



Director's Message

Centre for Disaster Mitigation and Management (CDMM) is functioning with a vision to create a disaster risk-free India, through the confluence of the cultures of preparedness, quick response, strategic thinking, and prevention. CDMM is carrying out its activities in line with the Prime Minister's ten-point agenda for disaster risk reduction. The thrust areas of the centre are landslides, earthquakes, floods, cyclones and climate change. Research, consultancy, capacity building and support for the government in dealing with natural disasters are the primary activities of the Centre. I am happy to share the latest newsletter of CDMM, highlighting our dedicated efforts towards a resilient and safer nation.



Dr. Rama Mohan Rao P
Director, CDMM

Landslide in Mundakai, Chooralmala area, Wayanad District, Kerala, Southern India, 31 July 2024(@ The Hindu)



2024 Noto Earthquake @ Wajima (@Wikipedia)



Vision:

To create disaster risk-free India, through the confluence of the Cultures of Preparedness, Quick Response, Strategic Thinking, and Prevention.

Mission:

Destination- Disaster Risk- Free India

Sponsored Research Projects

- **Dr. Kuvar Satya Singh (PI)** led a project titled "Prediction of rapid intensification and inner core structure of intense tropical cyclones (TCs) over the North Indian Ocean (NIO) using a cloud-resolved WRF model." The project was funded by **SERB-DST (SIRE)**.

Budget- Rs 16.82 Lakhs. Status - completed

- "Monitoring Natural Hazards in Mountainous Terrain in Russia and India" (2019) was an Indo-Russia Bilateral Collaboration project funded by the Department of Science and Technology, Government of India. The project was led by **PI: Dr. G. P. Ganapathy** and **Co-PI: Dr. S. S. Chandrasekaran**.

Budget- Rs 69.8 Lakhs. Status - Completed

- "Urban Seismic Risk Assessment" (2019) was a project funded by the Indian Space Research Organization (ISRO), Government of India. The project was led by **PI: Dr. S. S. Chandrasekaran** and **Co-PI: Dr. G. P. Ganapathy**.

Budget- Rs 19.4 Lakhs. Status - Completed

Consultancy Projects



- Commercial complex reinforced assessment and evaluating the integrity of concrete of RCC members at AB4 building. Chennai, Tamil Nadu. **Investigator: Dr. S. Prasanth** and **Co- investigator: Dr. S K Sekar**
- **Dr. G. P. Ganapathy**, along with **Dr. S. Shanthakumar**, Director & Professor CCE has received a consultancy project from the Department of Environment and Climate Change, Government of Tamil Nadu. The project involves the preparation of a Detailed Project Report (DPR) on the "Assessment of damages caused by Fly ash in the Kosasthalayar River basin and Ennore backwater complex." (December 2024).

Budget- Rs 1.51 Crores



List of Journal Publications

- **Sambath, Chandrasekaran S. S., Maithani, S., & Ganapathy, G. P. (2024).** Seismic site characterization of Coimbatore City, Tamil Nadu, India using the multi-channel analysis of surface waves (MASW) test and correlations between shear-wave velocity and SPT-N. Journal of Applied Geophysics, 232, 105575. <https://doi.org/10.1016/j.jappgeo.2024.105575>
- **Sambath, M., Chandrasekaran, S. S., Maithani, S., & Ganapathy, G. P. (2024).** Probabilistic seismic hazard analysis of the Coimbatore region, Tamil Nadu using a logic-tree approach. Journal of Earth System Science, 133, 156. <https://doi.org/10.1007/s12040-024-02356-6>
- **C. S. Nathan and Ganapathy, G. P. (2024).** "Quantifying the impact of changing rainfall patterns on landslide frequency and intensity in the Nilgiris District of Western Ghats, India," Progress in Disaster Science, vol. 23, p. 100351, 2024. <https://doi.org/10.1016/j.pdisas.2024.100351>
- **S. R. Rathore and Ganapathy, G. P. (2024).** "Understanding the challenges and opportunities for strengthening incident response system in India: A stakeholder survey," Disaster Advances, vol. 17, no. 6, pp. 17–23, 2024. <https://doi.org/10.25303/176da017023>
- **A. Thankachan and K. Satya Singh, (2024).** "Role of assimilation of microwave humidity sounder (MHS) satellite radiance in forecast of structure and intensity of VSCS Vardah 2016," Advances in Space Research, 2024. <https://doi.org/10.1016/j.asr.2024.06.068>
- **S. Prasanth, G. Ghosh, P. K. Gupta, V. Kumar, and P. Paramasivam, (2024).** "The effect of openings in URM infills on the seismic resilience of a reinforced concrete building," Journal of Asian Architecture and Building Engineering, 2024. <https://doi.org/10.1080/13467581.2024.2378002>
- **E. S. C. K. Rudra, B. B. Pradhan, R. Rai, and A. Ray, (2024).** "Numerical study of the effect of overburden pressure on the stability of mine dump slope," Sadhana – Academy Proceedings in Engineering Sciences, vol. 49, no. 3, 2024. <https://doi.org/10.1007/s12046-024-02594-w>
- **S. K. Kundu, A. K. Dey, S. C. Sapkota, P. Debnath, P. Saha, A. Ray, and M. Khandelwal, (2024).** "Advanced predictive modelling of electrical resistivity for geotechnical and geo-environmental applications using machine learning techniques," Journal of Applied Geophysics, vol. 231, 105557, 2024. <https://doi.org/10.1016/j.jappgeo.2024.105557>
- **K. Gayathridevi and A. Ray, (2024).** "Mechanical characterization of soil–rock mixture under varying block parameters, matrix properties and matrix water content using destructive and non-destructive testing," Indian Geotechnical Journal, 2024. <https://doi.org/10.1007/s40098-024-01054-w>

Events Organised



GIS DAY EVENT – 20th November 2024

On 20th November 2024, the Centre for Disaster Mitigation and Management (CDMM) at VIT Vellore hosted 25th GIS Day celebration for 30 students from grades 8th -10th, accompanied by their teachers. Dr. Surendar M emphasized the significance of GIS in today's world and the importance of the GIS technology to young people. The workshop included a treasure hunt activity using Google Earth Pro and a practical session on creating maps with GIS software, providing students with a valuable hands-on learning experience.



Dr. G. P. Ganapathy conducted a Hands-on Training on Fire Safety organized by the VIT School of Architecture, Vellore Institute of Technology (VIT), Vellore, on 18th November 2024. Additionally, he led a one-day Hands-on Fire Safety Exercises workshop focused on Battery Safety Awareness, held on 16th November 2024, organized by the Automotive Research Centre, VIT Vellore. Furthermore, a Fire Mock Drill titled 'Handling Fire Emergencies' was scheduled for 24th September 2024 and 5th October 2024. Organized by the VIT Emergency Response Force (VERT Force) and CDMM for NDMM students.

Faculty Outreach

- **Dr. G. P. Ganapathy** attended Training Program on Assessment, Analysis and Design Education in Emergencies, organized by Sphere India Academy on 13th September 2024.
- **Dr. G. P. Ganapathy** attended training Program on “Disaster management, Safety in Power Plant, PTW procedures and emergency preparedness in TPPs” for the Engineers/Officers/Staff of all Thermal Power Stations and Gas Turbine Power Stations of TANGEDCO. Organized by TANGEDCO, Government of Tamil Nadu, Chennai on 9th October 2024.
- **Dr. G. P. Ganapathy** attended Early Warning Systems for Landslides in India – Progress and Challenges, IX International Conference " Dangerous natural and man-made processes in mountainous regions: models, systems, technologies", Republic of North Ossetia - Alania, Vladikavkaz from 6th to 9th October 2024. Organized by Geophysical Institute - a branch of the Vladikavkaz Scientific Center of the Russian Academy.
- **Dr. G. P. Ganapathy** delivered guest lecture on “Geospatial Applications for Earthquake Risk reduction”, and “Overview of Disaster Management”, 6 days Short-Term Training Programme on Disaster Management (Online Mode) for University and College Teachers, from 11th to 16th November 2024. Organized by Malvya Mission Teacher Training Centre, Central University of Kerala (MMTTC-CUKERALA), Periya, Kasaragod – 671320.
- **Dr. G. P. Ganapathy** delivered guest lecture on “Application of Remote Sensing and GIS in Natural Resource and Disaster Management and Mitigation” from 23rd to 27th September 2024. Jointly organized by the Science City, Department of Higher Education, Government of Tamil Nadu and University of Madras, Chennai.
- **Dr. G. P. Ganapathy** was invited as a guest at Disaster FAMex, organized by National Disaster Response Force (NDRF) Arakkonam and Government of Tamil Nadu on 24th September 2024.
- **Dr Rama Mohan Rao P** attended an Advanced course on “Forensic Insight for Evaluation of Distressed Concrete Structures and its Remedial measures”, organized by CSIR-Structural Engineering Research Centre Chennai from 28th to 30th August 2024.



Conferences Attended



Dr. Kuvar Satya Singh attended the IGU 61st Annual Convention on Advances in Earth System Sciences with Special Reference to Weather and Climate at Banaras Hindu University, Varanasi from 3rd to 5th December 2024.

Dr. Surendar M attended the IEEE India Geoscience and Remote Sensing Symposium - Navigating a Sustainable Future with Geospatial Intelligence, held at NIT Goa from 2nd to 5th December 2024. In addition to chairing Cryosphere sessions, he also contributed as a young professional chair, organizing a research paper writing workshop and chairing a panel discussion on career paths and higher studies in the geoscience domain.



Dr. S. S. Chandrasekaran attended the International Consortium on Landslides (ICL) held at Kyoto University, Japan from 5th to 7th November 2024. He presented a paper titled "Case Studies on the Impact of Landslides on Buildings."

Dr. S. S. Chandrasekaran visited the Disaster Prevention Research Institute (DPRI) at the University and met with the Director and Vice Directors to discuss potential research collaborations. He toured landslide and earthquake labs, including the Large Ring Shear Test and Centrifuge Test facilities, and discussed GYOTRI membership.



Dr. S. S. Chandrasekaran and Dr. Arunava Ray attended the Indian Geotechnical Conference (IGC) at MIT Department of Civil Engineering, Chhatrapati Sambhajanagar, Aurangabad from 19th to 21st December 2024.



Conferences Attended

- **Dr. G. P. Ganapathy** attended Asian Conference on Disaster Reduction (ACDR) 2024 **“Proactive Solutions and Anticipatory Actions for Sustainable Resilience to the Climate Crisis”**, organized by Asian Disaster Reduction Center, Vietnam from 12th to 13th November 2024 – Online.
- **Dr. G. P. Ganapathy** attended Conference on **“Understanding Landslides and Associated Risk Factors for Enhanced Preparedness”**, organised by All India Disaster Mitigation Institute, Ashram Road Navrangpura Ahmedabad, Gujarat 380009, India on 20th September 2024.
- **Dr. G. P. Ganapathy** attended Conference on **“Climate change mitigation, adaptation, and resilience: A holistic approach”**, organized by IUINDRR, National institute of Disaster Management (NIDM), Ministry of Home Affairs, Government of India, and JSS Academy of Higher Education & Research, Mysore, Karnataka from 25th to 26th July 2024.
- **Dr. Prasanth S** participated in the 14th Structural Engineering Convention (An International Conference) from 12th to 14th December 2024 held at National Institute of Tiruchirappalli, Trichy.
- **Mr. Sambath M** and **Dr. S. S. Chandrasekaran** has presented a paper titled **“Probabilistic Seismic Hazard Analysis (PSHA) for Vellore District, Tamil Nadu”**, in the 8th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics (8th ICORAGEE, 2024)” organized by Indian Institute of Technology (IIT), Guwahati from 11th to 14th December 2024.
- **Mr. Sabari Nathan C** has presented a paper titled **"A Spatio-geophysical Approach for Landslide Hazard Mitigation in the Nilgiris Region, Western Ghats, India "**, at the American Geophysical Union (2024) in Washington D.C, USA on 9th December 2024.
- **Ms. Ambily Thankachan** and **Dr. Kuvar Satya Singh** has presented a paper titled **“Impact of 3DVAR data assimilation and time step size for the prediction of the very severe cyclonic storm Titli in the Bay of Bengal region”**, at National Conference on Theoretical and Numerical Approaches in Water Wave Mechanics from 16th to 17th December 2024. Which was jointly organized by Centre for Clean Environment, and Department of Mathematics (SAS) VIT, Vellore.
- **Ms. Thatiparthi Koteshwaramma** and **Dr. Kuvar Satya Singh** has presented a paper titled **“Performance Evaluation of a High-Resolution Atmosphere-Ocean Modeling System for Simulating Tropical Cyclone Titli over the Bay of Bengal”**, at National Conference on Theoretical and Numerical Approaches in Water Wave Mechanics from 16th to 17th December 2024. Which was jointly organized by Centre for Clean Environment, and Department of Mathematics (SAS) VIT, Vellore.



Conferences Attended

- **Ms. Megha H Malagavi and Dr. Prasanth S** presented a research paper titled **“Study on the efficiency of base isolation technique in lateral load resistance”**, at the SEC conference organized by the National Institute of Technology (NIT), Trichy from 12th to 14th December 2024.
- **Kesavaram R and Dr. S. S. Chandrasekaran**, has presented a research paper titled **"Understanding Rainfall-Induced Landslide Mechanisms in the Western Ghats: Case Study of the Adimali Landslide, Kerala, India"**, at Indian Geotechnical Conference 2024 - Geotechnical Engineering for a Sustainable Tomorrow (GEST 2024) from 19th to 21st December 2024. Organized by Indian Geotechnical Society, Aurangabad Chapter and Civil Engineering Department, MIT, Chhatrapati Sambhajanagar (Aurangabad).
- **Mr. Anto Ryan Raj P** participated in the **“13th ESA Advanced Training Course on Land Remote Sensing: Snow and Glaciers”**, at the University of Innsbruck, Austria from 16th -20th September 2024.
- **Ms. Gayathridevi K and Dr. Arunava Ray** presented a research paper titled **“Laboratory study of the strength and hydraulic behaviour of Bimsoil under varying Block properties and Matrix types”**, at Indian Geotechnical Conference 2024 - Geotechnical Engineering for a Sustainable Tomorrow (GEST 2024) from 19th to 21st December 2024. Organized by Indian Geotechnical Society, Aurangabad Chapter and Civil Engineering Department, MIT, Chhatrapati Sambhajanagar (Aurangabad).
- **Mr. Ragavan P.** attended the Training Workshop on the topic **“Urban Flood Management and Mitigation Measures”**, organized by Deltaic Regional Centre, National Institute of Hydrology (NIH), Kakinada, Andhra Pradesh from 27th to 29th November 2024.
- **Mr. Vinayaka Shankar Gargi and Dr. Surendar M** has presented a paper titled **“Satellite based Evapotranspiration Analysis for agriculture Drought Assessment in Dharwad, Karnataka”**, at (IEEE InGRASS, 2024) organized by IIT Bombay and NIT Goa from 2nd to 5th December 2024.
- **Mr. Abishek T and Dr. Surendar M** has presented a poster titled **“ Multi-Year Glacier Facies Dynamics in the Gangotri Glacier Using Sentinel-1 SAR Data”**, at (IEEE InGRASS, 2024) organized by IIT Bombay and NIT Goa from 2nd to 5th December 2024.
- **Ms. Purneemaa. R. S and Dr. Surendar M** has presented a poster titled **“ Evaluating the Spatial and Temporal Patterns of Subsidence in the Cauvery Delta Using Multi-Temporal Interferometric SAR Technique”**, at (IEEE InGRASS, 2024) organized by IIT Bombay and NIT Goa from 2nd to 5th December 2024.
- **Ms. Amritha B Nath and Dr. Prasanth S** has presented a paper titled **“Seismic Evaluation of Non-Seismically Designed Exterior Beam Column Section Retrofitted using Fiber Reinforced Concrete”**, at the SEC conference organized by the National Institute of Technology (NIT), Trichy, from 12th to 14th December 2024.

Awards and Honours



Best Performing ISET (Indian Society of Earthquake Technology) Local chapter award received by ISET Vellore Chapter Chairman **Dr. Mohan Ganesh** and Secretary **Dr. Rama Mohan Rao P** on 12th December 2024 at Indian Institute of Technology, Guwahati.

Dr. G. P. Ganapathy, CDMM received Independence Day Award - Support for District Disaster Management Authority, Vellore District, from Department of Revenue and Disaster Management, Government of Tamil Nadu, on 15th August 2024 during 78th Independence Day at Nethaji Stadium, Vellore.



Dr. Surendar M and Mr. Abishek T received the Best Paper award at the IEEE InGRASS 2024, held at NIT Goa from 2nd to 5th December 2024 for their paper "Multi-Year Glacier Facies Dynamics in the Gangotri Glacier Using Sentinel-1 SAR Data."

News and Media

Dr. G. P. Ganapathy (Professor) was featured in interviews on several Tamil news channels, where he discussed the recent landslides in Thiruvannamalai and Wayanad. He explained the various contributing factors associated with these events. The news outlets that interviewed Prof. Ganapathy included DW Tamil (Germany), News18 Tamil Nadu, Puthiyathalaimurai TV News, Thanthi TV, and Times of India.



Heat Wave: DOs & Don'ts

Do's

- Install temporary window reflectors such as aluminum foil-covered cardboard so as to reflect heat back outside. This will help keep the rooms pleasant.
- Cover windows that receive morning or afternoon sun with drapes, shades, etc
- Listen to local weather forecasts and stay aware of temperature changes.
- Know those in your neighborhood who are elderly, young, sick or overweight. They are more likely to become victims of excessive heat and may need help.
- Get trained in first aid to learn how to treat heat-related emergencies.

Don'ts

- Never leave children or pets alone in closed vehicles or under direct sunlight for long.
- Stay indoors as much as possible and limit your exposure to the sun.
- Stay on the lowest floor out of the sunshine if air conditioning is not available.
- Eat well-balanced, light and regular meals.
- Drink plenty of water; even if you do not feel thirsty. Keep yourself hydrated.
- Persons with epilepsy, heart, kidney, or liver disease; on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.
- Protect face and head by wearing a hat or cloth.

(@ NIDM)



Editorial board

Dr. Rama Mohan Rao P (Professor)

Dr. Surendar M (Associate Professor)

Mr. Vinayaka S Gargi (Research Scholar)

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