GEO ALLIANCE
Driving Sustainable Urban Futures

International Symposium

Geophysical and Geological Data for Smart City Solutions: Building Safer, More Resilient Communities

28 February 2025 Bucharest. Venue: Casa Universitarilor

Cities around the world are being challenged to provide better quality and more sustainable services, improve public safety, and manage city expansion and high demand for resources in the context of pressing environmental issues such as natural disasters, infrastructure stress, and the urgent need to reduce CO_2 emissions.

How this can be achieved? We invite you to share your perspective at the Symposium on Geophysical and Geological Data for Smart City Solutions. Join us to exchange ideas, showcase innovations, and gain insights from diverse stakeholders, including researchers, practitioners, and policymakers.

Invited presentation & speaker

Seismic Rapid Early Warning for Smart Cities, presented by Constantin Ionescu (*general manager The National Institute for Earth Physics – NIEP*).

The symposium invites presentations that showcase the means of acquiring the necessary data, value and methods of integrating subsurface information into smart city strategies.

Topics of Interest

We seek contributions exploring practical and innovative ways to utilize geophysical, geological and remote sensing data, **including but not limited to**:

- **District Planning**
  Utilize subsurface data to strategically optimize the new building construction, and placement of district heating and cooling networks, ensuring efficient energy distribution and minimizing construction risks.
  Utilize subsurface and remote sensing data to improve the management of landfills or locate hazardous objects like UXO
  Utility of geophysics and remote sensing data in addressing challenges of coastal cities
- **Disaster Preparedness**
  Geophysical technologies, including ground-penetrating radar (GPR), seismic imaging, magnetometry, electrical resistivity, electromagnetic induction, and remote sensing for understanding the subsurface characteristics of urban environments and subsurface utilities management.
  Seismological and infrasound monitoring data, radioactivity detection, and geological data for actionable information about soil stability, fault lines, groundwater resources, pollution, landslides, and other geological or anthropogenic hazards.
  Disaster Risk Reduction and Early Warning Systems

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- **Public Transit**
  Leverage geological and remote sensing data to design safer and more reliable routes for underground e-bus systems, metro networks, and other transportation infrastructure, reducing risks associated with unstable ground conditions.
- **Sustainability Initiatives**
  Utility of geophysical and geological knowledge to inform the deployment of renewable energy solutions, such as geothermal energy, by analyzing subsurface conditions to identify optimal locations for energy extraction and infrastructure placement.
- **Infrastructure Monitoring**
  Geophysical and surveys to assess the stability of critical infrastructure, such as bridges, tunnels, and roads, identifying potential weakness zones or structural risks before they escalate into larger problems
  Geotechnical and Remote sensing data for infrastructure projects -city areas
- **Resource Management**
  Waste-to-energy solutions and implementation in urban areas
  Utility of geophysical and geological knowledge to locate oil and gas reservoirs, hydrothermal water, and mapping of groundwater aquifers to ensure access to vital resources and sustainable resources supply management, as an element for supporting urban growth and resilience to climate variability.
- **Cultural Heritage Preservation**
  Application of non-invasive geophysical technologies and multi-criteria analyses to locate and preserve buried archaeological features and historic landmarks, balancing urban development with the preservation of cultural heritage.
- **Geophysics beyond Urban Boundaries**
  Extended geophysical monitoring to surrounding areas critical to city operations, such as monitoring pipelines, dams, and other infrastructure essential for urban safety and functionality.
  Geophysics and remote sensing data for urban safety
- **Non-Technical Engagement and Education**
  Foster citizen education on geophysics, geology, and green transition by implementing public engagement initiatives, workshops, and educational programs. Empowering residents to understand the implications of subsurface data for urban safety, resource management, and sustainability, ensuring inclusive participation in smart city strategies.
- **Strategic Insights for Policy and Planning**
  Standardizing geophysical-geological practices for urban management,
  Bridging geoscientific research with city planning policies,
  Cross-Disciplinary Collaborations,
  Partnerships between geophysics, urban planning, and civil engineering.

Attendance & registration as a participant:
Free (requires pre-registration) Link: https://forms.gle/rLQET931ma1R3ce48

Key Dates: Abstract Submission Deadline: 30 January. Notification of Acceptance: 5 February

Submit your abstract via this form: https://forms.gle/cHuPvEj8edscuGbK8

For questions or additional information e-mail at: florina.tuluca@g.unibuc.ro

Accepted presentations can be submitted as extended papers for being published as a Journal paper in Sustainable Geoscience – Elsevier (if it falls under the scope and aims of the Journal) or as a book chapter under the aegis of the Romanian Society of Applied Geophysics. Submission is subject to peer review.