CURRICULUM VITAE

Name:	Christopher Dennis Thorncroft
Present appointment:	Professor / Department Chair Department of Atmospheric and Environmental Sciences University at Albany, State University of New York
Telephone	518 437-8700 (work) / 518 881-8784 (cell)
Email:	cthorncroft@albany.edu
Date of birth:	4th January 1963
Place of birth:	Basingstoke, United Kingdom
Nationality:	British

1. EDUCATION AND EMPLOYMENT HISTORY

Education:

From	To	Name of institution	Examinations Passed
1981	1984	University of Bristol	BSc Hons. Physics
1984	1985	University of Reading	MSc Meteorology
1985	1988	University of Reading	PhD Meteorology

Previous Appointments:

From	To	Name of employer	Position held
Oct 1988	Sept 1991	University of Reading	Personal Research Fellow (NERC funding obtained by myself)
Dec 1991	Sept 1994	University of Reading	University Fellow (Funded by the University)
Oct 1994	Sept 2000	University of Reading	Lecturer
Jan 2001	Aug 2006	University at Albany	Associate Professor
Sep 2006	present	University at Albany	Full Professor
Feb 2019	present	University at Albany	Interim Director of ASRC

2. RESEARCH

2.1 Brief statement of research interests

My research is focused on improving our understanding of the processes that determine the nature and variability of the West African monsoon, including how this impacts Atlantic tropical cyclone activity. In addition a major interest relates to how tropical waves influence the probability of tropical cyclogenesis in the Atlantic, Caribbean and East Pacific regions. I introduce my present work via three complimentary lines of research:

(i) The West African monsoon system: The main focus has been to improve the knowledge and understanding of the life-cycle and dynamics of African easterly waves over Africa and the tropical Atlantic, and how they interact with convection including the ubiquitous mesoscale convective systems. My research efforts are also directed towards better understanding of the processes that determine the nature and variability of the African easterly jet including the role of the Saharan heat low and the latitudinal variations in convection. Recently I have become more concerned with the nature and variability of the water vapour transport and how this relates to rainfall at regional to local space scales. This includes investigation of the coupled atmosphere-land-ocean system.

(ii) Variability of the West African monsoon and its impact on tropical cyclone activity: Two complementary avenues of research are used here. The first is concerned with how the West African monsoon impacts the large-scale environment where most tropical cyclones form. The second is concerned with the potential role played by variability in the nature of African easterly waves.

(iii) Synoptic Influences on Tropical Cyclogenesis
Recent work has been focused on how tropical Easterly waves in the Atlantic, Caribbean and East Pacific influence the probability of tropical cyclogenesis including how these waves are also influenced by convectively coupled equatorial waves.

(iv) Trends in Extreme Weather in the North East United States
Ongoing research is concerned with documenting and understanding trends in extreme rainfall in the NE US including emphasis on the weather systems that are responsible for these extremes.

2.2 Refereed Publications
I have more than 80 publications and an H-index, according to Google Scholar, of 44.

Thorncroft, C.D. and Hoskins, B.J. 1990: Frontal Cyclogenesis. J. Atmos. Sci., 47, 2317-2336.

Thorncroft, C.D., Hoskins, B.J. and McIntyre, M.E. 1993: Two paradigms of baroclinic wave life-cycle behaviour. Q.J.R. Meteorol. Soc., 119, 17-55.

Thorncroft, C.D. and Hoskins, B.J. 1994: An idealized study of African easterly waves. I: A linear view. Q.J.R. Meteorol. Soc., 120, 953-982.

Thorncroft, C.D. and Hoskins, B.J. 1994: An idealized study of African easterly waves. II: A non-linear view. Q Q. J.R. Meteorol. Soc., 120, 983-1015.

Thorncroft, C.D. 1995: An idealized study of African easterly waves. III: More realistic basic states Q.J.R. Meteorol. Soc., 121, 1589-1614.

Thorncroft, C.D. and Haile, M. 1995: The mean dynamic and thermodynamic fields for July 1989 over tropical North Africa and their relationship to convective activity. Mon. Wea. Rev., 123, 3016-3031.

Thorncroft, C.D. and Flokas, H. 1997: A case study of Saharan cyclogenesis. Mon. Wea. Rev., 125, 1147-1165.

Hodges, K.I. and **Thorncroft, C.D.** 1997: Distribution and statistics of African mesoscale convective weather systems based on the ISCCP METEOSAT imagery. Mon. Wea. Rev., 125, 2821-2837.

Jones, C.G. and **Thorncroft, C.D.** 1998: The role of El Nino on Atlantic tropical cyclone activity. Weather, 53, 324-336.

Thorncroft, C.D. and Rowell, D. 1998: Interannual variability of African easterly waves in a GCM. Int. Jour. Clim., 18, 1305-1323.

Thorncroft, C.D. and Blackburn, M.1999: Maintenance of the African easterly jet. Q.J.R. Meteorol. Soc., 125, 763-786.

Pytharoulis, I. and **Thorncroft, C.D.** 1999: The low-level structure of African easterly waves in 1995. Mon. Wea. Rev., 127, 2266-2280.

Thorncroft, C.D. and Jones, S.C. 2000: The extratropical transitions of hurricane Felix and Iris in 1995. Mon. Wea. Rev., 128, 947-972.

Thorncroft, C.D. and Hodges, K.I. 2001: Interannual variability of African easterly wave activity and its relationship to tropical cyclone activity. J. Climate, 14, 1166-1179.

Thorncroft, C.D. and Pytharoulis, I. 2001: A dynamical approach to seasonal prediction of Atlantic tropical cyclone activity. Weather and Forecasting, 16, 725-734.

Thorncroft, C.D., Parker, D.J., Burton, R.R., Diop, M., Ayers, J.H., Barjat, H., Dumelow, R., Kindred, D.R., Price, N.M., Saloum, M., Taylor, C.M. and Tompkins, A.M. 2003: The JET2000 experiment: Aircraft observations of the African easterly jet and African easterly waves. Bull. Amer. Met. Soc., 84, 337-351.

Hodges, K.I., Hoskins, B.J., Boyle, J. and **Thorncroft, C.** 2003: A comparison of recent reanalysis datasets using objective feature tracking: storm tracks and tropical easterly waves. Mon. Wea. Rev., 131, 2012-2037.

Jones, S.C., Harr, Abraham, Bosart, Bowyer, Evans, Hanley, Hanstrum, Hart, Lalaurette, Sinclair, Smith and **Thorncroft, C.D.** 2003: The extratropical transition of tropical cyclones: forecast challenges, current understanding and future directions Weather and Forecasting 18, 1052-1092.

Taylor, C.M., Ellis, R.J., Parker, D.J., Burton, R.R. and **Thorncroft, C.D.** 2003: Linking boundary layer variability with convection – a case study from JET2000, Q.J.R. Meterol. Soc, 129, 2233-2254.

Agusti-Panareda, A., **Thorncroft, C.D.**, Craig, G.C. and Gray, S.L. 2004: The extratropical transition of hurricane Irene (1999): A potential vorticity perspective. Q.J.R. Meteorol. Soc., 130, 1047-1074.

Agusti-Panareda, A., Gray, S.L., Craig, G.C. and **Thorncroft, C. D.** 2005: Extratropical transition of tropical cyclone Lili (1996), Q.J.R. Meteorol. Soc., 1562-1573.

Berry, G., and **Thorncroft, C.** 2005: Case study of an intense African easterly wave. Mon. Wea. Rev., 133, 752-766.

Parker, D., **Thorncroft, C.,** Burton, R. and Diongue, A. 2005: Analysis of the African easterly jet using aircraft observations from the JET2000 experiment. Q.J.R. Meteorol. Soc, 1461-1482.

Taylor, C. M., Parker, D. J., Lloyd, C .R. and **Thorncroft, C. D.** 2005: Observations of synoptic scale land surface variability and its coupling with the atmosphereÕ, Q.J.R. Meteorol. Soc., 131, 913-938.

Tompkins, A.M., Diongue, A., Parker, D. J., and **Thorncroft, C. D.** 2005: The African easterly jet in the ECMWF Integrated forecast system: 4DVar analysis, Q. J. R. Meteorol. Soc., 131, 2861-2886

Parker, D.J., Burton, R., Diongue, A., Ellis, R.J., Felton, M., Taylor, C. M., **Thorncroft,** and Bessemoulin, P. 2005: The diurnal cycle of the west African monsoon circulation, Q. J. R. Meteorol. Soc., 131**,** 2839-2860.

Aiyyer, A. and **Thorncroft, C.** 2006: Climatology of vertical shear over the tropical Atlantic J. Climate, 19, 2969-2983

Mohr, K. and **Thorncroft, C.** 2006: Intense convective systems in West Africa and their relationship with the African easterly jet , Q.J.R. Meteorol. Soc. 132, 163-176

Mekonnen, A., **Thorncroft, C.** and Aiyyer, A. 2006: On the significance of African easterly waves on convection, J. Climate, 19, 5405-5421

Hall, N., Kiladis, G. and **Thorncroft, C.** 2006: Three-dimensional structure and dynamics of African easterly waves: part II: Dynamical modes and growth mechanisms, J. Atmos. Sci., 63, 2231-2245.

Kiladis, G., **Thorncroft, C.** and Hall, N. 2006: Three-dimensional structure and dynamics of African easterly waves: part I: Observed structures, J. Atmos. Sci., 63, 2210-2230.

Berry, G., **Thorncroft, C.** and Hewson, T. 2006: African easterly waves in 2004 – Analysis using objective techniques Mon. Wea. Rev., 133, 752-766

Redelsperger, J.L., **Thorncroft, C.D.**, Diedhiou, A., Lebel, T., Parker, D.J. and Polcher, J. 2006: African Monsoon Multidisciplinary Analysis: An International Research Project and Field Campaign, BAMS, 1739-1746.

Hopsch, S.B., **Thorncroft, C.,** Hodges, K. I. and Aiyyer, A. 2007: West African storm tracks and their relationship with tropical cyclones, J. Climate, 20, 2468-2483.

Parker, D.J., Fink, A., Janicot, S., Ngamini, J.-B., Douglas, M., Afiesimama, E., Agusti-Panareda, A., Beljaars, A., Dide, F., Diedhiou, A., Lebel, T., Polcher, J., Redelsperger, J.-L., **Thorncroft, C.D**, Wilson, G.A. 2008: The AMMA radiosonde program and its implications for the future of atmospheric monitoring over Africa, BAMS. 89, 1015-1027.

Zhang, C., Nolan, D., **Thorncroft, C.D.** and Nguyen, H. 2008: Shallow Meridional Circulations in the Tropical Atmosphere, J. Climate, 21,3453-3470.

Janicot, S., **Thorncroft, C. D.**, and many co-authors 2008: Large-scale overview of the summer monsoon over West Africa during the AMMA field experiment in 2006. Ann. Geophys, 26, 2569-2595.

Thorncroft, C.D., Hall, N. and Kiladis, G., 2008: Three-dimensional structure and dynamics of African easterly waves: part III: Genesis, J. Atmos. Sci., 65, 3596-3607.

Mekonnen, A., **Thorncroft, C.D.**, Aiyyer, A. and Kiladis, G., 2008: Convectively coupled Kelvin waves over tropical Africa during boreal summer: Structure and Variability, J. Climate, 21,.6649-6667.

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Hopsch, S.B., **Thorncroft, C.D.** and Tyle, K.R. 2010: Analysis of African Easterly Wave Structures and their Role in Influencing Tropical Cyclogenesis, Mon. Wea. Rev., 138, 1399-1419.

Lebel, T., Parker, D.J., Flamant, C., Bourles, B., Marticorena, B., Mougin, E., Peugeot, C., Diedhiou, A., Haywood, J.M., Ngamini, J.B., Polcher, J., Redelsperger, J.-L., **Thorncroft, C.D.** 2010: The AMMA field campaigns: multiscale and multidisciplinary observations in the West African region, Quart. Jour. Roy. Meteorol. Soc., 136, 8-33.

Agusti-Panareda, A., Beljaars, A., Cardinali, C., Genkova, I. and **Thorncroft, C.D.** 2010: Impact of assimilating AMMA soundings on ECMWF analyse and forecasts, Weather and Forecasting, 25, 1142-1160.

Thorncroft, C.D., Nguyen, H., Zhang, C. and Peyrille, P. 2011: Annual Cycle of the West African Monsoon: Regional Circulations and associated Water Vapor Transport, Quart. Jour. Roy. Meteorol. Soc., 137, 129-147.

Aiyyer, A. and **Thorncroft, C.D.** 2011: Interannual to Multidecadal Variability of Vertical shear and Tropical Cyclone Activity, J. Climate,24, 2949-2962

Nguyen, H., **Thorncroft, C. D.** and Zhang, C. 2011: Guinean coastal rainfall of the West African Monsoon. Quarterly Journal of the Royal Meteorological Society, 137, 1828–1840.

Ventrice, M. J., **Thorncroft, C. D.**, Roundy, P. E. 2011: The Madden–Julian Oscillation's Influence on African Easterly Waves and Downstream Tropical Cyclogenesis. *Mon. Wea. Rev.*, **139**, 2704–2722.

Polcher, J., Parker, D. J., Gaye, A., Diedhiou, A., Eymard, L., Fierli, F., Genesio, L., Höller, H., Janicot, S., Lafore, J.-P., Karambiri, H., Lebel, T., Redelsperger, J.-L., Reeves, C. E., Ruti, P., Sandholt, I. and **Thorncroft, C.**, 2011: AMMA's contribution to the evolution of prediction and decision-making systems for West Africa. Atmospheric Science Letters, 12: 2–6.

Lafore, J.-P., Flamant, C., Guichard, F., Parker, D. J., Bouniol, D., Fink, A. H., Giraud, V., Gosset, M., Hall, N., Höller, H., Jones, S. C., Protat, A., Roca, R., Roux, F., Saïd, F. and **Thorncroft, C.**, 2011: Progress in understanding of weather systems in West Africa. Atmospheric Science Letters, 12: 7–12.

Lebel, T., Parker, D. J., Flamant, C., Höller, H., Polcher, J., Redelsperger, J.-L., **Thorncroft, C.**, Bock, O., Bourles, B., Galle, S., Marticorena, B., Mougin, E., Peugeot, C., Cappelaere, B., Descroix, L., Diedhiou, A., Gaye, A. and Lafore, J.-P. , 2011: The AMMA field campaigns: accomplishments and lessons learned. Atmospheric Science Letters, 12: 123–128.

Janicot, S.J., Lafore, J.-P. and **Thorncroft, C.** 2012: The West African Monsoon, Chapter in "Global Monsoon System: Research and Forecast", Eds. Vhang, C.-P., Ding. Y, and Lau, N.-C., Johnson, R. H., Wang, B. and Yasunari, T., Pubs. World Scientific Publishing Company, 608pp.

Wu, Man-Li C., Reale, O., Schhubert, S. D., Suarez, M. J. and **Thorncroft, C. D.,** 2012: African Easterly Jet: barotropic instability, waves and cyclogenesis, J. Clim., 25, 1489-1510.

Ventrice, M.J., **Thorncroft, C.D.** and Janiga, M. A. 2012: Atlantic tropical cyclogenesis: A three-way interaction between an African easterly wave, diurnally varying convection, and a convectively coupled atmospheric Kelvin wave, Mon. Wea. Rev. 140(4), 1108-1124.

Berry, G. and **Thorncroft, C. D.**, 2012: African Easterly Wave Dynamics in a Mesoscale Numerical Model: J. Atmos. Sci., 69, 1267-1283.

Waliser, D. E., Moncrieff, M. W. and 21 co-authors, 2012: The "YEAR" of tropical convection (May 2008-April 2010), Bull. Amer. Meterol. Soc., 93(8), 1189-1218.

Ventrice, M.J., **Thorncroft, C.D.** and Schreck, C. J. 2012: Impacts of convectively coupled Kelvin waves on environmental conditions for Atlantic tropical cyclogenesis, Mon. Wea. Rev. , 140(7), 2198-2214.

Zhou, L., Tian, Y., Baidya, R., **Thorncroft, C**., Bosart, L. F. and Hu, Yuanlong, 2012: Impacts of wind farms on land surface temperature, Nature Climate change, 2, 539-543.

Ventrice, M.J. and **Thorncroft, C.D.** 2013, The role of convectively coupled atmospheric Kelvin waves on African easterly wave activity, Mon. Wea. Rev., 141(6), 1910-1924.

Martin, E. R. and **Thorncroft, C. D.** 2013: The impact of the AMO on the West African monsoon annual cycle. Q.J.R. Meteorol. Soc.. doi: 10.1002/qj.2107

Vera, C., Gutowski, W., Mechoso, R., Goswami, B., Reason, C., **Thorncroft, C.D.**, Marengo, J., Hewitson, B., Hendon, H., Jones, C., and Lionello, P. 2013: Understanding and Predicting Climate Variability and Change at Regional Scales, Chapter in "Climate Science for Serving Society", Asrar, G. M and Hurrel, J. W. (Eds), 480pp, Springer.

Janiga, M. A. and **Thorncroft, C. D.** 2013: Regional Differences in the Kinematic and Thermodynamic Structure of African Easterly Waves, Quart. Roy. Meteorol. Soc., 139, 1598-1614.

Ventrice, M.J., Wheeler, M.C., Hendon, H.H., Schreck, C.J. , **Thorncroft, C.D.** and Kiladis, G. N. 2013: A modified multivariate Madden Julian Oscillation index using velocity potential, Mon. Wea. Rev., 141, 4197-4210

Martin, E.R., **Thorncroft, C.D.,** and Booth, B.B.B. 2013: The multidecadal Atlantic SST-Sahel rainfall teleconnection in CMIP5 simulations, J. Climate, 27, 784-806

Dunion, J.P., **Thorncroft, C.D.** and Velden, C.S. 2013: The tropical cyclone diurnal cycle, Mon. Wea. Rev., 142, 3900-3919

Martin, E. R. and **Thorncroft, C.D.** 2013: Sahel Rainfall in Multidecadal CMIP5 Decadal Hindcasts, Geophys. Res. Letts., 41(6), 2169-2175

Janiga, M. A. and **Thorncroft, C.D.** 2013: Convection over Tropical Africa and the East Atlantic during the West African Monsoon: Regional and Diurnal Variability, J. Climate, 11, 4159-4188

Ventrice*, M.J., Wheeler, M.C., Hendon, H.H., Schreck, C.J. , **Thorncroft, C.D.** and Kiladis, G. N. 2013: A modified multivariate Madden Julian Oscillation index using velocity potential, Mon. Wea. Rev., 141, 4197-4210.

Martin*, E.R. ,**Thorncroft, C.D.,** and Booth, B.B.B. 2014: The multidecadal Atlantic SST- Sahel rainfall teleconnection in CMIP5 simulations, J. Climate, 27, 784-806.

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Martin*, E.R. and **Thorncroft, C.D.** 2014: Sahel Rainfall in Multimodel CMIP5 Decadal Hindcasts, Geophys. Res. Letts. 41(6), 2169-2175.

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Karam, D. B., Williams, E., Janiga*, M., Flamant, C., McGraw-Herdeg, M., Cuesta, J., Auby, A. and **Thorncroft, C. D.** 2014: Synoptic scale dust emissions over the Sahara desert initiated by a moist convective cold pool in early August 2006, Q. Jour. Roy. Meteorol. Soc., 140, 2591-2607.

Brammer*, A. and **Thorncroft, C.D.** 2015: Variability and Evolution of African Easterly Wave Structure and the Relationship with Tropical Cyclogenesis over the Eastern Atlantic, Mon. Wea. Rev., **143,** 4975–4995.

Janiga*, M.A. and **Thorncroft, C.D.** 2016: The Influence of African Easterly Waves on Convection over Tropical Africa and the East Atlantic, Mon. Wea. Rev., **144,** 171–192.

Martin*, E.R. and **Thorncroft, C.D.** 2016: Representation of African Easterly Waves in CMIP5 Models, J. Clim., 28, 7702–7715

Mekonnen, A. and **Thorncroft, C.D.** 2016: On the mechanisms that determine the 3-4 day time scale convection over East Africa, Int. Jour. Clim., 36, 4045-4057

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Dunion, J. , **Thorncroft, C.D.** and Nolan, D. 2019: Tropical Cyclone Diurnal Signals in a Hurricane Nature Run, Mon. Wea. Rev.

Grogan, D. and **Thorncroft, C. D**. 2019: The Characteristics of African Easterly Waves Coupled to Saharan Mineral Dust Aerosols, Quart. J. Roy. Meteorol. Soc., (in press).

Howarth*, M., **Thorncroft, C. D.** and Bosart, L. 2019: Changes in Extreme Precipitation in the Northeast United States: 1979-2014, J. Hydromet. (in press)

Cheng*, Y.-M., **Thorncroft, C. D.** and Kiladis, G. K. 2019: Two contrasting African easterly wave behaviors, J. Atmos. Sci (in review)

3. EXTERNAL SERVICE

(i) Leader of the West African Monsoon Project

I was leader of the EU-funded West African Monsoon Project (WAMP) between 1997 and 2000. WAMP achieved a multi-scale analysis of the West African monsoon combining a hierarchy of models with observations. It included research groups from the UK, France and Germany. It was an early step towards the development of the much larger AMMA project (see below).

(ii) CLIVAR-Africa Panel

I was co-chair (2000-2005) for the CLIVAR Panel for Variability of the African Climate System (VACS) which was set up in July 2000. The initial implementation plan for this panel was produced by the CLIVAR Africa task Team which I chaired between 1999/2000. The CLIVAR Panel comes under the auspices of the World Meteorological Organisation and has the responsibility of coordinating international projects on African climate variability. The VACS website can be found at http://www.clivar.org/organization/africa/vacs.htm. Since 2006 I have remained an ex-officio member tasked to ensure linkages between CLIVAR and AMMA.

(iii) African Monsoon Multidisciplinary Analysis (AMMA) leadership

I have taken a leading role in the AMMA project concerned with a multidisciplinary analysis of the West African monsoon (http://www.amma-international.org). At the heart of this was an international field campaign during the 2005-2007 period. I was co-chair of the AMMA International Scientific Steering Committee (ISSC) until the

end of 2006. The ISSC is responsible for the formulation of well-defined objectives and a coherent scientific program for AMMA. It oversees the implementation of AMMA and meets approximately once a year. I took an active role in many aspects of the coordination, which included coordination of written contributions to the International Science Plan, leadership of the joint AMMA-THORPEX scientific working group, scientific organisation of the 1st International AMMA conference (Dakar, Nov 2005), the 2nd International AMMA conference (Karlsruhe, Nov 2007) and many other needed activities.

4. ONGOING SPECIAL PROJECTS

3.1 NYS Mesonet

I am currently Director of the NYS mesonet. This is a $30Million project that deployed 126 automatic weather stations throughout the State during a 3-year period. Seventeen of these sites include an enhanced suite of observations including profiling capability. The efforts are strongly linked to data assimilation efforts, other NWP research and the provision of operational products to State agencies.

3.2 Center of Excellence in Weather

I am director of a NY State Center of Excellence at UAlbany dedicated to promoting and facilitating applied research related to weather and business with the aim of securing economic benefit for the State.

3.3 Climate Change and Extreme Weather in the North East U. S.

In recent years I have been motivated to discuss climate change and its impacts to public audiences in NY State. In 2014 and 2015 I worked with the Rockefeller Institute of Government to host 1-day events at the University at Albany to educate emergency managers and the public in upstate New York about climate change and extreme weather. I also led a scientific workshop concerned with Extreme Weather, Climate Change and related flooding that involved a number of different stakeholders.

5. AWARDS

I was made a Fellow of the American Meteorological Society in 2017.