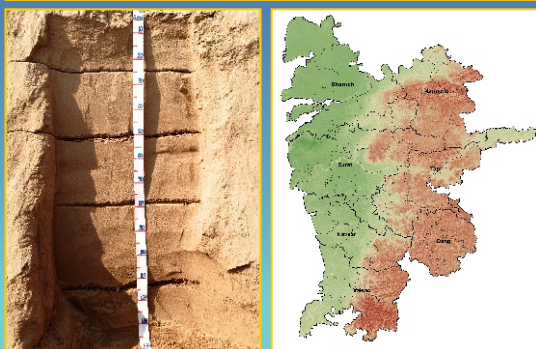


ICAR Sponsored Winter School on Advances in Geospatial techniques for Soil Resource Mapping and Management

05 - 25 February 2025



Organized by

ICAR-NBSS&LUP, Regional Centre, Udaipur



ICAR-National Bureau of Soil Survey and Land Use Planning
Amravati Road, Nagpur-440 033

<https://nbsslup.icar.gov.in>

Background

Soil is an indispensable natural resource that underpins terrestrial ecosystems and serves as the cornerstone of agriculture, forestry, and environmental sustainability. Its effective management and conservation are crucial for ensuring food security, preserving biodiversity, and mitigating the impacts of climate change. A comprehensive land resource inventory and management approach is fundamental to sustainable crop production and the assurance of long-term food security. Traditional soil surveying methods, while valuable, are often constrained by their time-intensive, laborious nature and limited spatial coverage. In contrast, modern soil resource mapping employs advanced geospatial techniques, providing precise and efficient tools for understanding soil properties, their spatial distribution, and overall condition. These insights enable informed decision-making and sustainable land use planning.

In recent decades, geospatial technologies have transformed soil resource management. Tools such as remote sensing (RS), geographic information systems (GIS), and digital soil mapping (DSM) utilize spatial data to tackle the complexities of soil resource management. These technologies facilitate detailed analyses of soil properties, modeling of soil processes, and the development of strategies for sustainable land management. Additionally, they address critical global challenges, including soil degradation, erosion, and nutrient depletion, while supporting precision agriculture, land restoration, and climate change adaptation. Despite challenges such as limited data accessibility and the demand for skilled expertise, advancements in geospatial technologies hold immense potential. They provide innovative solutions for enhancing soil health and ensuring the sustainable utilization of this vital resource, thereby contributing to global food security and environmental sustainability.

To build capacity in these transformative geospatial techniques, ICAR-National Bureau of Soil Survey and Land Use Planning (NBSS&LUP), Nagpur, is actively engaged in creating soil-based thematic databases and maps through field surveys, soil analysis, cartography, and the integration of remote sensing, GPS, and GIS. Recognizing the growing need for specialized training, ICAR-NBSS&LUP, Regional Centre, Udaipur, is organizing a hands-on training program titled "Advances in Geospatial Techniques for Soil Resource Mapping and Management" from February 05 to 25, 2025.

This program will provide practical exposure to soil surveying, landform identification, and geospatial tools. Participants will gain valuable skills in soil resource mapping and management, empowering them to contribute effectively to soil-based developmental programs and sustainable land management initiatives.

Course content

- Factors and processes of soil formation
- Soil-landform relationship
- Field trips, soil profile study and observation of morphological properties
- Soil survey techniques for land resource inventory
- Soil survey data interpretations
- Principles of remote sensing and GIS
- Application of remote sensing in soil resource inventory
- Introduction to QGIS, SAGAGIS and R
- Satellite data and their applications in soil resource management

- Introduction to Google Earth Engine
- Digital terrain analysis
- Soil data visualization in R
- Geostatistics: Principles and Applications
- Principles of Digital Soil Mapping
- Soil and water conservation and Land use planning

Eligibility

- The training programme is open to Scientists/ Assistant Professors /Subject Matter Specialists/ Professionals of ICAR Institutes /CAUs /SAUs/KVKs involved in research, development, training, testing and extension programmes.
- The applicant should be working in a position not below the rank of Scientist / Assistant Professor/Lecturer/Subject Matter Specialists or Equivalent in Agriculture and its Allied Disciplines.

Note : All selected candidates must bring laptop for practical sessions.

How to Apply

The interested candidates should register and apply online through 'Capacity Building Programme' (CBP) portal as follows:

1. Visit the website <https://cbp.icar.gov.in/>
2. Login using your user ID and Password. To create user ID use "Create New Account" link.
3. After login, click on "Participate in Training" link and fill the Pro forma.
4. Take a printout of filled application and upload scanned copy of dully signed application online, and also send duly signed copy to the Course Director by email (rpsharma64@gmail.com) along with registration fee on or before 10 January 2025.

Note: Participants are required to make payment of registration fee of **INR 50/-** via Demand Draft in favour of Director, ICAR-NBSS&LUP, Nagpur.

Boarding and Lodging

The participants will be provided free boarding and lodging in the Institute/ University guest house only on sharing basis. Since limited rooms are available, accommodation will not be provided to the family members or guests of the participants. Food will be served and expenses will be borne by the organizers as per ICAR norms. The Udaipur based candidates are not eligible for boarding and lodging; however, they are entitled for day refreshment.

Travel

Participants will be paid travel fare to and fro through the shortest route from their respective institution to ICAR-NBSS&LUP, RC, Udaipur by Rail or bus or other means of transport. The payment will be made as per their entitlement but restricted to the maximum of AC-II tier train fair. If any participant chooses to travel by air, he/she may do so, but their claim shall be restricted to AC-II tier train fair. TA to be paid on production of a certificate or tickets by the participant.

Weather

The climate remains pleasant during February. The minimum temperature is about 13°C. Participants are advised to bring winter clothes for a comfortable stay.

How to Reach

Udaipur the "City of Lakes" is one among the most beautiful cities of India. It is easily reachable from all major cities of the country including Delhi, Mumbai, Ahmedabad, Kolkata, Jaipur etc. It is well connected by rail, road & air. The Udaipur city has an excellent network of roads to ensure comfortable journey. Railway station and Bus stand are well within the city limits. Whereas, Udaipur Airport namely Maharana Pratap Airport is near to Dabok and is located at a distance of 20 km. from the city.

Number of Participants

Total intake for the Winter School is limited to 25 participants. The participants are advised to start journey only after receipt of selection letter.

Important dates

- **Last date for receipt of application : 10 January 2025**
- **Intimation of selection of participants : 15 January 2025**
- **Last date for confirmation from participants : 20 January 2025**

All correspondence should be addressed to

Dr. R.P. Sharma

Pr. Scientist and Course Director

Email: rpsharma64@gmail.com

Mobile No.: 9309779945

Course Coordinators

Dr. L.C. Malav (Scientist), Mob. 9718236054

Dr. Brijesh Yadav (Scientist), Mob. 8851551465

Dr. K. K. Yadav (Prof.& Head), Dept. of Soil Science & Agril Chem.
RCA, MPUAT, Udaipur

Patron

Dr. B.L. Mina

Pr. Scientist & Head

ICAR-NBSS&LUP, RC Udaipur

Dr. N.G. Patil

Director

ICAR-NBSS&LUP (Hqrs), Nagpur

Venue

ICAR- NBSS & LUP, Regional Centre

Bohara Ganesji Road, University Campus

Udaipur-313001 (Rajasthan)