

Geospatial Technologies in Strengthening Epidemic Preparedness and Response

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This project has received funding from the European Union's "Horizon 2020 Research and Innovation Programme" under Grant Agreement No 857510".



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This project is co-funded by the Cyprus University of Technology.

Epidemics/Health Subcluster of ERATOSTHENES Centre of Excellence

Who We Are – Subcluster Members

1. Dr Neophytos Stylianou

- Role: Leader of the Epidemics Subcluster
- Research focus: Health Service Improvement

2. Dr Galatia Photiou

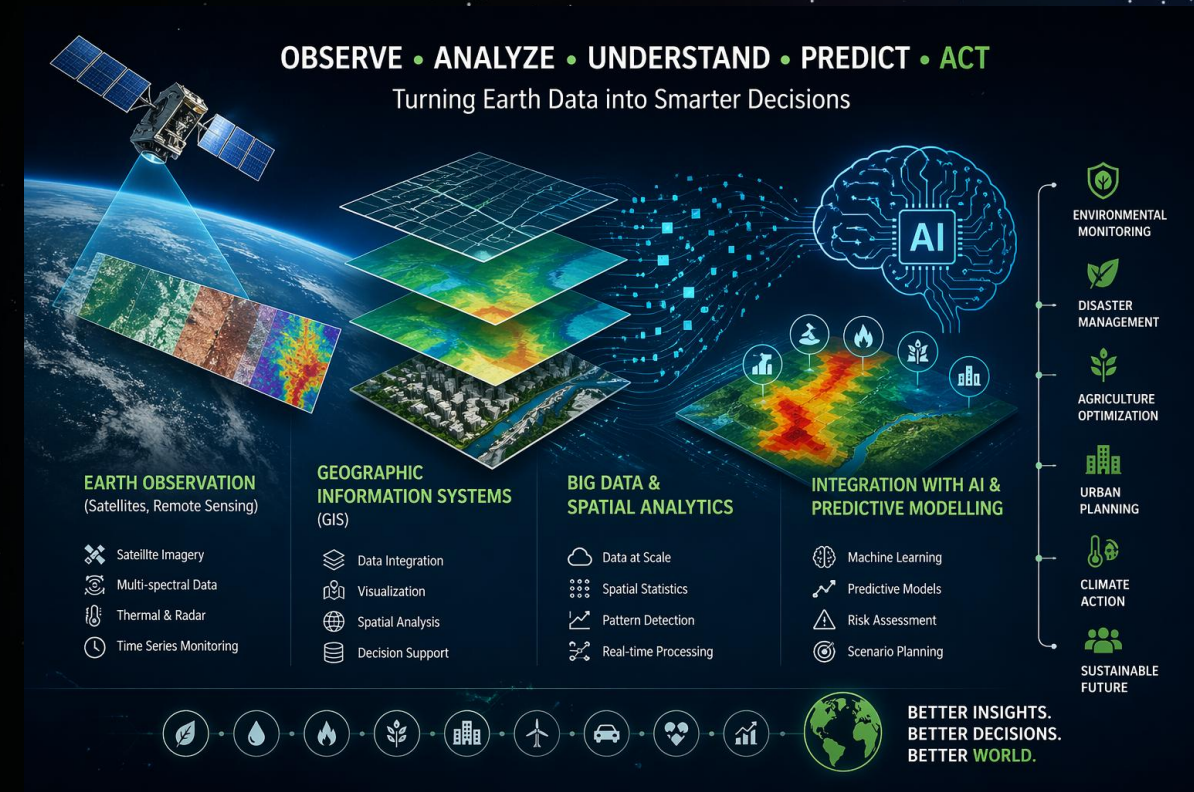
- Role: Researcher of the Epidemics Subcluster
- Research focus: Cardiovascular Epidemiologist/interplay between individual and area-level factors for arteriosclerosis and arterial ageing.

- Introduction
- Epidemics as a Disaster Risk
- **Overview of Geospatial Technologies**
- Role of Earth Observation in Epidemic Preparedness
- Applications in Epidemic Response
- Conclusion



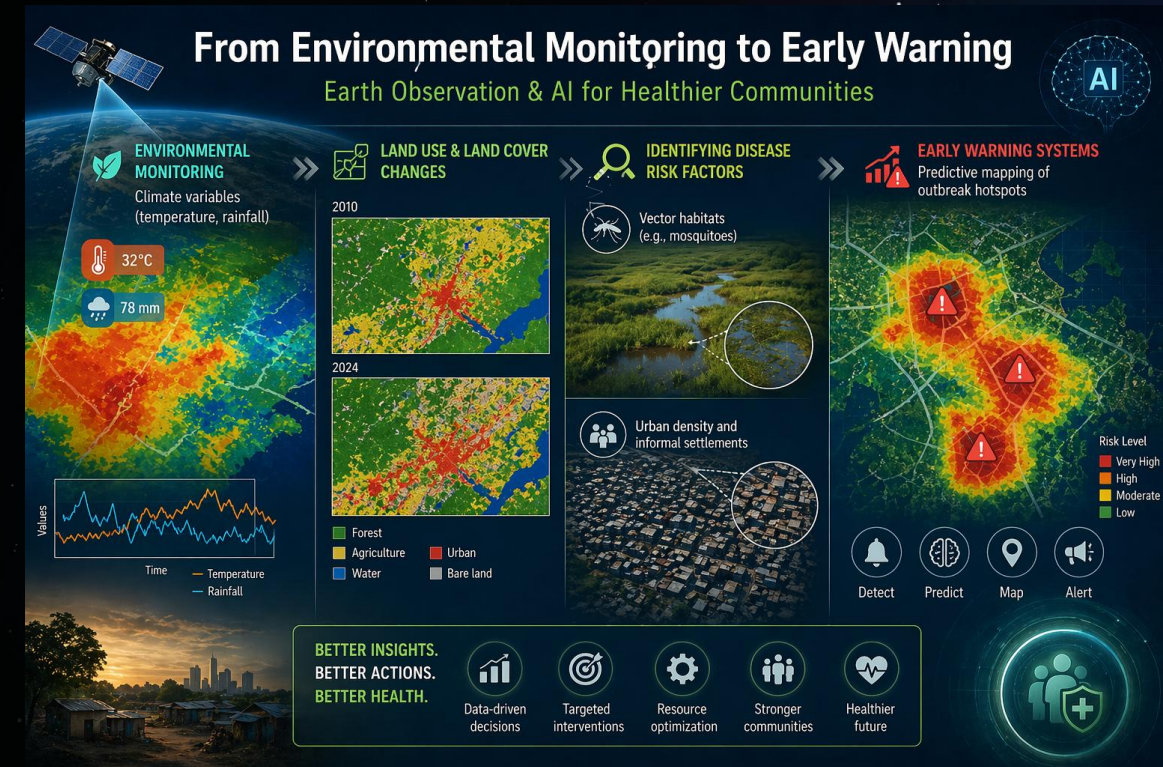
Overview of Geospatial Technologies

- Earth Observation (satellites, remote sensing)
- Geographic Information Systems (GIS)
- Big data & spatial analytics
- Integration with AI and predictive modelling

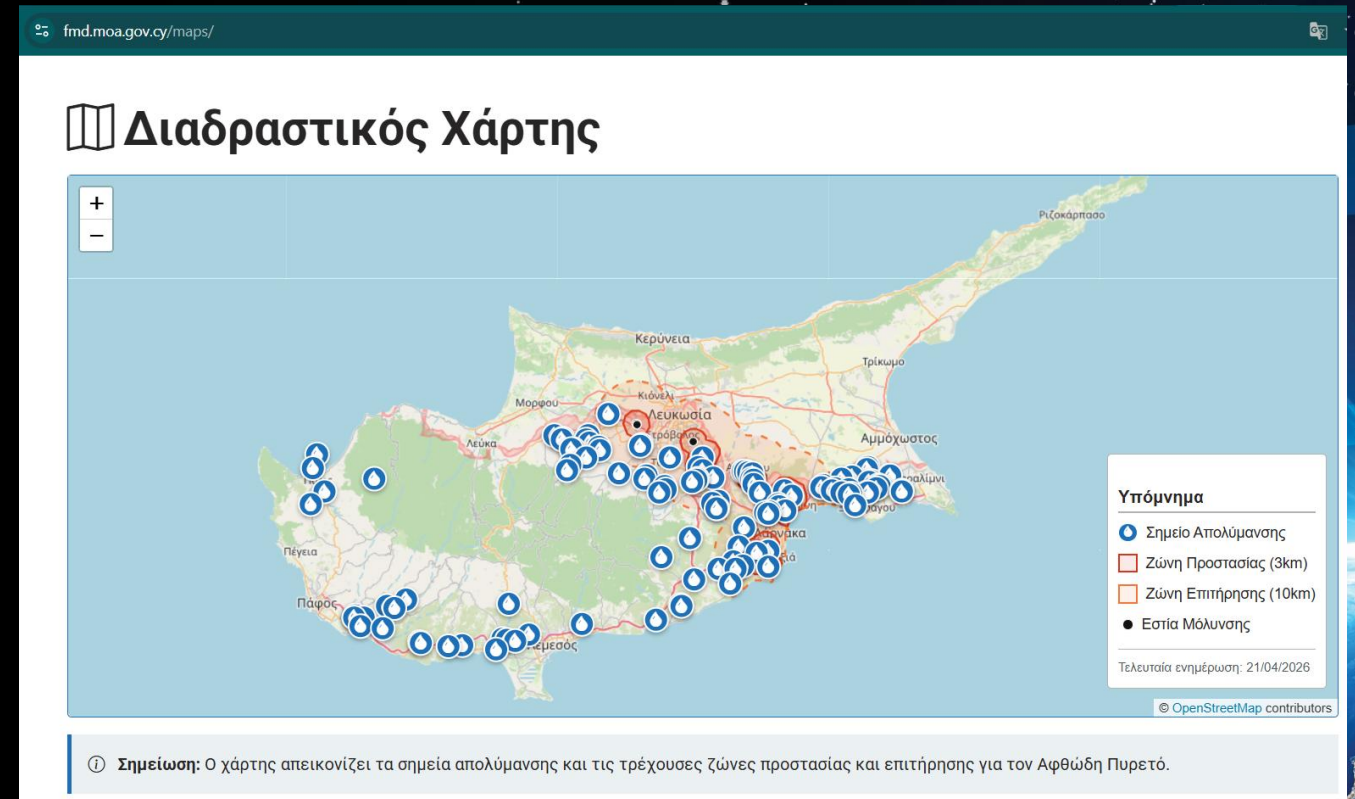


Role of Earth Observation in Epidemic Preparedness

- Environmental monitoring:
 - Climate variables (temperature, rainfall)
 - Land use and land cover changes
- Identifying disease risk factors:
 - Vector habitats (e.g., mosquitoes)
 - Urban density and informal settlements
- Early warning systems:
 - Predictive mapping of outbreak hotspots



- Real-time mapping of outbreaks
- Mobility and population movement tracking
- Resource allocation:
 - Hospitals, vaccines, medical teams
- Decision-support dashboards for authorities
- Risk communication through geospatial visualization



- Data availability and accessibility
- Interoperability between systems
- Capacity gaps in developing regions
- Privacy and ethical concerns (especially mobility data)
- Need for standardization and governance

- Systematic review on GIS and Primary Care Access is submitted to BMC Public Health
- Participations in Conferences and workshops of Public Health and Epidemics
- Memberships in Cyprus Epidemiology and Public Health Association (CyEPHA) and European Public Health Association (EUPHA)
- MoU signed with Internal Medicine Department at CEU Cardenal Herrera University in Valencia, Spain
- PROSOPOSALS?? (NA TA POUME?)

- AI-driven epidemic prediction models
- Increased availability of open satellite data
- Cloud-based geospatial platforms
- Strengthening partnerships:
 - International organizations
 - Research institutions
- Capacity building and training (key role of workshop organizers)
- Participation in Public Health conferences
- Future publication are already prepared related to cardiovascular diseases and air/noise pollution

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ACKNOWLEDGEMENTS



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