

## **KNOWLEDGE PRODUCTS: PUBLICATIONS, PRESENTATIONS...**

Knowledge creation, knowledge enhancement, knowledge dissemination and knowledge management have been among the core activities of CSIR-4PI. Ever since its inception, CSIR-4PI has maintained a high knowledge output in terms of publications and other scientific programmes, knowledge synthesis and exchange through conferences, workshops, brain storming sessions, etc.

### **Inside**

- Publications in Journals
- Patent Filed
- Publications in Books/Proceedings
- Presentations in Conferences/Symposia/Workshops/Seminars
- Participation in Conferences/Symposia/Workshops/Training Programmes
- Conference/Workshops/Seminars/Scientific Meetings at CSIR-4PI
- Invited Talks
- Visitors at CSIR-4PI

## Publications in journals

**Gouda K C, Nahak S** and Goswami P, Evaluation of a GCM in seasonal forecasting of extreme rainfall events over continental India, *Weather and Climate Extremes*, 21, 10-16, 2018.

**Himesh S, Rao E V S P, Gouda K C, Ramesh K V, Rakesh V, Mohapatra G N, Kantha Rao B, Sahoo S K, and Ajilesh P**, Digital revolution and Big Data: a new revolution in agriculture, *CAB Reviews*, 13, 21, 1-7, 2018.

**Kantha Rao B and Rakesh V**, Evaluation of WRF-simulated multilevel soil moisture, 2-m air temperature, and 2-m relative humidity against in situ observations in India, *Pure and Applied Geophysics*, 176(4) 1807-1826, 2019.

Kakarla, Satya Ganesh, Rajasekhar Mopuri, Srinivasa Rao Mutheneni, **Kantha Rao B**, Sriram Kumaraswamy, Madhusudhan Rao Kadiri, **Gouda K C**, and Suryanaryana Murty Upadhyayula, Temperature dependent transmission potential model for chikungunya in India, *Science of the Total Environment*, 647, 66-74, 2019.

**Mohapatra G N, Rakesh V**, Mohanty P K and **Himesh S**, Comparative evaluation of the skill of a Global Circulation Model and a Limited Area Model in simulating tropical cyclones in the North Indian Ocean, *Meteorol Appl.*, 25, 523–533, 2018.

**Neethu C, Ramesh K V and Shafeer K B**, Understanding the spatio-temporal structure of recent heat waves over India, 1-16, *Natural Hazards*, Online: 04 March 2019.

Dhananjay A Sant, **Parvez, I A**, Govindan Rangarajan, Satish J Patel, Madhuri N Bhatt, Sanoop Salam T A, Subsurface imaging of brown coal bearing Tertiary sedimentaries-Deccan Trap interface using microtremor method, *Journal of Applied Geophysics*, 159, 362-373, doi:<https://doi.org/10.1016/j.jappgeo.2018.09.008>, 2018.

Chandra R, Dar J A, Romshoo S A, Rashid I, **Parvez I A**, Mir S A, Fayaz M, Seismic hazard and probability assessment of Kashmir valley, northwest Himalaya, India, *Natural Hazards* 93(3), 1451-1477, 2018.

**Rajendran K**, Sulochana Gadgil, **Sajani Surendran**, Monsoon season local control on precipitation over warm tropical oceans, *Meteorology and Atmospheric Physics*, doi:10.1007/s00703-018-0649-7, 2018.

Esack Edwin Raj, **Ramesh K V**, Rajagopal Rajkumar Modelling the impact of agrometeorological variables on regional tea yield variability in South Indian tea-growing regions, 1981-2015, *Cogent Food & Agriculture*, Taylor & Francis publications, 2019.

**Sunilkumar T C, Earnest A, Silpa K**, Andrews R, Rupture of the Indian slab in the 2011 Mw 6.9 Sikkim Himalaya earthquake and its tectonic implications, *Journal of Geophysical Research: Solid Earth*, 124(3), 2623-2637, 2019.

## Patent Filed

**Anil Kumar V** and D Das "Method and Device for Categorizing a Stream Control Transmission Protocol (SCTP) Receiver Terminal as a Malicious SCTP Receiver Terminal", US Patent No. 10129294, date of Issue 13 November 2018, Issuing Authority, US Patent and Trademark Office.

## Publications in Books/Proceedings

Shrungeshwara T S, **Chiranjeevi Vivek G**, Anil Kumar Maletha, Shantanu Sarkar, **Sridevi Jade**, Landslides studies using Global Positioning System (GPS), Sustainable development of natural resources, R.K. Books, New Delhi, 2018.

**Sridevi Jade** and Shrungeshwara T S, Ionosphere variability in low and mid-latitudes of Indian using GPS-TEC estimates from 2002 to 2016, Chapter 9, Multifunctional Operation and Application of GPS, IntechOpen, <http://dx.doi.org/10.5772/intechopen.74172>, 2018

**Sunilkumar T C**, **Anil Earnest**, **Silpa K** and Ronia Andrews, Rupture of the Indian slab in the 2011 Mw 6.9 Sikkim Himalaya earthquake and its tectonic implications, Deep structure and dynamics of the Himalaya – Tibet orogen and global collision zones, International Symposium on Deep Earth Exploration and Practices Beijing, China, October 24-26, 2018.

## Presentations in Conferences/Symposia/Workshops/Seminars

**Anil Kumar V**, DDoS Attacks on Cyberspace and Mitigation Technologies, National Workshop on Technology Trends in Cyber Security (WorTICS 2018), Society for Electronics Transaction and Security (SETS), Chennai.

Apoorva D L, **Mohapatra G N** and Ratnoji S S, Strategic framework for integrated flood disaster management and modelling over Bangalore city, TROPMET-2018, October, 24-27, 2018, BHU, Varanasi.

Rachna Deshpande, **Ashapura Marndi**, Occupancy Detection using Machine Learning Approach, 11th National Women's Science Congress, 9-11 November, 2018, Mysore.

**Gouda K C**, Modelling Vector Borne Disease over India, Proceedings of TROPMET-2018, National Symposium on Understanding Weather and Climate Variability: Research for Society, Banaras Hindu University, 24 to 27 October, 2018.

Nagaraj Bhat and **Gouda K C**, Assessment of Signature of Climate Change over Bengaluru, Proceedings of TROPMET-2018, National Symposium on Understanding Weather and Climate Variability: Research for Society, Banaras Hindu University, 24 to 27 October, 2018.

Majumdar Sharanya J, Sun J, Dudhia J, Golding B. W, **Gouda K C**, Joe P, Steinle P, Vincendon B, and Wang J, Nowcasting and Forecasting High-Impact Weather: Current Status and Future Challenges, Proceedings of American Meteorological Society Special Symposium on catalyzing weather science internationally, Phoenix, Arizona, USA, 6-10 Jan 2019.

Lokoshchenko M.A., Elansky N.F , Alekseeva L., Bogdanovich A.Yu., and **Gouda K C**, Thunderstorms in Russian and Indian cities, Proceedings of International conference on Thunderstorms and Lightning in Tropics, SoA University, Bhubaneswar, 17-19 Jan 2019.

**Gouda K C, Sahoo S K, Samantray P, Nahak S and Himesh S**, Evaluation of WRF configuration for Thunderstorm simulation over Odisha, Proceedings of International conference on Thunderstorms and Lightning in Tropics, SoA University, Bhubaneswar, 17-19 Jan 2019.

**Jayasankar C B, Rajendran K, Sajani Surendran**, High-resolution climate change projection of Indian Summer Monsoon: A dynamical downscaling approach, Scenarios Forum 2019 (Forum on Scenarios for Climate and Societal Futures), 11-13 March, Denver, Colorado, USA.

**Kalyani Devasena C, Sharada M K and Swathi P S**, Study of Oxygen and Nutrients in the Arabian Sea using Model Simulations and Observations, 4<sup>th</sup> International Symposium on the effects of climate change on the world's oceans, June 4-8 2018, Washington DC, USA.

**Kalyani Devasena C, Sharada M K and Swathi P S**, Study of Primary Productivity and Chlorophyll variations in the North Indian Ocean using Global Biogeochemical model Simulations and Observations, AGU Fall meeting-2019, December 10-14 2018, Washington DC, USA.

**Mohapatra G N, Rakesh V and Ajay Bankar**, Configuration and Validation of mesoscale model for urban extreme rainfall events for major metro cities in India, Proceeding of TROPMET 2018, Understanding Weather and Climate, Variability Research for Society, 24-27 October 2018, BHU, Varanasi.

**Nahak S and Gouda K C** and P Goswami, Seasonal Prediction of Extreme Rainfall episodes over India, Proceedings of TROPMET-2018, National Symposium on Understanding Weather and Climate Variability: Research for Society, Banaras Hindu University, 24 to 27 October, 2018.

Rekha B Gogoi, Govindan Kutty, Arup Borgohain, and **Rakesh V**, Impact of flow - dependent ensemble error covariance in the three – dimensional variational data assimilation method in a limited area model over the month of July 2013, Proceeding of TROPMET 2018, Understanding Weather and Climate, Variability Research for Society, BHU, Varanasi, 24-27, October, 2018.

**Rakesh V and Ramesh K V**, Crop and application specific high resolution weather and climate informatics, Workshop on Modeling and ICT Applications in Forecasting Pest and Diseases: Current Status and Emerging Needs, funded by World Bank funded project CAAST- NGT for forecasting pest and disease outbreak for effective management, GKVK Campus, University of Agricultural Sciences, Bengaluru, 12 February – 2019.

**Ramesh K V and Rakesh V**, Design and development of pest and disease forecasting and management system for increasing farmer's income. Workshop on Modeling and ICT Applications in Forecasting Pest and Diseases: Current Status and Emerging Needs, funded by World Bank funded project CAAST- NGT for forecasting pest and disease outbreak for effective management, GKVK Campus, University of Agricultural Sciences, Bengaluru, 12 February – 2019.

**Rakesh V and Ramesh K V**, A quantitative assessment of the potential of weather and climate informatics in efficient agricultural management, Proceedings of XIV Agricultural Science Congress, New Delhi, February 20-23, 2019

**Ramesh K V and Rakesh V**, Integrated system dynamical model (SDM) for sustainable utilization of natural resources to enhance farm productivity in agro-ecosystems., Proceedings of XIV Agricultural Science Congress, New Delhi, February 20-23, 2019

**Sahoo S K, Himesh S and Gouda K C**, High resolution Simulation study of Heat wave and Cold Wave over Odisha, Proceedings of TROPMET-2018, National Symposium on Understanding Weather and Climate Variability: Research for Society, Banaras Hindu University, 24 to 27 October, 2018.

**Samantray P and Gouda K C**, Analysis of Extreme Rainfall Event due to Cloud burst using Multiscale Observation and Non Hydrostatic Model, Proceedings of TROPMET-2018, National Symposium on Understanding Weather and Climate Variability: Research for Society, Banaras Hindu University, 24 to 27 October, 2018.

**Sahoo S K, Gouda K C and Himesh S**, Forecasting Analysis of pre-monsoon Thunderstorm over South India, Proceedings of International conference on Thunderstorms and Lightning in Tropics, SoA University, Bhubaneswar, 17-19 Jan 2019.

**Senthilkumar V**, Keynote Speaker, Engineering Technology in the Digital Era, International Conference on Engineering, Technology and Management in the Digital Era (ICETMDE-2019), Dayananda Sagar Academy of Technology and Management, Bangalore, 25 February 2019

**Silpa K, Anil Earnest**, Source process of outer arc earthquakes after the Mw 9.2, 2004 Sumatra-Andaman megathrust rupture, SCOR InterRidge Workshop Mid ocean ridges and other geological features of the Indian Ocean, 14-16 November 2018, CSIR-NIO, Goa, India.

**Sunilkumar T C, Anil Earnest**, A reappraisal on the present-day lithospheric stress field of the Indo-Burmese arc and its seismo-tectonic implications, SCOR-Inter Ridge Workshop Mid ocean ridges and other geological features of the Indian Ocean, 14-16 November 2018, CSIR-NIO, Goa, India.

### **Conferences/Symposia/Workshops/Seminars attended**

#### **Anil Kumar V**

104th Internet Engineering Task Force (IETF) Meeting at Prague, Czech Republic

National Workshop on Technology Trends in Cyber Security (WorTICS 2018), Society for Electronics Transaction and Security (SETS), Chennai.

#### **Chiranjeevi Vivek G**

Modelling & Simulation workshop initiated by CSIR-RAB, CSIR-4PI, Bengaluru, 19-21 June, 2018

## **Pavithra N R**

Modelling & Simulation workshop initiated by CSIR-RAB, CSIR-4PI, Bengaluru, 19-21 June, 2018

## **Rajendran K**

National Round Table Discussion on Geoengineering and India: Science and Policy, DST, Indian Institute of Science, 26 July 2018.

## **Invited Talks**

### **Anil Earnest**

Sinking slab deformation at the Himalayas, National Workshop on Present-day Advancements in Geoscience – PAGE – 2019, Department of Marine Geology and Geophysics, Cochin University of Science and Technology, 17-18 January, 2019.

### **Anil Kumar V**

Watching Dark IP Address Space: The Gain and Pain, C-DAC Technology Conclave 2019, C-DAC, Pune.

### **Gouda K C**

Malaria Simulation over Indian regions, 6 July 2018, University of Liverpool, UK

Multi-scale Simulation of Indian Monsoon, 11 July 2018, UK Met Office, Exeter, UK

Climate-disease modeling, 13 July 2018, University of East Anglia, Norwich, UK

Chief Guest, Freshers day at Sapthagiri College on 16 August 2018

Modelling Vector Borne Disease over India, TROPMET-2018, National Symposium on Understanding Weather and Climate Variability: Research for Society, 24 to 27 October, 2018, Banaras Hindu University.

Evaluation of WRF configuration for Thunderstorm simulation over Odisha, International conference on Thunderstorms and Lightning in Tropics, 17-19 Jan 2019, SoA University, Bhubaneswar.

Chief Guest, World Meteorology day celebration at IMD-Regional centre, Bangalore held on 22 March 2019

## **Patra G K**

Blockchain: The Innovation that is Transforming the Society, International Conference on Multimedia Processing, Communication and Information Technology – MPCIT 2018" organised by IEAE at JNN College of Engineering at Shimoga, 8-9 June 2018.

IPBC India, Bengaluru, 14<sup>th</sup> March 2019

NetApp @ CEERI's Industry Day, 12<sup>th</sup> October 2018

Role of Adaptive Learning in Security, Safety and Efficiency of Intelligent Transportation System, CSIR Sponsered Two Days Workshop on Soft Computing based Data Driven Self Adaptive Systems (SC-DDSAS), Velore Institute of Technology, 18-19 January 2019.

Cyber Security: Skills, Work Cultures and Regulatory Frameworks for Building Sustainable Digital Enterprises, 2nd International Conference On Digital Entrepreneurship 2019 Platform, Process, People And Technology, Presidency University, Bangalore February 8-9, 2019.

## **Rajendran K**

Monsoon Climate Change Projection for the Orographic West Coast of India using High Resolution Dynamical Downscaling Model, Meteorological Research Institute (MRI), Tsukuba, Japan, 8 May 2018.

CFSv2 Forecast 2018, Monsoon Café 2018, Indian Institute of Science, Bangalore, 27 June 2018.

High resolution climate change projection for the Western Ghats using regional climate model, National Symposium on Physics-Dynamics interactions in Climate in Connection with 80<sup>th</sup> Anniversary of the School of Marine Sciences, Cochin University of Science and Technology (CUSAT), Kerala, 21-22 February 2019.

## **Rakesh V**

Crop and application specific high resolution weather and climate informatics, Workshop on Modeling and ICT Applications in Forecasting Pest and Diseases: Current Status and Emerging Needs 12<sup>th</sup>& 13<sup>th</sup> February – 2019 jointly organized by GKVK, University of Agricultural Sciences, Bengaluru & Indian Council of Agricultural Research funded by World Bank.

## **Ramesh K V**

Applications of Calculus and Differential Equations in Design and Development of System Dynamics Modelling", 01<sup>st</sup> September 2018 (Saturday), VIT, Vellore.

Design and development of pest and disease forecasting and management system for increasing farmer's income, Workshop on Modeling and ICT Applications in Forecasting Pest and Diseases: Current Status and Emerging Needs 12<sup>th</sup>& 13<sup>th</sup> February – 2019 jointly organized by GKVK, University of Agricultural Sciences, Bengaluru & Indian Council of Agricultural Research funded by World Bank.

### **Sridevi Jade**

Invited for Lead Tech Talk in IGC 2018 as Eminent Woman Geotechnical Engineer of Indian Origin, 14December 2018, JN Tata Auditorium, IISc, Bangalore

Invited as a Chief Guest for Women's Day, 12 March 2019, Central Manufacturing Technology Institute (CMTI), Tumkur Road, Bangalore

### **Senthilkumar V**

Applications of Linear Systems and Numerical Methods in Engineering Problems”, 01.09.2018, VIT, Vellore, Tamil Nadu

Applications of Numerical Methods in Engineering Science, VIT, Vellore, Tamil Nadu, 05 October 2018

Applications of Statistical Methods in Realistic Engineering Problems, VIT, Vellore Tamil Nadu, 18 March 2019.

Advanced Statistical Applications in Data Analysis”, VIT, Vellore, Tamil Nadu, 18 March 2019.

Applications of Numerical Methods in Realistic Engineering Problems, VIT, Vellore, Tamil Nadu, 18 March 2019.

### **Thangavleu R P**

The Road to Exascale..., Altair Technology Conference (ATCx 2018), Bangalore, 23 July 2018

The Road to Exascale..., Altair Technology Conference (ATCx 2018), Pune, 27 July 2018

### **Participation in Conferences/Symposia/Workshops/Training Programmes**

#### **Rakesh V**

Remote Sensing Data User Interaction Meet (UIM) – 2019 22-23, Jan 2019 at NRSC, Hyderabad

Stakeholder Meeting at the Department of Civil Engineering at Indian Institute of Science, Bangalore on 19 April 2018, as a part of the Upscaling Catchment Processes in Peninsular India (UPSCAPE) programme

Seminar titled "Sensors and cyberphysical sensing networks for water and agriculture" at Ashoka trust for research in ecology and the environment auditorium by Supratik Guha, Argonne National Laboratory and the University of Chicago and subsequent discussions on 2 April 2018.

## **Ramesh K V**

Seminar titled "Sensors and cyberphysical sensing networks for water and agriculture" at Ashoka trust for research in ecology and the environment auditorium by Supratik Guha, Argonne National Laboratory and the University of Chicago and subsequent discussions on 2 April 2018.

Remote Sensing Data User Interaction Meet (UIM) – 2019 22-23, Jan 2019 at NRSC, Hyderabad

Stakeholder Meeting at the Department of Civil Engineering at Indian Institute of Science, Bangalore on 19 April 2018, as a part of the Upscaling Catchment Processes in Peninsular India (UPSCAPE), programme

National Mission on Himalayan Studies-SD project workshop at Almora, Uttarakhand, 19-22 Nov 2018

## **Conference/Workshops/Seminars at CSIR-4PI**

### **Workshop on Modelling and Simulation with emphasis on Engineering and Physical Sciences including Earth & Environmental Sciences, 19-21 June, 2018**

A three days' workshop on Modelling and Simulation with emphasis on Engineering and Physical Sciences including Earth & Environmental Sciences was organized during June 19-21, 2018 at CSIR 4PI, Bangalore. It had been initiated by the Recruitment and Assessment Board (RAB), CSIR and organized by CSIR Fourth Paradigm Institute (CSIR 4PI). A total of twenty-two participants from various laboratories of CSIR including CSIR NEERI, CSIR SERC, CSIR NML, CSIR CEERI, CSIR CRRI, CSIR CBRI, CSIR CSIO, CSIR CIMFR, CSIR CGCRI and CSIR 4PI participated as nominees by their respective labs.

### **CSIR-4PI Foundation day, 31st October 2018**

CSIR-4PI foundation day was celebrated on 31st October 2018. Chief Guest for the event was Prof Sanghamitra Bandyopadhyay, Director, ISI, Kolkata. She delivered the Foundation Day talk on "Harnessing of power of the Fourth Paradigm". She also released CSIR-4PI Annual Report for 2017-18.

### **VANET Security, Kickoff Meeting, Dec 10-14, 2018**

The meeting was organized to discuss, deliberate and brainstorm on the implementation of the VANET Security project funded by Cognizant. The meeting was attended by 4 participants from Cognizant and 10 participants from CSIR 4PI. The meeting discussed the different activities, implementation strategies and guiding principles related to the VANET Security project.

### **Kick start meeting of the Indo-Russia joint project**

Dr. Mikhail A. Lokoshchenko and Dr L I Alekseeva of Department of Meteorology and Climatology, Lomonosov Moscow State University (LMSU), Russia visited CSIR 4PI during 10-15 January 2019. The visit was part of the Indo-Russia collaborative project between CSIR 4PI and LMSU. On 11th Jan 2019 the kick start of the joint project on “Analysis of urban ‘heat islands’, air pollution dynamics and extreme weather phenomena in India and Russia” was held at CSIR 4PI being inaugurated by Dr V Y Mudkavi, Head CSIR 4PI. Dr K C Gouda, Senior Scientist and PI of the project briefed about the joint DST-RFBR project followed by scientific talk on “urban heat island” by Dr Mikhail and Dr Alekseeva. The visitors participated in the project discussion meeting and interacted with the scientists and researchers of CSIR 4PI.

### **Guest Lectures**

R K Dutta, former Special Director, CBI and former DGP, Bangalore, 02 November 2018  
A valedictory lecture of Vigilance Awareness Week

Mitra S, Professor, IISER, Kolkata, 15 February, 2019  
Crustal Structure and Evolution of the Eastern Himalayan Plate Boundary System

Arjun Datta, Postdoctoral Fellow, TIFR, Mumbai, 28 March 2019  
Beyond Conventional Methods and Applications with Seismic Surface Waves

### **In-house seminars/lectures**

Bhogle S, Honorary Scientist, CSIR-4PI, 21 May 2018  
Monsoon Prediction: Data from Models, or Models from Data?

### **Visitors at CSIR-4PI**

Amitava Bandopadhyay, Head, RAB, New Delhi 07 June 2018

Govindankutty M, Assistant Professor, Department of Earth and Space Sciences (IIST), Kerala on 26 - 28 June 2018

Yasuhiro Inoue, DPH Practice Head, NEC, Japan, 17 July 2018

Deepak San, Anurag San, Manish K Kadam, Sai Madhukar, Sidhu Singh, Girisha Hassan, NEC Bangalore, 17 July 2018

Subrahmanya V R K Rao, Head, R&D, Cognizant Tech. Solution, Chennai, 21 August 2018

Ramesh V, Viswanath Durbha, Cognizant, Bangalore, 23 October 2018

Moriyama Yuki, Dy General Manager for data platform for Hadoop on 04 December 2018

Yasuhiro Inoue, Sr Manager for data platform for Hadoop, Japan, 04 December 2018

Harshal Ganpatrao Hayatnagar, Computer Scientist, Bhimsen Padalkar, Research Engg, ThoughtWorks Tech, Pune, 03 December 2018

Mohanram, AC Member, 14 December 2018

Liubov Alekseeva, Professor Lomonsov Moscow State University, Moscow, Russia, 10-14 January 2019

Mikhail Lokoshchenko, Professor, Lomonsov Moscow State University, Moscow, Russia, 10-14 January 2019

Anil Koul, Director, CSIR-IMTECH, Chandigarh, 19 January 2019

Kumaran S, Principal Scientist, CSIR-IMTECH, Chandigarh, 19 January 2019

Brahmachari S K, Former DG, CSIR, 19 January 2019

Srinivas Kaveri, Director, CNRS, India 23 January 2019

Bove Jerome Francois, Attaché for Science and Technology, French Embassy in India, 23 January 2019