

Dr. Hari Mix

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PROFESSIONAL EXPERIENCE

(2014 - Present) Assistant Professor, Department of Environmental Studies and Sciences
Santa Clara University

EDUCATION

- Ph.D.** Environmental Earth System Science **2014**
Stanford University, Stanford, CA
- B.S.** Geological and Environmental Sciences **2008**
Stanford University, Stanford, CA

RESEARCH INTERESTS

Cenozoic terrestrial paleoclimate: Developing oxygen and hydrogen isotope records to interpret changes in the hydrologic cycle and contextualize modern climate change

Linked climatic and tectonic evolution of mountain belts: Constraining topography and atmospheric circulation in Cenozoic western North America and Central Asia

Modern changes and dynamics of the hydrologic cycle: Examining atmospheric river events in California

Biosphere-atmosphere interactions: Understanding the role of grassland expansion on the evolution of the hydrologic cycle

PUBLICATIONS

Mix, H.T., Ibarra, D.E., Mulch, A., Graham, S.A., Chamberlain, C.P. (*in press*). A hot and high Eocene Sierra Nevada. *Geological Society of America Bulletin*.

Mix, H.T. and Chamberlain, C.P. (2014). Stable isotope records of hydrologic change and paleotemperature from smectite in Cenozoic western North America. *Geochimica et Cosmochimica Acta*, v. 141, p. 532-546.

Chamberlain, C.P., Winnick, M., **Mix, H.T.**, Chamberlain, S.D., Maher, K. (2014). The role of Neogene grassland expansion and aridification on the isotopic composition of continental precipitation. *Global Biogeochemical Cycles*, v. 28, p. 992-1004.

Caves, J.K., Sjostrom, D., **Mix, H.T.**, Winnick, M., Chamberlain, C.P. (2014). Stable isotope constraints on aridity in northern Central Asia and implications for the uplift history of the Altai and Hangay. *American Journal of Science*, v. 314, p. 1171-1201.

Mix, H.T., Winnick, M.J., Mulch, A., Chamberlain, C.P. (2013). Grassland expansion as an instrument of hydrologic change in Neogene western North America. *Earth and Planetary Science Letters*, v. 377-378, p. 73-83.

Feng, R., Poulsen, C.J., Werner, M., Chamberlain, C.P., **Mix, H.T.**, Mulch, A. (2013). Early Cenozoic evolution of topography, climate, and stable isotopes in precipitation in the North American Cordillera. *American Journal of Science*, v. 313, p. 613-648.

Chamberlain, C.P., **Mix, H.T.**, Mulch, A., Hren, M.T., Kent-Corson, M.L., Davis, S.J., Horton, T.W., Graham, S.A. (2012). The Cenozoic Climatic and Topographic Evolution of the Western North American Cordillera. *American Journal of Science*, v. 312, p. 213-262.

Mix, H.T., Mulch, A., Kent-Corson, M.L., Chamberlain, C.P. (2011). Cenozoic migration of topography in the North American Cordillera. *Geology*, v. 39, p. 87-90.

Davis, S.J., **Mix, H.T.**, Wiegand, B.A., Carroll, A.R. and Chamberlain, C.P. (2009). Synorogenic evolution of large-scale drainage patterns: Isotope paleohydrology of sequential Laramide basins. *American Journal of Science*, v. 309, p. 549-602.

TEACHING EXPERIENCE

(2015) ENVS 166, *Climate Change: Past, Present and Future*
ENVS 95, *Sustainable Living Undergraduate Research Project*
ENVS 23, *Introduction to Earth Systems*

(2010 – 2013) Teaching Assistant, EESS 57Q, *Climate change from the Past to the Future*

(2009 – 2013) Teaching Assistant, EESS 12SC, *Environmental and Geological Field Studies in the Rocky Mountains*

(2009) Teaching Assistant, OSPGEN 42, *How to Build a Habitable Planet: An Example from the European Alps*

(2008) Teaching Assistant, GES 1, *Dynamic Earth: Fundamentals of Earth Science*

PUBLIC OUTREACH

(2013) Partnered with Discovery Charter School in San Jose to teach earth science and help plan a class trip to Yellowstone.

(2012) Spoke to middle school teachers about climate change and paleoclimate as part of the Geoscape Bay Area Teacher Professional Development Project

(2010-Present) Gave several talks at Bay Area schools as a science mentor for the Stanford-NASA Climate Change Education Project

(2011) My research on the topographic history of the North American Cordillera was the focus of articles in the *San Francisco Chronicle*, *San Jose Mercury News*, *MSNBC.com*, *ScienceDaily.com* and several other news organizations and wires

(2011) Spoke about climate change at Jane Lathrop Stanford Middle School and helped lead a field trip to the San Andreas Fault.

GRANTS

(2015) Sustainability Research Initiative Grant, Santa Clara University
Examining interactions between Sierra Nevada uplift and climate change

(2011-12) Blaustein Fellowship

(2010) Assisted in writing a successful NSF proposal (Collaborative Research: Recovering surface uplift histories and climate dynamics of the North American Cordillera through integrated climate modeling, sedimentology, stable isotopic and cooling age studies)

(2009) McGee Fellowship for graduate research

(2006) Stanford VPUE Research Fellowship
Implications of Middle Miocene resurgent doming associated with silicic volcanism in NW Nevada and SE Oregon

(2005) Stanford VPUE Research Fellowship
Geologic mapping of the Warner Range and Surprise Valley, CA

CONFERENCE ABSTRACTS

Caves, J.K., Winnick, M.J., Ibarra, D.E., Sjostrom, D.J., Graham, S.A., Mulch, A., **Mix, H.T.**, Chamberlain, C.P. (2015) Combining back-trajectory modeling and measurements of water isotopes to understand the paleoclimatic record in Central Asia: the impact of

seasonality and topography. *International Atomic Energy Agency International Symposium on Isotope Hydrology* (talk).

Mix, H.T. (2014) Integrating Alpine Adventure and Citizen Science in the Greater Himalaya. *American Geophysical Union Fall Meeting* (invited talk).

Mix, H.T., Ibarra, D.E., Mulch, A., Graham, S.A., Chamberlain, C.P. (2014) Reconstructing a hot and high Eocene Sierra Nevada using oxygen and hydrogen isotopes in kaolinite. *American Geophysical Union Fall Meeting* (poster).

Winnick, M.J., Caves, J.K., Ibarra, D.E., Wood, A., **Mix, H.T.**, Chamberlain, C.P. (2014) Early Eocene latitudinal isotope gradients in precipitation and implications for global latent heat transport: new data from British Columbia, Canada and a global data-model comparison. *American Geophysical Union Fall Meeting* (poster).

Mix, H.T., Ibarra, D.E., Mulch, A., Graham, S.A., Chamberlain, C.P. (2014) Revisiting uncertainty in kaolinite paleoaltimetry and paleothermometry with oxygen isotope constraints from the Eocene Sierra Nevada. *Geological Society of America Annual Meeting* (talk).

Chamberlain, C.P., Winnick, M.J., **Mix, H.T.**, Chamberlain, S.D., Maher, K. (2013) The role of vapor recycling on paleoclimate records: An example of the Neogene expansion of grasslands. *American Geophysical Union Fall Meeting* (invited talk).

Caves, J.K., Sjostrom, D., **Mix, H.T.**, Winnick, M.J., Chamberlain, C.P. (2013) Uplift history of the Altai and Hangay in Mongolia and impact on Central Asian aridification: Evidence from paleosol stable isotopes. *American Geophysical Union Fall Meeting* (poster).

Meltzer, A., Ancuta, L.D., Carlson, R.W., Caves, J.K., Chamberlain, C.P., Gosse, J.C., Idleman, B.D., Ionov, D.A., McDannell, K.T., Mendelson, T., **Mix, H.T.**, Munkhuu, U., Proussevitch, A.A., Russo, R.M., Sabaj-Perez, M., Sahagian, D.L., Sjostrom, D.J., Stachnik, J.C., Tsagaan, B., Wegmann, K.W., Winnick, M.J., Zeitler, P.K. (2012) Intracontinental deformation and surface uplift – Geodynamic evolution of the Hangay Dome, Mongolia Central Asia. *American Geophysical Union Fall Meeting* (talk).

Mix, H.T., and Chamberlain, C.P. (2012) Water isotope records of hydrologic changes and paleotemperature from smectite in Cenozoic western North America. *American Geophysical Union Fall Meeting* (poster).

Feng, R., Poulsen, C., Werner, M., and **Mix, H.T.** (2012). Simulated Eocene meteoric $\delta^{18}\text{O}$ response to north-south topographic migration of the North American Cordillera. *Michigan Geophysical Union* (poster).

Mix, H.T., Winnick, M.J., Mulch, A., Chamberlain, C.P. (2011). Grassland expansion as an instrument of hydrologic change in Neogene western North America. *American Geophysical Union Fall Meeting* (talk).

Mix, H.T., Mulch, A., Chamberlain, C.P. (2010). Cenozoic migration of topography in the North American Cordillera. *American Geophysical Union Fall Meeting* (talk).

Mulch, A., Chamberlain, C.P., **Mix, H.T.** (2009). Isotopic proxy records of orographic precipitation. *American Geophysical Union Fall Meeting* (talk).

Chamberlain, C.P., Mulch, A., **Mix, H.T.**, Kent-Corson, M.L., Davis, S.J., Graham, S.A. (2009). Why we need large spatial and temporal coverage of stable isotopic proxy records for reconstructing past precipitation patterns in orogens. *American Geophysical Union Fall Meeting* (talk).

NON-ACADEMIC PURSUITS

Alpinism

Light and fast ascents of the world's highest mountains

- (2015) Attempted Peak Pobeda (24,406 ft), Kyrgyzstan
- (2014) Attempted Everest without supplemental oxygen. Expedition aborted after avalanche.
- (2013) Reached 25,700 ft on Lhotse, the world's 4th highest mountain, without supplemental oxygen. Worked as a researcher as part of the Extreme Environments – Everyday Decisions project studying organization of teams on Everest. In conjunction with Adventurers and Scientists for Conservation, collected snow and ice samples for climate study as well as one of the highest plants ever found (~22,000 ft).
- (2012) Solo expedition to the three highest peaks of the Pamir, in Kyrgyzstan and Tajikistan. Summited Peak Korzhenevskaya (23,311 ft) in a 23-hour round trip speed ascent from base camp. Summited Lenin Peak (23,406 ft), Peak Petrovsky (~15,800 ft), and Peak Vorobiova (~18,700 ft). Attempted Peak Communism (24,590 ft). Collected the highest ever rock samples for microbial study as part of a project through Adventurers and Scientists for Conservation, the University of Arizona and Biosphere 2. Recipient of the American Alpine Club *Live Your Dream* Grant.
- (2011) Summited Khan Tengri (22,999 ft) in the Tien Shan of Kazakhstan and Kyrgyzstan as a member of an international expedition.
- (2010) Member of “Ski the Himalayas 2” team in Nepal. Summited and filmed on Thorung Ri (20,157 ft) in the Annapurna region. This trip is now a feature-length documentary on cable and satellite TV.
- (2005–2008) Held record for fastest round-trip ascent of Half Dome, Yosemite, CA
- Currently hold several other speed records: Yosemite Falls in Yosemite, CA, and two 14,000' peaks in California

- Numerous climbs in the Sierra Nevada, Rockies, Alps, Alaska, Canada and beyond

Distance Running

Retired in 2009 due to injury

- (2007) NCAA Division I All-American at 5,000m (top 8 American collegians)
- (2006, 2008) Ranked in the top 30 Americans at 10,000m
- (2008) Achieved world ranking in the 3,000m
- (2008) Pac-10 athlete of the week for leading conference in 5,000 and 10,000m
- Many-time All Pac-10, Pac-10 All-Academic, MPSF All-Academic selection
- (2007) NCAA Division I Academic All-American
- (High school) Virginia state champion in 2-mile, 3rd place at national championship in 2-mile, 2003 Virginia Cross Country Runner of the Year

Yoyos and other skill toys

- (2007) Designed and manufactured a high performance yo-yo
- (2006) Attended National Yo-Yo Contest in Chico, CA