

Central University of Rajasthan



E-Prospectus

Department of Atmospheric Science

Year of Establishment: 2016

Brainstorming Workshop – Department Setup

WORKSHOP

One day brainstorming workshop held on 20.02.2016 to discuss the structure and course curriculum of M.Sc. Atmospheric Science

Invited Experts

- Prof U.C. Mohanty – Professor, IIT-Bhubaneswar
- Prof. P.C. Pandey – Professor, IIT-Bhubaneswar
- Dr. V Sathayamoorthy – SAC (ISRO), Ahmedabad

Internal Members:

Prof. Manish Shrimali (Dean i/c, School of Earth Sciences), Dr. L.K. Sharma (Head, Department of Environmental Science) and other faculty members of Department of Environmental Science.



**Brainstorming
Workshop**

- Programmes run by the department
 - I. M.Sc. in Atmospheric Science
 - II. Ph.D. in Atmospheric Science
- Objective and vision of the programmes
 1. To impart basic and advanced knowledge of various processes and phenomena in the field of Atmospheric Science and Meteorology.
 2. To provide skills in theory, numerical modeling of Atmospheric processes and their applications in weather forecasting and development of early warning systems for extreme weather events.
 3. To train the students with quantitative and scientific reasoning skills for operational organizations, academia, research & development organizations.
 4. To produce trained manpower in providing solutions to various challenges and issues related to atmospheric sciences and other interdisciplinary areas.

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Faculty Profile

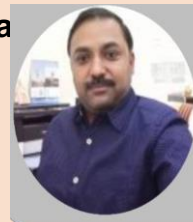
Dr. Devesh Sharma
Associate Professor & Head



Qualification:

D. Eng. from Asian Institute of Tech,
Thailand Experience:
2 years 8 months at TERI University, New
Delhi,
11 years at CURAJ
No. of publications (last 3 years): 25

Dr. Subrat Kumar Panda
Assistant Professor



Qualification:

Ph.D. from IIT, Delhi
Experience:
3 years postdoc at UK, Korea and IIT
Delhi
5.5 years at CURAJ
No. of publications (last 3 years): 13

Dr. Chinmay Mallik
Assistant Professor



Qualification:

Ph.D. from Physical Res. Lab.,
Ahmedabad
Experience:
5 years postdoc at Max Planck
Chemie, Germany
3 years at CURAJ
No. of publications (last 3 years): 07

Dr. Jayanti Pal
Assistant Professor



Qualification:

Ph.D. from University of Calcutta
Experience:
2 years postdoc at University of Calcutta
3 years at CURAJ
No. of publications (last 3 years): 03

Dr. Jai Prakash
Assistant Professor



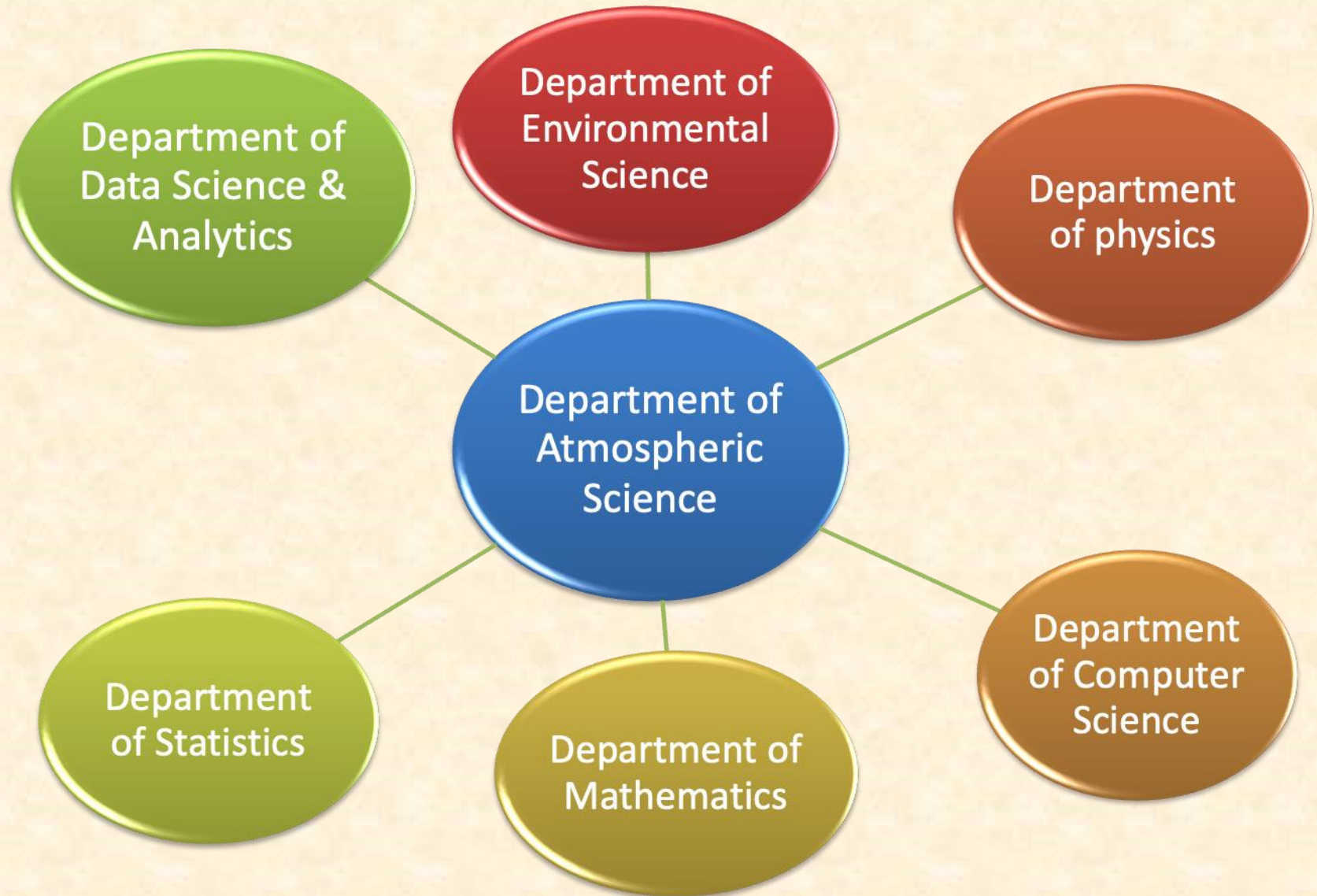
Qualification:

PhD from IIT, Delhi
Experience:
3 years postdoc at Washington
University St. Louis, USA & University
of Gothenburg, Sweden
No. of publications (last 2 months): 1

Thrust Areas of Department

1. Numerical Modeling of Atmospheric and Oceanic Processes
2. Climate Dynamics and Variability
3. Indian Monsoon Studies
4. Mesoscale Modelling and Data Assimilation
5. Computational Methods in Atmospheric Science
6. Remote Sensing of the Atmosphere
7. Severe Convective Storms and Extreme Weather System
8. Desert Meteorology
9. Atmospheric Chemistry and Air Quality
10. Climate Change Impacts

Support from other Departments



Central University of Rajasthan



- Student Enrolment in different programmes (for last three years)

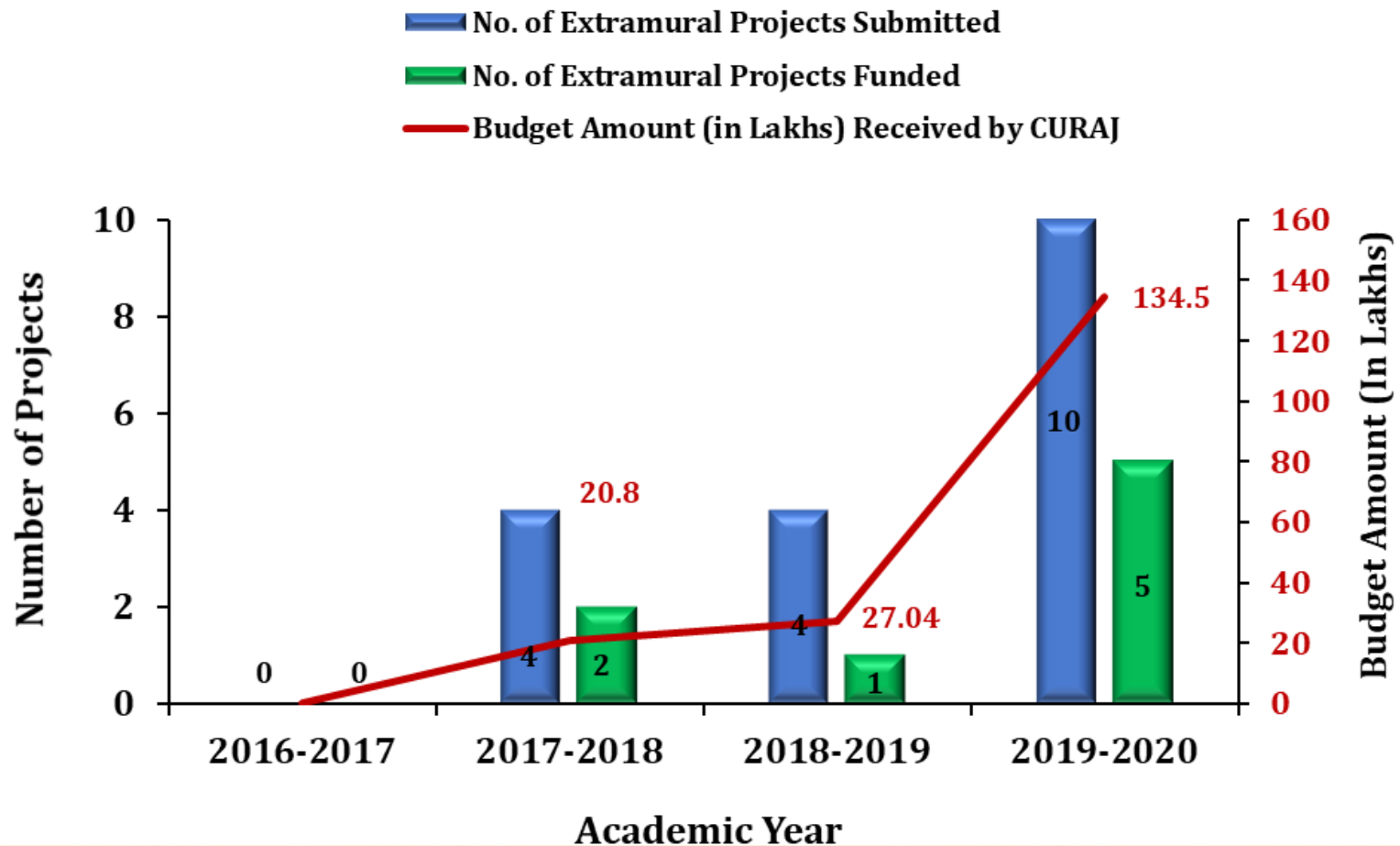
Academic Year	Intake (in M.Sc. Programme)	Admission (in M.Sc. Programme)	Ph.D.
2019-20	18	12	2
2020-21	18	11	0
2021-22	23	15	2
2022-23	30	25	

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Funds and projects received /sanctioned

PI	Funding Agency	Amount (₹ lakhs)	Year	Project Title
Chinmay Mallik	DST-SERB-SRG	30.3	2020-22	Investigation of natural and anthropogenic hydrocarbons over arid & semi-arid regions in western India: Implications to atmospheric oxidation, agriculture & climate
	UGC-BSR	10.0	2021-23	Understanding atmospheric ammonia near its global hotspot region
	ISRO-GBP	34.7	2022-23	Atmospheric Chemistry studies in semi-arid environments with intermittent influences of anthropogenic emissions and desert dust
Devesh Sharma	APN/IGES	6.3	2017-20	Water energy food-nexus perspective: Path making for Sustainable Development Goals (SDGs) to country actions in Asia
	INCCC, MoWR	30.8	2018-22	Climate Change Impact Studies for Rajasthan (Area of Inland Drainage and Mahi Basin)
	DST-SERB	23.8	2021-23	Integrated Atmospheric-Hydrological Modeling System to Assess the Impact of Climate Change on Water Resources in the Banas River Basin, Rajasthan
	APN	5.0	2021-23	Developing Urban-Rural partnerships framework to mitigate climate-induced water availability impacts on Food, Energy and Water (FEW) security at the regional level
	APN		2020-22	Building capacities for water security assessment in Asian cities
Jayanti Pal	UGC-BSR	10.0	2020-22	Recent changes in Indian Ocean dipole in response to the tropical Indian Ocean Sea surface temperature patterns and its consequences
Jayanti Pal (PI), Subrat Kumar Panda & Devesh Sharma (Co-PI)	MoES-NARM	91.3		Generation of Merged Radar, Rain gauge & Satellite Precipitation, and Retrieval of Cloud Microphysical parameters using DWR and Numerical Model Products (final stage of funding)
Subrat Kumar Panda	UGC-BSR	10.0	2018-20	Investigation of Changes of Climate and its Extremes in Different Eco-Regions of India
	DST-SERB	16.3	2019-20	SERB School titled "Numerical Modelling and Forecasting of Desert Storms and Cloudburst"
	MoES	84.0	2021-24	Understanding and Prediction of Hot Spots of Severe Thunderstorms and lightning over different regions of India
	Total	260.5		

Extramural Projects Submitted/Funded



Project Submitted:

National: Ministry of Earth Sciences (2), ISRO-ARFI, DST SERB, ISRO-ATCTM

International Collaborative Projects: JSPS, APN (Japan)

Resources available

■ Infrastructure:

- Visualization and Simulation Laboratory (14 Desktops)
- Meteorological Field Observatory (Lightning detectors: 01-IITM Pune, 01: Kyoto University, Japan, Pyranometer, Barometer , Anemometer etc.)

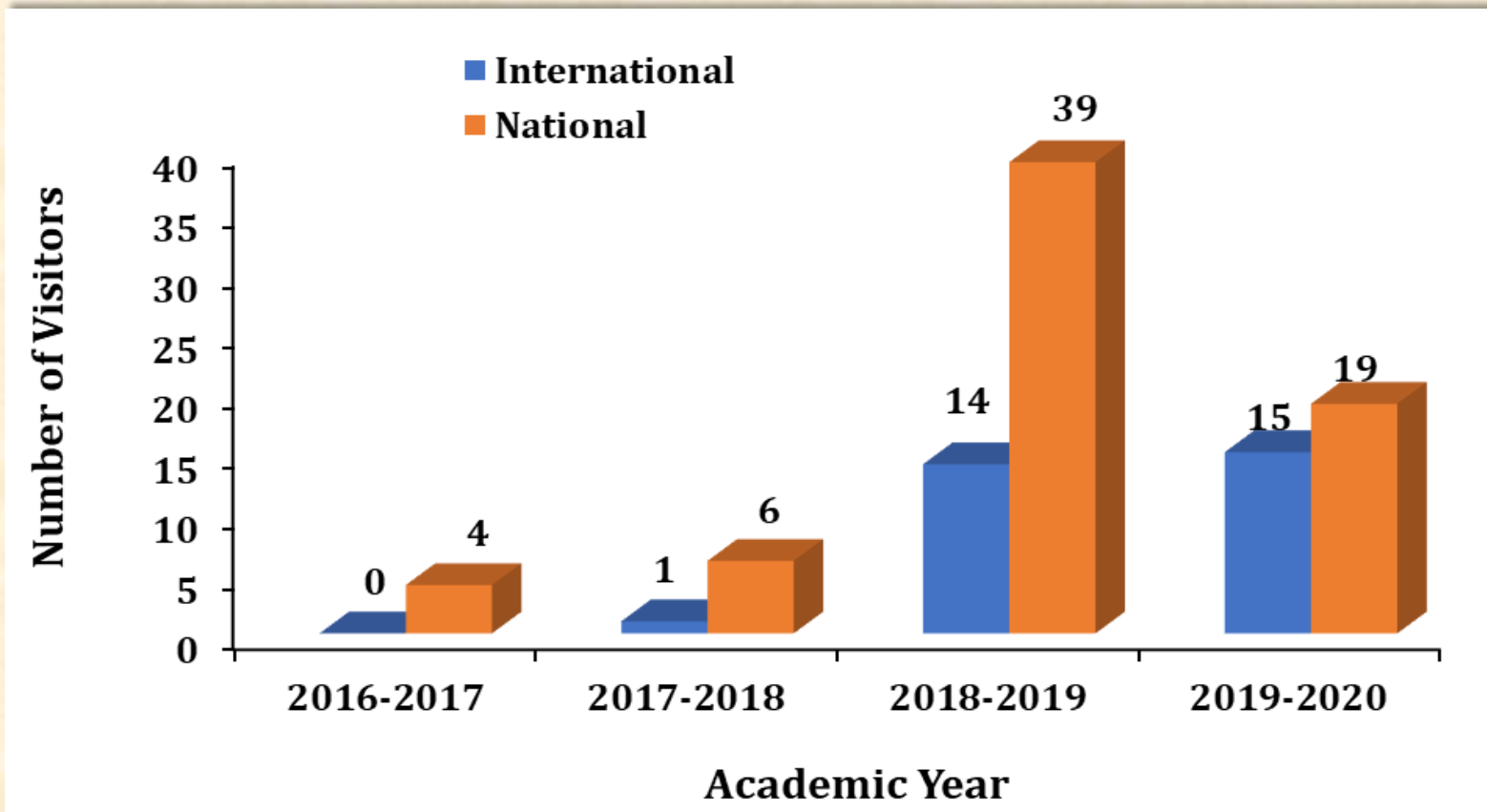
■ Equipment:

- Gas Chromatograph from research project
- Ammonia analyzer from research project (upcoming)
- Aethalometer for black carbon measurement
- One high-end Server and 2 workstations

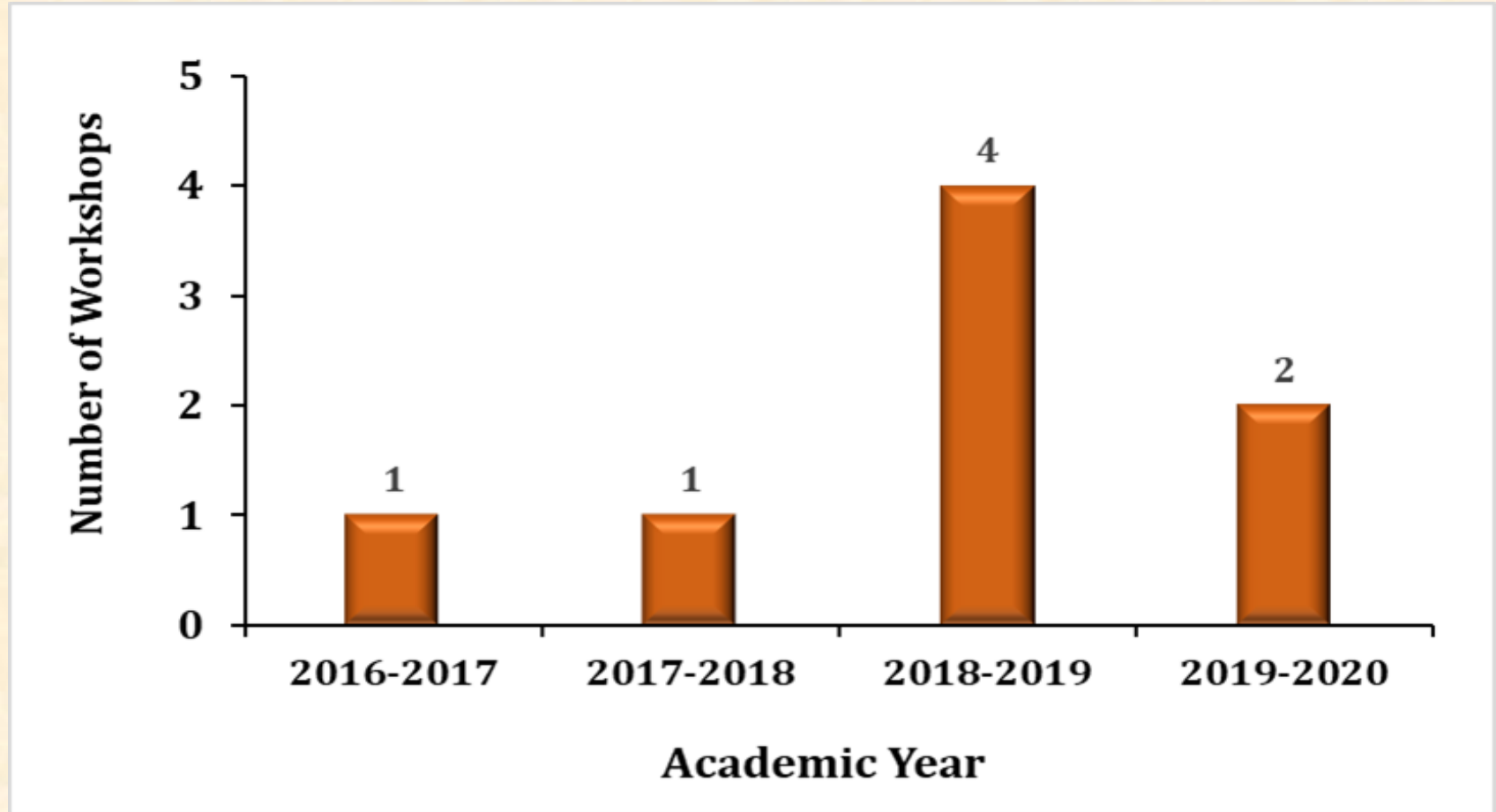
Laboratory and Meteorological Instruments

S. No.	Name of the Equipment	Status
1	Lightning Detectors	Two Lightning detectors have been received; (1) under the collaborative project with DPRI/ Kyoto University, Japan, and (2) through MoU with IITM, Pune
2	Visualization and Simulation Laboratory (High-end Computer Systems)	Established
3	Field Observatory (with basic instruments; AWS, Max, Min Thermometer, Barometer, Hygrometer, Lightening detector, Sunshine recorder, Air quality monitor, Whirling psychrometer, GPS system, Digital Display Panel	Under process with support from India Meteorological Department
4	High Performance Computing (HPC)	Under process in CIF
5	Anemometer, Barometer, Pyranometer	Installed
6	Ozone Analyser	Under Process

International and National Visitors



Workshops/ Seminars/ conferences organized



Workshops/ Conferences organized (Last 2 Yrs.)

1. Special Session on “Extreme Weather Events of Rajasthan and Atmospheric Modelling”, 6th Rajasthan Science Congress, 13-15 October 2018
2. First International workshop on "Extreme Severe Storms and Disaster Mitigation Strategy (ESSDMS)", 24-26 December 2018
3. SERB School on “Numerical Modeling & Forecasting of Desert Storms and Cloudburst (NUMCLOUDS), 11-23 February 2019
4. International Workshop on "Water-Energy-Food Nexus Perspective: Path Making for Sustainable Development Goals (SDGs) to Country Actions in Asia”, 25-26 June 2019
5. International Workshop/ Brainstorming session on "Asian Precipitation Experiment (AsiaPEX) - South Asia (SA)", 1-2 March 2020.
6. International workshop on “Extreme Severe Storms and Disaster Mitigation Strategy (ESSDMS2)”, 27 to 29 February 2020
7. Two-day workshop on “Industry-Academia Connect in Atmospheric Science” on 10-11 February 2023 to celebrate World Meteorological Day

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Student Placement (2016-2018, 2017-2019, 2018-2020)

Name of Student	Passing Year	Students Engagement		Designation	Salary/ month (in Lakh)	Year of Placement	Type of Organisation	Remarks
		Name of Company in which Placed	Enrolled for Higher Studies					
Archana Tripathy	2016-18		University of Albany	Ph.D		2020	Foreign University	
Pradeep Attri	2016-18		Central University of Hyderabad	Ph.D	0.31	2019	Central Government	
Ganesan M.	2016-18		Pandit Deendayal Energy University, Gujarat	Project	0.31	2020	Private	
Ashish Shaji	2017-19	Cochin University of Science and Technology		JRF	0.31	2021	State Government	
Athul C. P.	2017-19	IISER Mohali		JRF	0.31	2021	Central Government	
Chandni Chandran	2017-19	Center for water Resources and Development management (CWRDW)		Project Fellow	0.25	2021	State Government	
Midhun M	2017-19		IISER, Mohali	Ph.D	0.7	2021	Central Government	
Jigisha Dhakar	2017-19							preparing for NET-JRF and Civil service
Merlin Jestice	2017-19							preparing for NET-JRF and Civil service
Ashish Ranjan	2018-20							preparing for NET-JRF and Govt Jobs
Ankit Patel	2018-20		IIT Madras	Ph.D	0.31	2020	Central Government	
Vinay	2018-20							Family Business
Suman Saurabh	2018-20	Course Hero		Physics Tutor				preparing for NET-JRF and Govt Jobs
Sohan Pal Meena	2018-20		NIO Goa	Ph.D	0.31	2020	Central Government	
Musaid P P	2018-20		SRM University	Ph.D	0.31	2020	Private	
Saswat Dash	2018-20			Project Associate	0.35	2021	Private	
Sanjukta Ghosh	2018-20	TERI, New Delhi		Project Scientist	0.4	2021	Central Government	
Sumitra Sharma	2018-20	IIT Delhi		Project Scientist	0.4	2021	Central Government	
		IIT Delhi						

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Student Placement (2019-2021, 2020-2022)



Name of Student	Passing Year	Students Engagement		Designation	Salary/ month (in Lakh)	Year of Place ment	Type of Organisation	Remarks
		Name of Company in which Placed	Enrolled for Higher Studies					
Aashna Verma	2019-21	EnviroAsia Bridgeway Pvt. Ltd.		Assistant Environmental Manager	0.35	2022	Private	
Anish Kumar	2019-21			Project Associate-I	0.25	2021	Central Government	
Gitesh Wasson	2019-21	Council of Energy, Environment and Water	Physical Research Laboratory, Ahmedabad	Research Consultant	0.25	2021	Private	
Harithasree S	2019-21			Ph.D	0.31	2021	Central Government	
Sweta Palit	2019-21	Alok Vigyan Mahavidyalaya, Kekri, Rajasthan						Private Tuition
Sayoni Sarkar	2019-21							preparing for NET-JRF and Govt Jobs
Najmeen Bano	2019-21			Assistant Professor	0.12	2022	Private	
Rahul Kant Yadav	2019-21	CURAJ		Project Associate-I	0.25	2022	Central Government	
Avni Trevedi	2019-21							preparing for NET-JRF, GATE and Govt Jobs
Shibam Sahu	2019-21							Private Tution
Bhibutimaya Ghadai	2019-21							preparing for Govt. jobs
Athira Jayakumar	2019-21	District Disaster Management, Kerala		Project Associate-I	0.25		State Government	preparing for NET-JRF and Govt Jobs
Deepak P	2020-22	IISER Mohali		JRF	0.31+ HRA	2022	Central Government	
Varsha Ganguly	2020-22	Humanitarian Aid International		Programme Officer	0.35	2022	NGO	
Albin Sabu	2020-22	Aryabhatta Academy, Assam						preparing for NET-JRF and Govt Jobs
Anjali M R	2020-22							preparing for NET-JRF and Govt Jobs
Bijit Kumar Banerjee	2020-22			Subject Teacher	0.25	2022	Private College	
Debasish Mahapatra	2020-22	IISER Mohali		JRF	0.31	2021		
Mobin Raj VC	2020-22	NCESS, Trivandrum		Project Associate-I	0.25	2023		
Prashobh P	2020-22							preparing for NET-JRF and Govt Jobs
Sreelekshmi S	2020-22							preparing for NET-JRF and Govt Jobs
Trushnamayee Mallick	2020-22	ICAR, New Delhi		Project Associate-II	0.35	2022		
Vishal Kumar	2020-22	RVS Academy		Subject Teacher	0.2	2022		

Memorandum of Understandings (MoUs)

S. No.	Name of the Collaborating University/ Institute	Duration	Status
1	Central University of Rajasthan and University of Dhaka, Bangladesh	2018 –2023	Ongoing
2.	Indian Institute of Tropical Meteorology, Pune	2019 –2024	Ongoing
3	Indian Meteorological Department, New Delhi	2021	Ongoing

Students Achievements

- ❑ One M.Sc. Atmospheric Science first year student cleared CSIR-NET(JRF) in the month of December 2019.
- ❑ Four final year M.Sc. Atmospheric Science students had selected placement in the Technoculture Research (Bangalore)
- ❑ One student of First batch got admission in Ph.D. - University at Albany, State University of New York.
- ❑ Our Department had organized two international workshop in the month of Feb-March 2020.
- ❑ Seven M.Sc. Meteorology students from Department of Meteorology, Dhaka University completed their summer internship programme at our department from Feb-June 2019.

Summer Internship of M.Sc. Students



IMD, New Delhi



IITM, Pune



NIO, Goa



NCMRWF, Noida



NCESS,
Thiruvananthapuram



PRL, Ahmedabad



INCOIS, Hyderabad

International Online Lecture Series on Atmospheric Science

Title of the Lecture
Goddard Multi-Scale Modelling Systems with Unified Physics for Precipitation Study

3rd February 2021 (Wednesday)
18:30-19:30 PM (IST)



Speaker:

Dr. Wei-Kuo Tao

Senior Research Scientist
NASA/Goddard Space Flight Center, Maryland, USA

Title of the Lecture
The control of Moist Atmospheric Processes on Weather Forecast Errors

17th February 2021 (Wednesday)
15:00-16:00 PM (IST)



Speaker:

Prof. Suzanne Gray

Professor
Department of Meteorology
University of Reading
United Kingdom (UK)

Title of the Lecture
Numerics, Discretisation & HPC in NWP

3rd March 2021 (Wednesday)
17:00- 18:00 PM (IST)



Speaker:

Dr. Nils Wedi

Head of Earth Modelling Section
European Centre for Medium-Range Weather Forecasts (ECMWF)
United Kingdom (UK)

INTERNATIONAL LECTURE SERIES ON ATMOSPHERIC SCIENCE

Global Numerical Weather Prediction: Progress and Plans

SPEAKER

Dr. Andy Brown

Director of Research
European Centre for Medium Range Weather Forecasts (ECMWF), United Kingdom (UK)

Zoom Link: MARCH 10, 2021 (WEDNESDAY) 15:00-16:00 PM (IST)

INTERNATIONAL LECTURE SERIES ON ATMOSPHERIC SCIENCE

Introduction to the Science of Numerical Weather Prediction Models

SPEAKER

Dr. Jimy Dudhia

Senior Scientist
National Centre for Atmospheric Research (NCAR)
United States of America (USA)

Zoom Link: MARCH 17, 2021 (WEDNESDAY) 18:30-19:30 PM (IST)

INTERNATIONAL LECTURE SERIES ON ATMOSPHERIC SCIENCE

The Importance of Supercomputing for Weather and Climate Science

Dr. Dale Barker

Director
Centre for Climate Research Singapore
(Formerly at Met Office, UK and NCAR, USA)

Zoom Link: MARCH 31, 2021 (WEDNESDAY) 15:00-16:00 PM (IST)

ACTIVITIES OF THE DEPARTMENT



Education tour to India Meteorological Center, Jaipur with the students of M.Sc. Atmospheric Science on 11 April 2019



Participants and Dignitaries of the International Workshop on "Water-Energy Food Nexus Perspective: Path Making for Sustainable Development Goals (SDGs) to Country Actions in Asia", 25-26 June 2019



Three M.Sc. students at TERI – NORCE Research School on Global Climate Anomalies, Teleconnections and Regional Implications, Aug 5 – 8, 2019



Intern M.Sc. Meteorology Students of University of Dhaka, Bangladesh (visit from March to June 2019)



International conference on earth and environmental sciences & technology for sustainable development ,25-30 Jan 2020, Dhaka University, Bangladesh



Strengthening the environmental dimensions of the SDGs in Asia and Pacific, 27-28 Nov 2019, Manila, Phillippines



Satellite Meteorology and oceanography, outreach programme of SAC Ahmedabad, Oct, 2019



Indian Meteorological Society, Jaipur Chapter Meeting at CURAJ



2nd International workshop on "Extreme Severe Storms and Disaster Mitigation Strategies (ESSDMS-2)" during 27-29 February 2020











2nd International Workshop on "Extreme Severe Storms and Disaster Mitigation Strategies (ESSDMS-2)"

February 27-29, 2020

Funded by
DPRI-Kyoto University (KU), JAPAN and Sumitomo Foundation, JAPAN

Jointly Organized by
Department of Atmospheric Science, School of Earth Sciences
Central University of Rajasthan, INDIA
and
International Consortium for Earth and Development Sciences (ICEDS)
Kagawa University, JAPAN

International Workshop on "Asian Precipitation Experiment (AsiaPEX)/ South Asia (SA)"

March 1-2, 2020

Funded by
DPRI-Kyoto University (KU), JAPAN and Sumitomo Foundation, JAPAN

Jointly Organized by
Department of Atmospheric Science, School of Earth Sciences
Central University of Rajasthan, INDIA
and
International Consortium for Earth and Development Sciences (ICEDS)
Kagawa University, JAPAN

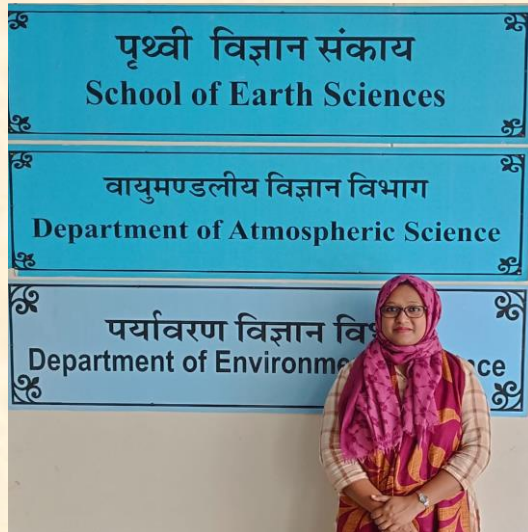


Participants of International workshop on Asian Precipitation Experiment (AsiaPEX)/ South Asia (SA) held on 1-2 March, 2020

Departmental Activity



Training workshop on “WATSAT” in collaboration with NIUA (India), Thuyloi University (Vietnam), Tribhuvan University (Nepal), and Central University of Rajasthan (India), AIT (Thailand) and funded by the APN (Japan) on 17 August 2022



Consultative workshop under the international collaborative research project on “Developing Urban-Rural partnerships framework to mitigate climate-induced water availability impacts on Food, Energy, and Water (FEW) security at regional level” funded by APN, Japan 25 - 26 July 2022, VNIT, Nagpur

Departmental Activity



Departmental Activity



Two days workshop on Industry-Academia Connect in Atmospheric Science (IACAS)



Chief Patron

Prof. Anand Bhalerao
Hon'ble Vice Chancellor
Central University of Rajasthan

Organized by
Department of Atmospheric Science
School of Earth Sciences
Central University of Rajasthan

10-11 February 2023

Venue: Seminar Hall (Room No. 308), 4A6, School of Earth Sciences



Chief Guest

Dr. L S Rathore
Retd. Director General
India Meteorological Department

The main goals of this workshop are:

- To develop and strengthen the association between industry and academia.
- To spread awareness among participants about current and emerging opportunities in the field of Atmospheric and Climate Sciences.
- To strengthen the opportunities for internship and placement.

Registration link: <https://forms.gle/EFHzYLTybvXgvgHj7>

Patron: Prof. D. C. Sharma (Dean Academics) & Prof. Rajesh Kumar (Dean, School of Earth Sciences)

Convenor: Dr. Devesh Sharma (Head, Department of Atmospheric Science)

Local Organizing Committee: Dr. Subrat Kumar Panda, Dr. Chinmay Mallik, Dr. Jayanti Pal, Dr. Jai Prakash

Resource Persons from:

- Centre for Environmental and Development Studies
- Centre for Environment and Energy Development
- Centre for Study Science, Technology and Policy
- Climate Connect
- Danish Hydraulic Institute Water and Environment Pvt. Ltd.
- Deutsche Gesellschaft für Internationale Zusammenarbeit
- Mantec Environmental Laboratory
- Risk Management Solutions
- India Meteorological Department
- South Asian Meteorological Association

Departmental Activity



Two Days Workshop on
Industry-Academia Connect in Atmospheric Science (IACAS)
Organized by
Department of Atmospheric Science, School of Earth Sciences, Central University of Rajasthan
NH-8, Bandarsindri, Kishangarh, Ajmer, Rajasthan - 305817
10th - 11th February, 2023

Speakers of Day - 1 (10th February 2023)



Dr. L. S. Rathore
Retd. Director General
India Meteorological Department



Mr. Radhey Shyam Sharma
Scientist & Head, Meteorological Centre Jaipur
India Meteorological Department



Dr. Anirban Middey
National Environmental Engineering
Research Institute, Kolkata



Prof. Someshwar Das
Secretary, South Asian Meteorological Association



Prof. Ashutosh Mohanty
Sri Sri University, Cuttack, Odisha



Two Days Workshop on
Industry-Academia Connect in Atmospheric Science (IACAS)
Organized by
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NH-8, Bandarsindri, Kishangarh, Ajmer, Rajasthan - 305817
10th - 11th February, 2023

Speakers of Day - 2 (11th February 2023)



Dr. Manish Modani
Principal Solution Architect
NVIDIA Graphics Pvt Ltd, Pune, India



Dr. Manish Kumar
Director, Centre for Environment and Energy
Development, Ranchi



Dr. Parth Sarathi Mahapatra
Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH



Mr. Manish Kumar
Senior Water Resource Engineer
DHI, New Delhi



Dr. Vignesh Prabhu
Senior Associate, CSTEP, Bengaluru



Dr. Ram Ratan Lohiya
Climate Connect, Gurgaon

Job Prospectus & Career Options

- ❑ Meteorology is a lucrative career option for all those who have always been keen to learn more about science and weather forecasts.
- ❑ Nowadays, with climate change and various environmental issues rocking the world, the role and scope of meteorologists has increased manifold.
- ❑ This field has good opportunities in Government, academic and private sectors.
- ❑ There are many opportunities in research in Institutions governed by the Ministry of Earth Sciences, which includes the India Meteorological Department (IMD), the National Centre for Medium Range Weather Forecasting (NCMRWF), Indian Institute of Tropical Meteorology (IITM), Indian National Centre for Ocean Information Service (INCOIS), National Institute of Ocean Technology (NIOT), National Centre for Antarctic & Ocean Research, (NCAOR), Centre for Marine Living Resources and Ecology (CMLRE), Integrated Coastal Marine Area Management (ICMAM), National Centre for Earth Science Studies (NCES), and National Center for Seismology.
- ❑ Other organizations having scopes in this field are Indian Air Force, Space Application Center (SAC), National Remote Sensing Agency (NRSA), Defense Research and Development Organization (DRDO), Indian Space Research Organization (ISRO), Radio & Television broadcasting, Agriculture, insurance and industrial sectors, etc.
- ❑ Central Pollution Control Board, Centre for Science and Environment, Environmental Defense Fund
- ❑ You can become a scientist, Meteorologist, Oceanographer, Researcher, Professor, Academician, and a lot more ..



Thanks