

CURRICULUM VITAE

of

A. Anthony Chen

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Jamaica

Date of birth: March 14, 1938

Nationality: Jamaican

Marital status: Married with 3 children

Academic qualifications:

1960 B.Sc.(Physics and Maths) Boston College

1961 MA in Teaching Harvard University

1967 M.Sc. (Physics) Univ. of Maryland

1972 Ph.D.(Physics) Univ. of the West Indies

M.Sc. thesis title: *An End Effect Associated with Cylindrical Langmuir Probes on Explorer XVII*

Ph.D. thesis title: *An Experimental and Theoretical Investigation of Ionospheric Irregularities Responsible for the Scintillation of Satellite Signals*

Academic Awards: Tuition Scholarship, Boston College; Sloane Fellowship, Harvard University

Other Awards: Silver Musgrave Medal for Climate Studies from the Institute of Jamaica, 2005; Hakka Achievement Award from the Hakka Association of Canada, 2004

Academic interests: Atmospheric Physics and Meteorology (climatology), Environmental and Energy Studies, Physics Education

Professional record:

2004 : Retired, on yearly contract

2001- : Professor, Applied Atmospheric Physics, Dept. of Physics, Univ. of the West Indies

1977-00: Senior Lecturer, Dept. of Physics, Univ. of the West Indies

1968-77: Lecturer (with tenure from 1972), Dept. of Physics, Univ. of the West Indies

1995: Visiting Scientist, Center for Ocean Land Atmosphere Studies (COLA), MD, U.S.A.

1980-81: Asst. Prof., Clark College, Atlanta, Ga., and Visiting Faculty Member, Ga. Inst. of Tech.

1961-63: High school teacher, Massachusetts, USA

Administrative experience:

1981-85 and 1991-93: Head, Dept. of Physics, Univ. of the West Indies;

Principal Investigator for of several funded projects:

1975-79: \$40,000 from Organization of American States for project, *Training of Prospective Physics Teachers*

1984-87: \$76,400 from Organization of American States for project, *Solarimetry*

1996-98: \$10,000 from Environmental Foundation of Jamaica for project, *Large scale generation of electricity by wind turbines at Munro College*

1998: \$30,000 from USAID and \$3,000 from WMO for workshop, *Climate Outlook Forum for the Caribbean, May 1998*

- 1998-99: \$60,000 from National Science Foundation (NSF) for project, *NSF Regional Cooperative Activities to Support Global Change Research in IAI Countries - Jamaica*
- 1999-04 \$25,000, this amount designated for UWI is part of a larger grant from Inter-American Institute (IAI) for Global Change Research to a group led by Prof. Ulisses Confalonieri (Fundacao Oswaldo Cruz – Brazil) for project *Diagnostic and Prediction of Climate Variability and Human Health Impacts in the Tropical Americas*.
- 2000-01: \$24,000 from Inter-American Institute (IAI) for Global Change Research for joint project with Dr. Michael Taylor, *Analyzing and understanding climate variability in the Caribbean islands*
- 2000-01: \$28,600 from Inter-American Institute (IAI) for Global Change Research for joint project with Dr. Michael Taylor, who will be the lead investigator, for project, *When Oceans Conspire: Examining the Effects of Concurrent SST Anomalies in the Tropical Atlantic and Pacific on Caribbean Rainfall*
- 2002: \$218,000 from the Assessments of Impacts and Adaptation to Climate Change in Multiple Regions and Sectors (AIACC) Programme for project, *The Threat of Dengue Fever – Assessment of Impacts and Adaptation to Climate Change in Human Health in the Caribbean* with Dr. Samuel Rawlins, Caribbean Epidemiology Centre (CAREC)

Publications list (excluding conference proceedings):

1. Bettinger, R.T. and A.A. Chen, An End Effect Associated with Cylindrical Langmuir Probe Moving at Satellite Velocities, *J. Geophys. Res.*, 73, 2513-2527, 1968.
2. Chen, A.A. and P.M. Chance, The Probability of the Fading of VHF Signals from Communication Satellites due to Ionospheric Scintillation over Jamaica, *J. Scientific Research Council of Ja.*, 2, 41-44, 1971.
3. Chen, A.A., P.N. Chin and P.M. Chance, Field Line Connection between Scintillation and Ionospheric Conditions Causing Spread E, *J. Geophys. Res.*, 77, 1859-1868, 1972.
4. Chen, A.A. and G.S. Kent, Determination of the Orientation of Ionospheric Irregularities Causing Scintillation of Signals from Earth Satellites, *J. Atmos. Terr. Phys.*, 34, 1411-1414, 1972.
5. Chen, A.A., Spread E Caused by Cross-Field Instability, *J. Geophys. Res.*, 78, 4704-4709, 1973.
6. Chen, A.A., Local Drought Aggravation - Preliminary Report, *J. Scientific Research Council of Ja.*, 4, 21-33, 1974
7. Chen, A.A., Nuclear Reactor Safety, *Ja. Journal*, 9, 74-75, 1975.
8. Chen, A.A., A Course for Physics Teachers in Jamaica, *The Physics Teacher*, 13, 530-31, 1975.
9. Chen, A.A., M.N. McMorris and P.N. Chin (eds.), Physics Teacher's Guide for the Caribbean, *Physics Dept., U.W.I.*, 1980, 114 pages. (Produced under a grant from the Organization of American States, printed by Montrose Printery and distributed to Physics Teachers in the English speaking Caribbean and reviewed in *The Physics Teacher*, November 1980, p.617-18.)
10. Chen, A.A., Windmill as a Source of Energy?, *Ja. Journal*, 16, 65-68, 1983.
11. Chen, A.A., C.G. Justus and J. Sherry, Model of Solar Radiation Using Total Cloud Cover and Percentage Sunshine Measurements, *Energy Engineering*, 26-45, 80, no.6, 1983.
12. Chen, A.A., A.S. Wagh and W. Graham, Materials Balance Study of a Pond of Bauxite Waste Tailings in Jamaica, *J. Environmental Management*, 25, 113-123, 1987.

13. Chen, A.A., A.R. Daniel, S.T. Daniel and C.R. Gray, Wind Power in Jamaica, *Solar Energy*, 44, 355-365, 1990
14. Daniel, A.R. and A.A. Chen, Stochastic Simulation and Forecasting of Hourly Average Wind Speed Sequences in Jamaica, *Solar Energy*, 46, 1-11, 1991.
15. Chen, A.A., Evapotranspiration Modelling in Jamaica, *Ja. J. Sci. and Tech.*, 3, 41-46, 1992.
16. Chen, A.A., P.N. Chin, W. Forrest, P. McLean, and C. Grey, Solar Radiation in Jamaica, *Solar Energy*, 53, 455-460, 1994.
17. Chen, A.A., and P. Brown, Characterization of April-May Rainfall, *Ja. J. Sci. and Tech.*, 5, 1-11, 1994
18. Chen, A.A., A. Roy, J. McTavish, M. Taylor and L. Marx, Using SST Anomalies to Predict Flood and Drought Conditions for the Caribbean, *Report No. 49, Center for Ocean-Land-Atmosphere Studies*, 1997
19. Amarakoon, A.M.D., and A. Chen, Estimating Daytime Net radiation Using Routine Meteorological data in Jamaica, *Caribbean Journal of Science*, 35, 1-2, 132-141, 1999
20. A. Chen and A. Amarakoon, Generation of Electricity by Wind Turbines at Munro College, *Ja. J. Sci. and Tech.*, 10, 53-78, 1999
21. A. Amarakoon and A. Chen, Estimating daytime latent heat flux and evapotranspiration in Jamaica, *Agricultural and Forest Meteorology*, 102, 113-124, 2000
22. A.A. Chen and M.A. Taylor, Investigating the link between early season Caribbean rainfall and the El Niño +1 year, *International Journal of Climatology*, 22, 87-106, 2002
23. M.A. Taylor, D. Enfield and A. Chen, The influence of the tropical Atlantic vs the tropical Pacific on Caribbean rainfall, *J. Geophys. Res.*, 107 (C9), 3127, doi:10.1029/2001JC001097, 2002
24. Amarakoon, A.M.D., and A.A. Chen, Modelling of Wind Speed and Power Across Jamaica, *Ja. J. Sci. and Tech.*, 12 & 13, 48-64, 2001 & 2002
25. J. M. Spence, M. A. Taylor and A. A. Chen, The effect of concurrent sea-surface temperature anomalies in the tropical Pacific and Atlantic on Caribbean rainfall, *Int. J. Climatol.* 24: 1531–1541 (2004), DOI: 10.1002/joc.1068
26. S. A. Ashby, M. A. Taylor, and A. A. Chen, Statistical models for predicting rainfall in the Caribbean, *Theor. Appl. Climatol.* (2005), DOI 10.1007/s00704-004-0118-8
27. A.A. Chen, T. Fallon and M. Taylor, Agricultural Drought Monitoring in the West Indies, Chap. 11, *Monitoring and Predicting Agricultural Droughts: A Global Study*, eds: V.K. Boken (USA), A.P. Cracknell (UK), and R. L. Heathcote (Australia), Oxford University Press 2005
28. D. D. Chadee, B. Shivnauth, S. C. Rawlins and A. A. Chen, Climate, mosquito indices and the epidemiology of dengue fever in Trinidad (2002–2004), *Annals of Tropical Medicine & Parasitology*, Vol. 100, No. 6, 1–9 (2006)
29. Taylor, M. A., Chen, A. A., S. Rawlins, C. Heslop-Thomas, A. Amarakoon, W. Bailey, D. Chadee, S. Huntley, *Adaptation strategies for present and increased future risk of dengue fever in the Caribbean*, AIACC Adaptation Synthesis Volume (2006)
30. A. Anthony Chen, Cassandra L. Rhoden, Michael A. Taylor, Climate Change Science and Future Climate Change Scenarios, in *Climate Change Impact on Dengue: The Caribbean Experience*, Editors: A. Anthony Chen, Dave D. Chadee and Samuel C. Rawlins, Climate Studies Group Mona, University of the West Indies, pp 66-77, 2006, ISBN 976-41-0210-7
31. A. Anthony Chen, Dave D. Chadee, Dharmaratne Amarakoon, Early Warning System in *Climate Change Impact on Dengue: The Caribbean Experience*, Editors: A. Anthony

Chen, Dave D. Chadee and Samuel C. Rawlins, Climate Studies Group Mona,
University of the West Indies, pp 78-83, 2006, ISBN976-41-0210-7

Reports to Government of Jamaica and to organizations:

1. Chen, A.A., Wind Power in Eastern Jamaica, Sept.1978. (Report to Scientific Research Council of Ja.)
2. Chen, A.A., Wind Power Feasibility Study, July 1980. (Report to the Ministry of Mining and Energy)
3. Chin P.N. and A.A. Chen, Testing of Solar Collectors, January 1983. (Report to the Ministry of Mining and Energy)
4. Chen, A.A. et al, Wind Power in Jamaica Based on Climatic Data, August 1985. (Report to the Ministry of Mining and Energy)
5. Chen, A.A. and A.S. Wagh, The Study of Salinity and Other Atmospheric Parameters in South Clarendon Influencing the Drying Process of Coffee Beans, January 1986. (Report to the Coffee Industry Board).
6. Chen, A.A., Climatic Data for Energy Conservation in Buildings Parts I & II, November 1987 & March 1988. (Report to Petroleum Corporation of Jamaica, Energy Conservation Code Committee)
7. Chen, A.A., Diskettes of typical year climatic database for 2 regions in Jamaica based on data reduction and modelling for Jamaica Energy Efficiency Building Code, November 1990. (Report to the World Bank)
8. Produced with P.N. Chin *Solar Radiation Map of Jamaica* (for use in solar energy applications), sponsored and sold by Petroleum Corporation of Jamaica, 1994.
9. Plan of operation for a Feasibility Study for the Prediction and Amelioration of Socioeconomic Impacts of El Nino Southern Oscillation (ENSO) in Latin America and the Caribbean, July 1998. (Report to the World Meteorological Organization (WMO) and the Inter-American Development Bank (IDB))

Papers presented or reported in conference proceedings

Over 40 papers including

Invited papers on techniques for renewable energy resource studies

1. Chen, A.A., Techniques for Assessment of Wind Power in *Meteorological data for solar and wind energy applications*, Technical Publication 161, Commonwealth Science Council, London, 70-84, April 1985. (Report of a workshop held in Barbados)
2. Chen, A.A., Solar Radiation, Instrumentation and Data Collection, *Proceedings of Solar Energy Workshop Antigua, Jan 3-5, 1989* (O. Headley, ed.), published by University of the West Indies, St. Augustine and European Development Fund,1990.

And some recent papers

1. Chen, A.A., Effects of the Variability of the Solar Energy Input on the Atmospheric System in Jamaica, *Conference on Major Scientific Problems of the Atmospheric System and the Developing Countries*, Trieste, November 11-15, 1991.
2. Chen, A.A., Rainfall and Solar Variability in Jamaica, *17th Assembly of the European Geophysical Society*, Edinburgh, April 6-10, 1992.
3. Chen, A.A., Global Radiation Map and Diffuse Radiation for Jamaica, *Proceedings of Sustainable Alternatives for Tropical Island States*, Bridgetown, Barbados (L.Moseley and O.Headley, eds.),166-171, 1994.

- 4 Chen, A, A.Roy, J.McTavish, M.Taylor and L.Marx, Using SST Anomaly to Predict Wet and Dry Conditions in the Caribbean in May and June and Application of Aspects of this Research, Especially to the Sugar Industry, *Proceedings of the Conference/Workshop on the Caribbean Countries and the Inter-American Institute for Global Change Research, July 9-11,1997*, (F.Gilbes and J.Velez-Arocho, eds.) University of Puerto Rico, Mayaguez, 1998
- 5 Chen, A.A, M.A. Taylor, S.Bryan and L.Marx, Preliminary Analysis of MJJ Caribbean precipitation, *Proceedings of the 10th Symposium on Global Change*, Texas, USA, January 10-15, 1999. Published by American Meteorological Society.
- 6 Chen, A.A., Caribbean Climate Information and Application Network (A Discussion Paper), *3rd Caribbean Climate Outlook Forum*, Santo Domingo, Republica Dominicana, May 3-5, 2000.
- 7 Chen, A.A., and M.A. Taylor, Some Relationships Between Early Season Caribbean Rainfall and SST's in the Tropical Atlantic and Pacific, poster to be presented at *Royal Meteorological Society Conference: Meteorology at the Millennium*, Univ. of Cambridge, July 10-14, 2000.
- 8 Chen, A.A., D. Amarakoon, M.A. Taylor and T.C. Hall, ENSO Events and Climate Variability in the Caribbean – Socio-economic Impacts and Implications for Future Climate Change in the Caribbean, poster presentation at the *Global Change Open Science Conference*, Amsterdam, 10-13 July, 2001
- 9 A. Chen, W. Bailey and C. Heslop-Thomas, Human Dimension of Climate Change in the Caribbean-Taking Stock and Moving Forward, *Open Meeting of the Human Dimensions of Global Environmental Change Research Community*, Montréal, Canada, October 16–18, 2003
- 10 Dharmaratne Amarakoon, Roxann Stennett, Anthony Chen Climate Variability and Disease Patterns in Two South Eastern Caribbean Countries; *Proceedings of the Caribbean Environmental Fourm-2 (CEF-2); Trinidad*, May 31-June 4, 2004.
- 11 Dharmaratne Amarakoon, Tannecia Stephenson, Anthony Chen, Michael Taylor,Roxann Stennett, Charmaine Heslop Thomas, Wilma Bailey, Samuel Rawlins, Dave Chadee, Associations of climate with dengue in the Caribbean, Poster presentation at *Wengen Workshop on Global Change Research (Climate, Climate Change and its Impacts on Human Health); 10th Anniversary Meeting; Wengen (Bernese Alps) Switzerland*, September 12-14, 2005

Fellowship/Membership in professional organizations

Fellow, Royal Meteorological Society
 Member, American Association of Physics Teachers
 Member, American Meteorological Society
 Member, International Solar Energy Society
 Member, Jamaica Society of Scientists and Technologists

Other information

- Associate Member, International Centre for Theoretical Physics, Trieste, Italy, January 1, 1994 to December 31, 1999
- Country representative for Jamaica to the Inter-American Institute (IAI) for Global Change Research, 1997 –
- Member of a steering committee to plan for the establishment of a Caribbean Climate Information and Application Network, World Meteorological Organization
- One of Lead Authors for Intergovernmental Panel on Climate Change (IPCC) 4th assessment, Working Group 1, Chapter 11 – Small Islands