

# C U R R I C U L U M                      V I T A E

**Name:** Kirk Allen Maasch

**Date of Birth:** 7 November 1959      **Place of Birth:** Bayshore, New York, U.S.A.

**Citizenship:** U.S.A.                      **Family Status:** Married, four children

## **Professional Preparation**

United States Air Force Academy		1977 - 1980
SUNY at Stony Brook	Geology	B.S. 1981
Yale University	Geology & Geophysics	M.Phil. 1984
Yale University	Geology & Geophysics	Ph.D. 1989

## **Appointments**

2006-present	Professor, Department of Earth Sciences and Climate Change Institute, University of Maine
1998-2006	Associate Professor, Department of Earth Sciences and Climate Change Institute, University of Maine
1991-1998	Assistant Professor, Department of Geological Sciences and Institute for Quaternary Studies, University of Maine
1989-1991	Research Associate, Department of Geology and Geophysics, Yale University

## **Peer-reviewed publications**

Mayewski, P.A., M.P. Meredith, C. P. Summerhayes, J. Turner, A. Worby, P.J. Barrett, G. Casassa, N.A.N. Bertler, T. Bracegirdle, A. C. Naveira Garabato, D. Bromwich, H. Campbell, G.H. Hamilton, W.B. Lyons, K.A. Maasch, S. Aoki, C. Xiao, 2009. State of the Antarctic and Southern Ocean climate system, *Rev. Geophys.*, **47**, RG1003, doi:10.1029/2007RG000231.

Oglesby, R.J. And K.A. Maasch, 2009. Paleoclimate Modeling: Quaternary, In *Encyclopedia of Paleoclimatology and Ancient Environments*, Gornitz, Vivien (Ed.), Springer, Dordrecht, p.709-716.

Maasch, K.A., 2009. El Niño and interannual variability of climate in the western hemisphere, In *El Nino, Catastrophes, and Culture Change in Ancient America*, Quilter, J. and Sandweis, D. (Eds.), Dunbarton Oaks, Washington, D.C. , p. 33-55.

McNally, L.K., III, K.A. Maasch, K.J. Zuill, 2008. The Use of Ships' Protests for Reconstruction of Synoptic-scale Weather and Tropical Storm Identification in the Late 18<sup>th</sup> Century, *Weather*, **63**, 208-213.

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- Anderson, D.G., K.A. Maasch, and D.H. Sandweiss, editors, 2007. *Climatic Change and Cultural Dynamics: A Global Perspective on Holocene Transitions*. San Diego: Academic Press.
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- Sandweiss, D.H., K.A. Maasch, C.F.T. Andrus, E.J. Reitz, M. Riedinger-Whitmore, J.B. Richardson III, and H.B. Rollins, 2007. Mid-Holocene Climate and Culture Change in Coastal Peru. In *Climatic Change and Cultural Dynamics: A Global Perspective on Holocene Transitions*, D.G. Anderson, K.A. Maasch, and D.H. Sandweiss (Eds.), San Diego: Academic Press.
- Wanamaker, A.D., Jr, K.J. Kreutz, B.R. Schöne, N.R. Pettigrew, H.W. Borns, Jr., D.S. Introne, D. Belknap, K.A. Maasch, and S. Feindel, 2007. Coupled North Atlantic Slope Water forcing on Gulf of Maine temperatures over the past millennium, *Clim. Dyn.* DOI 10.1007/s00382-007-0344-8.
- Maasch, K.A., 2007. Barry Saltzman, In *New Dictionary of Scientific Biography*, Charles Scribner's Sons.
- Kaspari, S., P. Mayewski, S. Kang, S. Sneed, S. Hou, R. Hooke, K. Kreutz, D. Introne, M. Handley, K. Maasch, D. Qin, and J. Ren, 2007. Reduction in northward incursions of the South Asian monsoon since ~1400 AD inferred from a Mt. Everest ice core, *Geophys. Res. Lett.*, **34**, L16701, doi:10.1029/2007GL030440
- Mayewski, P.A. and K.A. Maasch, 2006. Recent warming inconsistent with natural association between temperature and atmospheric circulation over the last 2000 years, *Clim. Past Discuss.*, **2**, 1–29.
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- Mayewski, P.A., K.A. Maasch, Y. Yan, S. Kang, E.A. Meyerson, S.B. Sneed, S.D. Kaspari, D.A. Dixon, E.C. Osterberg, V.I. Morgan, T. van Ommen, and M.A.J. Curran, 2005. Solar forcing of the polar atmosphere – Data, Mechanism, and Implications, *Annals of Glaciology*, **41**, 147-154.

- Dixon, D., P.A. Mayewski, S.D. Kaspari, K.J. Kreutz, G.S. Hamilton, K.A. Maasch, S.B. Sneed, and M.J. Handley 2005. A 200-year sulfate record from sixteen Antarctic ice cores and associations with Southern Ocean sea ice extent, *Annals of Glaciology*, **41**, 155-166.
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- Sandweiss, D.H., K.A. Maasch, F. Chai, C.F.T. Andrus, and E.J. Reitz, 2004. Geoarchaeological evidence for multidecadal natural climatic variability and ancient Peruvian fisheries, *Quaternary Research*, **61**, 330-334.
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- Park, J., and K.A. Maasch, 1993, Plio-Pleistocene time evolution of the 100-ky cycle in marine paleoclimate records. *Journal of Geophysical Research*, **98**, 447-461.
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- Gaffin, S.R., and K.A. Maasch, 1991, Anomalous cyclicity and stratigraphy and modeling nonlinear oscillations. *Journal of Geophysical Research*, **96**, 6701-6711.
- Maasch, K.A. and B. Saltzman, 1990, A low-order dynamical model of global climate variability over the full Pleistocene. *Journal of Geophysical Research*, **95**, 1955-1963.
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- Grigholm, B., P.A. Mayewski, V. Aizen, S. Kang, S. Kaspari, and K.A. Maasch, 2008. Asian Ice Core Array (AICA): Climate and Environmental Reconstruction of Asia, *Eos Trans. AGU*, **89(53)**, Fall Meet. Suppl., Abstract GC41A-0702.
- Dixon, D.A., P.A. Mayewski, S.B. Sneed, M.J. Handley, K.A. Maasch, K.J. Kreutz, G.S. Hamilton, and A.M. Carleton, 2008. Asian Ice Core Array (AICA): Spatial Concentration Fields of Trace Elements and Major Ions Over a Large and Highly Inaccessible Area of Antarctica, *Eos Trans. AGU*, **89(53)**, Fall Meet. Suppl., Abstract C41C-0527.
- Osterberg, E.C., P.A. Mayewski, K.J. Kreutz, D.A. Fischer, K.A. Maasch, and S.B. Sneed, 2007. North Pacific Atmospheric Circulation and Tropical Teleconnections Over the Past 1500 Years From a Mt. Logan Ice Core, *Eos Trans. AGU*, **88(52)**, Fall Meet. Suppl., Abstract C41C-0527.
- Hollander, D.J., L. Soto, J. Polk, P. Van Beynen and K.A. Maasch, 2006. Interpreting Paleohydrologic and Plaeoclimatic Conditions on Sub-Tropical North America During the Late Holocene Through the Comparison of Speleothem and Lake Geochemical Proxy Records, HOLIVAR2006 Open Science Meeting, Natural Climate Variability and Global Warming, London, UK.
- Kaspari, S.D., P.A. Mayewski, S. Kang, S.B. Sneed, K. Kreutz, D. Introne, R. Hooke, K.A. Maasch, S. Hou, D. Qin, and J. Ren, 2005. Weakening of the South Asian Monsoon Since 1600 A.D. from a Mt. Everest Ice Core, *Eos Trans. AGU*, **86(52)**, Fall Meet. Suppl., Abstract PP31C-04.

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- Mayewski, P.A., K.A. Maasch, and E. Meyerson, 2003. Solar Forcing of Polar Atmospheric Circulation: A Mechanism for Global Scale Abrupt Climate Change, *Eos Trans. AGU*, **84(46)**, Fall Meet. Suppl., Abstract PP51A-05.
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- Maasch, K.A., P.A. Mayewski, W. Karlén, E.J. Rohling, J.C. Stager, and E.J. Steig, 2003. Holocene Climate Variability, *Eos Trans. AGU*, **84(46)**, Fall Meet. Suppl., Abstract PP41D-07.
- Daly, J.F., K.A. Maasch, J.T. Kelley, and D.F. Belknap, 2003, Defining present rates of sea-level change around Newfoundland by analysis of tide-gauge records, Geological Society of America Abstracts, Northeast Meeting, Halifax, NS.
- Houk, S.D., K.A., Maasch, and D.H. Sandweiss, 2003. Marine bivalves as high-temporal-resolution paleoclimate proxies: a study in the northern Peruvian littoral. *EGS - AGU - EUG Joint Assembly*, Nice, France.
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- Moore, T.L., R.E. Plotnick, M.A. Prelmutter, R.J. Oglesby, and K.A. Maasch, 2001. Quantitative climate model/paleoclimate indicator comparisons, Geological Society of America Annual Meeting Abstracts and Program, Boston MA.
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- Houk, S.D., K.A. Maasch, and D.H. Sandweiss, 2001. Mid-Holocene Climate Reconstruction by Analysis of Growth Increments and Stable Isotopes of Marine Bivalves, *Eos Trans. AGU*, **82**, Spring Meet. Suppl., Abstract. OS41A-07
- Maasch, K.A., D.H. Sandweiss, and S.D. Houk,, 2001, Molluscan evidence for mid-to-late Holocene evolution of El Niño conditions in coastal Peru, *V Iberian Quaternary, I Quaternary Congress of Iberian Languages*, Lisboa, Portugal, July 23<sup>rd</sup>-27<sup>th</sup>, 2001

- Moore, T.L., R.J. Oglesby, M.A. Perlmutter, M.D. Matthews, R.E. Plotnick, and K.A. Maasch, 2000. Deciphering Orbital Maximum and Minimum States During the Pleistocene, Geological Society of America Annual Meeting Abstracts and Program, Reno NV.
- Sandweiss, D.H. and K.A. Maasch, 2000. Variation in Holocene El Niño Frequencies: Climate Records and Cultural Consequences in Ancient Peru, *Eos Trans. AGU*, **81(48)**, Fall Meet. Suppl., Abstract U62B-03.
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- Marshall, S., R.J. Oglesby, K.A. Maasch, and G.T. Bates, 1998. Modeling Snow Hydrology and the Blizzard of 1993, *Eos Trans. AGU*, **79**, Fall Meet. Suppl., Abstract. H11A-36.
- McNally, L.K. and K.A. Maasch, 1997. Weather During the Little Ice Age, *Eos Trans. AGU*, **78**, Spring Meet. Suppl., Abstract. A22B-03.
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- Fritz, S.C., K.R. Laird, and K.A. Maasch, Holocene drought patterns in the northern Great Plains inferred from saline-lake sediments, ASLO Aquatic Sciences Meeting in Halifax, NS, February, 1997.
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- Reusch, D.N., J.D. Wright, K.A. Maasch, and G. Ravizza, 1996. Miocene Seawater <sup>187</sup>OS/<sup>186</sup>OS Ratios Inferred From Metalliferous Carbonates, *Eos Trans. AGU*, **77**, Fall Meet. Suppl., Abstract. OG32A-12.

- Dupont, T.K. and K.A. Maasch, Millennial variability in the sea-ice/ocean system. 26<sup>th</sup> Arctic and Alpine Workshop Boulder CO, March 1996.
- Reusch, D.N. and K.A. Maasch, 1995. Weathering of Simatic Crust, the Carbon Cycle, and Climate, *Eos Trans. AGU*, **76**, Spring Meet. Suppl., Abstract. U42B-09.
- Maasch, K.A., and T.K. Dupont, 1995. A Theory for Globally Synchronous Climate Change on Millennial Time Scales, *Eos Trans. AGU*, **76**, Spring Meet. Suppl., Abstract. O31A-10.
- Maasch, K.A. and T.K. Dupont, 1995. A model of global climate change on millennial time scales, 5th International Conference on Paleoceanography (ICP-V) in Halifax, NS.
- Reusch, D.N. and K.A. Maasch, 1995. Arc-continent collisions, chemical weathering, and glaciations, 5th International Conference on Paleoceanography (ICP-V) in Halifax, NS.
- Maasch, K.A. and T.K. Dupont, and E.W. Bolton, 1994. Climate Transition in the Mid-Pleistocene: Was the Onset of the 100-kyr Cycle Gradual or Abrupt? *Eos Trans. AGU*, **75**, Spring Meet. Suppl., 56.
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- Bolton, E.W, K.A. Maasch and J. Lilly, 1993. A wavelet analysis of Plio-Pleistocene climate indicators: A new view of periodicity evolution, *Eos Trans. AGU*, **74**, Fall Meet. Suppl., 366.
- Tupper, B.T. and K.A. Maasch, 1993. High Latitude Northern Hemisphere Climate Change on Decadal Time Scales, *Eos Trans. AGU*, **74**, Fall Meet. Suppl., 373.
- Maasch, K.A., 1992. Time dependent variations in the statistical properties of paleoclimate records, *Eos Trans. AGU*, **73**, Spring Meet. Suppl., 48.
- Park, J. and K.A. Maasch, Plio-Pleistocene time evolution of the 100-ky ice-age cycle in marine paleoclimate records. GSA, San Diego, CA, October 1991.
- Oglesby, R.J. and K.A. Maasch, Cooled ocean basins and abrupt climatic change during the late Quaternary: A GCM modeling study, 13<sup>th</sup> INQUA, Beijing, China, May 1991.
- Farrell, J.W., J. Dehn, and K.A. Maasch, Late Neogene Tephrochronology from the NE Indian Ocean (ODP site 758) and correlations to Toba eruptions, 13<sup>th</sup> INQUA, Beijing, China, May 1991.

### **Research Funding**

- National Science Foundation*, ARRA: Antarctic Climate Reconstruction Utilizing the US ITASE Ice Core Array, Paul Mayewski, Kirk Maasch, \$725,700, 06/01/09-6/30/12, support for one postdoc, one student.
- National Science Foundation*, US ITASE Glaciochemistry: Phase 2: East Antarctica, Paul Mayewski, Kirk Maasch, \$615,000, 03/01/05-3/31/09, support for two students.



*National Science Foundation*, Climate Dynamics, Highly detailed reconstructions of New England weather over the past few centuries and their climatic implications, Greg Zielinski, Kirk Maasch, \$325,000, 08/01/01-9/30/05, support for two students.

*Maine Mathematics and Science Alliance*, Teaching Academy - Maine and the Global Climate System, Kirk Maasch, \$39,970, 3/1/2000-6/1/2001.

*National Science Foundation*, Climate Dynamics, A theory for global climate change on millennial time scales, Kirk Maasch, \$101,000, 7/1/96-6/30/99, support for one student.

*Foundation for Exploration and Research on Cultural Origins (FERCO)*, International Conference on Climate and Culture at 3,000 B.C., Dan Sandweiss, Kirk Maasch \$90,000., October 1998.

*Low cost system for analyzing and predicting coastal change: A Peruvian test case*, with Dan Sandweiss and Kate Beard-Tisdale, University of Maine, funded by the Maine Science and Technology Foundation (NASA EPSCoR), \$19,300, 3/1/96-2/29/98, support for one student.

*Modeling millennial scale climate change*, funded by the National Center for Atmospheric Research (NCAR), \$83,000, 12/1/97-6/30/99.

*Climate model studies with regional and global models*, with Susan Marshall, University of North Carolina, Charlotte, Bob Oglesby, MSFC/NASA, and Gary Bates, NCAR, funded by the North Carolina Supercomputing Center (NCSC), 7/1/97-9/30/03.

### **Synergistic Activities**

Participated in Climate Change 21 – Choices for the 21st Century: An Interactive Forum and Environmental Festival held at the University of Maine, 23-24 October 2008.

Consultant to Bangor Daily News – “Our Changing World: Understanding the Science of Climate Change” - a twelve page special section Jan. 12, 2006, that examines how climate change occurs and how human activities are affecting Maine, the nation and the planet.

Co-organizer (w/ D. Reusch) on Maine Science and Mathematics Academies teacher's academy in July 2000 on Maine and the Global Climate System.

Co-organizer (w/ D. Sandweiss) FERCO International Conference on Climate and Culture at 3,000 B.C. – funded by FERCO (Foundation for Exploration and Research on Cultural Origins), held at Univ. of Maine in October 1998.

### **Recent Collaborators**

Fei Chai (The University of Maine), Paul Mayewski (The University of Maine), Lou McNally (Embry-Riddle Aeronautical University), Bob Oglesby (University of Nebraska-Lincoln), Elizabeth Reitz (University of Georgia), Doug Reusch (University of Maine Farmington), James Richardson, III (Carnegie Museum), Bud Rollins (University of Pittsburgh), Dan Sandweiss (The University of Maine)

**Graduate and Postdoctoral Advisors:** Barry Saltzman (Yale University, deceased)

**Thesis Advisor and Postgraduate-Scholar Sponsor**

*Committee memberships:*

Doctoral:

Julia Daly (Geological Sciences), Dan Dixon (Earth Sciences), Bjorn Grigholm (Earth Sciences), Jesse Johnson (Physics), Susan Kaspari (Earth Sciences), Elena Korotkikh (Earth Sciences), Marianne Lagerklint (Geological Sciences, Stockholm University), Erich Osterberg (Earth Sciences), Mariusz Potocki (Earth Sciences), Sharon Sneed (Earth Sciences), Al Wanamaker (Earth Sciences), Taiping Zhang (Geology & Geophysics, Yale University)

Masters:

Jessica Black (Institute for Quaternary Studies), John Chandler (Civil and Environmental Engineering), Erik Dasilva (Master of Science in Teaching), Dan Dixon (Climate Change Institute), Bjorn Grigholm (Climate Change Institute), Tris Hussey (Institute for Quaternary Studies), Susan Kaspari (Climate Change Institute), Meredith Kelly (Institute for Quaternary and Climate Studies), Elena Korotkikh (Earth Science), Karl Kreutz (Institute for Quaternary Studies), Drew Lorrey (Geological Sciences), Patricio Moreno (Institute for Quaternary Studies), Jeff Owen (Master of Science in Teaching)

*Committee chair:*

Doctoral:

Lou McNally (Interdisciplinary), Doug Reusch (Geological Sciences)

Masters:

Todd Dupont (Institute for Quaternary Studies), Heather Franco (Geological Sciences), Steve Houk (Institute for Quaternary and Climate Studies, co-chair w/Dan Sandweiss), Lou McNally (Institute for Quaternary Studies), Elliot Rappaport (Master of Science in Teaching), Stacy Shafer (Institute for Quaternary Studies, co-chair w/Dan Sandweiss), Ben Tupper (Institute for Quaternary Studies)