colorado. May, 2008. Dausman, A.M., Doherty, J., Langevin, C.D., and Sukop, M.C.

Fun Model, Fun Lessons, Fun Results. *UNESCO Lecture Series*. Fort Lauderdale, Florida. June 11, 2008. Dausman, A.M.

Saltwater/Freshwater Interface Movement in Response to Deep-Well Injection in a Coastal Aquifer. *20th Salt Water Intrusion Meeting*, Naples, Florida. June 25, 2008. Dausman, A.M., Langevin, C.D., Sukop, M.C., and Walsh, V.

PEST-FEST, Using PEST in variable-density modeling: SEAWAT_V4. *20th Salt Water Intrusion Meeting*, Naples, Florida. June 26, 2008. Dausman, A.M. and Doherty, J.

Model Sophistication, Parameter Parsimony and Manual Regularization — The Good, the Bad, the Ugly, and the Beauty of Pilot Points. *U.S. Geological Survey: National Groundwater Meeting*. Denver, Colorado. August, 2008. Dausman, A.M., Langevin, C.D., and Doherty, J.

Hypothesis testing of buoyant plume migration using a highly parameterized variable-density groundwater model. *VII Congreso Nacional De Aguas Subterranas 11 al 13 de Noviembre de 2009*. San Carlos Nuevo Guaymas, Sonora, Mexico. Dausman, A.M.

Creative use of Pilot Points to Address Site and Regional Scale Heterogeneity in a Variable-Density Model. PEST Conference, 2009. Dausman, A.M, Doherty, J., and Langevin, C.D.

COMPUTER SKILLS:

- ARC-GIS-database
- VISTAS- groundwater modeling gui
- MODFLOW-2000- three-dimensional groundwater flow modeling program
- MT3DMS- three-dimensional solute transport modeling program
- SEAWAT-2000- three-dimensional variable-density modeling program
- SUTRA- three-dimensional variable-density modeling program
- MOCDENSE- density-driven modeling program
- SURFER- plotting and contouring program
- GRAPHER-graphing program
- AXUM- plotting and contouring program
- FORTRAN- programming language
- GEOEAS- statistical analysis
- STANMOD-solute transport code

- UCODE-parameter estimation code
- PEST-parameter estimation code
- Model Viewer-ability to animate model results on the computer
- Microsoft Access- experience in creating databases, forms, queries, etc.
- Power Point- utilizing program for group presentations
- Microsoft Word
- Microsoft Excel

TRAINING:

MODFLOW-2000
 MT3D/MS
 WATER QUALITY MODELING
 BIOGEOCHEMISTRY OF WETLANDS
 CALIBRATION AND UNCERTAINTY OF MODELS
 LEADERSHIP INTENSIVE TRAINING
 PEST-Parameter Estimation
 HEAT AS A TRACER

VOLUNTEER WORK:

HOSPICECARE OF SOUTHEAST FLORIDA, Ft. Lauderdale, FL
 11th hour Volunteer sitting with patients in their last 24-48 hours of life,
 February 2005-present.
 AWARD: *Volunteer of the Year*, 2006

ANIMAL-AID, Ft. Lauderdale, FL
 Volunteer caring for homeless animals, 2008.

GREATFULPAWS, Ft. Lauderdale, FL
 Volunteer caring for homeless animals, 2005-present

CURE INTERNATIONAL, Kabul, Afghanistan
 Volunteer at hospital, December 2006

THE BROWARD COALITION FOR THE HOMELESS, Ft. Lauderdale, FL
 Race Director for 5K/15k fundraising run, summer 2001-summer 2002.

MULTI-SERVICE CENTER FOR THE HOMELESS, New Orleans, LA
 Job Developer, summer/fall 1999

PROJECT LAZARUS, New Orleans, LA
 Volunteer assisting homeless people with AIDS, 1998-1999

DESIRE STREET MINISTRIES, New Orleans, LA
 ACT Tutor for Carver High School in Desire Housing Projects, 1995-1999

INTERVARSITY CHRISTIAN FELLOWSHIP, New Orleans, LA
Small Group Leader, Small Group Coordinator, Service Volunteer,
1994-1998

SERVANTS OF ALL INC., Grand-Goave, Haiti
English Teacher, Service Volunteer, spring 1997

OVERSEAS TRAVEL:

- Afghanistan
- Dubai
- Israel
- Italy
- China
- India
- Haiti
- Jamaica
- Cayman Islands
- Mexico
- Canada
- Czech Republic
- England
- Scotland
- Wales
- Netherlands
- Spain
- France
- Norway
- Sweden
- Finland
- Russia
- Denmark
- Malta

INTERESTS:

Running, surfing, and taking care of my dogs.