Nicole K. Davi, Ph.D.

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OBJECTIVE: To engage students, teachers and communities in the process of science from the prospective of a research scientist.

EDUCATION:

2006-2010 Ph.D. Physical Geography (dendrochronology, paleoclimatology), Department of Geography, Rutgers, The State University of New Jersey, New Brunswick, New Jersey (Dissertation: Reconstructed drought variability across Mongolia based on tree-ring records).

2004- 2005 Teachers College, Columbia University, New York. Graduate School of Education. One year toward Science Education Ph.D.

2000-2002 M.S. Physical Geography, Department of Geography, Rutgers, The State University of New Jersey, New Brunswick, New Jersey (Thesis: Boreal temperature variability inferred from maximum latewood density and ring-width data from the Wrangell mountain region, Alaska).

1992- 1996 B.S. Environmental Science, Ramapo College of New Jersey.

RESEARCH EXPERIENCE:

2011-2013 National Science Foundation Postdoctoral Research Fellow. Lamont-Doherty Earth Observatory, Columbia University. Palisades, New York.

2010 Postdoctoral Research Scientist. Tree Ring Laboratory, Lamont-Doherty Earth Observatory, Columbia University. Palisades, New York.

2002-2009 Research Associate, Tree Ring Laboratory, Lamont-Doherty Earth Observatory, Columbia University. Palisades, New York.

1997-2002 Research Assistant, Tree Ring Laboratory, Lamont-Doherty Earth Observatory, Columbia University. Palisades, New York.

TEACHING EXPERIENCE:

2011- 2012 Course Scientist, American Museum of Natural History, New York, New York. Course: Climate Change.

2004 Adjunct Professor, Department of Earth and Environmental Studies, Montclair State University. Montclair, New Jersey. Course: Introduction to Physical Geography

2002 Instructor, Department of Geography, Rutgers, State University of New Jersey. New Brunswick, New Jersey. Course: Remote Sensing.

2001 Teaching Assistant, Department of Geography, Rutgers, State University of New Jersey. New Brunswick, New Jersey. Course: Remote Sensing.

1997 Teaching Naturalist, James A. Mc Faul Environmental Center, Bergen County Department of Parks. Wycoff, New Jersey.

OTHER EXPERIENCE AND WORKSHOPS:

2012 Science Consultant, The Civilians, Investigative theater group. The Great Immensity, a play and media project about environmental challenges. **http://thegreatimmensity.org**

2011 Selected for "On the Cutting Edge: Preparing for an Academic Career in the Geosciences" Workshop, Supported by NSF and the National Association of Geoscience Teachers.

2012 Selected Scholar for Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS) Symposium VII. NSF/NASA: http://disccrs.org/

2012 Selected to participate in the Community Earth System Modeling Tutorial. (CESM). National Center for Atmospheric Research, Boulder, July 2012.

2012 Selected as a Fellow for Reach for Commercialization: A Workshop for Women Faculty and PostDocs in STEM. CEOS/ADVANCE., Columbus, OH, Sept 2012

2005 Science Advisor, Science Bulletins, American Museum of Natural History, New York, New York.

RESEARCH GRANTS:

Toward a deeper understanding of climate induced disaster in Mongolia: Identifying mechanisms, change and vulnerability (PI: **N Davi**). NSF Atmospheric and Geospace Sciences Postdoctoral Research Fellowships. $172,000. Awarded

The Expeditions Into The Northern Forests: A Photo Archive and Exhibit of The Story of The Process of Science Behind the Data. (PIs **N Davi** & F. Fiondella). $150,000: Declined

Elucidating near-term climate change information to guide water resources decisions and foster sustainability, Earth Institute at Columbia University, Cross-Cutting Initiative, (Block P, PI; Co-PIs: **N Davi**, Green A, Marx S) 2010-2011: $34,000. Awarded

Synthesis of three decades of research of tree growth In Northern Forests in relation to global climactic change, (D'arrigo, R, PI; Co-PIs: **N Davi**, Jacoby, G) NSF OPUS, 2010-2012: $132,000. Awarded

Towards a new understanding of the Dzud and other extreme events in Mongolia: coupling of climatic change and human activities, (**Davi N**, Lead PI, Co-PIs, D'Arrigo, Anchukaitis K, Cook B, Levy M, Skees, J) NSF CNH $1,496,826. Declined

Using tree rings to develop critical scientific and mathematical thinking skills in undergraduate students, (PIs **Davi,** N (lead), Wattenberg, F) NSF Transforming Undergraduate Education in STEM (TUES): $248,392. Pending

Tree-ring reconstructions of western North Pacific Climate Dynamics (D'arrigo, R, PI; Co-Pis: Anchukaitis, K, **Davi**, N) $482,000. Awarded

PEER-REVIEWED PUBLICATIONS:

In Prep Fang K, Seppa H, He M, **Davi N**, Decadal-scale hydroclimate shifts over the past 700 years in central and eastern Asia and potential driving factors.

Submitted Leland C, Pederson N, Hessl A, **Davi N**, Nachin B.A Hydroclimatic Regionalization of North-central Mongolia as Inferred from Tree Rings. *Dendrochronologia*.

Submitted **Davi** N, Pederson N, Leland C, Suran B, Nachin B, Jacoby G. Four centuries of hydroclimatic context for the recent drying in east central Mongolia. *Water Resources Research.*

In Revision Chen, Z, He, X, **Davi, N**, Cui, M, Zhang, A, and Peng, J. Reconstructed precipitation for southern Northeast China and the northern Korean peninsula over the past 258 years and its linkages to East Asia monsoon variability. *Climate Dynamics.*

In Press Saladyga T, Pederson N, Hessl A, Nachin B, **Davi N**, Tree-Ring Based Drought Reconstruction for the Central Khan Khentii Mountains, Mongolia (1675-2000), *Journal of Earth Science and Engineering.*

In Press Cui M, He X, **Davi N**, Chen Z, Zhang X, Peng J, Chen W, Ding W. Evidence of century environmental changes: trace element in tree-ring of Fuling Mausoleum Shenyang. *Dendrochronologia.*

2012 Fang K, Chen F, Gou X, **Davi N**, Liu C, Spatiotemporal drought variability for central and eastern Asia over the past seven centuries derived from tree-ring based reconstructions. *Quaternary International. http://dx.doi.org/10.1016/j.quaint.2012.03.038*

2012 Chen Z, Li J, Fang K, **Davi** N, He X, Cui M, Zhang X, Peng J. Seasonal dynamics of vegetation over the past 100 years inferred from tree rings and climate in Hulunbei'er steppe, northern China. *Journal of Arid Environments* http://dx.doi.org/10.1016/j.jaridenv.2012.03.013,

2012 Peng J, Sun Y, Chen M, He X, **Davi NK**, Zhang X, Li T, Zhu C, Cai C, Chen Z. Tree-ring based precipitation variability since AD 1828 in northwestern Liaoning, China. *Quaternary International* http://dx.doi.org/10.1016/j.quaint.2012.07.007

2012 Pederson N, Leland C, Nachin B, Hessl A, Saladyga T, Suran B, Brown P M and **Davi N**. Four-hundred Years of Drought History in Mongolia's Breadbasket. *Agricultural and Forest Meteorology*, Special Issue: Drought threatened ecosystems in semi-arid Inner Asia. http://dx.doi.org/10.1016/j.agrformet.2012.07.003

2012 Chen, Z, Zhang X, Hea, X, **Davi,** N, Cuic, M and Penga, J Extension of summer (June-August) temperature records for northern Inner Mongolia (1715-2008), China using tree rings. *Quaternary International http://dx.doi.org/10.1016/j.quaint.2012.07.005*

2011 Zhang X, He X, Li J, **Davi N**, Chen Z, Cui M, Chen W, Li N. Temperature reconstruction (1750–2008) from Dahurian larch tree-rings in an area subject to permafrost in Inner Mongolia, Northeast China *Inter Research, Climate Research, Vol. 47: 151–159.*

2011 Fang K, Gou X, Chen F, Liu C, Zhao Z, **Davi N**, Li Y. Tree-ring based reconstruction of drought variability (1615–2009) in the Kongtong Mountain area, northern China. *Global and Planetary Change. Volume 80, p. 190-197.*

2010 Chen Z, He X, Cui M, **Davi, N**, Zhang X, Chen W, Sun Y, The effect of anthropogenic activities on the reduction of urban tree sensitivity to climatic change: dendrochronological evidence from Chinese pine in Shenyang city. *Trees – Structure and Function. DOI 10.1007/s00468-010-0514-x*

2010 **Davi N**, Jacoby G, Fang K, Li J, D'Arrigo R, Baatarbileg N. Robinson. Reconstructed drought across Mongolia based on a large-scale tree-ring network: 1520-1993. *Journal of Geophysical Research 15, doi:10.1029/2010JD013907*

2010 Fang K, Gou X, Chen F, Li J, D'Arrigo R, Cook E, Yang T, **Davi N**. Reconstructed droughts for the southeastern Tibetan Plateau over the past 568 years and its linkages to the Pacific and Atlantic Ocean climate variability. *Climate Dynamics*: DOI 10.1007/s00382-009-0636-2.

2009 Li J, Cook E, Chen F, **Davi N**, D'Arrigo R, Gou X, Wright W, Fang K, Jin L, Shi J, Yang T. Summer Monsoon Moisture Variability over China and Mongolia during the Past Four Centuries. *Geophysical Research Letters* 36: DOI 10.1029/2009GL041162

2009 Fang, K., **Davi, N**., Gou, X., Chen, F., Cook, E., Li, J., D'Arrigo, R. Spatial drought reconstruction for central high Asia based on tree rings. *Climate Dynamics*: DOI 10.1007/s00382-009-0739-9

2009 **Davi N**, Jacoby G, D'Arrigo R, Baatarbileg N, Li J, Curtis A. A Tree-Ring Based Drought Index Reconstruction for Far Western Mongolia: 1565-2004. *Int. J. of Climatology* 29 (3), 1508-1514.

2008 Nachin, B., Park, W., Jacoby, G.C., **Davi, N.K**. History of Mandal Monastery in Mongolia Based on Tree-Ring Dating. *Dendrochronologia* 26 (2).

2006 **Davi, N.K**., Jacoby, G.C., Curtis, A.E., Nachin, B. Extension of Drought Records for Central Asia using Tree Rings: West Central Mongolia, *Journal of Climate* 19: 288-299.

2005 Solomina, O., **Davi, N**., D'Arrigo, R. and Jacoby, G. Reconstructed Drought Variability on the Crimean Peninsula Over the Past Four Centuries. *Geophysical Research Letters* 32 19704.

2004 Kaufman, R., D'Arrigo, R., Laskowski, C., Myneni, R., Zhou, L., **Davi, N**. The Effect of Growing Season and Summer Greeness on Northern Forests. *Geophysical Research Letters*, Vol. 31 No. 9, Pp.4.

2004 D'Arrigo, R., Kaufman, R., **Davi, N**., Jacoby, G., Myneni, R., and Laskowski, C. Thresholds for Warming-Induced Growth Decline at Elevational Treeline in Yukon Territory, Canada. *Global Biogeochemical Cycles* 18, GB3021, doi:10.1029/2004GB002249.

2003 **Davi, N,** Jacoby, G., and Wiles, G. Boreal Temperature Variability Inferred from Maximum Latewood Density and Tree-Ring Width Data, Wrangell Mountain Region, Alaska. *Quaternary Research* 60, 252-262.

2002 Wiles, G., McAllister, R., **Davi, N**., Jacoby, G. Eolian response to little ice age climate change, Tana Dune, Chugach Mountains, Alaska. *Arctic, Anarctic, and Alpine Res*.: Vol.35, No.1, pp.67-73.

2002 **Davi, N.,** D'Arrigo, R., Jacoby, G., Buckley, B., Kobayashi, O. Warm-Season Annual to Decadal Temperature Variability for Hokkaido, Japan Inferred from Maximum Latewood Density (AD 1557-1990) and Ring Width Data (AD 1532-1990). *Climatic Change* 52, 201-217

2002 Wiles, G., Jacoby, G., **Davi, N**., McAllister, R. Late Holocene Glacial Fluctuation in the Wrangell Mountains, Alaska. *Bulletin of Geological Society of America* 114, 896-908.

SELECTED PRESENTATIONS:

Davi N, Lyon B, D'Arrigo R, Pederson N, Leland C, Curtis A, Climate-Induced Disasters in the Livestock Sector in Mongolia: Reconstructions and Dynamical Insights. AGU Fall 2012.

Davi N, Wattenberg F, Pringle P, Tanenbaum J, O'Brien A, Greidanus I, Perry M. Using tree-ring data, research, and expeditions as an accessible, hands-on "bridge" into climate studies for diverse audiences. AGU Fall 2012.

Davi N, Lyon B, D'Arrigo R, Pederson N, Leland C, Seim A. Recurrent and Anomalous Circulation Patterns Associated with Mongolian Summertime Rainfall Variability and "Dzud" Events. NOAA's 37th Climate Diagnostics and Prediction Workshop. Oct 2012

Leland C, Pederson N, Nachin B, Hessl A, **Davi N**, Bell A, Martin-Benito D, Saladyga T, Brown P, Suran B. Hydroclimatic variability across Mongolia's breadbasket and implications for water resource management. AGU 2012

Davi N, Pederson N, Leland C, Suran B, Nachin B, Jacoby G. Four centuries of hydroclimatic context for the recent drying in east central Mongolia. The 2nd International Asian Dendrochronological Association Conference. China, August 2011.

Leland C, Pederson N, **Davi N**, Hessl A, Assessment of Hydroclimatic Regions across North-central Mongolia as Inferred from Tree-rings. The 2nd International Asian Dendrochronological Association Conference. China, August 2011.

Davi, N. Droughts, Dzud and Archaeology in Mongolia: A Tree Ring Perspective**.** School of Marine and Atmospheric Sciences, Stony Brook University. October, 2011.

Davi N. Biology and Paleo-Environment Seminar. Drought Reconstruction Across Mongolia. LDEO, Palisades, NY, Jan. 2010

Anchukaitis, K.J., B.M. Buckley, E.R. Cook, R.D. D'Arrigo, G.C Jacoby, W.E. Wright, **N. Davi**, J. Li, 2009. A thousand years of human history and the Asian monsoon from tropical tree rings, Georgetown University, Washington DC, October 2009.

Anchukaitis, K., E. Cook, C. Ammann, B. Buckley, R. D'Arrigo, G. Jacoby, W. Wright, **N. Davi**, and J. Li. Objective spatiotemporal Asian monsoon climate proxy-model comparisons for the last millennium. Presentation, Conference on Climate Variability in the Greater Mekong River Basin: Paleo proxies, instrumental data and model projections. Dalat City, Vietnam, February 16-18, 2009

Davi, N., Jacoby,G. Moisture Variability Across Mongolia. National Science Foundation Project Workshop: Tree-Ring Reconstructions of Asian Monsoon Climate Dynamics. Lamont-Doherty Earth Observatory, Palisades, NY, Sept. 2008.

Anchukaitis, K.J., E.R. Cook, C.M. Ammann, B.M. Buckley, R.D. D'Arrigo, G.

Jacoby,W.E. Wright, **N. Davi**, J. Li, Objective spatiotemporal proxy-model comparisons of the Asian monsoon for the last millennium. Eos Trans. AGU, Fall Meet. Suppl., Abstract PP21A-1403, 2008.

Davi, N, Jacoby C. Extension of Drought Records for Central Asia Using Tree-Rings. 7th International Conference on Dendrochronology: Cultural Diversity & Environmental Variability Beijing, China, June 2006.

Davi, N., and Jacoby, G., Mongolian Dendroclimatology. Archaeology and Environmental History of Mongolia Workshop, University Honors College, University of Pittsburgh. Feb. 2005.

Solomina, O., **Davi, N**., D'Arrigo, R., and Jacoby, G., Summer precipitation reconstructed by pine ring-width chronologies and the Saki lake sediments in Crimea, Ukraine. International Conference on Tree Rings and Climate: Sharpening the Focus. Laboratory for tree ring research, University of Arizona, Tucson. April 5-9, 2004.

Davi, N., Jacoby, G., Wiles, G., Boreal Temperature Variability Inferred from Maximum Latewood Density and Ring Width Data from the Wrangell Mountain Region Alaska, 6th International Conference on Dendrochronolgy, Quebec, August 2002.

Davi, N., Jacoby, G., Wiles, G., McAllister, R., Skelly, S. 2000: Dendroclimatic Evidence for Environmental Change from the Wrangell Mountains of Alaska. International Conference on Dendrochronology for the Third Millennium 2-7 April 2000, Mendoza, Argentina.

Wiles, G., McAllister, R., Skelly, S., Jacoby, G., **Davi, N**. 2000: Tree-Ring Dated Little Ice Age Glacier Histories and Regional Comparisons, Wrangell Mountains, Alaska USA. International Conference on Dendrochronology for the Third Millennium 2-7 April 2000, Mendoza, Argentina.

Frank, D., Jacoby, G., Shumilov, O., Lovelius, N., Pederson, N., **Davi, N**., Karbainov, J., Kirtsidely, I., Raspopov, O. 2000: Temperature Reconstruction From the Taymir Peninsula, Northern Siberia. Intl. Conference on Dendrochronology for the Third Millennium 2-7 April 2000, Mendoza, Argentina.

McAllister, R., Wiles, G., **Davi, N**., Jacoby, G., 2000: Dendogeomorphology of the Tana Dunes, Alaska: Geological Society of America Abstracts with Programs, Northcentral Meeting, Indianapolis, IN.

SERVICE:

Professional reviewer of journal manuscripts for Dendrochronologia, Journal of Climate, International Journal of Climatology. Quaternary Research.

Supervisor/trainer of summer research assistants, students and visiting scientists, LDEO, Palisades, New York.

Founding Member of Science and Outdoor Learning (SOL), Nyack School District. 2011

Liberty Elementary, Site Based Team to improve curriculum, Nyack, NY. 2011

Lamont's "Open House": Coordinate Tree-Ring Laboratory's participation and develop science content for annual day of public education at Lamont-Doherty Earth Obs. Palisades, NY, 1997-present.

Union of Concerned Scientists, Team Science, 2010.

Learning for Life, National Science Careers Exploring Committee member, 2010.

West Point Climate Change Seminar. Using Tree-rings and Climate Data for Teaching, LDEO, Palisades NY, Nov. 2010.

Lecturer: 'Learning from Tree-Rings: Introduction to Dendrochronology', Earth 2 Class (Dr. Micheal Passow), LDEO, Palisades, New York, 2011, 2005, 2003.

Hudson Snapshot Day, Group Leader, Oct. 2010.

New Settlement Apartment Housing Fund, South Bronx, NY, Summer camp guest scientist. Marydell, Nyack NY, Aug. 2010.

Bronxville High School Science Symposium, Guest Science Speaker, June 2010.

Liberty Science Center Poster Exhibit: Introduction to tree-ring researcg. Jersey City, New Jersey, 2002 & 2008.

Group Leader and Co-organizer Mongolian Dendroecological Fieldweek, Department of Forestry, National University of Mongolia, Ulaanbaatar, Mongolia, June 2007 & 2003.

School of International & Public Affairs (SIPA), 'Introduction to Tree-Rings and Paleoclimate', Columbia University, Palisades, NY, 2003.

SYNERGISTIC ACTIVITY:

Co-author, AGU Monograph and CD Atlas on NH Temperature Reconstructions from Latitudinal Treeline: contract work in progress for AGU, NSF Opus Project.

Dendrochrological dating of historic instruments and structures.

Theater and artist collaboration; Superhero Clubhouse, Positive Feedback.

PROFESSIONAL AFFILIATIONS: American Geophysical Union, Tree-Ring Society, PAGES.