भारत सरकार / GOVERNMENT OF INDIA

भारतीय भूवैज्ञानिक सर्वेक्षण / GEOLOGICAL SURVEY OF INDIA

Note on One-Day Workshop on Continuously Operating Reference Stations (CORS)

Date: 29th April 2025

Venue: Geological Survey of India Training Institute (GSITI), Hyderabad

A one-day Online Workshop on **"Continuously Operating Reference Stations (CORS)"** was successfully conducted on **29th April 2025** at the **Geological Survey of India Training Institute (GSITI), Hyderabad**. The workshop was jointly organized by **GSITI (Mission-V), Hyderabad** and **National Mission - IA, Geological Survey of India**, Kolkata as part of the capacity-building initiative in alignment with the objectives of enhancing high-precision GNSS-based geospatial surveying capabilities within GSI and associated geoscientific organizations.

The program commenced with a formal **inaugural session**, where Shri S. Dhanendran, Director (P&P), GSITI, welcomed all dignitaries, faculty, and participants. In his welcome address, he emphasized the strategic relevance of CORS technology in today's geospatial and mineral exploration ecosystem and the timely need to train officers in this emerging domain.

Shri Priyadarshi Sahoo, DDG, NM-IA, GSI, provided a detailed course overview, outlining the structure of the workshop and its focus areas. He highlighted the increasing demand for real-time positioning in mineral exploration and infrastructure mapping and the critical role that CORS-enabled GNSS solutions will play in ensuring spatial accuracy, consistency, and data integrity.

Dr. S. Ravi, DDG & Head of Mission-V, GSITI, appreciated the initiative of the DDG & National Mission Head-IA for organising workshop on CORS. In his address, he highlighted the insightful note on the evolution of geospatial technologies in GSI. He underlined the importance of institutional readiness to adopt new methods like CORS, RTK, and AI-enabled mapping workflows, particularly in the context of the National Geospatial Policy 2022. He encouraged participants to explore the operational and policy aspects of GNSS applications and contribute to future-oriented survey practices.

Shri Pradeep Singh, DDG & National Mission Head-IA in his address stressed that CORS and GNSS-based surveying will soon become the part of standard operating procedures for various field surveys in GSI and that programs like these are essential for building organizational capacity across levels. He underlined the significance of MoU existing between Survey of India and GSI in fostering cooperation in CORS network utilization including data sharing, research and development and capacity building in mapping and mineral exploration.

The technical sessions of the workshop featured a comprehensive set of lectures and demonstrations delivered by eminent resource persons from the Survey of India (SOI), GSI, and ESRI India. The first session, delivered by Shri P.K. Tripathy, Senior Survey Officer, GSI, covered foundational concepts such as datum, coordinate systems, and the UTM projection system. This was followed by a session on GNSS fundamentals and surveying methods, delivered by Shri C.V.S.S. Prasad, Officer Surveyor, SOI, which explored satellite-based positioning systems, error correction, and GNSS data acquisition strategies.

Post the morning break, Shri Bhaskar Sharma, Officer Surveyor, SOI, delivered an in-depth session on real-time surveying using RTK and DGNSS methods, explaining the principles, benefits, and limitations of each. In the post-lunch session, Shri Prasad returned with a focused presentation on CORS station configuration, site selection, and operational maintenance, which generated substantial interest among the participants. Shri Sharma followed with a session on RTK operations using CORS networks, illustrating data flow, signal reliability, and operational workflows.

The final technical talk was delivered by Shri Dwaipayan Dighal, Vice President, ESRI, who showcased how GNSS and CORS data can be efficiently integrated into GIS environments using modern software platforms and ESRI tools. A concluding interactive session allowed participants to pose questions, share feedback, and deliberate on practical field challenges.

More than 300 participants from GSI across Regions, Missions and State Units, State Directorates of Mining & Geology, Central and State PSUs, NEAs, NPEAs, Academicians participated actively in the workshop, with high levels of engagement observed during the Q&A segments. The event also witnessed participation and technical support from Survey of India professionals, making it a cross-institutional learning platform.

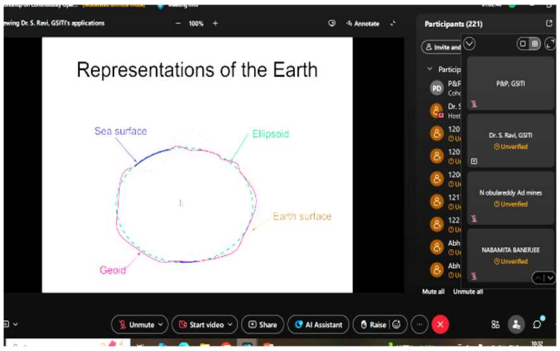
Feedback received from participants was overwhelmingly positive. Attendees appreciated the clarity, relevance, and practical orientation of the sessions and expressed

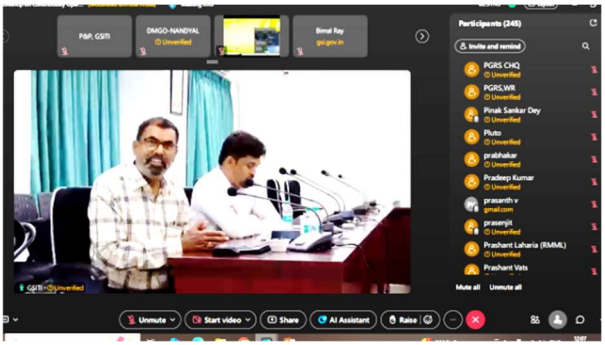
interest in follow-up training sessions involving field exercises and advanced processing techniques. Suggestions were made to include multi-day modules in future editions, covering GNSS post-processing, drone-CORS integration, and data correction models.

The workshop concluded with a vote of thanks from the organizers, acknowledging the contributions of faculty, participants, and supporting staff. The session reaffirmed GSI's commitment to staying at the forefront of geospatial technological advancement and capacity development.

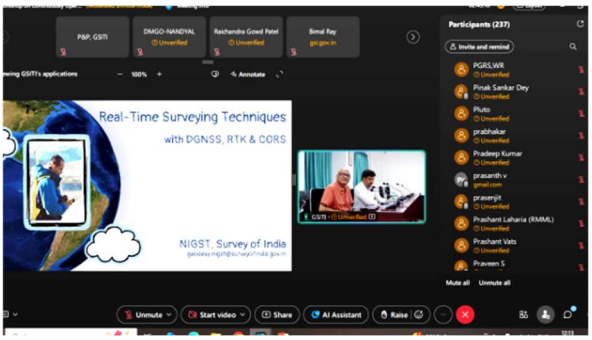
Glimpses / Activities

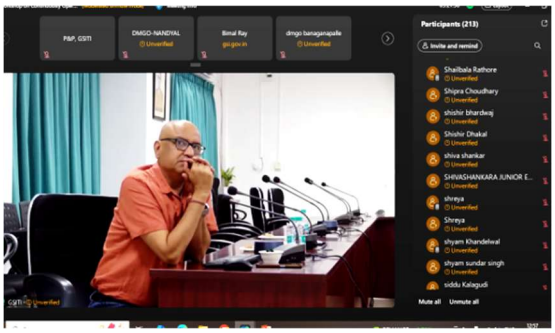

Indrajit Kumar: Thank You sir
Participants (281)


Representations of the Earth
Sea surface
Ellipsoid
Earth surface
Geoid
Participants (221)

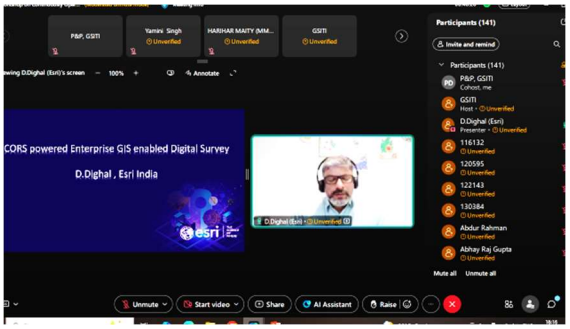

Participants (245)


FUNDAMENTALS
OF
GPS - GNSS
Participants (279)


Real-Time Surveying Techniques
with DGNSS, RTK & CORS
NIGST, Survey of India
Participants (237)


Participants (213)


Overview of CORS Technology
Participants (116)


CORS powered Enterprise GIS enabled Digital Survey
D.Dighal , Esri India
Participants (141)