

**Kristina (Tina) Cydzik, P.E., LEED AP**  
**Senior Engineer**

**Professional Profile**

Ms. Kristina Cydzik is a Senior Engineer in Exponent's Civil Engineering practice. She specializes in the areas of water resources and surface water hydrology. She has experience in evaluating arid region hydrologic issues including flood hazards in developed and undeveloped areas, land use changes, erosion, debris flows, alluvial fan flooding, and performing water balance analyses. Ms. Cydzik also has experience in assessing the hydrologic changes that occur in watersheds due to urban development and wildfire, post-earthquake flood hazards, earthen dam failures, hurricane-induced coastal storm surge mapping, and erosional and depositional issues in tidally-influenced riverine systems.

In her Masters' thesis, Ms. Cydzik designed a hydrologic model of the City Creek Watershed in the San Bernardino Mountains (Southern California) using the Army Corps of Engineers' HEC-HMS, to track the recovery of the watershed over the course of three rainy season following the 2003 Old Fire. In the City Creek case study, the model results showed evidence of some recovery following the end of the first rainy season and more extensive recovery was observed by the end of the third rainy season, which agrees with observations published in the literature.

Prior to joining Exponent, Ms. Cydzik was a graduate researcher at the University of California, Los Angeles (UCLA) studying watershed recovery following wildfires. While at UCLA, she also served as a Teaching Assistant for an undergraduate hydrologic design course.

Ms. Cydzik is a cooperating partner with the Chinese Academy of Sciences, Institute of Mountain Hazards and Environment in Chengdu, Sichuan Province, China. During August 2008, Ms. Cydzik served as a volunteer visiting the areas affected by the May 12, 2008 M7.9 Wenchuan earthquake, documenting the destruction in the natural and built environment, including site visits to landslides, debris flows, avalanches, landslide dams, and urban areas. Ms. Cydzik is also a volunteer consultant to the California branch of the Audubon Society, Starr Ranch Sanctuary.

**Academic Credentials and Professional Honors**

M.S., Civil Engineering, University of California, Los Angeles, 2006  
B.S., Civil Engineering, University of California, Los Angeles, 2005

Undergraduate Edward K. Rice Award, Henry Samueli School of Engineering and Applied Science, UCLA, 2005; UCLA Department of Civil and Environmental Engineering Outstanding Bachelor of Science Student, 2005; Harbin Polytechnic Society Scholarship recipient, 2005; Applera Corporation Scholar, 2002–2005; UCLA Alumni Scholar, 2001–2005

## **Licenses and Certifications**

Registered Professional Civil Engineer, California, #74858

Registered Professional Civil Engineer, Arizona, #50940

U.S. Green Building Council, Leadership in Energy and Environmental Design Accredited Professional, LEED AP, 2008

## **Additional Training**

American Meteorological Society Summer Policy Colloquium, Washington, D.C., June 2006.

Harvard Law School, Program on Negotiation, Basic Negotiation Workshop, Boston, June 2008.

University of California, Los Angeles, UCLA Extension, Technical Management Program, Los Angeles, March 2009.

## **Publications and Presentations**

Cydzik K, Hamilton D, Stenner H, Cattarossi A, Shrestha PL. Natural hazard public policy implications of the May 12, 2008 M7.9 Wenchuan earthquake, Sichuan, China. American Geophysical Union 2009 Fall Meeting, San Francisco, CA, December 14–18, 2009.

Cydzik K, Shrestha PL, Hamilton D, Rezakhani M, Scheffner NW, Lenaburg RT. Numerical modeling to support floodplain mapping in coastal areas. American Geophysical Union 2009 Fall Meeting, San Francisco, CA, December 14–18, 2009.

Cydzik K, Hogue TS. Modeling postfire response and recovery using the Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS). JAWRA 2009; 45(3):702–714.

Cydzik, K. Careers in water resources engineering. Presentation to the UCLA Department of Civil & Environmental Engineering CEE 157L – Hydrologic Analysis and Design, Los Angeles, CA, March 3, 2009.

Shrestha PL, Hamilton DL, Cydzik K, Wardak S, Jordan N, Shaller PJ, Doroudian M. Flood hazard analysis and mitigation. Proceedings, International Conference on Water, Environment, Energy and Society (WEES-2009), New Delhi, India, January 12–16, 2009.

Murillo B, Wardak S, Hamilton DL, Shrestha PL, Cydzik K, Doroudian, M. Sedimentation analysis for existing and proposed development conditions. Proceedings, International Conference on Water, Environment, Energy and Society (WEES-2009), New Delhi, India, January 12–16, 2009.

Lenaburg RT, Scheffner NW, Shrestha PL, Cydzik K, Rezakhani M, Hamilton DL. EST-based tropical storm flood mapping of the Hawaiian Islands. Proceedings, An International Perspective on Environmental and Water Resources, Bangkok, Thailand, January 5–7, 2009.

Stenner H, Hamilton D, Cydzik K, Cattarossi A, Mathieson E. Landslides and quake lakes from the M7.9 China earthquake—Are Californians in the same boat? 3rd Conference on Earthquake Hazards in the Eastern San Francisco Bay Area, October 24, 2008.

Hamilton D, Cydzik K, Stenner H, Cattarossi A. May 12, 2008 M7.9 Wenchuan earthquake, August 2008 field trip to Sichuan, China. Presentation during bi-monthly Exponent internal John Osteraas Group meeting, via WebEx, September 29, 2008, and October 6, 2008.

Stenner H, Hamilton D, Cydzik K, Cattarossi A. Landslide hazards of the M7.9 Wenchuan, China earthquake and geologists' role in response. Annual Association of Engineering and Environmental Geologists, New Orleans, LA, September 19, 2008.

Wardak S, Murillo B, Hamilton D, Shrestha PL, Doroudian M, Cydzik K, Medellin J, Shaller PJ. Sedimentation analysis in an open channel network for existing and proposed development conditions. ASCE-EWRI World Environmental & Water Resources Conference, Honolulu, HI, May 12–16, 2008.

Shrestha PL, Hamilton D, Jordan N, Lyle JE, Doroudian M, Shaller PJ, Wardak S, Cydzik K, Medellin J. Inland flood hazard analysis and mitigation. ASCE-EWRI World Environmental and Water Resources Conference, Honolulu, HI, May 12–16, 2008.

Shrestha P, Hamilton D, Lyle J, Doroudian M, Shaller P, Cydzik K. Analysis of flood hazards for a residential development. ASCE World Environmental and Water Congress, Tampa, FL, May 15–19, 2007.

## **Project Experience**

### *Floodplain Management*

Performed screening level analysis of scour velocities and erosion potential in a river and its adjacent marsh environment to understand the potential for the creation of erosional or depositional areas based on known particle sizes and FEMA estimates of typical discharge velocities in the area.

Involved in a hurricane-induced flood mapping study for the State of Hawaii encompassing the six major islands of Hawaii: Kauai, Lanai, Maui, Molokai, Hawaii (the Big Island), and Oahu. Representative historical tropic storms and hurricanes were selected from the Eastern and Central North Pacific Basin Hurricane database of the National Hurricane Center. The historical storms were used to generate a series of hypothetical storms. A total of 101 historical and hypothetical storm tracks were modeled using the Advanced Circulation Model (ADCIRC), and the Empirical Simulation Technique (EST) was applied to probabilistically model the coastal storm surge along the southern extents of the islands of interest.

### *Hazard Analysis and Mitigation*

Performed field reconnaissance in Sichuan, China to evaluate the damage following the May 12, 2008 magnitude 7.9 Wenchuan Earthquake. Investigated the natural hazards (e.g., “quake lakes” formed by landslide dams, avalanches, debris flows, landslides, fault displacements, and liquefaction) that contributed to the destruction. Site visits included investigations at the Tangjiashan Landslide, the cities of Mianyang, Chengdu, Hanwang, Yingxiu, and Dujiangyan; Beichuan County, Beichuan town (south of Beichuan County), the Chaping Landslide (alternatively referred to as the Shuangdiancun or Xiaojiaqiao Landslide), the Qingzhu (or Dongkouhe) Landslide, Zipingpu Dam, and the Yingxiu Landslide.

Technical consultant with the California Governor’s Alluvial Fan Task Force. Involved in the development of the *Planning Manual for Development on Alluvial Fans*.

Performed a review of watershed responses (peak discharges, debris flow potential) for areas burned during the October 2003 Old Fire in the San Bernardino Mountains, California.

### *Water Resources Investigation in a Possible Wetland*

Performed long-term water balance calculations to explore the water availability at an arid-region coastal site for purposes of determining whether favorable conditions exist to support a wetland based on minimum water availability criteria. Evaluated long-term rainfall data, soils data, historical aerial photographs and topographic maps, and runoff, drainage, and evaporation conditions at the site to develop conclusions.

### **Peer Reviewer**

- Journal of Hydrologic Engineering—ASCE

### **Professional Affiliations**

- American Society of Civil Engineers—ASCE (member)
- Chi Epsilon, Civil Engineering Honor Society (member)