Aman Gupta

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Research Interests

- Stratospheric Circulation and Dynamics
- Stratosphere-Troposphere coupled dynamics
- Climate Modeling
- Climate variability on interannual and multidecadal timescales

Education

Ph.D. in Atmosphere-Ocean Science and Mathematics *Sep 2014 - Present*
Courant Institute of Mathematical Sciences, New York University, NY, USA

- Advisor : Dr. Edwin Gerber
- Area of research : Stratospheric Dynamics and Correcting Tracer Transport bias in idealised GCMs using age of air diagnosis

B.Tech. in Mathematics & Computing *Jul 2010 - Jul 2014*
Indian Institute of Technology Guwahati, Assam, India
Thesis: "Higher Order Tensor Decomposition" **Advisor**: Prof. Rafikul Alam

Research Experience

Research Assistant, Courant Institute, New York University *Summer 2016*

- Isentropic Circulation in GCMs

Research Assistant, Courant Institute, New York University *Summer 2015*

- Effect of Idealised Volcanic Forcings on the Northern Hemisphere Jet Stream in idealized GCMs

Research Assistant, Digiplante–INRIA, Paris, France *Summer 2013*

- Dynamic tracking of non linear plant models using *Ensemble Kalman Filter and its variations*
- *Hidden states & parametric estimation* in log normal plant models with EnKF

Research Assistant *Summer 2012*
CSIR-Centre for Mathematical Modeling and Computer Simulation(CMMACS), Bangalore, India

- *Mathematical Modelling* : Dynamic and stability analysis of carbon nanotubes using *pseudospectral methods*

Publications and Conferences

[4] Aman Gupta, Edwin Gerber, Olivier Pauluis "**Understanding how model numerics bias tracer transport: Insight from the age of air in idealized GCMs**," in *19th Conference on Middle Atmosphere, Portland, Oregon* 2017.

[3] Yuting Chen, Samis Trevezas, Aman Gupta and Paul-Henry Cournede "**Some sequential Monte Carlo techniques for data assimilation in a plant growth model**," accepted *&* presented by co-author in *15th Applied Stochastic Models & Data Analysis(ASMDA), Spain* 2013.

[2] Aman Gupta, V Senthilkumar "**Pseudospectral methods : Nanoscale Effect of vibration of Carbon Nanotubes with elastic medium using Pseudospectral Methods and Chebyshev grid interpolation**," accepted in *Computational Mathematics, Computational Geometry & Statistics(CMCGS), Singapore* 2013.

[1] V Senthilkumar, Aman Gupta. "**Pseudospectral Methods : Stability Analysis of Carbon Nanotubes using Pseudospectral Methods**," accepted *&* presented by co-author in *National Conference on frontiers in Analysis and Differential Equations(NCFADE), India* 2012.

Service

Organizing Committee, Student Member, *Middle Atmosphere Committee, American Meteorological Society* *Since Jan 2017*

Data Analyst, Child Rights and You(CRY), New Delhi, India *Summer 2011*

- Studying efficiency of Right to Education(RTE) Act 2009 at *state level* in Delhi
- Analyzing status of Malnutrition at *community level* in Delhi.

Teaching Experience

Teaching Assistant for *Earth Atmosphere & Climate Dynamics* (Theory & Laboratory) *Spring 2017*

Teaching Assistant for *Vector Analysis* *Spring 2017*

Grader for *Scientific Computing*(Graduate) *Fall 2016*

Instructor for *Linear Algebra PhD Qualification Exams Workshop*, NYU *Fall 2016*

- Problem Solving sessions to prepare graduate students for the qualification exams

Awards and Fellowships

- Henry M. MacCracken Fellowship, NYU
- Invited to the *Indian National Mathematics Olympiad Training Camp* - among 200 IMO' 09 probables
- *Zonal Informatics Olympiad '09 & '10* - a zonal exam to select 200 team prospects for the International Olympiad in Informatics - 2 years in a row

Technical Skills

Programming: C, C++, Fortran90, Shell scripting, Python(Introductory)

Operating Systems: GNU/Linux, Windows, Mac OS ***Software Packages:*** MATLAB, LaTeX