

# Denis Sergeev

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## AREAS OF INTEREST

- Polar low dynamics
- Mesoscale meteorology
- Atmospheric energetics
- Atmospheric boundary layer
- Extraterrestrial meteorology

## Education

- 2014–Present PhD in Meteorology  
Thesis title: **Dynamics and Predictability of Polar Lows**  
School of Environmental Sciences  
University of East Anglia  
Supervisor: [Ian A. Renfrew](#)
- 2009–2014 Specialist Diploma in Meteorology  
With Honours  
Thesis title: **Idealised numerical modelling of polar mesocyclone dynamics**  
Faculty of Geography  
Lomonosov Moscow State University  
Supervisor: [Victor Stepanenko](#)

## Internships

- Oct 2013 University of Bergen  
Geophysical Institute  
Bergen, Norway  
Supervisor: [Thomas Spengler](#)
- Jul 2012 A.M. Obukhov Institute of Atmospheric Physics  
Laboratory of Climate Theory  
Moscow, Russia  
Supervisor: [Alexey Eliseev](#)

## Publications

### PEER-REVIEWED

1. Sergeev DE, Renfrew IA, Spengler T, and Dorling SR. 2017. Structure of a shear-line polar low. *Q.J.R. Meteorol. Soc.*, **143**(702): 12–26
2. Spengler T, Renfrew IA, Terpstra A, Tjernström M, Screen J, Brooks I, Carleton A, Chechin D, Chen L, Doyle J, Esau I, Hezel P, Jung T, Kohyama T, Lüpkes C, McCusker K, Nygård T, Sergeev DE, Shupe M, Sodemann H, and Vihma T. 2016. High Latitude Dynamics of Atmosphere-Ice-Ocean Interactions. *Bulletin of American Meteorological Society*, **97**(9): ES179–ES182
3. Eliseev AV, Sergeev DE. 2014. Impact of Subgrid Scale Vegetation Heterogeneity on the Simulation of Carbon Cycle Characteristics. *Izvestiya, Atmospheric and Oceanic Physics*, **50**(3): 259–270

## PROCEEDINGS

1. Sergeev DE, Stepanenko VM. 2013. Numerical modelling of polar mesocyclones generation mechanisms. International Conference “Turbulence, atmosphere and climate dynamics” dedicated to A.M. Obukhov, **Selected papers** 168–170
2. Sergeev DE, Zamyatina MY, Stepanenko VM. 2013. Thermal regime features of Kronotsky lake (in Russian). Kronotsky State Natural Biosphere Reserve Proceedings, 329–41
3. Sergeev DE, Stepanenko VM. 2012. Parameterization of mesoscale sensible heat and methane fluxes in the region of Western Siberia. International Conference and Early Career Scientists School on Environmental Observations, modelling and Information Systems (ENVIROMIS-2012), **Selected papers** 67–69

## Conferences and Workshops

### ORAL PRESENTATIONS

- Apr 2016 **Structure of the shear-line polar low south of Svalbard**  
13th European Polar Lows Working Group (EPLWG) Workshop  
Paris, France
- May 2016 **Structure of the shear-line polar low south of Svalbard**  
NORPAN kick-off meeting  
Tokyo, Japan

### POSTER PRESENTATIONS

- Jul 2015 **Structure and dynamics of a shear-line polar low during a cold-air outbreak over the Norwegian Sea**  
Royal Meteorological Society Student Conference  
Birmingham, UK
- Mar 2015 **Structure and dynamics of a shear-line polar low during a cold-air outbreak over the Norwegian Sea**  
Dynamics of Atmosphere-Ice-Ocean Interactions in the High Latitudes workshop  
Rosendal, Norway
- May 2014 **Numerical modelling of polar mesocyclones dynamics diagnosed by the energy budget**  
European Geosciences Union (EGU) General Assembly  
Vienna, Austria
- Apr 2013 **Impact of subgrid-scale vegetation heterogeneity on results of climate model simulation of carbon cycle**  
European Geosciences Union (EGU) General Assembly  
Vienna, Austria
- Apr 2013 **Numerical modelling of polar mesocyclones generation mechanisms**  
European Geosciences Union (EGU) General Assembly  
Vienna, Austria

## Awards and Scholarships

- 2015 **Travel Award**  
Dynamics of Atmosphere-Ice-Ocean Interactions in the High Latitudes workshop
- 2014–2018 **Lord Zuckerman scholarship**  
School of Environmental Sciences, University of East Anglia
- 2014 **Young Scientist’s Travel Award (YSTA)**  
European Geosciences Union (EGU) General Assembly
- 2014 **Russian Academy of Sciences Young Scientist Medal**  
In the area of oceanology, atmospheric physics and geography
- 2009 **3rd place in the All-Russian Geography Olympiad**
- 2009 **1st place in the Lomonosov Geography Olympiad**

## Grants

- 2014–2016 **Characteristics of the mesoscale atmospheric circulations in the Arctic and their influence on the atmosphere-ocean energy exchange**

Russian Foundation for Basic Research (RFBR) Grant

2013–2015 **Multiscale modelling of turbulent atmospheric flow above sea surface with inhomogeneous ice cover**

Russian Foundation for Basic Research (RFBR) Grant

2013–2015 **Developing and verification of the mesoscale sensible heat and tracers fluxes over hydrologically inhomogeneous surface**

Grant of the President of Russian Federation

## Vocational training

Apr 2016 WWRP/WCRP/Bolin Center Polar Prediction School

Dec 2014 UK Met Office Unified Model Training

Sep–Dec 2011 Global Climate Change course

### ON-LINE COURSES

MetEd Topics in Polar Low Forecasting

MetEd Arctic Meteorology and Oceanography

MetEd Skew-T Mastery

MetEd Principles of Convection: Buoyancy and CAPE

MetEd Using Scatterometer Wind and Altimeter Wave Estimates in Marine Forecasting

MetEd Polar Satellite Products for the Operational Forecaster: Microwave Analysis of Tropical Cyclones

MetEd How Mesoscale Models Work

MetEd Jet Streams

MetEd Downscaling of NWP Data

MetEd Satellite Feature Identification: Cyclogenesis

MetEd The Balancing Act of Geostrophic Adjustment

MetEd Introduction to Statistics in Climatology

MetEd Monitoring the Climate System with Satellites

Coursera High Performance Scientific Computing

INTUIT Parallel Programming Using MPI Technologies

## Fieldwork Experience

Aug 2012 **Field practice in meteorology**

Study of prevailing mesoscale processes via wind characteristic measurements and lake hydrothermodynamical modelling

Kronotsky National Reservation, Kamchatka pen., Russia

Jan–Feb 2012 **Field practice in meteorology**

Measurements of the convective boundary layer over the polynya

White Sea Biological Station, Karel Republic, Russia

Jun–Jul 2011 **Field practice in meteorology**

Basic field techniques in atmospheric sciences (atmosphere vertical structure, turbulence and radiative measurements)

Khibiny mountains, Murmansk region, Russia

Jan–Feb 2011 **Field practice in meteorology**

Micrometeorological measurements, ice-breeze modelling

White Sea Biological Station, Karel Republic, Russia

Jun–Jul 2010 **Field practice in geographical studies**

Basic training in meteorology, hydrology, geomorphology, soil science, biogeography, topography

Kaluga region, Russia

## Teaching Experience

2015–Present **Teaching assistance**

University of East Anglia

- Modelling Environmental Processes  
Module organiser: Ian Renfrew
- Meteorology  
Module organiser: Ian Refrew

- Dynamical Meteorology  
Module organiser: Adrian Matthews
- Numerical Skills for Scientists  
Module organiser: Claire Reeves
- Physical and Chemical Processes in Earth's System  
Module organiser: Parvatha Suntharalingam

## Membership in Professional Associations

2014–Present Royal Meteorological Society (RMetS)

## Editorial Service

Acted as reviewer for Quarterly Journal of the Royal Meteorological Society

## Vocational Experience

- Nov 2016 Training course “Introduction to Python in Environmental Sciences”  
Course leader  
University of East Anglia, UK
- 2015–Present Python group coordinator  
Managing an unofficial group of Python language users  
University of East Anglia, UK
- Mar 2015 **Rapporteur**  
Dynamics of Atmosphere-Ice-Ocean Interactions in the High-Latitudes workshop  
Rosendal, Norway
- Jun–Jul 2014 **Professional translator**  
Translation of documentation of meteorological equipment (En-Ru)  
Retail and Consumer Merchandise “Meteomaster” (Moscow, Russia)
- Aug–Sep 2013 **Weather Forecaster**  
Forecast and Briefing Service  
Main Aviation Meteorological Centre, Vnukovo Airport (Moscow, Russia)

## Outreach

- 2015–Present Contributor to SciSnack blogging platform
- Polar Lows: What Fuels Arctic Hurricanes?
  - Disastrous Disaster Movies
  - Worldwide Weird Weather Words

## Computer Skills

Operating systems	Linux, Unix, Windows
Computer Languages	Python, Fortran
Data visualisation	Python, MATLAB, NCL, Paraview
Parallel programming	MPI, OpenMP
Version control systems	Git, Subversion
Document preparation	LaTeX, Markdown
Web development	HTML, CSS

## Languages

Russian	Native speaker
English	Fluent
French	Basic