

## Broxton W. Bird, Ph.D

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### Positions and Appointments

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**Assistant Professor**, Indiana University-Purdue University, Indianapolis, Indianapolis, IN:  
August 2012 to present.

**Postdoctoral Fellow-Visiting Young Scientist**, Institute of Tibetan Plateau Research (ITPR), Chinese Academy of Sciences, Beijing, China: 2011 to 2012.

*Mentor:* Dr. Tandong Yao, Director of ITPR

*Project:* Reconstructing Holocene hydroclimates on the Tibetan Plateau with high-resolution lake sediment records.

**Postdoctoral Fellow**, Byrd Polar Research Center, The Ohio State University, Columbus, OH: 2009 to 2012.

*Mentor:* Dr. Lonnie G. Thompson

*Project:* High-resolution lacustrine records of Holocene Indian summer monsoon variability from the Tibetan Plateau and Himalaya.

### Education

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**Ph.D.**, University of Pittsburgh, Pittsburgh, PA, Conferred: August 2009.

*Advisor:* Dr. Mark B. Abbott

*Dissertation:* Millennial- to annual-scale Holocene climate change in the Alaskan Arctic and tropical Andes inferred from physical sedimentology and geochemical indicators preserved in finely-laminated alpine lake sediment archives.

**M.Sc.**, California State University, Fullerton, CA, Conferred: June 2005.

*Advisor:* Dr. Matthew E. Kirby

*Thesis:* A 9000-year record of long-term climate change and abrupt climate events from Dry Lake, southern California, USA.

**B.A.**, Hamilton College, Clinton, NY, Conferred: May 1999.

*Advisor:* Dr. Eugene W. Domack

*Thesis:* Modern Organic Carbon and Foraminifera Distribution in the Andvord Drift, Antarctic Peninsula: A Basis for Paleoenvironmental Studies.

### Grants

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**Pending, Bird, B.W. (PI)**, Thompson, L.G. (co-PI), Polissar, P. (co-PI), "*Collaborative Research: Holocene Indian summer monsoon variability reconstructed from decadal-resolved Tibetan lake sediments.*" National Science Foundation, Paleo Perspectives of Climate Change.

**2013-2014, Bird, B.W. (PI)**, "*Developing new lake records of Holocene South American*

summer monsoon variability from the Colombian Andes through international collaboration.” IUPUI Office of Research Administration International Development Fund.

**2011-2013, Bird, B.W. (PI)**, “Reconstructing 2000 years of Indian summer monsoon variability with high-resolution lake sediments from the Tibetan Plateau.” National Natural Science Foundation of China: Award 41150110153.

**2010-2012**, Thompson, L.G. (PI), **Bird, B.W. (co-PI)**, “1500 years of Indian summer monsoon variability reconstructed from high-resolution Tibetan lake sediments: An EAGER proposal.” National Science Foundation, Division of Earth Sciences: Award EAR-1023547.

**2008-2009, Bird, B.W. (PI)**, “A 5000-year history of mega-droughts from tropical South America: Will they happen again?” Andrew Mellon Pre-Doctoral Research Fellowship, University of Pittsburgh.

**2004-2005, Bird, B.W. (PI)**, Kirby, M.E. (co-PI), “Assessing the paleoclimate record of Dry Lake, southern California, using three-dimensional ground-penetrating radar image profiling.” Kerry Kelts Research Award, Geological Society of America Paleolimnology Division.

## Publications

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**In Review**, Lei, Y., Yao, T., Sheng, Y., **Bird, B.W.**, Tian, L., Inland lake dynamics on the Tibetan Plateau under climate warming. *Climatic Change*.

**Accepted**, Lei, Y., Yao, T., **Bird, B.W.**, Jianqing, Z., Sheng, Y., Tian, L., Wang, W., Xiang, Y., Lake expansion on the central Tibetan Plateau since AD 1970. *Journal of Hydrology*.

**2012**, Vuille, M., Burns, S.J., Taylor, B.L., Cruz, F.W., **Bird, B.W.**, Abbott, M.A., Kanner, L.C., Cheng, H. and Novellow, V.F., A review of the South American monsoon history as recorded in stable isotopic proxies over the past two millennia. *Climate of the Past*, 8, 1-13, doi: 10.5194/cp-8-1-2012

**2011, Bird, B.W.**, Abbott, M.B., Rodbell, D.T., Vuille, M., Holocene tropical South American hydroclimate revealed from a decadal resolved lake sediment  $\delta^{18}\text{O}$  record. *Earth and Planetary Science Letters*, **310**, (3-4), 192-202, doi: 10.1016/j.epsl.2011.08.040.

**2011, Bird, B.W.**, Abbott, M.B., Vuille, M. Rodbell, D.T., Rosenmeier, M.F., and Stansell, N.D. A 2300-year-long annually-resolved lake sediment record of the South American Summer Monsoon from Laguna Pumacocha, Peru. *Proceedings of the National Academy of Sciences*, **108**, 8583-8588, doi: 10.1073/pnas.1003719108.

**2011**, Montoya, E., Rull, V., Stansell, N.D., Abbott, M.B., Nogué, S., **Bird, B.W.**, and Díaz, W.A., Forest-savanna-morichal dynamics in relation to fire and human occupation in the southern Gran Sabana (SE Venezuela) during the last millennia: biogeographical implications. *Journal of Quaternary Science*, **76**, 335-344 doi: 10.1016/j.yqres.2011.06.014.

**2011**, Montoya, E., Rull, V., Stansell, N.D., **Bird, B.W.**, Nogué, S., Vegas-Vilarrúbia, T., Abbott, M.B. and Díaz, W.A., Vegetation changes in the Neotropical Gran Sabana

(Venezuela) around the Younger Dryas Chronozone. *Quaternary Research*, doi: 10.1016/j.yqres.2011.06.014.

**2010, Bird, B.W.**, Kirby, M.E., Howat, I.M., Tulaczyk, S., Geophysical evidence for Holocene lake-level change in southern California (Dry Lake): Additional support for a regionally wet early Holocene and a mid-Holocene climate shift. *Boreas*, **39**, (1), 131-144, doi: 10.1111/j.1502-3885.2009.00114.x.

**2010**, Kirby, M.E., Lund, S.P., Patterson, W.P., Anderson, M.A., **Bird, B.W.**, L. Ivaovici, L., Monarrez, P., Nielsen, S., A Holocene record of Pacific Decadal Oscillation (PDO)-related hydrologic variability in Southern California (Lake Elsinore, CA), *Journal of Paleolimnology*, **44**, 819-839, doi: 10.1007/s10933-010-9454-0.

**2009, Bird, B.W.**, Abbott, M.B., Finney, B.P., and Kutcho, B.G., A 2000 year varve-based climate record from the central Brooks Range, Alaska. *Journal of Paleolimnology* (special issue), **41**, (1) 25-41, doi: 10.1007/s10933-008-9262-y.

**2009**, Rothenberg, S.E., Kirby, M.E., **Bird, B.W.**, DeRose, M.B., Lin, C-C., Feng, X.B., Ambrose, R.F., Jay, J.A., The impact of over 100 years of wildfires on mercury levels and accumulation rates in two lakes in southern California, USA. *Environmental Earth Sciences*, doi: 10.1007/s12665-009-0238-7.

**2009**, Kaufman, D.S., Schneider, D.P., McKay, N.P., Ammann, C.M., Bradley, R.S., Briffa K.R., Miller, G.H., Otto-Bliesner, B.L., Overpeck, J.T., Vinther, B.M., Arctic Lakes 2k Project Members (Abbott, M., Axford, Y., **Bird, B.**, Birks, H.J.B., Bjune, A.E., Briner, J., Cook, T., Chipman, M., Francus, P., Gajewski, K., Geirsdóttir, Á., Hu, F.S., Kutcho, B., Lamoureux, S., Loso, M., MacDonald, G., Peros, M., Porinchu, D., Schiff, C., Seppä, H., Thomas, E.), Recent warming reverses long-term Arctic cooling. *Science*, **325**, 1236-1239.

**2007**, Kirby, M.E., Lund, S.P., Anderson, M.A., **Bird, B.W.**, Insolation forcing of Holocene climate change in southern California: A sediment study from Lake Elsinore. *Journal of Paleolimnology*, doi: 10.1007/s10933-006-9085-7.

**2006, Bird, B.W.** and Kirby, M.E. An alpine lacustrine record of early Holocene North American Monsoon dynamics from Dry Lake, southern California (USA). *Journal of Paleolimnology* **35**, 179-192.

**2006**, Kirby, M.E., Lund, S.L., and **Bird, B.W.** Mid-Wisconsin Sediment Record From Baldwin Lake Reveals Hemispheric Climate Dynamics (Southern CA, USA). *Palaeogeography, Palaeoclimatology, Palaeoecology* **241**, 267-283, doi: 10.1016/j.palaeo.2006.03.043.

**2000**, Rayne, T.W., Lehman, H.K., Ball, A.E., and **Bird, B. W.**, Occurrence and distribution of atrazine and nitrate in water in central New York. *Northeastern Geology and Environmental Sciences* **22**, (2), pp. 12.

### **Professional Meeting Abstracts**

**2013**, Rodbell, D.T., Abbott, M.B., Stansell, N.D., **Bird, B.W.**, High-resolution  $\delta^{18}\text{O}$  records of hydrologic variability from the south-central Peruvian Andes. Geological Society of America

Northeastern Section - 48th Annual Meeting.

**2012, Bird, B.W.**, Yanbin, L., Thompson, L.G., Yao, T., Finney, B.P., and Bain, D., Long-term and abrupt Holocene climate change on the southeastern Tibetan Plateau from a decadal resolved lake sediment record. American Geophysical Union Annual Meeting.

**2012, Lei, Y., Yao, T., Bird, B.W.**, Yang, K., Zhai, J., Sheng, Y., Coherent lake growth on the central Tibetan Plateau since the 1970s: characterization and attribution. American Geophysical Union Annual Meeting.

**2012, M. Vuille, F.W. Cruz, M.B. Abbott, B.W. Bird, S.J. Burns, H. Cheng, C. Colose, L.C. Kanner, A. LeGrande V.F. Novello and B. Taylor**, South American Monsoon variability during the past 2,000 years from stable isotopic proxies and model simulations. American Geophysical Union Annual meeting.

**2011, Bird, B.W. (Invited)**, Reconstructing tropical hydroclimate in monsoon-dominated regions with high-resolution climate archives. International Symposium on Climate Change in Indonesia: past, present, and future, Jakarta, Indonesia.

**2011, Bird, B.W.**, Yanbin, L., Thompson, L.G., Yao, T., Lacustrine records of Late Holocene climate change in the Southeastern Tibetan Plateau, Nyainqentanglha Mountains: Initial sedimentology and chronology results. American Geophysical Union Annual Meeting.

**2011, T. Ballesteros, T. Vegas-Vilarrúbia, V. Rull, E. Montoya, N.D. Stansell, B. Bird, and M. Abbott**, Late Holocene environmental changes based on pollen and diatom records from lake sediments of Laguna Encantada in the Neotropical Gran Sabana (Venezuelan Guayana). International Union of Quaternary Research Annual Meeting, Bern Switzerland.

**2011, Montoya, E., Rull, V., Stansell, N.D., Abbott, M.B., Nogue, S., Bird, B.W., Diaz, W.A.**, Paleocological study of a Gran Sabana lake (SE Venezuela) during the last millennia: Implications for *Mauritia* colonization and human settlement. International Union of Quaternary Research Annual Meeting, Bern Switzerland.

**2010, Bird, B.W.**, Thompson, L.G., Yao, T., Reconstructing 2000 years of Indian summer monsoon variability from high-resolution Tibetan lake sediments, eastern Himalaya. American Geophysical Union Annual Meeting.

**2009, Bird, B.W.**, Abbott, M.B., Vuille, M., Rodbell, D.T., Tropical South American hydrologic variability during the Holocene: Evidence for precipitation partitioning between the Andes and the Amazon. American Geophysical Union Annual Meeting.

**2009, Rodbell, D.T., Abbott, M.B., Bird, B.W., Stansell, N.S.**, High-resolution  $\delta^{18}\text{O}$  record of middle-late Holocene hydrologic variability from the central Peruvian Andes. American Geophysical Union Annual Meeting.

**2009, E. Montoya, V. Rull, N.D. Stansell, B.W. Bird, S. Nogué, T. Vegas-Vilarrúbia, M.B. Abbott, W.A. Díaz**. Rapid vegetation changes in the neotropical Gran Sabana during the Younger Dryas Chron. 11th International Paleolimnology Symposium, Guadalajara (Jalisco) México.

- 2008, Bird, B.W.**, Abbott, M.B., Vuille, M., Rosenmeier, M.F., Rodbell, D.T., A ~2500 Year Sub-Decadal Oxygen-Isotope Record of Late Holocene Tropical South American Hydroclimate From Laguna Pumacocha, Peru. American Geophysical Union Annual Meeting.
- 2007, Bird, B.W.** and Abbott, M.B., Late Holocene Temperature Reconstruction Inferred From a Varved Glacial Lake in the central Brooks Range, Alaska, USA. American Geophysical Union Annual Meeting.
- 2007**, Kirby, M.E., **Bird, B.W.**, Howat, I.M., Tulaczyk, S., Geophysical evidence for Holocene lake-level change in southern California (Dry Lake). American Geophysical Union Annual Meeting.
- 2007**, Kirby, M.E., DeRose, M.B., **Bird, B.W.**, Floods, fires, and Humans: Assessing 150 years of rapid depositional events in a small alpine lake, Southern California. Annual Southern California Academy of Sciences Meeting.
- 2007**, Kirby, M.E., Lund, S.P., Anderson, M.A., and **Bird, B.W.**, Insolation Forcing of Holocene Climate Change in Southern California. Annual Assoc. of American Geographers Meeting, San Francisco, CA.
- 2006**, Kirby, M.E., Lund, S.P., Anderson, M.A., Patterson, W.P., Anderson, W.T., **Bird, B.W.**, and Schmidt, J.R., Establishing a baseline of past hydrologic variability in Southern California for better water management practices. Managing Drought and Water Scarcity in Vulnerable Environments: Creating a Roadmap for Change in the United States.
- 2005, Bird, B. W.** and Kirby, M. E., A 9000-year lacustrine record of long-term climate change and abrupt climate events from Dry Lake, southern California, USA. Geological Society of America Annual Meeting.
- 2005**, Kirby, M. E., Lund, S.P., and **Bird, B. W.**, Sedimentological Evidence from Baldwin Lake (Southern CA, USA) for Mid-Wisconsin Hemispheric Climate Variability. American Geophysical Union Annual Meeting.
- 2005**, Kirby, M.E., Lund, S.P., Patterson, W.P., Anderson, M.A., **Bird, B. W.**, Evidence for multi-scale environmental change during the Holocene in southern California (Lake Elsinore). Geological Society of America Annual Meeting.
- 2005**, Matthew E. Kirby, Lund, S.P., Anderson, M., **Bird, B. W.**, Poulsen, C., What Lakes in Southern California's Arid Environment Tell Us About Past and Future Climate Variability. Arid Zone Hydrology Session, CEA-CREST Conference.
- 2004, Bird, B.W.** and Kirby, M E., Sedimentological evidence for a glacial response to the 8.2 ka event from Dry Lake, San Gorgonio Wilderness, southern California. Geological Society of America Annual Meeting.
- 2004**, Kirby, M.E., Lund, S.P., Poulsen, C.J., and **Bird, B.W.**, Initial Drill Core Results from Lake Elsinore's Central Basin: Sedimentology and Chronology Spanning 11,000

Calendar Years. Geological Society of America Annual Meeting.

**2004**, DeRose, M.B., Kirby, M.E., and **Bird, B.W.**, Assessing the Potential for Paleoclimate Studies using Sediments from Crystal Lake, San Gabriel Mountains, Southern California. Geological Society of America Annual Meeting.

**1997**, Ball, A.E., **Bird, B.W.**, and Rayne, T.W., Occurrence of nitrate and atrazine in groundwater in southern Oneida County, New York. Geological Society of America Annual Meeting.

### **Teaching**

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**2013**, *Instructor*, Physical Geology G110, IUPUI, IN.

**2012**, *Instructor*, The Dynamic Earth 1121, The Ohio State University, OH.

**2010**, *Instructor*, Earth Science 100, The Ohio State University, OH.

**2010**, *Guest Lecturer*, Paleoclimatology, The Ohio State University, OH.

**2009**, *Teaching Assistant*, Intelligent Life in the Universe, University of Pittsburgh, PA.

**2006-2007**, *Teaching Assistant and Guest Lecturer*, Sedimentology & Stratigraphy, University of Pittsburgh, PA.

**2006**, *Teaching Assistant*, Hydrogeology, University of Pittsburgh, PA.

**2005**, *Teaching Assistant*, Environmental Geology, University of Pittsburgh, PA.

**2003-2005**, *Teaching Assistant*, Introductory Geology, California State University-Fullerton, CA.

### **Service**

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#### ***Invited Lectures***

**2011**, *Lake records of Holocene South American summer monsoon dynamics*, Quaternary Paleocology Seminar Series, University of Minnesota, Minneapolis, MN.

**2011**, *Late Holocene South American summer monsoon dynamics during the MCA, LIA, and CWP*, Geological and Planetary Science Colloquium Series, University of Pittsburgh, Pittsburgh, PA.

**2009**, *Abrupt variability and long-term trends in South American summer monsoon dynamics through the Holocene from Andean lake sediments*, School of Earth Sciences Colloquium Series, The Ohio State University.

#### ***Proposal Referee for National Science Foundation Programs***

Paleo Perspectives of Climate Change Program (2012 to present), Division of Earth Sciences Sedimentary Geology and Paleobiology Program (2011 to present), Arctic Natural Sciences Program (2011 to present), Division of Earth Sciences Geomorphology Program (2010 to present).

### **Referee for Peer Reviewed Publications**

*EOS*, *Transactions of the American Geophysical Union* (2011 to present), *Journal of Quaternary Science* (2010 to present), *The Holocene* (2009 to present), *Quaternary Research* (2009 to present), *Journal of Paleolimnology* (2008 to present).

### **Chaired Sessions at Professional Meetings**

**2009, Bird, B.W.**, N. D. Stansell, K. Proemmel, and S. Wagner *High-resolution paleoclimate modeling and proxy records*, American Geophysical Union annual meeting.

**2009, Bird, B.W.**, E. Gierlowski-Kordesch, and N. D. Stansell, *Cenozoic Lakes*, Geological Society of America annual meeting.

### **Honors and Awards**

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**2005, Marilyn Brown Research and Teaching Award**, California State University, Fullerton, for excellence in sedimentology research and teaching.

**1999, Antarctic Service Award**, National Science Foundation, for service to the United States Antarctic Program.

**1999, Honorary Member of Sigma Xi**, Hamilton College, for excellence in scientific research.

**1997, Payne Hill Prize**, Hamilton College, for excellence in geological fieldwork.

### **Students Mentored**

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Joseph Robert (**IUPUI**), Rachael Gehrman (**IUPUI**), Matthew Johnson (**IUPUI**), Brandon Bolt (Union College), Nicole Fontanella (University of Pittsburgh), Konstantin Ginzburg (University of Pittsburgh), Patricia Hredzak (Chatham University), Alan Mur (University of Pittsburgh), David Pompeani (University of Pittsburgh), John Swartz (University of Pittsburgh).

### **Field Work**

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#### **Asia**

Lake coring and environmental research in southeastern and central Tibet, China (2011).

#### **Indonesia**

Ice coring and lake reconnaissance with Lonnie G. Thompson in the Papua highlands, New Guinea, Indonesia (2010).

#### **South America**

Lake coring and environmental research throughout the central and southern Peruvian Andes (2005-2009). Lake coring in the Grand Savannah, Venezuela (2007).

#### **North America**

Lake coring and environmental research in the North Cascades, Washington State (2008), the central Brooks Range, Alaska (2006), and the San Bernardino Mountains, Southern California (2003-2004). Glacier research on Mount Shasta, Northern California (2004). Water quality/contamination research in Central New York (1997). Geology field camp in the northeastern and southwestern United States (1996).

***Antarctica***

Six-week geophysical and sedimentological research cruise with John B. Anderson (Rice University) aboard the RVIB Nathaniel B. Palmer, West Antarctica (1999).

***Iceland***

Four-week glaciology and volcanology field camp, Iceland (1996).