

KOLJA ROTZOLL

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EDUCATION

2007	Ph.D. GEOLOGY & GEOPHYSICS	University of Hawaii
2001	M.S. COASTAL GEOSCIENCES AND ENGINEERING	University of Kiel, Germany
1999	B.S. GEOGRAPHY	University of Kiel, Germany

WORK EXPERIENCE

Jan 2012 Geology and Geophysics, University of Hawaii
Post-Doc, funded by U.S.DOI, Pacific Islands Climate Change Cooperative & NOAA Coastal Storms Program

- Unrecognized consequences of sea-level rise: groundwater inundation in Hawaii

2008–present Water Resources Research Center, University of Hawaii
Post-Doc, Research Hydrologist funded by USGS Pacific Islands Water Science Center

- Effects of groundwater withdrawals on borehole flow and salinity measured in deep monitor wells in Hawaii
- Comparison of rain gauge- with radar-rainfall on Molokai, Hawaii
- Numerical simulation (SEAWAT) of effects of borehole flow on salinity profiles in Pearl Harbor, Oahu
- Estimating hydraulic properties for the Island of Guam

2007 Water Resources Research Center, University of Hawaii
Research Assistant funded by USGS National Institutes for Water Resources Program

- Estimating hydraulic properties for volcanic island aquifers using wave setup

2006 Water Resources Research Center, University of Hawaii
Research Assistant funded by The Environmental Company, Inc. & US Navy

- Aquifer test design for shafts, updating and refining the Oahu SWAP Model
- Groundwater flow modeling (MODFLOW) of Red Hill Ridge, Oahu

2004–2005 Water Resources Research Center, University of Hawaii
Research Assistant funded by USGS Pacific Islands Water Science Center

- Estimation of aquifer properties for central Maui by analyzing 234 aquifer tests
- Estimating hydraulic properties with tidal responses using analytical and numerical methods

2002–2003 Water Resources Research Center, University of Hawaii
Research Assistant funded by Dept. of Health, Safe Drinking Water Branch & EPA

- Develop and implement a source water assessment program (SWAP) to protect drinking water from contamination
- Groundwater flow modeling: MODFLOW / MODPATH to delineate capture zones, GIS to evaluate potential contaminating activities, ACCESS database integration and generation of final reports
- Presentation of results at public meetings hosted by water departments on Kauai, Oahu, Molokai, Maui, and Hawaii

2000–2001 Christian-Albrechts-University, Kiel, Germany
Research Assistant in Coastal Geology funded by the German Research Foundation

- 4-month field work in Natal, NE-Brazil
- Data collection and analysis of sediment cores and sediment grain-size analysis; tidal-current flow measurements, echo sounder, boomer and side scan sonar profiling, and remote sensing

1999 & 2002 Bureau for Rural Areas, Kiel, Germany
Internship at Dept. of Coastal Protection and Harbors

- Flood scenario assessment from storm surges at the Baltic Sea coast using GIS

WORKSHOPS & CERTIFICATES

2012 NSF Workshop in Honolulu: "Science—Becoming the Messenger"

2010 American Red Cross: CPR and Wilderness & Remote First Aid

2007 HYDRUS 2D/3D Workshop in Honolulu (M. Van Genuchten)

2005 USGS Aquifer-Test Workshop in Sacramento (K.Halford, D.Galloway, E.Kuniansky, and E.Weeks)

AWARDS

2009 UCOWR Ph.D. Dissertation Award in Natural Science and Engineering, Honorable Mention

2007 Harold T. Stearns Fellowship, Geology & Geophysics, UH

2006 J. Watumull Merit Scholarship, Geology & Geophysics, UH

2006 1st place in poster competition at 32nd Annual Hawaii Section AWWA Conference

2005 Graduate Student Organization, University of Hawaii, travel grant for 2005 AGU Fall Meeting in San Francisco

2003 Harold T. Stearns Fellowship, Geology & Geophysics, UH

MEMBERSHIPS

- American Geophysical Union (2005–present)
 - Society of Exploration Geophysicists (2007–2008), National Ground Water Association (2011)
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TEACHING

- Instructor CEE627 “Groundwater Hydrology”, spring semester 2012 at UH
 - Guest lecturer for G&G classes “Groundwater Modeling” and “GIS & Remote Sensing”, every year since 2005
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VOLUNTARY SERVICES

- Peer reviewer for Ground Water, Water Resources Research, Advances in Water Resources, Hydrogeology Journal, Hydrological Processes, Applied Mathematical Modelling, Environmental & Engineering Geosciences, and Marine Technology Society Journal
 - Field work volunteer for USGS (raingage sampling, water-level survey, GPS survey, stream-discharge measurements)
 - AGU Outstanding Student Paper Award for Hydrology Committee 2011–2013
 - Technical committee for 2011 WRRRC conference: Water Resource Sustainability Issues on Tropical Islands
 - Organizing committee for 2007 G&G Autumn Assembly
 - Student representative in the Dept. of Geology and Geophysics 2006/07
 - SOEST biennial open house volunteer
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LANGUAGES

- German, English: fluent in conversation and writing
 - Spanish, Portuguese, and French: conversational
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PUBLICATIONS

Peer-Reviewed Journals

- Rotzoll, K.**, S.B. Gingerich, J. Jenson, and A.I. El-Kadi (in press): Estimating hydraulic properties from tidal attenuation in the Northern Guam Lens Aquifer, Territory of Guam, USA. *Hydrogeology Journal*
- Rotzoll, K.** and C.H. Fletcher (2012): Assessment of groundwater inundation as a consequence of sea level rise. *Nature Climate Change* doi: 10.1038/NCLIMATE1725
- Rotzoll, K.**, D.S. Oki, and A.I. El-Kadi (2010): Changes of freshwater-lens thickness in basaltic island aquifers overlain by thick coastal sediments. *Hydrogeology Journal* 18(6): 1425–1436.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, and D. Chang (2010): Groundwater source assessment program for the State of Hawaii, USA: Methodology and example application. *Hydrogeology Journal* 18(3): 711–723
- Rotzoll, K.** and A.I. El-Kadi (2008): Estimating hydraulic properties for coastal aquifers using wave setup. *Journal of Hydrology* 353(1): 201–213
- Rotzoll, K.**, A.I. El-Kadi, and S.B. Gingerich (2008): Analysis of an unconfined aquifer subject to asynchronous dual-tide propagation. *Ground Water* 46(2): 239–250
- Rotzoll, K.** and A.I. El-Kadi (2008): Estimating hydraulic conductivity from specific capacity for Hawaii Aquifers, USA. *Hydrogeology Journal* 16(5): 969–979
- Rotzoll, K.**, A.I. El-Kadi, and S.B. Gingerich (2007): Estimating hydraulic properties for volcanic aquifers using constant-rate and variable-rate aquifer tests. *Journal of the American Water Resources Association* 43(2): 334–345
- Röber, V., **K. Rotzoll**, K. Stattegger and H. Vital (2005): Dynamics of the complex coastal system at Galinhos (RN), NE-Brazil. *Meyniana* 57: 133–155, Kiel

Technical Reports

- Rotzoll, K.** (2012): Numerical simulation of flow in deep open boreholes in a coastal freshwater lens, Pearl Harbor aquifer, Oahu, Hawaii. USGS Scientific Investigations Report 2012–5009, 39 p.
- Rotzoll, K.** and A.I. El-Kadi (2012): Application of radar imagery as input to a rainfall-runoff model for the Kawela watershed, Molokai, Hawaii. WRRRC, University of Hawaii, Final Report, 6 p.
- Rotzoll, K.** (2010): Effects of groundwater withdrawal on borehole flow and salinity measured in deep monitor wells in Hawaii—Implications for groundwater management. USGS Scientific Investigations Report 2010–5058, 43 p.
- Rotzoll, K.** and A.I. El-Kadi (2007): Numerical ground-water flow simulation for Red Hill Fuel Storage Facilities, NAVFAC Pacific, University of Hawaii, Water Resources Research Center, prepared for TEC Inc., Oahu, Hawaii, 76 p.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2006): Hawaii Source Water Assessment Program Report, Vol. 1 - Approaches used for the assessment. University of Hawaii, Water Resources Research Center, prepared for Hawaii Dept of Health, 65 p.

- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2006): Hawaii Source Water Assessment Program Report, Vol. 5 - Island of Maui. University of Hawaii, WRRRC, prepared for Hawaii Dept of Health, 41 p.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2005): Hawaii Source Water Assessment Program Report, Vol. 2 - Island of Hawaii. University of Hawaii, WRRRC, prepared for Hawaii Dept of Health, 56 p.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2005): Hawaii Source Water Assessment Program Report, Vol. 6 - Island of Molokai. University of Hawaii, WRRRC, prepared for Hawaii Dept of Health, 19 p.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2005): Hawaii Source Water Assessment Program Report, Vol. 7 - Island of Oahu. University of Hawaii, WRRRC, prepared for Hawaii Dept of Health, 43 p.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2004): Hawaii Source Water Assessment Program Report, Vol. 3 - Island of Kauai. University of Hawaii, WRRRC, prepared for Hawaii Dept of Health, 48 p.
- Whittier, R.B., **K. Rotzoll**, S. Dhal, A.I. El-Kadi, C. Ray, G. Chen and D. Chang (2004): Hawaii Source Water Assessment Program Report, Vol. 4 - Island of Lanai. University of Hawaii, WRRRC, prepared for Hawaii Dept of Health, 18 p.

Thesis & Dissertation

- Rotzoll, K.** (2007): Hydraulic parameter estimation using aquifer tests, specific capacity, ocean tides, and wave setup for Hawaii aquifers. Ph.D. diss. Geology & Geophysics, University of Hawaii, 160 p.
- Rotzoll, K.** (2001): Structure and dynamics of the tidal channel system near Galinhos, Rio Grande do Norte (NE-Brazil). M.Sc. thesis, Christian-Albrechts Universität, Kiel, Germany, 80 p.

Conference Abstracts

- Rotzoll, K.** and C. Fletcher (2012): Assessment of groundwater inundation as consequence of sea-level rise. Abstract GC13A-1045, presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec
- Rotzoll, K.** and A.I. El-Kadi (2012): Causes and effects of borehole flow on monitoring freshwater-lens thickness in the Pearl Harbor Aquifer, Oahu Hawaii. Hawaii Water Works Association Conference. Honolulu, 17-19 Oct
- Rotzoll, K.**, J. Jenson, and A.I. El-Kadi (2011): Estimating hydraulic properties of the Northern Guam Aquifer by analysis of ocean-driven groundwater-level fluctuations. Abstract H039-08, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec
- Rotzoll, K.** and A.I. El-Kadi (2011): Numerical simulation of borehole flow in deep monitor wells in a coastal freshwater lens, Pearl Harbor aquifer, Oahu, Hawaii. Water Resource Sustainability Issues on Tropical Islands Conference. Honolulu, Nov. 14-16
- Rotzoll, K.**, D.S. Oki, and A.I. El-Kadi (2010): Numerical simulation of borehole flow in deep monitor wells, Pearl Harbor aquifer, Oahu, Hawaii. Abstract H43A-1219, presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec
- Rotzoll, K.**, C.D. Hunt, Jr., and A.I. El-Kadi (2009): The effect of borehole flow on salinity profiles in Hawaii. 35th Hawaii American Water Works Association Conference. Honolulu, 13-15 May
- Rotzoll, K.**, C.D. Hunt, Jr., and A.I. El-Kadi (2008): The effect of borehole flow on salinity profiles from deep monitor wells in Hawaii. Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H21D-0849
- Rotzoll, K.** and A.I. El-Kadi (2007): Estimating hydraulic properties of coastal aquifers using wave setup. Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H21C-0696
- Spengler, S.R., A.I. El-Kadi, R.B. Whittier, **K. Rotzoll**, and W. Freeman (2007): Post-audit of the State of Hawaii's Source Water Assessment Program. 6th IAHS Groundwater Quality Conference, Fremantle, West Australia, 2-7 Dec 2007
- Rotzoll, K.** (2007): Numerical ground-water flow simulation around Red Hill Ridge, Oahu, Hawaii. 1st Autumn Assembly, G&G Dept, University of Hawaii, Honolulu, 7 Sep
- Rotzoll, K.**, A.I. El-Kadi, S.B. Gingerich, and T.A. Bianco (2007): Ground-water responses to dual-tide loading in an island aquifer. 32nd annual Albert L. Tester Memorial Symposium. University of Hawaii, Honolulu, 21-23 March
- Rotzoll, K.** and A.I. El-Kadi (2006): The effect of large ocean swells on water-table fluctuations in Hawaiian aquifers. 32nd Hawaii American Water Works Association Conference. Honolulu, 9-12 May
- Rotzoll, K.** and A.I. El-Kadi (2005): Estimating hydraulic properties for Hawaiian aquifers using aquifer tests and tidal responses. Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H24C-07
- Rotzoll, K.**, S.B. Gingerich, and A.I. El-Kadi (2005): Estimating hydraulic properties from aquifer tests and tidal responses for central Maui, Hawai'i. In: Levy, J.K., C.C.K. Liu, J.E.T. Moncur and C.F. Ice (Eds), 2005: Institutions for sustainable watershed management: Reconciling physical and management ecology in the Asia-Pacific. AWRA's 2005 Summer Specialty Conference, American Water Resources Association, Middleburg, Virginia, TPS-05-2
- El-Kadi, A.I., Whittier, R.B., **K. Rotzoll**, S. Dhal, and D. Chang (2003): Presentation and Demonstration of Hawaii's Source Water Assessment Program. 29th Hawaii American Water Works Association Conference. Honolulu, 14-16 May