

Geology Department
University of Hawai'i at Hilo
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jene@hawaii.edu

JENÉ MICHAUD

EDUCATION

B.S. Geoscience, 1982
UNIVERSITY OF WASHINGTON

M.S. Hydrology, 1987
UNIVERSITY OF ARIZONA

Ph.D. Hydrology, 1992
UNIVERSITY OF ARIZONA

Minors: Geoscience
Management of Information Systems

DISTINCTIONS

American Geophysical Union Horton Research Grant (1989)

Nominated for 2002 Board of Regents Medal for Excellence in Teaching

Registered Engineer in Training

COURSES TAUGHT

UNDERGRADUATE

- Physical geology, historical geology, introductory laboratories
- Geomorphology, coastal geology
- Introductory and advanced environmental geology
- Surface water hydrology, hydrogeology
- Sedimentology/stratigraphy
- Geographic Information Systems

GRADUATE

- Stream geomorphology/watershed science

OTHER

- Flood Forecasting Workshop for the Chinese Yellow River Basin Commission
- Big Island Field Geology for Community College Instructors
- Na Pua No'eau Summer Institute for Gifted and Talented Native Hawaiian Children

POSITIONS HELD

<i>Assistant, Associate, and Full Professor</i> DEPARTMENT OF GEOLOGY UNIVERSITY OF HAWAII AT HILO Geology Chair (4 years), Natural Science Major Chair (8 years)	Asst. 1/95-7/00 Assoc. 8/00-7/07 Full 8/07-present
<i>Research Associate (and Adjunct Lecturer)</i> DEPARTMENT OF HYDROLOGY UNIVERSITY OF ARIZONA	6/92 - 12/94
<i>Hydrologist</i> (part time) PIMA COUNTY (ARIZONA) FLOOD CONTROL DISTRICT	10/89 - 5/92
<i>Environmental Engineer/Hydrologist</i> COLORADO YAMPA COAL COMPANY	6/85 - 11/85
<i>Assistant Power Analyst</i> SEATTLE CITY LIGHT	7/81-7/83

RESEARCH EXPERIENCE

- conceptual and physically-based rainfall-runoff modeling
- geomorphology of tropical streams
- calibration techniques for hydrologic models
- flood forecasting; flash floods
- groundwater modeling
- land--atmosphere interactions
- precipitation sampling errors and orographic rainfall
- dam break modeling and hazard assessment
- hydrology of tropical lowland forests; hydrology of arid regions
- nutrient and sediment loading in Hawaiian streams
- watershed assessment and load estimation
- Monitoring of beach erosion
- cyberinfrastructure and GIS analysis

CONSULTING PROJECTS

- World Meteorological Organization
- Pacific Disaster Center / Hawaii Dept. Land and Natural Resources
- Marine and Coastal Solutions
- Salt River Project (Hydroelectric Utility)

VOLUNTEER PROJECTS

- Mauna Kea Soil and Water Conservation District
- Hilo Bay Watershed Advisory Group and Waiulaula Watershed Advisory Group

GRANTS

NPS Natural Resource Condition Assessment

Assessed hydrologic condition of three Hawaiian National Historic Parks.
\$9,841 (2015-2016)

EPA GRO Fellowship

Training grant awarded to UHH undergraduate; I served as PI in the second year
~\$50,000 (2013-2015)

Pilot Study: Methods for Assessing Stormwater Pollutant Loads

State of Hawaii Office of Planning
\$85,000 (2011-2012)

Evaluation of a Flash Flood Prediction Model for Small Tropical Watersheds

National Weather Service (Co-I with Ali Fares as PI)
\$375,000 (2008-2011)

Cyberinfrastructure for Environmental Research and Education

NSF EPSCoR (PI of Hilo Cyber Group)
\$516,710 (5/06-8/08)

Hydrologic Linkages between Agricultural Pesticides and Hawaiian Ecosystems

Internal NSF EPSCoR grant (Co-I with Jon-Pierre Michaud)
\$12,000 (2004-2005)

Land Cover and Water Quality in Hawaiian Streams

Internal NSF EPSCoR grant (Co-I with Tracy Weigner)
\$ 12,074 (2004-2005)

Assessment of Anthropogenic Impacts on Two Coral Reefs on the Big Island

EPA Wetland Program (Co-I with Mike Parsons as PI)
\$ 102,763 (2003-2005)

Interdisciplinary GIS/Remote sensing laboratory

Internal university equipment grant (Jim Juvik and I were equal Co-I)
\$ 50,000 (2000)

PUBLICATIONS (REVIEWED)

- Cordell, S., R. Ostertag, J. Michaud, and L. Warman (2016). Quandaries of a decade long restoration experiment: Beat ‘em, join ‘em, give up, or start over? *Restoration Ecology* 24: 139–144.
- Michaud, J., S. Cordell, T.C. Cole, and R. Ostertag, (2015). Drought Stress in an Invaded Hawaiian Tropical Wet Lowland Forest. *Pacific Science* 69(3).
- Fares, A., R. Awal, J. Michaud, P.S. Chu, S. Fares, K. Kodama, and M. Rosener. (2014). Rainfall-Runoff Modeling in a Flashy Tropical Watershed Using the Distributed HL-RDHM Model. *Journal of Hydrology* 519:3436-3447.
- Schulten, Jodie., T. Colleen Cole, S. Cordell, K. Publico, R. Ostertag, J. Enoke, and J. Michaud, (2014). Persistence of Native Trees in an Invaded Hawaiian Lowland Wet Forest: Experimental Evaluation of Light and Water Constraints. *Pacific Science* 68(2):267-285.
- Michaud, J. And T. Wiegner, (2011). Stream Nutrient Concentrations on the Windward Coast of Hawai'i Island and Their Relationship to Watershed Characteristics. *Pacific Science* 65(2):195-217.
- Cordell, S., R. Ostertag, B. Rowe, L. Schweinhart, L. Vasquez-Radonic, J. Michaud, T. C. Cole, and J. Schulten, (2009). Evaluating barriers to native seedling establishment in an invaded Hawaiian lowland wet forest. *Biological Conservation* 142(12):2997-3004.
- Ostertag, B., S. Cordell, J. Michaud, C. Cole, J. Schulten, K. Publico, and J. Enoke, (2009). Ecosystem and restoration consequences of invasive woody species removal in Hawaiian lowland wet forest. *Ecosystems* 12(3):503-515.
- Michaud, J.D., J.P. Michaud, and D. Krupitsky, (2007). Temporal Variability in SO₂ Exposures at Hawaii Volcanoes National Park, USA. *Environmental Geology*, 52(1):81-92.
- Michaud, J., (2005). Recent Discoveries and New Interpretations of Hawaiian Groundwater Systems, *Water Resources Impact*, 7(2):10-12.
- Michaud, J.D., K. Hirschboeck, and M. Winchell, (2001). Regional Variations in Small-Basin Floods in the United States, *Water Resources Research*, 37(5): 1405-1416.
- Michaud, J.D., and W.J. Shuttleworth, (1997). Executive Summary of the Tucson Aggregation Workshop, *Journal of Hydrology*, 190:176-181.
- Araín, A., M., W.J. Shuttleworth, Z.L. Yang, J.D. Michaud, and A.J. Dolman, (1997). Mapping surface cover parameters using aggregation rules and remotely sensed cover classes, *Quarterly Journal of the Royal Meteorological Society*, 123:2325-2348.

- Arain, A.M., J.D. Michaud, W.J. Shuttleworth, and A.J. Dolman, (1996). Testing of vegetation parameter aggregation rules applicable to the Biosphere-Atmosphere Transfer Scheme (BATS) and the FIFE site, *Journal of Hydrology*, 177:1-22.
- Michaud, J., B. Auvine, and O. Penalba, (1995). Spatial and elevational variability of summer rainfall in the Southwestern United States, *Journal of Applied Meteorology*, 34(12):2689-270.
- Michaud, J.D., and S. Sorooshian, (1994a). Effect of rainfall sampling errors on simulations of desert flash floods, *Water Resources Research*, 30(10): 2765-2775.
- Michaud, J.D., and S. Sorooshian, (1994b). Comparison of simple versus complex distributed runoff models on a mid-sized, semi-arid watershed, *Water Resources Research*, 30(3):593-605, 1994.
- Hendrickson (Michaud), J.D., S. Sorooshian, and L. Brazil, (1988). Comparison of direct search and Newton-type calibration algorithms for the calibration of conceptual rainfall-runoff models, *Water Resources Research*, 24(5):691-700.

OTHER PUBLICATIONS (SELECTED)

- Michaud, J. and M.C. Stewart (2012). *Stormwater Assessment Pilot Study in the Wai'ula'ula Watershed, West Hawai'i (Vol. 1-3)*. Hawai'i Office of Planning, Coastal Zone Management Program. 224 p. Available from http://files.hawaii.gov/dbedt/op/czm/resource/PilotStudy_Vol1_Final.pdf
- Michaud, J., J. Anderson, S. Lundblad, J. Smith, (2012). High Precision Baseline Topographic Survey of the Kaloko-Honokōhau Beach. Report KAHO-00051 submitted to Kaloko-Honokōhau National Historic Park.
- Stewart, M.C., J. Michaud, M. Donoho and O. Smith, (2011). *Wai-'ula'ula Watershed Management Plan*. Mauna Kea Soil and Water Conservation District. www.hawaiicoralreefstrategy.com/i-ndex.php/prioritysites/southkohala, 92 p.
- Goosby, S., A. Chatman, J. Michaud, and D. Kerper, (2008). *Dam Break Inundation Study for the State of Hawaii*, in *Proceedings of the Solutions to Coastal Disasters Congress 2008*. ASCE Conf. Proc. 312, 40, 12 p.
- Michaud, J., C. Johnson, J. Iokepa, and J. Marohnic, Methods For Estimating The Impact Of Hypothetical Dam Break Floods, (2005) *in* *Chemistry for the Protection of the Environment 4*, edited by Robert Mournighan, MR Dudzinska, J Barich, MA Gonzalez and RK Black, Springer.
- Contributor to *Glossary of Meteorology*, second edition (2000), edited by T.S. Glickman, American Meteorology Society.

Michaud, J., Participant opinion survey: How satisfied are we with hydrologic data? (1997) in *Land Surface Processes in Hydrology: Trials and Tribulations of Modeling and Measuring*, NATO ASI Series, Vol. I 46, Sorooshian, S., H. Gupta, and S. Rodda, eds., Springer-Verlag, p. 71-72.

Michaud, J.D., (1992). Distributed rainfall-runoff modeling of thunderstorm-generated floods: A case study in a mid-sized, semi-arid watershed in Arizona, Ph.D. Dissertation, University of Arizona, Tucson, published by University Microfilms.

Hendrickson (Michaud), J.D., (1987). Calibration of the Soil Moisture Accounting Model Using a Gradient-Type Algorithm and Analytic Derivatives, M.S. thesis, Department of Hydrology and Water Resources, University of Arizona, Tucson, Arizona.

SERVICE

- Organized workshop on conceptual ecological model for the Hilo Bay Watershed (2010).
- Chair, Geology Department (2000-2005) and Natural Science Program (2000-present)
- Active in faculty governance (numerous committees)
- Steering committees of Hilo Bay Watershed Advisory Group (2004-2006) and Waiulaula Watershed Advisory Group (2006-2008)
- Chair, UHH Faculty Congress (2005-06)
- UHH Congress (2004-2005) and UHH Senate (1998-2001)
- Chair, Tenure and Promotion Review Panel (2007); Division Personnel Committee (various years), Chair, Academic Policy Committee (2004-05)
- President, UH-Hilo chapter of Sigma Xi (1999-00)
- Big Island Science Fair Judge (1995-present)
- Conference organizing committees (1993 Tucson Aggregation Workshop, 1998 Sixth International Conference on Precipitation, 1999 Sigma Xi Big Island Science Conference)
- Reviewer for *Water Resources Research*, *Journal of Climate*, *Journal of the American Water Resources Association*, *Journal of Applied Meteorology*, *Journal of Hydrometeorology*, and *Environmental Geology*. Special issue editor for *Journal of Hydrology*

STUDENTS MENTORED

Graduate Students

Michael Riney (2015). The impacts of streamflow rates on food resource quality and diets of native endemic atyid shrimps (*Atyoida bisulcata*) in Hawaiian streams. (M.S. UH-HILO TCBES thesis) (committee member).

Kaite Gaut (2009). Application of the nonpoint source pollution and erosion comparison tool (N-SPECT) model for resource management in the Waiulaula watershed, island of Hawai'i. (M.S. UH-Hilo TCBES thesis) (major advisor).

James Tait (2008). Variation of sediment trace elements and stream nitrate isotope ratios with land use in the Waiulaula and Hilo Bay watersheds, Hawai'i Island, Hawai'i. (M.S. UH-Hilo TCBES thesis) (major advisor).

Simona Vaduvescu (2008). Development of a passive diffusive sampling device for time-integrated assessment of atrazine in Hawaiian streams. (M.S. UH-Hilo TCBES thesis) (committee member).

Randee Tubal (2007). Comparison of dissolved organic carbon bioavailability from native and invasive vegetation along the Wailuku River, Hawai'i. (M.S. UH-Hilo TCBES thesis) (committee member).

Altaf Muhammad. 1994. Spatial Aggregation of Vegetation Parameters in a coupled land surface-Atmosphere Model. (M.S. University of Arizona) (committee member)

Daquan Tian. 1993. Rainfall spatial and seasonal variability analysis in semi-arid watersheds. (M.S. University of Arizona) (committee member)

Undergraduate Students

Kayla Defore (2016). Formation processes of Martial Gullies. (NASA Space Grant Fellowship)

Brock Miller (2016). Nitrate in coastal springs and wells (independent study)

Nicole Calsbeek (2015). Groundwater model of flow into Waiakea Pond. (STEM Honors project).

Becky Dilba (2014). Analysis of Polluted sediment in Hilo Bay. (independent study)

Travis Reardon (2013). Application of LiDAR Topographical Data for Mapping of Climate-Related Sea Level Rise in Kona, Hawaii. (NASA Space Grant Fellowship)

Dustin Miller (2008). Nutrient and sediment loads in the Waiulaula Watershed, Kohala Mountain, Hawaii (independent study).

Jennifer Rollman (2005). Turbidity and Suspended Sediment in two forested watersheds on the Island of Hawaii (independent study)

Amanda Leonard (2005) Educational Outreach for Mauna Kea Astronomy. (NASA Space Grant Fellowship).

Susan Carey (2005). Potential groundwater contamination from cesspools in the Puna District, and GIS-derived watershed characteristics of selected streams on the Island of Hawaii (independent studies)

Rusty Tapp (2002) and Alan Laird (2003). Effect of invasive species on rainfall interception in a lowland Hawaiian rainforest. (independent study)

Gail Ostrander (2000). Sensitivity Analysis of the NDVI snapshot method applied using AVHRR data. (NASA Space Grant Fellowship; results were presented at a national meeting.)

David Ford (1999). Estimation of Soil Moisture in Kern County, California Using the NDVI snapshot method” (NASA Space Grant Fellowship; results were presented at a regional meeting.)

Dana Caccamise (1996). Sub-grid variability of climate-related land surface characteristics. (NASA Space Grant Fellowship)

Cheryl Hirth (1993). Validation of the KINEROS model for a large-scale watershed using frontal and tropical storms (independent study)

Maya Desai (1993). Flash Flood Studies in a Semi-Arid Watershed. (independent study)

Pre-college

Ina Klasner (2014). Lichenometry in Hawai‘i. (won first in category at the state science fair!)