



Divecha Centre for Climate Change
Indian Institute of Science
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DCCC Seminar

Title: "Advances in Geospatial Data Science in Natural Resource Applications: Case Studies from Alaska"

Speaker: Dr. Santosh Panda

Associate Professor of GIScience,
Natural Resources and Environment |
Institute of Agriculture, Natural Resources and Extension | Geophysical Institute
Fairbanks, AK 99775

Date: 12th February 2025 (Wednesday)

Time: 3:00 - 4:00 PM

Venue: DCCC Auditorium, 2nd Floor, D314.

Coffee/Tea: 4.00 - 4.30PM

Speaker Bio:

Dr. Santosh Panda is an Associate Professor of Geographic Information Science in the Department of Natural Resources and Environment at the University of Alaska Fairbanks. He holds a B.Sc. in Geology from Sambalpur University (Odisha), an M.Sc. in Applied Geology from IIT Roorkee, and a Ph.D. in Geology from the University of Alaska Fairbanks. He teaches advanced undergraduate and graduate courses in remote sensing and Geographic Information Systems (GIS). Additionally, he has developed and teaches four GIS MOOCs on the edX platform (on edg.org), attracting over 45,000 learners from 190 countries. His research focuses on leveraging geospatial science and technology to enhance the understanding of Arctic landscape dynamics and associated geohazards in Alaska. These include the impacts of large forest fires, thawing permafrost, and eroding riverbanks, with the goal of addressing critical environmental challenges in the region.

Abstract:-

Geospatial science and technology have transformed how government agencies, businesses, and society at large address critical challenges. Academics and entrepreneurs continue to innovate, leveraging geospatial tools to advance scientific research and societal wellbeing. With the rapid evolution of technology, new applications emerge through the convergence of geospatial science with other cutting-edge tools, reshaping the way researchers analyze and utilize data. In this talk, Dr. Panda will highlight the latest developments in geospatial science and technology, focusing on their application in natural resource management. The presentation will cover relevant research and academic programs at the University of Alaska Fairbanks, recent advancements in geospatial data science, and their role in addressing natural resource challenges in Alaska.

Two key case studies will be discussed:

1. **Case Study1:** On-demand AVIRIS-NG hyperspectral image generation from Sentinel 2 satellite image for natural resource applications
2. **Case Study2:** Long-term forest health monitoring using Landsat time-series data and assessing fire and climate impacts on boreal forest health
3. **Case Study3:** Permafrost research in Alaska

All are welcome!