

# ANANTHA AIYYER

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Campus Box 8208  
North Carolina State University  
Raleigh USA 27695-8208

Phone: 919.515.7973  
E-mail: [aaiyyer@ncsu.edu](mailto:aaiyyer@ncsu.edu)  
<https://aiyyer.github.io/>

## Education

2003	PhD	Atmospheric Science	State University of New York, Albany <i>Committee: John Molinari, Lance Bosart, Lloyd Shapiro, Daniel Keyser, Arthur Loesch</i>
1998	MS	Atmospheric Science	State University of New York, Albany <i>Committee: John Molinari, Daniel Keyser</i>
1994	MSc	Physics	Indian Institute of Technology, Kharagpur
1992	BSc	Physics	Indian Institute of Technology, Kharagpur

## Employment

2012 – present	Associate Professor, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University
2006 – 2012	Assistant Professor, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University
2003 – 2006	Research Associate, State University of New York, Albany <i>PI: Chris Thorncroft</i>

## Notable Recognition

2011	LeRoy and Elva Martin Award For Teaching Effectiveness: NCSU
2009	National Science Foundation Faculty Early Career (CAREER) Proposal
2004	Narayan R. Ghokale Award for Outstanding Research: SUNY Albany
1998	Max A. Eaton Prize: American Meteorological Society.

## Selected Professional and Academic Service

2016	Co-Chair Committee of Visitors, National Science Foundation (NSF)
2003 – present	Peer reviewer: J. Atmos. Sc., Mon. Wea. Rev., J. Clim., Q. J. Roy. Met. Soc., Clim. Dyn., Geo. Res. Letts.
2006 – present	Proposal reviewer: NSF, NOAA
2014	NSF GRFP review panel member
2008	Max Eaton Award judges panel, 28th Conference on Hurricanes and Tropical Me- teorology. Orlando, FL
2006	CMAQ Peer Review, Environmental Protection Agency, Research Triangle Park, North Carolina

## Federally funded projects (PI and co-PI)

NASA:	Investigation of the Interaction Between Kelvin Waves and Easterly Waves Using CYGNSS Data [ <b>\$334,484</b> ]
NASA:	Multiscale interactions between the MJO, equatorial waves, and the diurnal cycle over the Maritime Continent [ <b>\$383,431</b> ]
NSF:	Origin, Storm track Dynamics and Convective Feedback of African Easterly Waves [ <b>\$481,728</b> ]
NSF:	US-India International Workshop: Collaborative Science, Research, and Education in Air Quality Measurements, Modeling and Analysis [ <b>\$39,996</b> ]
NSF:	CAREER: Dynamics of African Easterly Waves: Integrating phenomenological studies and Mathematical Instruction in Atmospheric Science [ <b>\$556,607</b> ]
NOAA:	Improving Prediction of Severe Winds, Convection and Heavy Precipitation in the Southeastern United States [ <b>\$375,000</b> ]
US DOE:	High-Resolution Modeling to Assess Tropical Cyclone Activity in Future Climate Regimes [ <b>\$649,649</b> ]

## Technical Skills

Models	Weather and Climate modeling of various complexities and process based diagnostics
Data analysis	Extensive experience with modeled and observed data including reanalysis/reforecast products, CMIP outputs, remote sensing data
Programming	Extensive experience with coding in Fortran, NCL and now shifting to Python, experience with version control (github)
OS	Extensive experience with Linux

## Publications

29. Russell, J.O. and A. Aiyyer, 2020: The Potential Vorticity Structure and Dynamics of African Easterly Waves. *J. Atmos. Sci.*, 0, <https://doi.org/10.1175/JAS-D-19-0019.1>.
28. Russell, J. O. H., Aiyyer, A., and White, J. D. 2020. African easterly wave dynamics in convection-permitting simulations: Rotational stratiform instability as a conceptual model. *Journal of Advances in Modeling Earth Systems*, 12, e2019MS001706.
27. Hannah W. and A. Aiyyer 2017: Reduced African Easterly Wave Activity with Quadrupled CO<sub>2</sub> in the Super-Parameterized CESM, *J. Clim.*, 30, 8253-8274
26. Russell, J. O., A. Aiyyer, J. D. White and W. Hannah 2016: Revisiting the connection between African Easterly Waves and Atlantic tropical cyclogenesis. *Geophys. Res. Lett.*, 44, 587-595.
25. A. Aiyyer, 2015: Recurring Western North Pacific Tropical Cyclones and Mid-Latitude Predictability. *Geophys. Res. Lett.*, 7799-7807.
24. Diaz, M. and A. Aiyyer, 2015: Absolute and Convective Instability of the African Easterly Jet. *J. Atmos. Sci.*, 72., 1805-1826

23. Tyner, B., A. Aiyyer, J. Blaes, and D. R. Hawkins 2015: A Climatological Examination of Sustained Wind Speeds, Wind Gusts and Wind Forecasts for Recent Tropical Cyclones in the Mid-Atlantic Region of the United States. *Wea. Forecasting*, 30, 153-176
22. Diaz, M. and A. Aiyyer, 2013: Genesis of African Easterly Waves by Upstream Energy Dispersion. *J. Atmos. Sci.*, 70, 3492-3512.
21. Mallard, M., G. M. Lackmann and A. Aiyyer, 2013: Atlantic Hurricanes and Climate Change. Part II: Role of Thermodynamic Changes in Decreased Hurricane Frequency. *J. Clim.*, 26, 8513-8528
20. Mallard, M., G. M. Lackmann, A. Aiyyer, K. Hill, 2013: Atlantic Hurricanes and Climate Change. Part I: Experimental Design and Isolation of Thermodynamic Effects. *J. Clim.*, 26, 4876-4893.
19. Tyner, B. P. and A. Aiyyer, 2012: Evolution of African Easterly Waves in Isentropic Potential Vorticity Fields. *Mon. Wea. Rev.*, 140, 3634-3652.
18. Aiyyer, A., A. Mekonnen and C. Shreck-III, 2012: Projection of Tropical Cyclones on Wavenumber Frequency Filtered Equatorial Waves. *J. Clim.*, 25, 3653-3658.
17. Schreck, C., J. Molinari and A. Aiyyer, 2012: A Global View of Equatorial Waves and Tropical Cyclogenesis. *Mon. Wea. Rev.*, 140, 774-788.
16. Aiyyer A. and C. Thorncroft, 2011: Interannual to multidecadal variability of vertical shear in the tropics. *J. Clim.*, 24, 2949-2962.
15. Novak. D. R., B. A. Colle and A. R. Aiyyer, 2010: Evolution of Mesoscale Precipitation Band Environments within the Comma Head of Northeast U.S. Cyclones. *Mon. Wea. Rev.*, 138, 2354-2374.
14. N. Meskhidze, L. A. Remer, S. Platnick, R. Negron Juarez, A. M. Lichtenberger, and A. R. Aiyyer (2009), Exploring the differences in cloud properties observed by the Terra and Aqua MODIS sensors, *Atmos. Chem. Phys. Discuss.*, 9, 1489-1520.
13. Galarneau, T. J., Jr., L. F. Bosart, and A. R. Aiyyer, 2008: Closed anticyclones of the subtropics and middle latitudes: A 54-yr climatology (1950-2003) and three case studies. *Synoptic-Dynamic Meteorology and Weather Analysis and Forecasting: A Tribute to Fred Sanders*, Meteor. Monogr., No. 55, Amer. Meteor. Soc., 349-392.
12. Aiyyer, A. R., and J. Molinari, 2008: MJO and Tropical Cyclogenesis in the Gulf of Mexico and Eastern Pacific: Case Study and Idealized Numerical Modeling. *J. Atmos. Sci.*, 65, 2837-2855.
11. Archambault, H. M., L. F. Bosart, D. Keyser, and A. R. Aiyyer, 2008: Influence of Large-Scale Flow Regimes on Cool-Season Precipitation in the Northeastern United States. *Mon. Wea. Rev.*, 136, 2945-2963.
10. Mekonnen, A., C. D. Thorncroft, A. R. Aiyyer, and G. N. Kiladis, 2008: Convectively coupled Kelvin waves over tropical Africa during the boreal summer: Structure and variability. *J. Clim.*, 21, 6649-6667.
9. Holder, C. T., S. Yuter, A. H. Sobel, and A. R. Aiyyer, 2008: The Mesoscale Characteristics of Tropicalholder Oceanic Precipitation during Kelvin and Mixed Rossby-Gravity Wave Events. *Mon. Wea. Rev.*, 136, 3446-3464.
8. Atallah, E., L. F. Bosart, and A. R. Aiyyer, 2007: Precipitation Distribution Associated with Landfalling Tropical Cyclones over the Eastern United States. *Mon. Wea. Rev.*, 135, 2185-2206.
7. Hopsch, S. B., C. D. Thorncroft, K. Hodges, and A. Aiyyer, 2007: West African Storm Tracks

- and Their Relationship to Atlantic Tropical Cyclones. *J. Clim.*, 20, 2468-2483.
6. Aiyyer, A., and C. D. Thorncroft, 2006: Climatology of Vertical Wind Shear over the Tropical Atlantic. *J. Clim.*, 19, 2969-2983.
  5. Corbosiero, K. L., J. Molinari, A. R. Aiyyer, and M. L. Black, 2006: The Structure and Evolution of Hurricane Elena (1985). Part II: Convective Asymmetries and Evidence for Vortex Rossby Waves. *Mon. Wea. Rev.*, 134, 3073-3091.
  4. Mekonnen, A., C. D. Thorncroft, and A. R. Aiyyer, 2006: Analysis of convection and its association with African easterly waves. *J. Clim.*, 19, 5405-5421.
  3. Lapenis, A., A. Shivdenko, D. Shepaschenko, S. Nilsson, and A. Aiyyer, 2005: Acclimation of Russian forests to recent changes in climate. *Global Change Biology*, 11, 2090-2102.
  2. Nagarajan, B., and A. Aiyyer, 2004: Performance of the ECMWF operational analyses over the tropical Indian ocean. *Mon. Wea. Rev.*, 132, 2275-2282.
  1. Aiyyer, A. R., and J. Molinari, 2003: Evolution of Mixed Rossby Gravity Waves in Idealized MJO Environments. , *J. Atmos. Sci.*, 60, 2837-2855.