# XIAHONG FENG

	Department of Earth Sciences 6105 Fairchild, Dartmouth College Hanover, NH 03755-3571 Phone: (603)646-1712, Fax: (603)646-3922 E-mail: xiahong.feng@dartmouth.edu
Education:	Case Western Reserve University Department of Geological Sciences Ph.D. August 1991 Advisor: Samuel M. Savin Dissertation: Stable isotope studies of zeolites
	Peking University, Beijing, China Department of Geology M.S. July 1985 Advisor: Zhuhui Zheng Thesis: Stable isotope studies of manganese nodules from the North Pacific Ocean
	Peking University, Beijing, China Department of Geology B.S. February 1982
Honors:	Visiting Professor, National Taiwan University December 2016-May 2017 Frederick Hall Professor of Mineralogy and Geology 2003- Fellow – Geological Society of America, 2006- CAREER award – NSF, 1996-2001 Susan and Gib Myers 1964 Faculty Fellow, Dartmouth, 2000 Faculty Fellow – Dartmouth College, 1999 Foley Fellow – Dartmouth College, 1999
Experience:	Professor July 1, 2006 Present
	Chair, Department of Earth Sciences, July, 2004 – June 2007 Dartmouth College
	Associate Professor July 1, 2000 – June 30, 2006 Department of Earth Sciences, Dartmouth College
	Assistant Professor June 1994 – June 30, 2000 Department of Earth Sciences, Dartmouth College
	<u>Research Fellow in Geochemistry</u> August 1991 - June, 1994 California Institute of Technology, Pasadena CA. Advisor: Samuel Epstein
	Graduate Assistant September 1985 - July 1991 Case Western Reserve University, Cleveland, Ohio Department of Geological Science
	<u>Consultant</u> 1988-1989 Geosciences Associates, Inc., Burton, Ohio
	<u>Research Assistant</u> July 1988 - July 1991 Case Western Reserve University, Cleveland, Ohio

Weatherhead School of Management

<u>Research Assistant</u> February 1982 - June 1985 Peking University, Beijing, China Department of Geology

<u>Factory Worker</u> July 1976 – February 1978 Yan Shan Petrochemical Industry Corporation, Beijing, China

<u>High School Teacher</u> February 1976 - July 1976 172<sup>nd</sup> High School, Beijing, China. (Teaching high school physics.)

### **Research Interests**

Studies of climate and environmental change using stable isotopes and major/trace elements, including: i) studies of atmosphere and hydrological processes and climate change using hydrogen, oxygen isotopes of precipitation, water vapor, lake water and sediments; ii) nitrogen and carbon cycles in soils using carbon and nitrogen isotopes; iii) mercury mobility and sequestration in soil and sediments controlled by carbon quality and coupled with carbon cycles; iv) studies of snow, ice and watershed hydrochemical processes using oxygen isotopes and major and trace elements; v) studies of global carbon cycles using carbon isotopes of tree rings and soil organic matter; vi) studies of paleoclimate change using oxygen and hydrogen isotopic ratios in tree rings.

#### **Professional Membership**

American Geophysical Union Geological Society of America Geochemical Society of America American Association for the Advancement of Science Sigma Xi IPACES (International Professionals for Advancement of Chinese Earth Sciences)

## Synergistic activities and Professional Services

Panelist: NSF/GEO POWRE, 1999 Panelist: NSF/EAR/IF, 2000-2003 Panelist: NSF/BE/CBC, 2004 Director: Dartmouth Trace Element Analysis Core Facility, July 2001-2003 Member of the Board of Directors of CUAHSI (Consortium of Universities for Advancement of Hydrological Science, Inc.) 2003-2004 Dartmouth Representative of CUAHSI 2003-present Reviewer for many professional journals, and US and international funding agencies. Associate Editor: Advances in Earth Science, Vol. 4, The International Professionals for Advancement of Chinese Earth Science, 2008-2009 Associate Editor: Journal of Hydrology, 2005-2008 Panelist: NSF/IGERT/Preproposal, June 2008 Panelist: NSF/IGERT/Preproposal, June 2009 Panelist: NSF/Macro System Ecology, September 2012 Deputy Chair: IPACES, 2013-2014 Chair: IPACES, 2014-2015

#### **Research Grants**

#### Grants Awarded

Chinese National Science Foundation, Program of Short-Term Scientific Exchange with Oversea Chinese Scholars, ¥7,000, 1994.

"Stable Oxygen and Hydrogen Isotope Studies of Groundwater and Wood from the Last Glacial Maximum to the Present" NSF EAR-9506752, Principal Investigator, \$17,997, September 1995-February 1997.

Chinese National Science Foundation, Program of Short-term Scientific Exchange with Oversea Chinese Scholars, ¥16,000, 1995.

"Dendrochronology and Stable Isotope Studies of Tree Rings for Selected Areas of the United States" NSF ATM-9628759 CAREER, Principal Investigator, \$219,177,06/01/96–05/31/00, plus \$29,725 supplement for 06/01/00–05/31/01.

"Studies of Diagenetic and Post-Formational Processes of Zeolite Formations Using Stable Oxygen and Nitrogen Isotopes, K/Ar Dating and Major and Trace Elements" NSF EAR-9628402, Principal Investigator, \$139,905, August 1996 - August 1999.

Collaborative Research with Peking University: "Post-formational alteration of zeolite ore deposits and its environmental significance" Chinese National Science Foundation, CNSF-49672118, Principal Investigator at Dartmouth College, ¥120,000, January, 1997 – December, 1999.

Chinese National Science Foundation, Program of Short-Term Scientific Exchange with Oversea Chinese Scholars, ¥6,000, 1997.

"Acquisition of a Particle Size Analyzer for Geochemical Research at Dartmouth College", NSF EAR-9727362, Principal Investigator, \$29,700, 03/01/98 - 02/29/00.

Collaborative Research with the Cold Region Research and Engineering Laboratory: "Measuring and modeling the isotopic variability of snowmelt". The Department of Defense to the Army, Snow Ice and Frozen Ground Program, Co-Principal Investigator, \$100,000, 06/01/98-05/31/00.

Exchange and collaboration with oversea Chinese scholars, The Chunhui Project, Education Committee of China, \$600, summer, 1998.

Dartmouth Faculty Fellowship, Spring, 1999.

Foley Fellowship, Dartmouth College, 1999, \$2,000.

Collaborative Research with Dr. Edward Cook at Lamont-Doherty Earth Observatory: "Developing an absolutely-dated Holocene tree-ring chronology from sub-fossil huon pine in Tasmania for paleoclimatic and isotopic studies" NOAA (NA96GP0480) (NSF/NOAA ESH program), Principal investigator at Dartmouth College, \$83,200, 09/01/99–08/31/02.

Technician support: gas-isotope ratio mass spectrometry laboratory at Dartmouth College. Co-Principal investigator, NSF (EAR-9903082) \$179,925, September 1999 – August 2002.

Contaminant loading of watersheds from snowmelt: An integrated study using stable isotopes and rare earth elements. NSF (EAR-9903281), Principal investigator, 191,442,02/01/00 - 07/31/04; supplement: 22,481 (1.5 year extension).

Susan and Gib Myers 1964 Faculty Fellowship, \$2,000, 2000.

Technician support: Watershed studies at Dartmouth College. NSF (EAR-0111403), Principal investigator, \$141,700, 09/01/01 – 08/31/04

Collaborative Research: Investigating timescales of hydrologic transport, storage, and mixing in catchments, using natural tracer time series, theoretical models, and laboratory-scale simulations. NSF (EAR0125338), Principal investigator at Dartmouth (with James Kirchner at UC Berkeley), \$39,181, 03/01/2002 - 02/28/2005.

Acquisition of continuous-flow stable isotope analytical equipment at Dartmouth College. NSF (EAR/IF-0132018), Principal investigator \$68,945, 03/15/02-02/29/04.

Acquisition of a Gas Chromatography-Inductively Coupled Plasma Mass Spectrometry System for Interdisciplinary Environmental and Health Sciences Research at Dartmouth College NSF/MRI/DBI 0215913, PI with Folt and Sturup as Co-PIs, \$159,346,0701/02–06/30/05.

TECHNICIAN SUPPORT: Watershed Studies at Dartmouth College [Phase II], NSF/EAR-IF 0418809, PI with Renshaw as Co-PI, \$149,503, 01/01/05–12/31/06.

IGERT Polar Environmental Change: NSF 0801490. Co-PI (PI: Ross Virginia); \$2,999,613, August 1 2008 – July 31 2013.

DOE: ARM Climate Research Facility (ACRF): "Effect of sea ice on Arctic precipitation" PI (with Posmentier as Co-PI); \$10,000, January 1 2009 – December 31 2010.

Strategic University Research Partnership, Director's Research and Development Fund, Jet Propulsion Laboratory: Estimating sources of Arctic moisture using ground and space based measurements of water vapor and its isotopes (Co-PI with Posmentier as PI); \$100,000, July 1 2009 – June 30 2010.

DOE: ARM Climate Research Facility (ACRF): "Effect of sea ice on Arctic precipitation-extended" PI (with Posmentier as Co-PI); \$24,000, January 1 2011 – December 31 2014.

COLLABORATIVE RESEARCH: A pan-Arctic, storm-by-storm isotopic investigation of the influence of Arctic sea ice on precipitation – a crucial link in the coupled climate system. NSF 1022032, PI \$514,534, September 1 2010, August 31 2013 (expended to August 31 2015 due to logistic delays).

COLLABORATIVE RESEARCH: Arctic Landfast Sea Ice Formation in the Presence of Fresh Water Input. NSF Arctic Research Opportunities 14-584 Arctic Natural Sciences, \$455,141, Co-PI with Rachel W. Obbard as PI, 01 September 2016 – 31 August 2020.

**Refereed Publications** (\*student or postdoc authors):

- 083. Strauss, J. V., T. Fraser, M. J. Melchin, T. J. Allen, J. Malinowski, X. Feng, J. F. Taylor, J. Day, B. C. Gill, and E. A. Sperling (2020), The Road River Group of northern Yukon, Canada: early Paleozoic deep-water sedimentation within the Great American Carbonate Bank, *Canadian Journal of Earth Sciences*, 1-27, doi:10.1139/cjes-2020-0017.
- 082. Conroy, Nathan Alec, Brent David Newman, Jeffrey Martin Heikoop, George Bradford Perkins, Xiahong Feng, Cathy Jean Wilson, Stan Duane Wullschleger (2020) Timing and duration of hydrological transitions in Arctic polygonal ground from stable isotopes. *Hydrological Processes*, 34:749–764. DOI: 10.1002/hyp.13623.
- 081. Ouyang, B., Renock, D. J., Ajemigbitse, M. A., Van Sice, K., Warner, N. R., Landis, J. D., and Feng, X. (2019) Radium in hydraulic fracturing wastewater: distribution in suspended solids and implications to its treatment by sulfate co-precipitation, *Environmental Science Processes & Impacts*, 21, 339-351, 10.1039/c8em00311d.
- 080. Feng, X., Posmentier, E. S., Sonder, L. J., and Fan, N. (2019) Rethinking Craig and Gordon's approach to modeling isotopic compositions of marine boundary layer vapor, Atmospheric Chemistry and Physics, 19, 4005-4024, 10.5194/acp-19-4005-2019.
- 079. Kopec<sup>\*</sup>, B. G., **Feng, X.**, Posmentier, E. S., and Sonder, L. J. (2019) Seasonal deuterium excess variations of precipitation at Summit, Greenland, and their climatological significance, *Journal of Geophysical Research: Atmospheres*, 124, 72-91, 10.1029/2018JD028750.

- 078. Bailey<sup>\*</sup>, A., Posmentier, E., and **Feng, X.** (2018) Patterns of evaporation and precipitation drive global isotopic changes in atmospheric moisture, *Geophysical Research Letters*, 45, 7093–7101, 10.1029/2018GL078254.
- 077. Kopec<sup>\*</sup>, B. G., **X. Feng**, E. S. Posmentier, J. W. Chipman, and R. A. Virginia (2018), Use of principal component analysis to extract environmental information from lake water isotopic compositions, *Limnology and Oceanography*, online: doi:10.1002/lno.10776.
- 076. Putman<sup>\*</sup>, A. L., **X. Feng**, E. S. Posmentier, A. M. Faiia, and L. J. Sonder (2017), Testing a novel method for initializing air parcel back trajectories in precipitating clouds using reanalysis data, *Journal of Atmospheric and Oceanic Technology*, *34*, 2393-2405, doi:10.1175/JTECH-D-17-0053.1.
- 075. Yin, J.-J., H.-C. Li, Z.-G. Rao, C.-C. Shen, H.-S. Mii, R. K. Pillutla, H.-M. Hu, Y.-X. Li, and X. Feng (2017), Variations of monsoonal rain and vegetation during the past millennium in Tiangui Mountain, North China reflected by stalagmite δ<sup>18</sup>O and δ<sup>13</sup>C records from Zhenzhu Cave, *Quaternary International*, 447, 89-101, doi:10.1016/j.quaint.2017.06.039.
- 074. Curtis, A.N., Bugge, D.M., Buckman, K.L., **Feng, X.**, Faiia, A., Chen, C.Y. (2017). Influence of sample preparation on estuarine macrofauna stable isotope signatures in the context of contaminant bioaccumulation studies. *Journal of Experimental Marine Biology and Ecology* 493, 1-6.
- 073. Putman<sup>\*</sup>, A., **Feng, X.**, Sonder, L.J. and Posmentier, E.S. (2017) Annual variation in event-scale precipitation δ<sup>2</sup>H at Barrow, AK reflects vapor source region, *Atmospheric Chemistry and Physics*, 17, 4627–4639.
- 072. Throckmorton, H.M., Newman, B.D., Heikoop, J.M., Perkins, G.B., Feng, X., Graham, D.E., O'Malley, D., Vesselinov, V.V., Young, J., Wullschleger, S.D., Wilson, C.J. (2016) Active layer hydrology in an arctic tundra cosystem: quantifying water sources and cycling using water stable isotopes. *Hydrological Processes* 30, 4972–4986.
- 071. Feng, X., Lauder<sup>\*</sup>, A.M., Posmentier, E.S., Kopec<sup>\*</sup>, B.G., and Virginia, R.S. (2016) Evaporation and transport of water isotopologues from Greenland lakes: The lake size effect. *Quaternary Science Reviews*, 131, 302-315.
- 070. Kopec<sup>\*</sup>, B.G., **Feng, X.**, Michel, F.A., Posmentier, E.S. (2016) Influence of sea ice on Arctic precipitation. *Proceeding of the National Academy of Sciences*, 113, 46-51.
- 069. Voelker, S.L., Stambaugh, M.C., Guyette, R.P., **Feng, X.**, Grimley, D.A., Leavitt, S.W., Panyushkina, I., Grimm, E.C., Marsicek, J.P., Shuman, B., Brandon Curry, B., 2015. Deglacial hydroclimate of midcontinental North America. *Quaternary Research*, 83, 336-344.
- 068. Good, S.P., Mallia, D.V., Denis, E.H., Freeman, K.H., Feng, X., Li, S., Zegre, N., Lin, J.C., Bowen, G.J. (2015). High frequency trends in the isotopic composition of Superstorm Sandy, in: Bennington, B.J., Farmer, C.E. (Eds.), *Learning from the Impacts of Superstorm Sandy*. Elsevier Inc., pp. 41-55.
- 067. Kopec<sup>\*</sup>, B. G., A. M. Lauder<sup>\*</sup>, E. S. Posmentier, and **X. Feng** (2014), The diel cycle of water vapor in west Greenland, *Journal of Geophysical Research Atmosphere*, 119, doi:10.1002/ 2014JD021859.
- 066. Wang, G. and **Feng, X.** (2012) Response of plants' water use efficiency to increasing atmospheric CO<sub>2</sub> concentration. *Environmental Science and Technology*, 46, 8610-8620.
- 065. Liu, Weiguo, Zhoufeng Wang, Zheng Wang, **Xiahong Feng**, Pu Zhang (2011) Variations in nitrogen isotopic values among various particle-sized fractions in modern soil in northwestern China. *Chinese Journal of Geochemistry*, 30(3):295-303. DOI:10.1007/s11631-011-0513-7.
- 064. Lee<sup>\*</sup> J., **X. Feng**, A.M. Faiia, E.S. Posmentier, R. Osterhuber, J.W. Kirchner (2010) Isotopic evolution of snowmelt: A new model incorporating mobile and immobile water. *Water Resources Research*, 46, W11512, doi:10.1029/2009WR008306.
- 063. Lee<sup>\*</sup> J., **X. Feng**, A.M. Faiia, E.S. Posmentier, J.W. Kirchner, R. Osterhuber, S. Taylor (2010) Evolution of the isotopic composition of an alpine snow cover and its melt by isotopic exchange between liquid and ice, *Chemical Geology*, 270, 126-134.
- 062. Feng, X., A. M. Faiia, and E. S. Posmentier (2009), Seasonality of isotopes in precipitation: A global perspective, *Journal of Geophysical Research-Atmosphere*, 114, D08116, doi:10.1029/2008JD011279.

- 061. The Committee on Chinese Groundwater Science (a 12-member committee, including Feng, appointed by The Chinese National Science Foundation) (2009) *Opportunities and Challenges in Chinese Groundwater Science*. Science Press, Beijing, China, pp199.
- 060. Lee<sup>\*</sup>, J., Feng, X., Posmentier, E.S., Faiia A.M. and Taylor S. (2009) Stable isotopic exchange rate constant between snow and liquid water. *Chemical Geology*, 260, 57-62.
- 059. Lee<sup>\*</sup>, J., Nez<sup>\*</sup>, V., **Feng, X.**, Kirchner, J.W., Osterhuber, R., Renshaw, C.E. (2008) A study of solute redistribution and transport in seasonal snowpack using natural and artificial tracers. *Journal of Hydrology*, 357 (3-4), 243-254.
- 058. Zheng, C. and Feng, X. (2008) Editors: *Environmental Geosciences*, Advances in Earth Sciences, Vol. 4, Higher Education Press, Beijing, China.
- 057. Feng, X. (2008) Residence Time of Water and Solutes in Drainage Basins, in *Environmental Geosceince*, eds. Zheng, C. and Feng, X., Higher Education Press, Beijing, China, pp.69-85.
- 056. Wang, G., **Feng, X.**, Han, J., Zhou, L., Tan, W. and Su, F. (2008) Paleovegetation reconstruction using δ<sup>13</sup>C of soil organic matter. *Biogeosciences*, 5, 1325-1337.
- 055. Shu<sup>\*</sup>, Y., Feng, X., Posmentier, E.S., Faiia, A.M., Ayres, M.P., Conkey L.E. and Sonder L.J. (2008) Isotopic studies of leaf water 2. Between-age isotopic variations in pine needles. *Geochimica et Cosmochimica Acta*, 72, 5189-5200.
- 054. Shu<sup>\*</sup>, Y., **Feng, X.** Posmentier, E.S., Sonder L.J., Faiia, A.M. and Yakir, D. (2008) Isotopic studies of leaf water 1. A physically based two-dimensional model for pine needles. *Geochimica et Cosmochimica Acta*, 72, 5175-5188.
- 053. Lee<sup>\*</sup>, J., **Feng, X.**, Posmentier, E.S., Faiia, A.M., Osterhuber, R., Kirchner J.W. (2008) Modeling of solute transport in snow using conservative tracers and artificial rain-on-snow experiments, *Water Resources Research*, 44, W02411, doi:10.1029/2006WR005477.
- 052. Pellerin<sup>\*</sup>, B.A. Wollheim, W.M., **Feng, X.**, Vörösmarty, C.J. (2007) The role of surface runoff in urban stormflow generation: Inferences from chemical and isotopic hydrograph separation, *Hydrological Processes*. DOI: 10.1002/hyp.6786
- 051. Feng, X., Reddington<sup>\*</sup>, A.L., Faiia<sup>\*</sup>, A.M., Posmentier, E.S., Shu<sup>\*</sup> Y., and Xu, X. (2007) Changes in North American atmospheric circulation patterns indicated by wood cellulose, *Geology*, 35(2), 163-166, doi: 10.1130/G22884A.1.
- 050. Bostick, B.C., C. E. Renshaw, J. L. de Lemos, S. Stürup, and **X. Feng**. Response to Comment on Arsenic contamination caused by groundwater remediation. 2006. *Environmental Science and Technology*, 40, 4039.
- 049. Lennon<sup>\*</sup>, J.T. Faiia, A.M. **Feng, X.**, Cottingham, K.L. (2006) Evidence for CO<sub>2</sub> recycling in lakes along a terrestrial carbon gradient, *Limnology and Oceanography*, 51(4), 1602-1613.
- 048. DeLemos<sup>\*</sup>, J.L., Bostick, B.C., Renshaw, C.E., Stürup, S., and **Feng X.** (2006) Landfill-Stimulated Iron Reduction and Arsenic Release at the Coakley Superfund Site (NH), *Environmental Science and Technology*, 40(1), 67-73.
- 047. Renshaw, C.E., Bostick, B.C., **Feng, X.**, Wong<sup>\*</sup>, C.K., Winston, E.S., Karimi, R. Folt, C.L. and Chen, C.Y. (2006), Impact of land disturbance on the fate of arsenical pesticides, *Journal of Environmental Quality*, 35, 61-67
- 046. Graham, S.A., Chamberlain, C.P., Yue Y., Ritts, B.D. Hanson, A.D., Horton, T.W., Waldbauer, J.R., Poage, M.A. and **Feng, X.** (2005) Stable isotope records of Cenozic climate and topography, Tibetan Plateau and Tarim Basin, *American Journal of Science*, 305, 101-118.
- 045. Liu, W., **Feng, X.**, Ning, Y., Zhang, Q., Cao, Y., and An, Z. (2005) δ<sup>13</sup>C variation of C<sub>3</sub> and C<sub>4</sub> plants across an Asian monsoon rainfall gradient in arid northwestern China, *Global Change Biology*, 11, 1094-1100.
- 044. Shu<sup>\*</sup>, Y., **Feng, X.**, Gazis, C., Anderson, D. Faiia<sup>\*</sup>, A.M., Tang<sup>\*</sup>, K., Ettl, G.J. (2005) Relative humidity recorded in tree rings: a study along a precipitation gradient in the Olympic Mountains, *Geochimica et Comochimica Acta*, 69, 791-799.
- 043. Posmentier, E.S. **Feng, X.**, Zhao, M. (2004) Seasonal variations of precipitation δ<sup>18</sup>O in Eastern Asia, *Journal of Geophysical Research*, 109, D23106, doi:10.1029/2004JD004510
- 042. Liu, W., **Feng, X.**, Liu, Y., Zhang, Q., An, Z. (2004) δ<sup>18</sup>O values of tree rings as a proxy of monsoon precipitation in arid Northwest China. *Chemical Geology*, 206, Issues 1-2, 73-80.

- 041. Poage<sup>\*</sup>, M.A. and **Feng, X.** (2004) A theoretical model of steady state δ<sup>13</sup>C vs. depth profiles of decomposing soil organic matter. *Global Biogeochemical Cycles*. 18, GB2016, doi:10.1029/2003GB002195.
- 040. Feng, X. (2004) Isotopic evolution of seasonal snowpacks and its significance to surface water hydrochemistry, in *Environment, Natural Hazards, and Global Tectonics of the Earth*, ed. Chen, Y.J., Higher Education Press, Beijing, China, 1-19.
- 039. Kirchner, J.W., **Feng, X.**, Neal, C. and Robson, A.J. (2004), INVITED COMMENTARY, The fine structure of water-quality dynamics: the (high-frequency) wave of the future, *Hydrological Processes*, 18(7), 1353-1359.
- 038. Feng, X., Kirchner, J.W., and Neal, C. (2004b) Spectral analysis of chemical time series from long-term catchment monitoring studies: hydrochemical insights and data requirements, *Water*, *Air and Soil Pollution: Focus* 4, 221-235.
- 037. Feng, X., Kirchner, J.W., and Neal, C. (2004a) Measuring catchment-scale chemical retardation using spectral analysis of reactive and passive chemical tracer time series, *Journal of Hydrology*, 292, 296-307.
- 036. Gazis<sup>\*</sup>, C. and **Feng**, **X**. (2004) A stable isotope study of soil water: Evidence for mixing and preferential flow paths, *Geoderma*, 119, no. 1, pp. 97-111.
- 035. Quinn<sup>\*</sup>, M.R., **Feng, X.**, Folt, C.L. and Chamberlain, C.P. (2003) Analyzing trophic transfer of heavy metals in stream food webs using nitrogen isotopes. *Science of the Total Environment*, 317, Issues 1-3, 73-89.
- 034. Quideau, S.A., Graham, R.C., **Feng, X.** and Chadwick, O. (2003) Natural isotopic distribution in soil surface horizons differentiated by vegetation. *Soil Science Society of America Journal*, 67: 1544-1550.
- 033. Renshaw, C.E. **Feng, X.** Sinclair<sup>\*</sup>, K.J. and Dums<sup>\*</sup>, R.H.R. (2003) The use of stream flow routing for direct channel precipitation with isotopically-based hydrograph separations: the role of new water in stormflow generation. *Journal of Hydrology*, 273, 205-216.
- 032. Feng, X. (2002) A theoretical analysis of carbon isotope evolution of decomposing plant litters and soil organic matter. *Global Biogeochemical Cycles*, 16(4), Art. No.1119, doi:10.1029/2002GB001867.
- 031. Chen<sup>\*</sup>, Z.L., Wang X.F., **Feng, X.**, Wang, C.Q., and Liu, J. (2002) New evidence from stable isotopes for the uplift of mountains in northern edge of the Qinghai-Tibetan Plateau, *Science In China Series B-Chemistry*, 45: 1-10 Suppl. S.
- 030. Taylor<sup>\*</sup>, S., **Feng, X.**, Williams, M. and McNamara, J. (2002b) How isotopic fractionation of snowmelt affects hydrograph separation, *Hydrological Processes*, 16, 3683-3690.
- 029. Taylor<sup>\*</sup>, S., X. Feng, C.E. Renshaw, and J.W. Kirchner (2002a) Isotopic evolution of snowmelt: II. Verification and parameterization of a 1-D model using laboratory experiments, *Water Resources Research*, 38(10), 1218, doi:10.1029/2001WR000815.
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- 027. Kirchner, J.W., **Feng, X.** and Neal, C. (2001) Catchment-scale advection and dispersion as a mechanism for fractal scaling in stream tracer concentrations. *Journal of Hydrology*, 254, 81-100.
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- 025. Taylor<sup>\*</sup>, S., **Feng, X.**, Kirchner, J.W., Osterhuber, R., Klaue, B. and Renshaw, C.E. (2001) Isotopic evolution of a seasonal snowpack and its melt. *Water Resources Research*, 37, 759-769.
- 024. Tang<sup>\*</sup>, K. and **Feng, X.** (2001) The effect of soil hydrology on the oxygen and hydrogen isotopic compositions of plants' source water. *Earth and Planetary Science Letters*, 185, 355-367.
- 023. Connin<sup>\*</sup>, S.L. **Feng, X.** and Virginia, R.A. (2001) Isotopic discrimination during long-term decomposition in an aridland ecosystem. *Soil Biology and Biochemistry*, 33, 41-51.
- 022. Faiia<sup>\*</sup>, A and **Feng, X.** (2000) Kinetics and mechanism of oxygen isotope exchange between analcime and water vapor and assessment of isotopic preservation of analcime in geological formations. *Geochimica et Cosmochimica Acta*, 64(18), 3181-3188.

- 021. Tang<sup>\*</sup>, K., **Feng, X.** and Ettl, G. (2000) The Variations in δD of Tree Rings and the Implications for Climatic Reconstruction. *Geochimica et Cosmochimica Acta*, 64(10), 1663-1673.
- 020. Feng, X., Melander<sup>\*</sup>, A.P. and Klaue, B. (2000) Contribution of municipal waste incineration to trace metal deposition on the vicinity. *Water, Air and Soil Pollution*, 119, 295-316.
- 019. Chamberlain, C.P., Bensch S., **Feng, X.**, Åkesson, A. and Andersson, S.A.T. (2000) Stable isotopes examined across a mingratory divide in Scandinavian willow warblers (*Phylloscopus trochilus trochilus* and *Phylloscopus trochilus acredula*) reflect their African winter quarters. *Proc. R. Lond.* B 267, 43-48.
- 018. Kirchner, J.W., **Feng X.** and Neal, C. (2000) Fractal stream chemistry and its implication for contaminant transport in catchments. *Nature*, 403, 524-527.
- 017. Feng, X., Faiia\*, A., WoldeGabriel G., Aronson, J.L., Poage\*, M. and Chamberlain, C.P. (1999c) Oxygen isotope studies of clays and clinoptilolite from Yucca Mountain: Implications for paleohydrological conditions. *Earth and Planetary Science Letters*, 171, 95-106.
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### Abstracts and Conference Presentations (\* Student and postdocs)

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- Ouyang<sup>\*</sup>, B., Landis, J., Renock D. and Feng, X. (2018) Mining of chemistry data explains the fate of radium in hydraulic fracturing wastewater. Abstract V23I-0157, Fall Meeting AGU, Washington, DC, CA. 10-14 December, 2018.
- Niu, D., M. Sharma, X. Feng, and D. Renock (2018) Carbon isotope composition of organo-clay nanocomposites in overmature Devonian Marcellus Shale, 2018 Goldschmidt Conference, August 12-17, 2018, Boston, USA.
- Ouyang<sup>\*</sup>, B., Feng, X., Landis, J., Warner, N. T., Renock D. (2018) Experiments on Radium coprecipitation into sulfates and its implications for radium removal in wastewater, 2018 Goldschmidt Conference, August 12-17, 2018, Boston, USA.
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- Kopec\*, B.G. X. Feng, A.C. Adolph, R.A. Virginia, and E.S. Posmentier (2015) From precipitation to ice cores: an isotopic comparison at Summit, Greenland. Abstract PP11B-2229, 2015 Fall Meeting AGU, San Francisco, CA., 14-18 December.
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- Feng, X. (1997) The D/H ratios of tree rings in trees from world wide locations and the implications for climate change of the past 100-200 years. Extended Abstract for an invited presentation at REKIHAKU International Symposium "Terrestrial Environmental Changes and Natural Disasters during the Last 10,000 Years" Sakura City, Japan, November 25-28, 1997, pp13-16.
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- Gazis<sup>\*</sup>, C.A. and **Feng, X.** (1997) Stable isotope studies of soil CO<sub>2</sub> and soil water in New Hampshire and Vermont. Abstracts with Programs: GSA 1997 Annual Meeting, A84.
- Feng, X. (1996) A Calculation of Plant's Water Use Efficiency Using Carbon Isotopic Compositions in Tree Rings. EOS, Transactions, American Geophysical Union, Vol 77, No. 46 1996/Supplement, A42D-12, F125.
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climate change in the southeastern Tarim Basin, Xinjiang Province, China. EOS, Transactions, American Geophysical Union, Vol 77, No. 46 1996/Supplement, T21B-19, F109.

- Feng, X., WoldeGabriel, G. and Aronson, J.L. (1996) Clinoptilolite-Illite/Smectite Oxygen Isotope Disequilibrium Related to the Groundwater Table at Yucca Mountain, Nevada. The 33rd Annual Meeting of the Clay Mineral Society, Program and Abstracts, p59.
- Feng, X. and WoldeGabriel G. (1995) Oxygen isotopes of clinoptilolite: the oxygen isotope exchangeability in relation to the groundwater table. Fall Meeting of AGU, H21F-13, F211.
- Cronin, J.R., Pizzarello, S., Feng, X. and Epstein S. (1994) Chemical evolution in the early solorsystem: Amino-acids, aliphatic-amines, and ammonia in the murchison meteorite. Abstracts of the Papers of the American Chemical Society, 207: 14-GEOC, Part 1.
- Feng, X. and Epstein S. (1994) The D/H ratios of tree-rings in 12 trees from world wide locations and the implications for climate change of the past 100-200 years. Abstracts of the Eighth International Conference on Geochronology, Cosmochronology and Isotope Geology. U.S. Geological Survey Circular 1107, p97.
- Feng, X. and Epstein S. (1992) Exchangeability of exchangeable hydrogen of cellulose and determination of the D/H ratios of non-exchangeable hydrogen in cellulose. EOS, Transactions, American Geophysical Union, Vol 73, No. 43 1992/Supplement, A51A-10, p109.
- Girard J.P., Savin, S.M., and **Feng X.** (1991) Interacrystalline fractionation of oxygen isotopes between hydroxyl and non-hydroxyl sites in kaolinite: thermal dehydroxylation and partial fluorination approaches. Clay Minerals Society 28th Annual Meeting, Houston, p.58.
- Feng, X. and Savin S.M. (1991) Kinetics of exchange between water vapor and the framework oxygen of analcime and stilbite: a numerical model. Abstracts with Programs: GSA 1991 Annual Meeting, p. A321, No.14518.
- Feng, X. and Savin S.M. (1990) Oxygen isotope studies of zeolites: Kinetics of exchange and fractionation factors. Abstracts with programs: GSA 1990 Annual Meeting, P. A251, No. 23337.
- Feng, X. and Savin, S.M. (1989a) Oxygen isotope studies of stilbite: Kinetics of exchange and suitability for isotopic geothermometry. Abstracts with Programs: GSA 1989 Annual Meeting, pA12, No.5458.
- Feng, X. and Savin, S.M. (1989b) Oxygen isotope studies of stilbite: Kinetics of exchange and suitability for isotopic geothermometry. Extended abstract in Epstein 70th Birthday Symposium, p. 16-18.
- Zheng, S., Feng X. and Wu, Q. (1986) Stable Isotope Studies on the Mn-Nodules" Terra Cognita 6, No.2, p.116.

# Invited Talks:

Geophysical Laboratory, Carnegie Institution of Washington, March 18, 1996

Department of Geological Sciences, University of Michigan, September 12, 1997

Department of Geological Sciences, Brown University, September 18, 1997

Department of Geology, Peking University, China, December 8, 1997

- Department of Geology and Geophysics, University of Connecticut, September 14, 2000.
- Institute of Geomechanics, Chinese Academy of Geological Sciences, August, 2001.
- Department of Geology, Peking University, China, August, 2001

Department of Earth and Space Sciences, Chinese Institute of Science and Technology, August, 2001.

- Department of Geological Sciences, Case Western Reserve University, Oct. 2001
- Department of Geophysics, Peking University, China, June 14, 2002
- Biogeomon, the 4<sup>th</sup> International Symposium on Ecosystem Behavior, Reading University, United Kingdom, August 17-21, 2002
- Department of Geology, the University of Hong Kong, December 2, 2002

Department of Geological Sciences, University of Oregon, February 26, 2003

- 2003 Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology and Geochemistry, July 20-25, 2003
- Department of Plant Nutrient, School of Sources and Environment, Chinese Agriculture University, China, June 3, 2004

Institute of Earth Environment, Chinese Academy of Science, Xi'an, China, June 7, 2004.

Panel Meeting on Computation in Earth System Science, July 10-12, 2004, Beijing, China.

Department of Earth and Environmental Sciences, Rensselaer Polytechnic Institute, November 3, 2004. Kirchner, J.W., Feng, X. and Neal, C. (2004) The Fine Structure of Water-Quality Dynamics: the Wave

of the Future in Catchment Hydrochemistry? Eos Trans. AGU, 85(47), Fall Meet. Suppl., Abstract H51G-02 INVITED.

Department of Geological Sciences, Brown University, April 10, 2006.

Department of Earth Science, China University of Geoscience, Wuhan, China, August 7, 2006.

Department of Hydrogeology, Nanjing University, China, July 30, 2007.

Department of Geography, Peking University, China, August 4, 2007.

Barrow Arctic Science Consortium, Barrow, Alaska, July 19, 2008.

Center of Environmental Sciences, Peking University, China, December 22, 2008.

College of Resources and Environment, China Agriculture University, Beijing, China, December 17, 2008.

Eureka Users Workshop, Ottawa, Canada, January 13-15, 2009.

The Institute of Arid and Cold Region's Research, Lanzhou, China, July 9, 2010.

Center of Marine Sciences, Peking University, China, September 7, 2011.

School of Geological Sciences, China University of Geosciences, Beijing China, September 9, 2011.

US Arctic Research Commission Meeting, Hanover NH, October 7, 2011

Arctic and Antarctic Research Institute of Russia, St. Petersburg, July 1, 2012

College of Resources and Environment, China Agriculture University, Beijing, China, June 10, 2013 The 3rd Young Investigator Conference (EITA-YIC 2013): "Leadership, Innovation, Growth"

Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A., August 1, 2013 Department of Geomorphology and Quaternary Geology, College of Urban and Environmental

Sciences, Peking University, Beijing, China, August 15, 2016.

Institute of Ocean Research, Peking University, China, September August 16, 2016.

Institute of Applied Geosciences, the National Taiwan Ocean University, Keelung, Taiwan, February 24, 2017.

Department of Geosciences, the National Taiwan University, Taipei, Taiwan, March 17, 2017.

## Invited Conferences:

- REKIHAKU International Symposium Terrestrial Environmental Changes and Natural Disasters during the Last 10,000 years, Japan, November, 1997.
- National Science Foundation CAREER Program Symposium, Washington, D.C., January 1999.

Forum for Young Scientists, China Association for Science and Technology, August, 2001.

- The 167<sup>th</sup> Xiangshang Science Conference: "Active Tectonics, Environments and Natural Hazards", Xiangshang, Beijing, August, 2001.
- Biogeomon, the 4<sup>th</sup> International Symposium on Ecosystem Behavior, Reading University, United Kingdom, August 17-21, 2002
- 2003 Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology and Geochemistry, July 20-25, 2003

Panel Meeting on Computation in Earth System Science, July 10-12, 2004, Beijing, China.

Eureka Users Workshop, Ottawa, Canada, January 13-15, 2009.

International Workshop on Changes in Surface and Ground Water in the Tarim River Basin, Xi'an, China, November 23-27, 2009.

The 3rd Young Investigator Conference (EITA-YIC 2013): "Leadership, Innovation, Growth" Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A., August 1-2, 2013. New England CUAHSI Regional Meeting 2013, April 25, 2013.

# **Courses Taught at Dartmouth:**

Ears 3Elementary OceanographyEars 18 (changed from EARS 28)Environmental GeologyEars 73/173Environmental Isotope GeochemistryEars 17/117 (changed from EARS 36/115)Analysis of Environmental DataEars 201Geochemical Models in Earth SciencesEars 202Geochemical Tracers

Ears 119	Stable Isotope Geochemistry		
Ears 118	Advanced Analysis of Environmental Data		
Ears 113	Watershed Hydrochemistry		
Ears 45/46/47 (D.F.S.P.)	Field methods		
Ears 121	Graduate Seminar		
Ears 88	Culminating Experience		
Ears 87	Independent Research		
WISP Sponsor for 1995, 1997, 1998, 1999, 2000, 2002, 2004, 2006, 2007, 2008, 2009, 2010, 2011,			
2012, 2013, 2015.			
Presidential Scholar Sponsor for 2008, 2009, 2010, 2015.			

# Thesis and Research Advising

# Undergraduate:

Ann Melander (1996-1997) Trace metal deposition around Claremont Incinerator.
Mark Wenzel (1997-1998) Oxygen and hydrogen isotope studies of meteoric water. Kathleen G Catapano (1998 – 1999) Reconstruction of Holocene climates in the Yellowstone region
using hydrogen isotopes in wood cellulose (Co-advisor with C. Page Chamberlain)
Katharine Maher (1998-1999) Forest vitality and metal pollution along an acidified watershed, Cooke
City, Montana (Co-advisor with C. Page Chamberlain)
Andrew S. Perlstein (1999-2000) Isotopic composition of soil water in Mink Brook watershed.
Raymond H.R. Dums (2000-2001) Determining the flowpaths of water through a natural soil column
(Co-advisor with Carl Renshaw)
Cheryl Peyser (2000-2001) A study of water percolation through soil using stable isotopes (Co-advisor
with Carl Renshaw)
Valisa E. Nez (2000-2001) A simulation of contaminant transport in unsaturated media using sand columns (Co-advisor with Carl Renshaw)
Molly C. Redmond (2001-2002) Reconstruction of climate change of Tasmania Australia using oxygen
and hydrogen isotopes of tree rings.
Elizabeth S. Winston (2002-2003) Arsenic mobility in soil.
Ian D. Turnbull (2003-2004) Global Seasonal Variations in Precipitation $\delta^{18}$ O
Allison L. Reddington (2003-2004) Reconstruction of Paleohumidity for the North American Continent
using Oxygen and Hydrogen Isotopes in Wood Cellulose.
Ross J. Markwort (2004) Independent project, Environmental Reconstruction of Ethiopia during the
African Humid Period (Coadvising with Jim Aronson and Gary Johnson)
Merrick H. Johnston (2002-2005) Tracing atmospheric pollutant along Storm Tracks in Northwest
Alaska.
Eleanor E. Campbell (2005) Changes in stable carbon isotope signatures in three temperate lakes
associated with autumn lake destratification (Co-advisor with Cottingham).
Kelly K. Everhart (2008-2009) Isotopic variations in atmospheric water vapor.
Maria A. Vishnevskiy (2009-2010) Inter-storm isotopic variations and the mechanisms.
Ivy N. Ddamba (2012-2013) Inter-annual variation of hydrological processes in Kangerlussauq,
Greenland Shalby D. Hinds (2014) Health affects of exposure to accepted its epidemiology, and the accepted
Shelby D. Hinds (2014) Health effects of exposure to arsenic: its epidemiology, and the associated environmental and hydrological implications
Joshua L. Perez (2014-2016) Independent project: A study of atmosphere-snow isotopic exchange at the
Summit of Mt. Washington.
Mary Margaret Stoll (2015-2016) Independent project (provided funding): Fresh water contribution to sea ice.
Mary Margaret Stoll (2017-2018) Thesis of Dartmouth Thayer School of Engineering: Microstructural,
Chemical, and Isotopic Characterization of Sea Ice from Barrow, Alaska.
Elena E. Bird (2017-2018) Independent project: soil carbon storage, efflux, and leaching within
different contained soil and vegetation typologies.

- <u>Woman In Science Interns:</u> Christine DeLorenzo (1996), Candice E. Buckley (1996), Jennifer Flight (1997), Emily K. Lesher (1998), Sara Szkola (1999), Emily Schaller (1999), Jennifer C. Miller (2000), Reiko Harigaya (2002), Kristina M. Conner (2005); Shreoshi Majumdar (2007 and 2008); Kelly S. Aho (2008), Suzanne Kelson (2009), Yuhan Xue (2010), Sarah S. Errafay (2011), Leah Shin (2014), Madeleine C. McDermott (2016)
- Presidential Fellow: Jessica T. Rush (2008); Florence T. Ling (2009); Aryeh J. Drage (2010); Nicole L. Kanayurak (2012); Joshua L. Perez (2015)
- <u>Research Assistant</u>: Kelly K. Everyhart (2006), Natalie L. O'Rourke (2007), Christina M. Supino (2008-2009), Aryeh J. Drager (2009-2010), Christina M. Supino (2010-2011); Reed W. Wommack (2011-2012); Jing Wei Pan (2011-2012); Nicolina (Nina) S. Mascia (2012-2013); Nicole L. Kanayurak (2013); Yuhan Xue (2013); Ivy N. Ddamba (2012-2013), Josh L. Perez (2013-2015), Mariana J. Webb (2015)

### Graduate:

Primary Advisor/Co advisor of Jennifer Peterson (M.S. 1997) Kuilian Tang (Ph.D 2000) Susan Taylor (Ph.D 2001) James Holmes (M.S. 2001, Coadvisor) Kelsey Sinclair (M.S. 2001, Coadvisor) Margaret Quinn (M.S. 2001, Coadvisor) Anthony Faiia (Ph.D 2002) Christine K. Wong (M.S. 2002, Coadvisor) Valisa E. Nez (M.S. 2003) Raymond H. R. Dums (M.S. 2003) Jamie L. DeLemos (M.S. 2003) Yong Shu (Ph.D. 2007) Jeonghoon Lee (Ph.D. 2008) Ye Wang (M.S. Left the program) Alexis L. Coplin (M.S. 2009) Kelly K. Everhart (M.S. 2011) Derek A. Smith (Ph.D. 2013) Alex M. Lauder (M.S. 2013) Annie L. Putman (M.S. 2013) Naixin Fan (M.S. 2015) Urshula Bajracharya (M.S. 2016) Ben G. Kopec (Ph.D. 2016) Bingjie Ouyang (Ph.D. 2019)

Graduate Advisory/Thesis Defense Committee Member for

Hans Manske (M.S, 1998)
Stephen Peters (M.S. 1999)
Michael A. Poage (Ph.D. 2000)
James F. Hogan (PhD. 2000)
Jennifer L. Marcer (Ph.D 2002)
Derek J. Sjostrom (Ph.D 2002)
James M. Kaste (Ph.D. 2004)
Zhaohui Zhang, Summer, 2002
Yali Sun, Fall 2002, External examiner at the University of Hong Kong.
Andrew W. Schroth (Ph.D. 2007)
Andrew Quicksall (Ph.D. 2008)
Rebekka M. Stucker (M.S. 2006)
Rasmus Andreasen (Ph.D. 2007)

D. Bradley Bate (M.S. 2007) Cynthia Chen (Ph.D. 2009) Samantha L Saalfield (Ph.D. 2009) Jing Sun (M.S. 2010) Lynne M. Zummo (M.S. 2010) Yingzhe Wu (M.S. 2011) Rachel A. Neurath (M.S. 2011) Laura B. Levy (IGERT Ph.D. 2014) Jennifer B. Bailard (Ph.D. with draw in 2011) Gifford J. Wong (Ph.D. 2016) Jie Yang (Ph.D. expected 2014; left with M.S. in 2013) Lee Corbett (Ph.D., left the program in 2013) Danielle J. Niu (M.S. 2014) Gayathri Janakiraman Paramasivan (M.S. 2017) Dominic A. Winski (Ph.D. 2018) Lina Taenzer (M.S. 2019) Danielle Niu (Ph.D. expected 2020) Joshua F. Landis (Ph.D. expected 2022) James F. Busch (Ph.D. Expected 2022)