

# Peter J. Lamb

*George Lynn Cross Research Professor of Meteorology  
Director of the NOAA Cooperative Institute for Mesoscale Meteorological Studies  
The University of Oklahoma*

Peter J. Lamb received B.A. (1969) and M.A. (1971, with Honours) degrees in Geography from the University of Canterbury (New Zealand), a Ph.D. in Meteorology from the University of Wisconsin in 1976, and a D.Sc. for published research in Climate Science from the University of Canterbury in 2002.

Dr. Lamb taught Atmospheric Science and Geography at the Universities of Canterbury (1971) and Adelaide (Australia, 1976-78), and was a Post-Doctoral Research Scientist in the Department of Meteorology at the University of Wisconsin (1976) and at the NOAA Cooperative Institute for Marine and Atmospheric Studies of the University of Miami (1978-79). He supervised several Masters theses at the University of Adelaide. Dr. Lamb was a Principal Scientist at the Illinois State Water Survey (University of Illinois) from 1982-1991, after having joined that organization in 1979 as a Professional Scientist. He also was Head of its large (45 member, \$2+ million budget) Climate and Meteorology Section from 1984-90. Dr. Lamb was appointed an Adjunct Associate Professor of Meteorology in the Department of Atmospheric Sciences at the University of Illinois in 1983, and was promoted to Adjunct Professor in 1987. He also was appointed as an Affiliate of the Center for African Studies (1985) and as an Adjunct Professor of Geography (1988) at Illinois. In these University of Illinois capacities he regularly contributed to the teaching of introductory courses, served on Ph.D. committees, gave departmental seminars, and supervised graduate students. He held these Illinois Adjunct Professorships through 1994. In August 1991, Dr. Lamb joined the University of Oklahoma as a tenured full Professor in its School of Meteorology, and as Director of its Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) that largely is funded by the National Oceanic and Atmospheric Administration (NOAA). CIMMS now has a staff of 150 and an annual budget approaching \$11 million. Dr. Lamb also served as Director of the International Center for Disaster Research (ICDR) at the University of Oklahoma from 1994-99, and was Associate Director of Oklahoma Weather Center Programs from 1996-2006. In April 2001, Dr. Lamb was honored with a George Lynn Cross Research Professorship, The University of Oklahoma's highest research honor that is awarded to only one or two faculty members each year out of the University's 1200-strong faculty.

Dr. Lamb's primary research interest is in the physical and dynamical processes responsible for climate and its short-term fluctuations (intraseasonal, interannual, decadal). While affiliated with the Universities of Wisconsin and Adelaide (1971-78), he was involved in substantial investigations of the long-term average surface climate and atmospheric circulation, and the oceanic and atmospheric heat budgets, of the tropical portions of the Atlantic, Eastern Pacific, and Indian Oceans. Other research at these institutions examined the relation between Subsaharan rainfall and the atmospheric-oceanic conditions over West Africa and the tropical Atlantic. Dr. Lamb's Miami work (1978-79) documented the annual march of the heat budget of the North and tropical Atlantic Oceans; the processes treated included the net surface heat gain, the subsurface heat storage change, and the meridional oceanic heat transport. While at the Illinois State Water Survey and University of Illinois during 1979-91, Dr. Lamb's physical-dynamical research focused on midwestern U.S. climate variability, particularly the intraseasonal and interannual fluctuations characteristic of the growing season. Some of his earlier lines of inquiry (Subsaharan rainfall, oceanic heat budget) were continued and expanded at Illinois. Dr. Lamb's Illinois work also dealt with the applied issue of how the products of basic physical-dynamical climate research might be used for the benefit of society. This is manifest in a number of publications, and in his long-term and continuing NSF-NOAA funded research into the present and potential use of climate information (especially seasonal climate predictions) by U.S. agriculture.

All of the above research thrusts are being continued at the University of Oklahoma, where they have involved 20 graduate students to date, three of whom have won American Meteorological Society Awards for their efforts. In addition, shortly after moving to Oklahoma in 1991, Dr. Lamb was appointed Site Scientist for the Southern Great Plains component of the U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) Program. The long-term effort he is directing in this regard spans scientific guidance for site operations, basic research, and educational outreach, and involves approximately 10 people (faculty, research scientists, graduate students). Beginning in 1994, Dr. Lamb initiated a multiyear program of collaborative research and development with the Moroccan National Weather Service, that provided that nation with an experimental long-range prediction capability for its crucial winter precipitation during 1996-2000. This program brought several long-term Moroccan

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visitors to the University of Oklahoma, one of whom completed a Ph.D. and returned to his National Weather Service. In the mid-to-late-1990s, Dr. Lamb also worked with Emeritus Professor Yoshi Sasaki to develop a substantial collaborative research program with Japan into small-scale weather phenomena and the resulting regional climate variability. This involved the Japan Science and Technology Agency, Kyoto and Tokyo Universities, and the Hitachi Corporation. The latter company donated a supercomputer to the University of Oklahoma for use in the collaborative program. This donation was coordinated by Dr. Lamb. Beginning in October 1997, Dr. Lamb initiated a program of collaboration and cooperation between CIMMS and the African Center of Meteorological Applications for Development (ACMAD, Niamey, Niger) that has received significant funding from the International Activities Office of the U.S. National Weather Service and the U.S. Agency for International Development. This support has facilitated the research of graduate students from Kenya, Côte d'Ivoire, Morocco, Ethiopia, Chad, and Niger, most of whom have been or are being supervised by Dr. Lamb. During the last few years, Dr. Lamb has collaborated closely with the Institute of Atmospheric Physics in the Chinese Academy of Sciences (Beijing). This collaboration included Dr. Lamb being the Principal Organizer of the First U.S.-China Symposium on Meteorology that was held at the University of Oklahoma in February 2008. He has visited China annually since 2005.

Dr. Lamb is a member of the American and Royal Meteorological Societies, the American Geophysical Union, and Sigma Xi. He was elected a Fellow of the American Meteorological Society (AMS) in 1988, and was essentially the founding Chief Editor of the AMS *Journal of Climate* during 1989-95, after serving as an Associate Editor during the journal's initial year. Currently, Dr. Lamb is Editor of the AMS series of *Meteorological Monographs for 2009-2011* and also serves as Editor of *Atmospheric and Oceanic Science Letters* published by the Chinese Academy of Sciences. He was Chair of the AMS Committee on Climate Variations during 1996-98, served on the Earth Sciences Advisory Council of the Universities Space Research Association from 1991-99, and was reappointed to that Council in 2009. Dr. Lamb gave the Margary Lecture to the Royal Meteorological Society (in London) in 1991. This annual lecture deals with climate and agriculture. Since 1985, Dr. Lamb has served as an occasional Advisor to the World Meteorological Organization, U. N. Environment Programme, U.S. Agency for International Development, Department of State, Central Intelligence Agency, and several other U.S. Federal Agencies. During 1991, he also served on the Scientific Advisory Council for AGRHYMET, an international research center in Niamey, Niger, that focuses on the agricultural meteorology and hydrometeorology of Sub-Saharan West Africa. Since 2004, Dr. Lamb has served on the International Scientific Steering Committee and International Governing Board of the African Monsoon Multidisciplinary Analysis (AMMA) Program. In 1996, Dr. Lamb received a University of Oklahoma Regents' Award for Superior Accomplishment in Research and Creative Activity. In 2003, he held the W. John and Gail M. Hussey Commemorative Lectureship in Meteorology at The Pennsylvania State University.

Dr. Lamb is the author or coauthor of five research monographs, four book chapters, one encyclopedia contribution, more than 85 papers in peer reviewed scientific journals, and numerous other publications including several articles in Oklahoma and New Zealand newspapers. His research has been published in the World's premier scientific journals (*Nature*, 2 sole- and 1 lead-authored papers; *Science*, 1 joint-authored paper), most of the leading journals of atmospheric and climate science, and in journals of many other disciplines (agricultural science, geography, economics, oceanography, hydrology, energy, environmental quality, water resources). Those publications have been cited more than 3,000 times in the scientific literature worldwide, with 28 publications being cited at least 28 times (h-index of 28). Dr. Lamb has received research grants totaling more than \$23 million from NSF, NOAA, USEPA, USDOE, USAID, the MacArthur Foundation, the Insurance Institute for Property Loss Reduction (Boston), the Japan Science and Technology Agency, the Williams Companies, and the Insurance Australia Group. Dr. Lamb has given scientific presentations in Brazil, Canada, England, Scotland, France, Germany, Denmark, Iceland, Sweden, Austria, Italy, Portugal, Spain, Israel, Morocco, Ethiopia, Niger, Senegal, Benin, Côte d'Ivoire, Ghana, Kenya, South Africa, Vietnam, Taiwan, Hong Kong, China, Japan, Australia, and New Zealand, many of which were invited, as well as in numerous U.S. locations. He was listed in *Who's Who in the World* for 1996, *Who's Who in America* for 1994-2005 and 2008-2010, and has been regularly listed in several other citation publications since 1994.

## I. PERSONAL

Born June 21, 1947, at Nelson, New Zealand  
New Zealand and United States (naturalized) citizen  
Father of two adult children (Dr. Karen D. Lockwood, Brett T. Lamb)

## II. EDUCATION

B.A., Geography Major, University of Canterbury (New Zealand), 1969. Coursework included Climatology, Mathematics, and Physical Oceanography.

M.A. (Second Class Honours, Division I) in Geography, University of Canterbury, 1971. Specialization in Climatology/Meteorology, including thesis entitled: "An Investigation of the Canterbury Nor'-wester" (Supervisor: David E. Greenland). Other coursework in Geomorphology, Coastal Studies, and Urban Geography.

Ph.D. in Meteorology, The University of Wisconsin, 1976. Meteorology coursework in General Meteorology, Micrometeorology, Tropical Meteorology, Dynamic Climatology, Geophysical Fluid Dynamics, Advanced Dynamic Meteorology, Classical Problems. Other coursework in Mathematics and Computer Science. Ph.D. Minor in Geography. Dissertation entitled: "Variations in General Circulation and Climate over the Tropical Atlantic and Africa: Weather Anomalies in the Subsaharan Region." Major Professor: Stefan Hastenrath.

D.Sc. for published research in Climate Science, University of Canterbury, 2002. Document entitled: "Contributions to the 'Climate Revolution' -- Investigations of Regional Climate Variability, Predictability, and Applications".

## III. EMPLOYMENT/POSITIONS HELD

Department of Geography, University of Canterbury (New Zealand): Demonstrator (i.e., Teaching Assistant), February 1969-June 1970; Assistant Lecturer (i.e., Instructor), February 1971-August 1971.

Department of Meteorology, The University of Wisconsin: Research Assistant, September 1971-January 1976; Post-Doctoral Research Associate, February 1976-August 1976.

Department of Geography, The University of Adelaide (Australia): Lecturer (i.e., Assistant Professor) in Meteorology, August 1976-June 1979.

Cooperative Institute for Marine and Atmospheric Studies, The University of Miami/NOAA: Visiting Post-Doctoral Research Associate, August 1978-May 1979.

Atmospheric Science Sections, Illinois State Water Survey: Professional Scientist, June 1979-August 1982; Principal Scientist, September 1982-July 1991; Assistant Section Head, December 1982-August 1984; Section Head (Climate and Meteorology), September 1984-June 1990.

Department of Atmospheric Sciences, The University of Illinois: Adjunct Associate Professor, January 1983-May 1987; Adjunct Professor, June 1987-August 1994.

Center for African Studies, The University of Illinois: Affiliate, July 1985-August 1994.

Department of Geography, The University of Illinois: Adjunct Professor, January 1988-August 1994.

School of Meteorology, The University of Oklahoma: Professor, August 1991-April 2001; George Lynn Cross Research Professor, April 2001-present.

Cooperative Institute for Mesoscale Meteorological Studies, The University of Oklahoma/NOAA: Director, August 1991-present.

International Center for Disaster Research, The University of Oklahoma: Director, November 1994-August 1999.

Weather Center Programs, The University of Oklahoma/NOAA: Associate Director, April 1996-December 2006.

#### IV. HONORS AND RECOGNITION

Fellow, American Meteorological Society, 1988.

Associate Editor, *Journal of Climate*, American Meteorological Society, 1988.

Chief Editor, *Journal of Climate*, American Meteorological Society, 1989-1995.

Margary Lecturer, Royal Meteorological Society, 1991.

Site Scientist, Atmospheric Radiation Measurement Program, U.S. Department of Energy, 1992-present.

Regents' Award for Superior Accomplishment in Research and Creative Activity, The University of Oklahoma, 1996.

George Lynn Cross Research Professorship, The University of Oklahoma, 2001-present.

Outstanding Professor of the Year, The African Student Association, The University of Oklahoma, 2002.

W. John and Gail M. Hussey Commemorative Lectureship in Meteorology, The Pennsylvania State University, 2003.

Editor, *Atmospheric and Oceanic Science Letters*, Chinese Academy of Sciences, 2008-present.

Editor, *Meteorological Monographs*, American Meteorological Society, 2009-2011.

Listed in *Who's Who in the World* (13th Edition, 1996), *Who's Who in the 21st Century* (1st Edition, 2001), *2000 Outstanding Intellectuals of the 21st Century* (2nd Edition, 2003), *Who's Who in America* (48th-59th Editions, 1994-2005; 62nd-64th Editions, 2008-2010), *Who's Who in Science and Engineering* (2nd-10th Editions, 1994-2009), *Who's Who in the South and Southwest* (24th Edition, 1995-96; 27th-34th Editions, 2000-2008), *The International Directory of Distinguished Leadership* (5th Edition, 1994), and *American Men and Women of Science* (19th Edition, 1995-1996).

#### V. PUBLICATIONS

##### PEER-REVIEWED RESEARCH MONOGRAPHS

Hastenrath, S., and P. J. Lamb, 1977: *Climatic Atlas of the Tropical Atlantic and Eastern Pacific Oceans*. The University of Wisconsin Press, Madison, 112 pp.

Hastenrath, S., and P. J. Lamb, 1978: *Heat Budget Atlas of the Tropical Atlantic and Eastern Pacific Oceans*. The University of Wisconsin Press, Madison, 104 pp.

Hastenrath, S., and P. J. Lamb, 1979: *Climatic Atlas of the Indian Ocean, Part I: The Surface Circulation and Climate*. The University of Wisconsin Press, Madison, 117 pp. [Reprinted in 1989]

Hastenrath, S., and P. J. Lamb, 1979: *Climatic Atlas of the Indian Ocean, Part II: The Oceanic Heat Budget*. The University of Wisconsin Press, Madison, 111 pp. [Reprinted in 1989]

Lamb, P. J., S. T. Sonka, and S. A. Changnon, Jr., 1985: *Use of Climate Information by U.S. Agribusiness*. NOAA Technical Report, NCPO 001, 67 pp.

#### PEER-REVIEWED BOOK CHAPTERS

Lamb, P. J., and R. A. Peppler, 1991: West Africa. Chapter 5 in *Teleconnections Linking Worldwide Climate Anomalies: Scientific Basis and Societal Impact* (M. H. Glantz, R. W. Katz, and N. Nicholls, eds.), Cambridge University Press, 121-189.

Covich, A. P., S. C. Fritz, P. J. Lamb, R. D. Marzolf, W. J. Mathews, K. A. Polani, E. E. Prepas, M. B. Richman, and T. C. Winter, 1997: Potential effects of climate change on aquatic ecosystems of the Great Plains of North America. Chapter 8 in *Advances in Hydrological Processes: Freshwater Ecosystems and Climate Change in North America* (C. E. Cushing, ed.), John Wiley and Sons, Chichester, 175-203. [This chapter is a reprint of the Covich *et al.* (1997) paper in *Hydrological Processes* cited below.]

Ward, M. N., P. J. Lamb, D. H. Portis, M. El Hamly, and R. Sebbari, 1999: Climate variability in northern Africa: Understanding droughts in the Sahel and the Mahgreb. Chapter 6 in *Beyond El Niño: Decadal and Interdecadal Climate Variability* (A. Navarra, ed.), Springer-Verlag, Berlin, 119-140.

Skinner, B.D., D. Changnon, M.B. Richman, and P.J. Lamb, 1999: Damaging weather conditions in the United States: A selection of data quality and monitoring issues. In *Weather and Climate Extremes: Changes, Variations, and a Perspective from the Insurance Industry* (T.R. Karl, N. Nicholls, and A. Ghazi, eds.), Kluwer Academic Publishers, Dordrecht, 69-87. [This chapter is a reprint of the Skinner *et al.* (1999) paper in *Climatic Change* cited below.]

#### PEER-REVIEWED ENCYCLOPEDIA CONTRIBUTION

Lamb, P. J., 2004: The Intertropical Convergence Zone. In *Encyclopedia of World Environmental History, Volume 2*, Berkshire Publishing Group/Routledge, 702-704.

#### CONTRIBUTIONS TO PEER-REVIEWED SCIENTIFIC JOURNALS

Lamb, P. J., 1974: Nor'wester's potential föhn influence on Canterbury Plains' (New Zealand) surface heat exchanges. *New Zealand Journal of Agricultural Research*, 17, 349-355.

Lamb, P. J., 1974: The nor'wester's advance across the Canterbury Plains, New Zealand. *New Zealand Journal of Science*, 17, 175-179.

Lamb, P. J., 1977: On the surface climatology of the tropical Atlantic. *Archiv für Meteorologie, Geophysik, und Bioklimatologie, Serie B*, 25, 21-31.

Hastenrath, S., and P. Lamb, 1977: Some aspects of circulation and climate over the eastern tropical Atlantic. *Monthly Weather Review*, 105, 1019-1023.

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- Hastenrath, S., and P. J. Lamb, 1980: On the heat budget of hydrosphere and atmosphere in the Indian Ocean. *Journal of Physical Oceanography*, 10, 694-708.
- Lamb, P. J., 1980: Sahelian drought. *New Zealand Journal of Geography*, Number 68, 12-16.
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- Lamb, P. J., M. El Hamly, and D. H. Portis, 1997: North Atlantic Oscillation. *Géo Observateur*, 7, 103-113.
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- Zangvil, A., and P. J. Lamb, 1997: Characterization of sky conditions by the use of solar radiation data. *Solar Energy*, 61, 17-23.
- Chen, C.-R., and P. J. Lamb, 1997: Improved treatment of surface evapotranspiration in a mesoscale numerical model. Part I: Via the installation of the Penman-Monteith Method. *Terrestrial, Atmospheric and Oceanic Sciences*, 8, 481-508.
- Montroy, D. L., M. B. Richman, and P. J. Lamb, 1998: Observed nonlinearities of monthly teleconnections between tropical Pacific sea surface temperature anomalies and central and eastern North American precipitation. *Journal of Climate*, 10, 1812-1835.
- Lamb, P. J., M. A. Bell, and J.D. Finch, 1998: Variability of Sahelian disturbance lines and rainfall during 1951-87. *Water Resources Variability in Africa during the XXth Century* (E. Servat, D. Hughes, J.-M. Fritsch, and M. Hulme, eds.), IAHS-Publication No. 252, 19-26.



- El Hamly, M., R. Sebbari, P. J. Lamb, M. N. Ward, and D. H. Portis, 1998: Towards the seasonal prediction of Moroccan precipitation and its implications for water resources management. *Water Resources Variability in Africa during the XXth Century* (E. Servat, D. Hughes, J.-M. Fritsch, and M. Hulme, eds.), IAHS Publication No. 252, 79-88.
- Hill, H. S., J. W. Mjelde, W. Rosenthal, and P. J. Lamb, 1999: The potential impacts of the use of Southern Oscillation information on Texas aggregate sorghum production. *Journal of Climate*, 11, 519-530.
- Skinner, B. D., D. Changnon, M. B. Richman, and P. J. Lamb, 1999: Damaging weather conditions in the United States: A selection of data quality and monitoring issues. *Climatic Change*, 42, 69-87.
- Cooter, E., M. B. Richman, P. J. Lamb, and D. A. Sampson, 2000: The development of a climate change data base for biological assessments in the Southeastern United States. *Climatic Change*, 44, 89-121.
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- Chen, C.-R., and P. J. Lamb, 2000: Improved treatment of surface evapotranspiration in a mesoscale numerical model. Part II: Via the assimilation of satellite measurements. *Terrestrial, Atmospheric and Oceanic Sciences*, 11, 789-832.
- Zangvil, A., Portis, D. H., and P. J. Lamb, 2001: Investigation of the large-scale atmospheric moisture field over the midwestern United States in relation to summer precipitation. Part I: Relationships between moisture budget components on different time-scales. *Journal of Climate*, 14, 582-597.
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- Lamb, P.J., 2002: The Climate Revolution: A Perspective (An Editorial Essay). *Climatic Change*, 54, 1-9.
- Risbey, J.S., P.J. Lamb, R.L. Miller, M.C. Morgan, and G.H. Roe, 2002. Exploring the structure of regional climate scenarios by combining synoptic and dynamic guidance and GCM output. *Journal of Climate*, 15, 1036-1050.
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