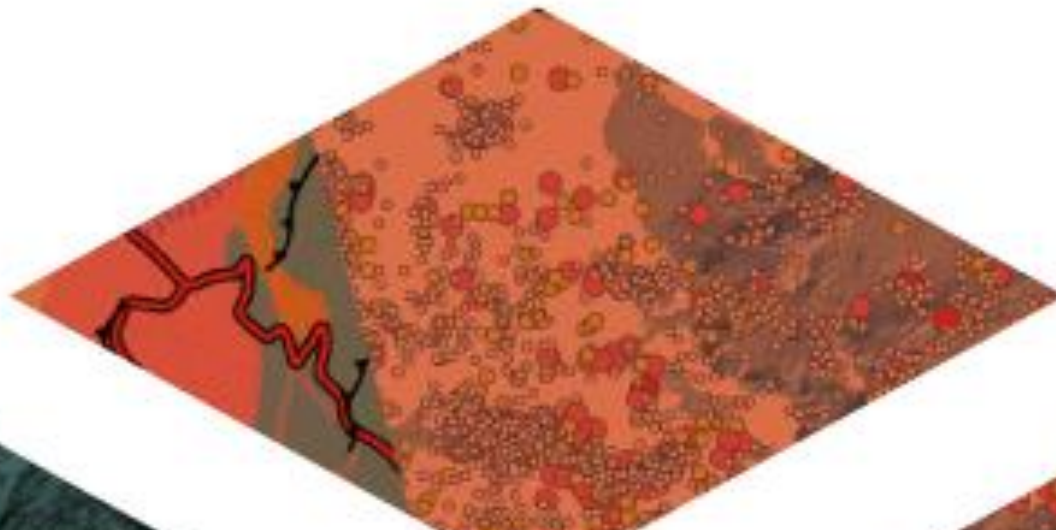




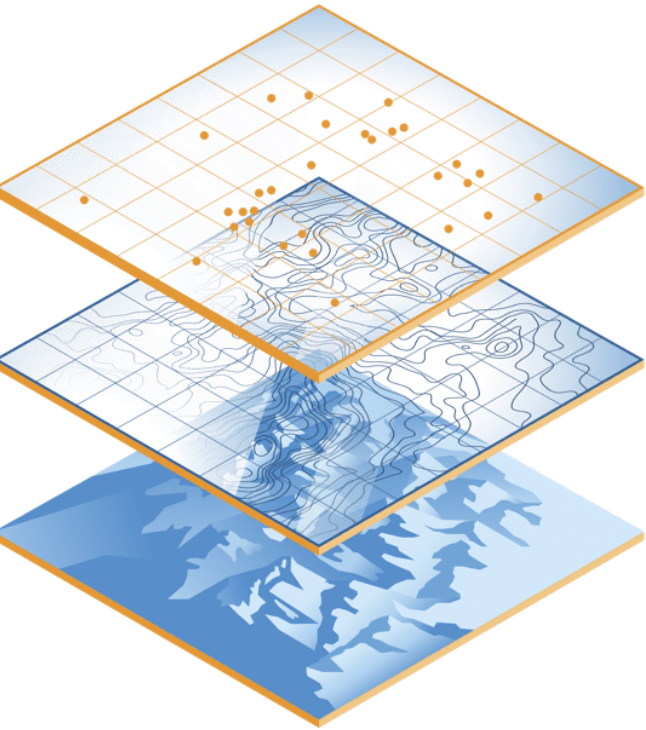
HELLENIC REPUBLIC
National and Kapodistrian
University of Athens

Applications of Geographic Information Systems (GIS)

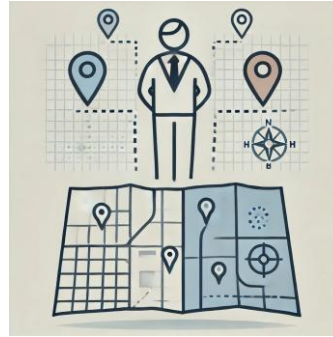
Dr. Giannis Saitis,
NKUA



Why GIS?



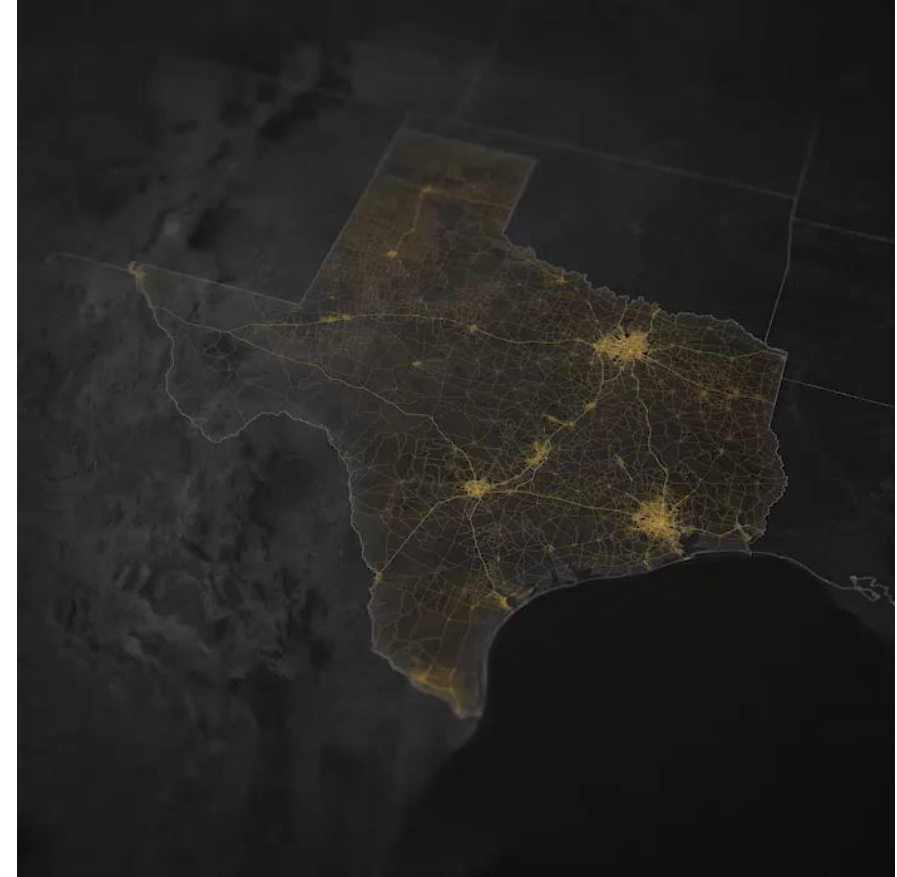
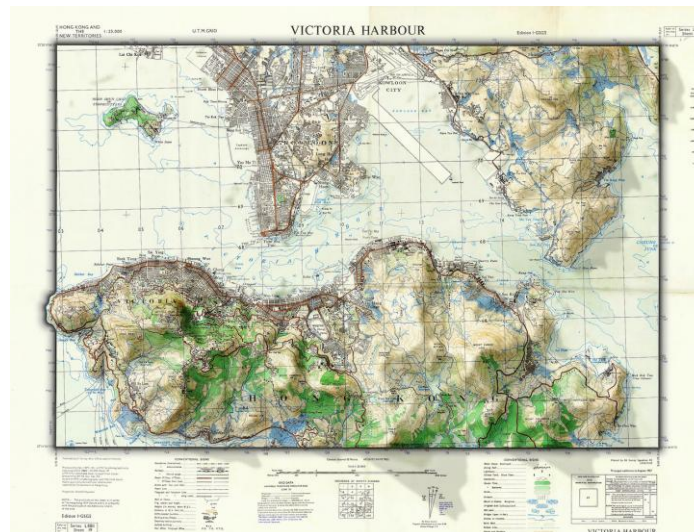
Planning



Analysis



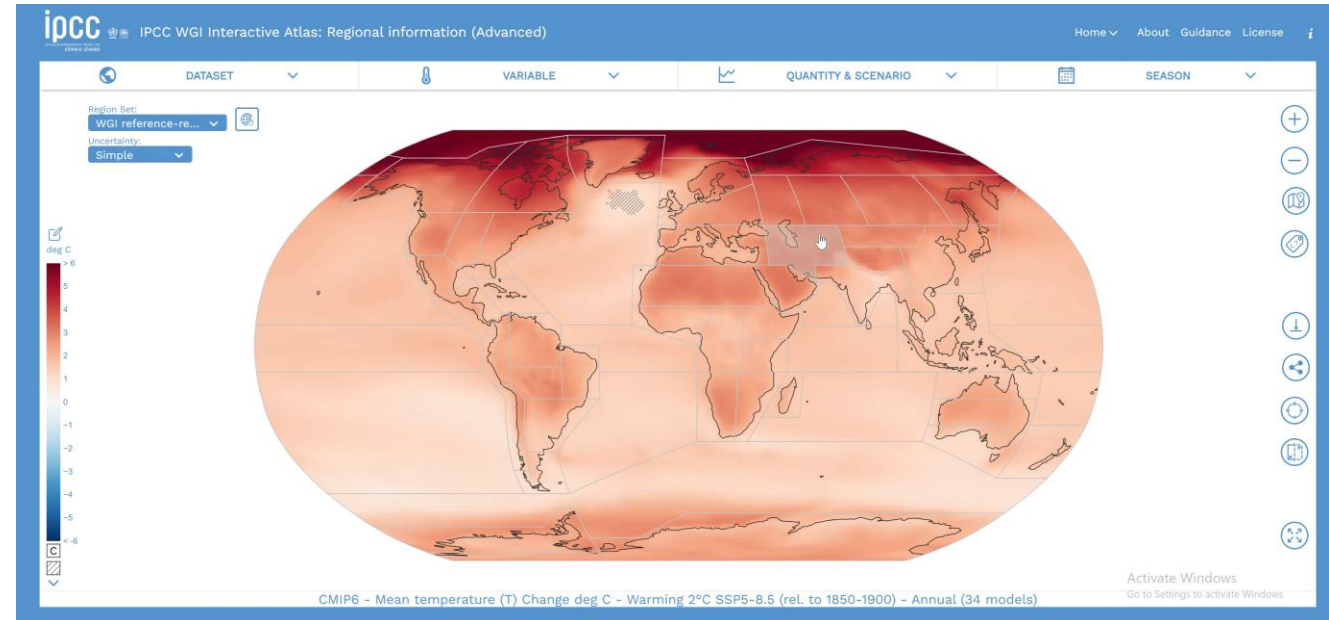
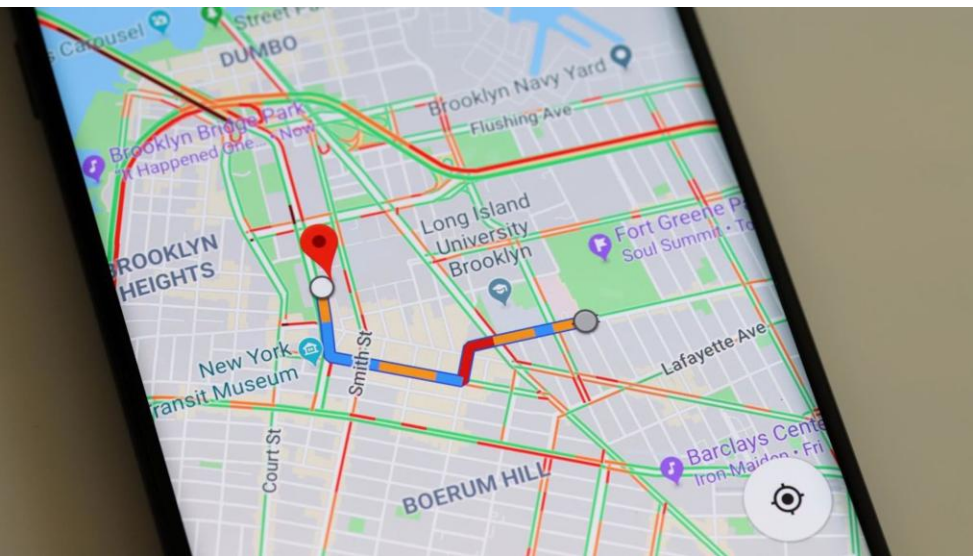
Mapping



We use GIS without knowing (?)



Google Maps



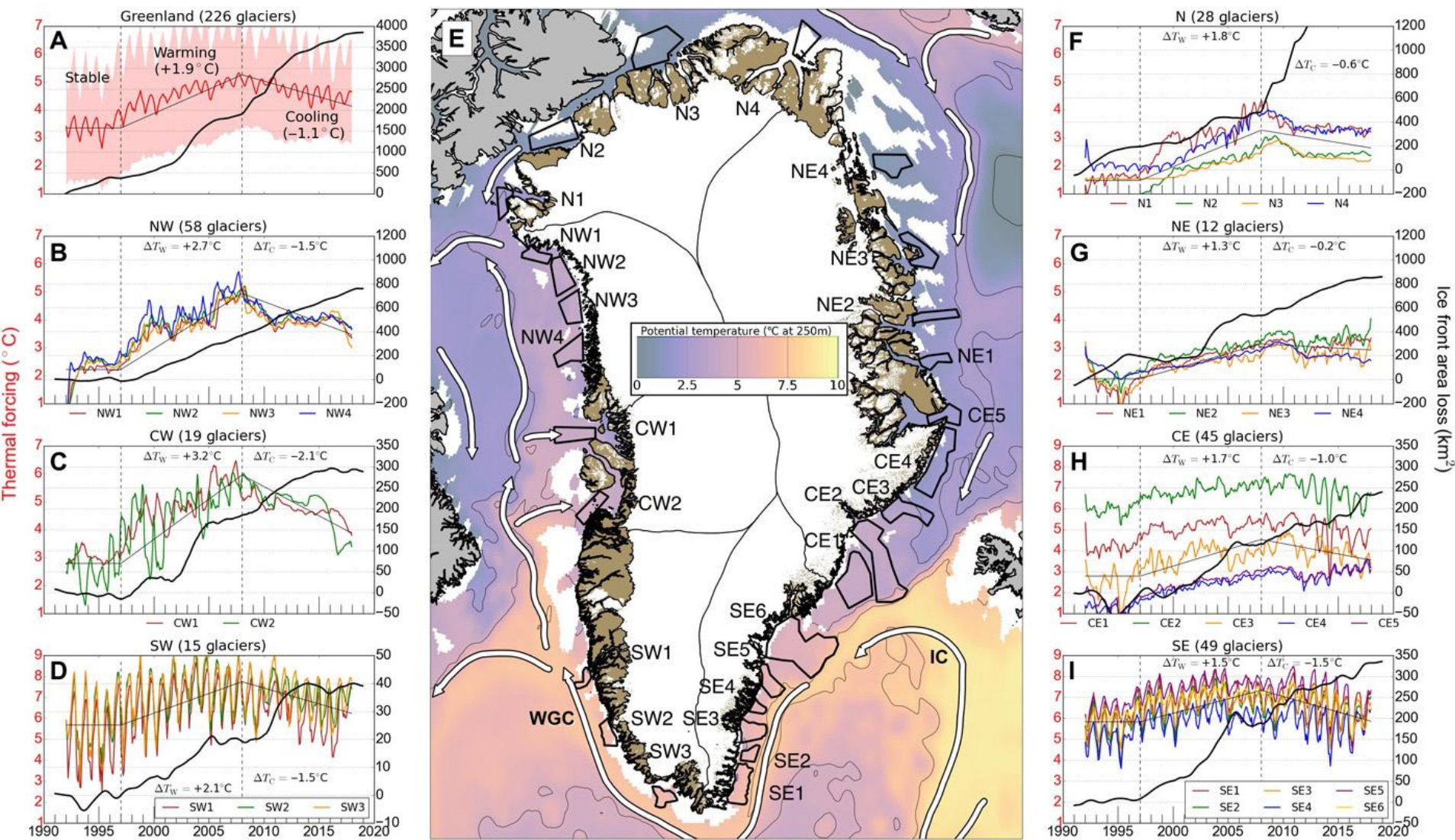
11.10.2024 15:30 (12:30 UTC)



METEOROLOGY

http://www.emy.gr/emyl/el/observation/sa_xartis_paron_kairos_perioxes

Applications of GIS

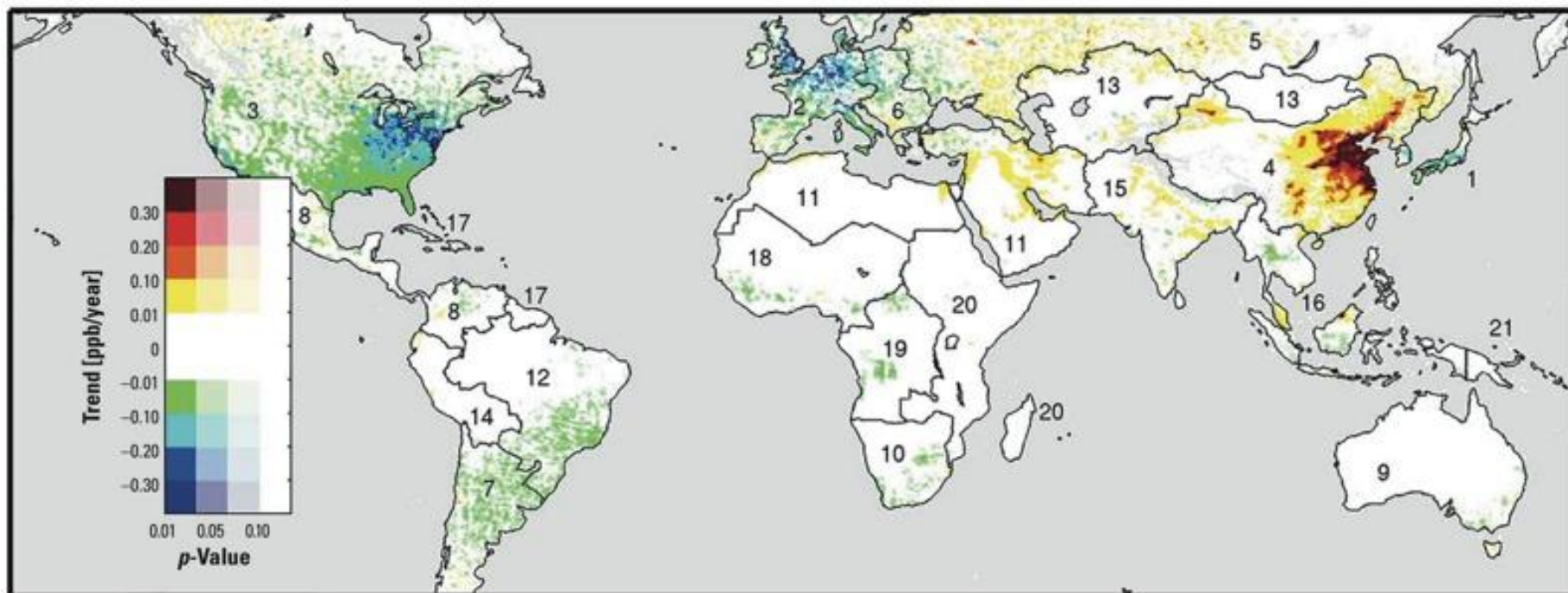
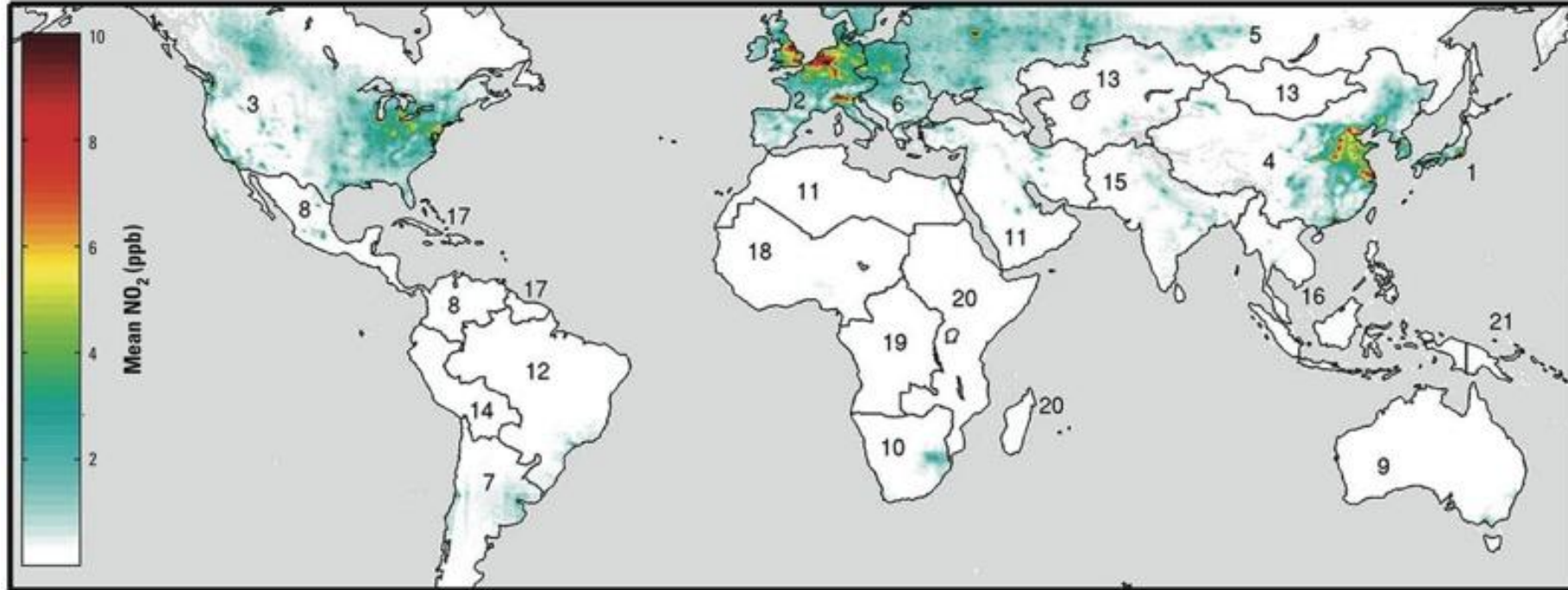


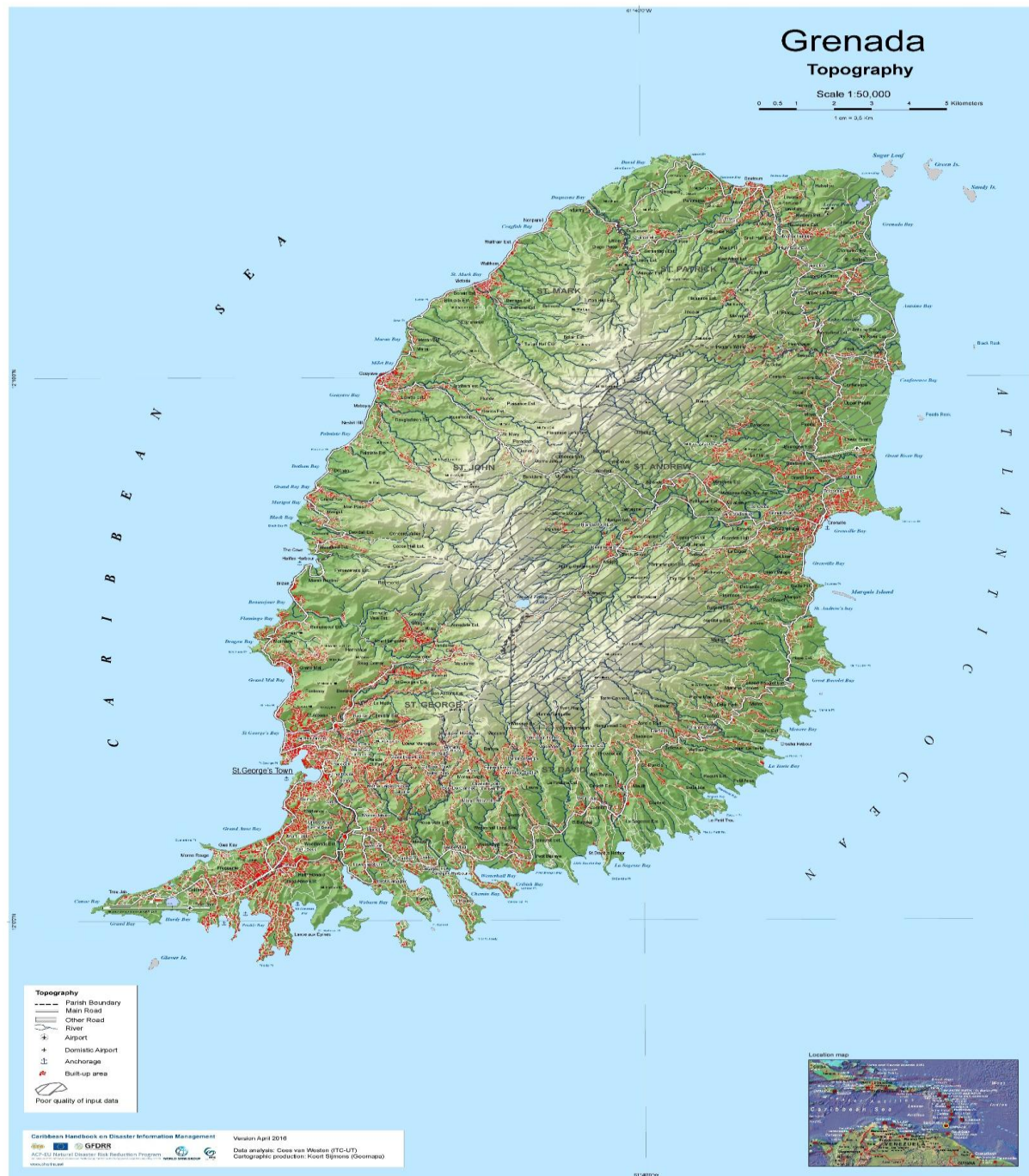
Wood et al., 2021; <https://doi.org/10.1126/sciadv.aba7282>

CLIMATE-RELATED
HAZARDS

Applications of GIS

ATMOSPHERIC SCIENCES





Applications of GIS

TOPOGRAPHY & RELIEF

GFDRR, 2016

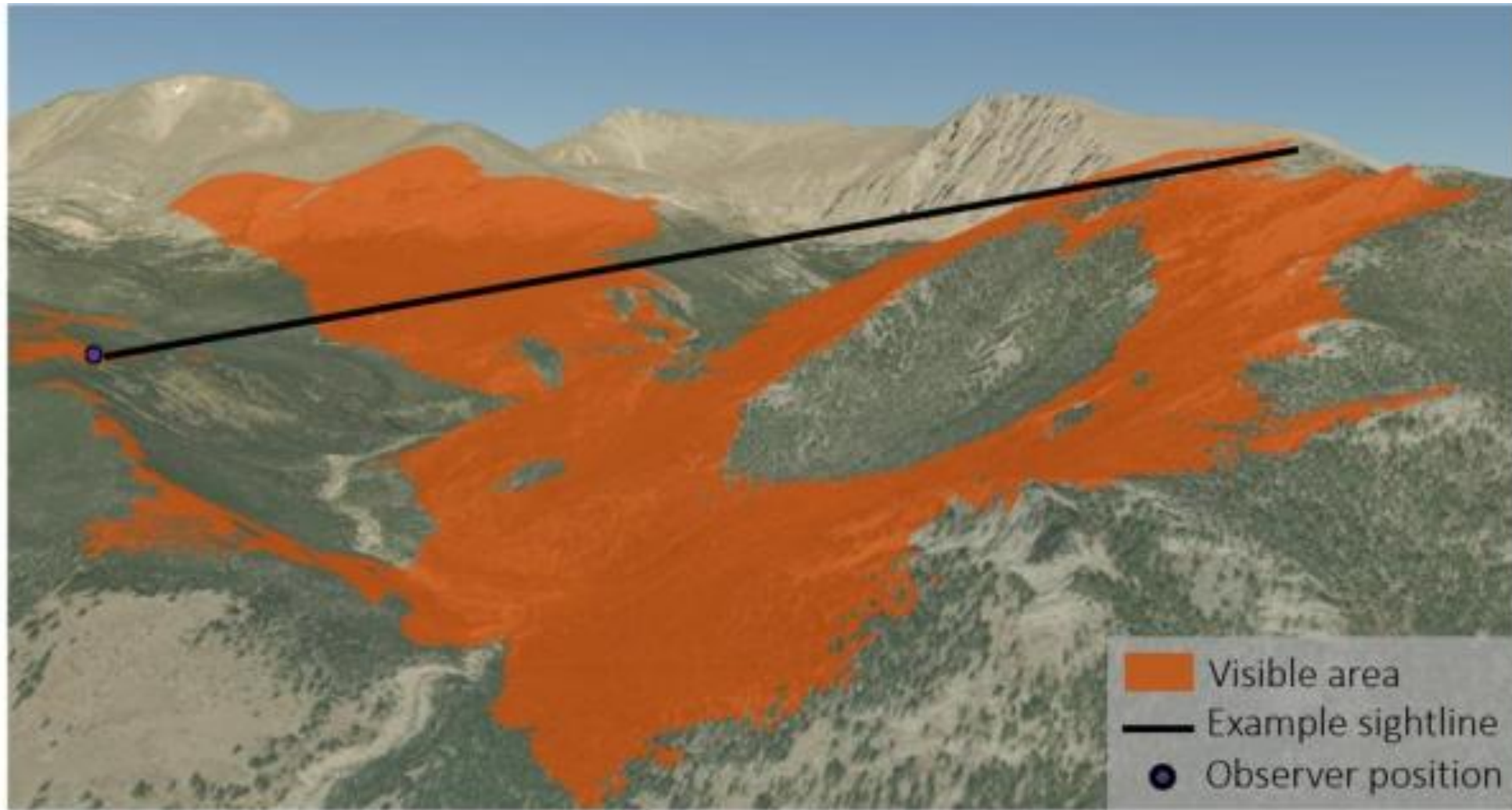
Applications of GIS

TOPOGRAPHY & RELIEF



By Spyros Staridas

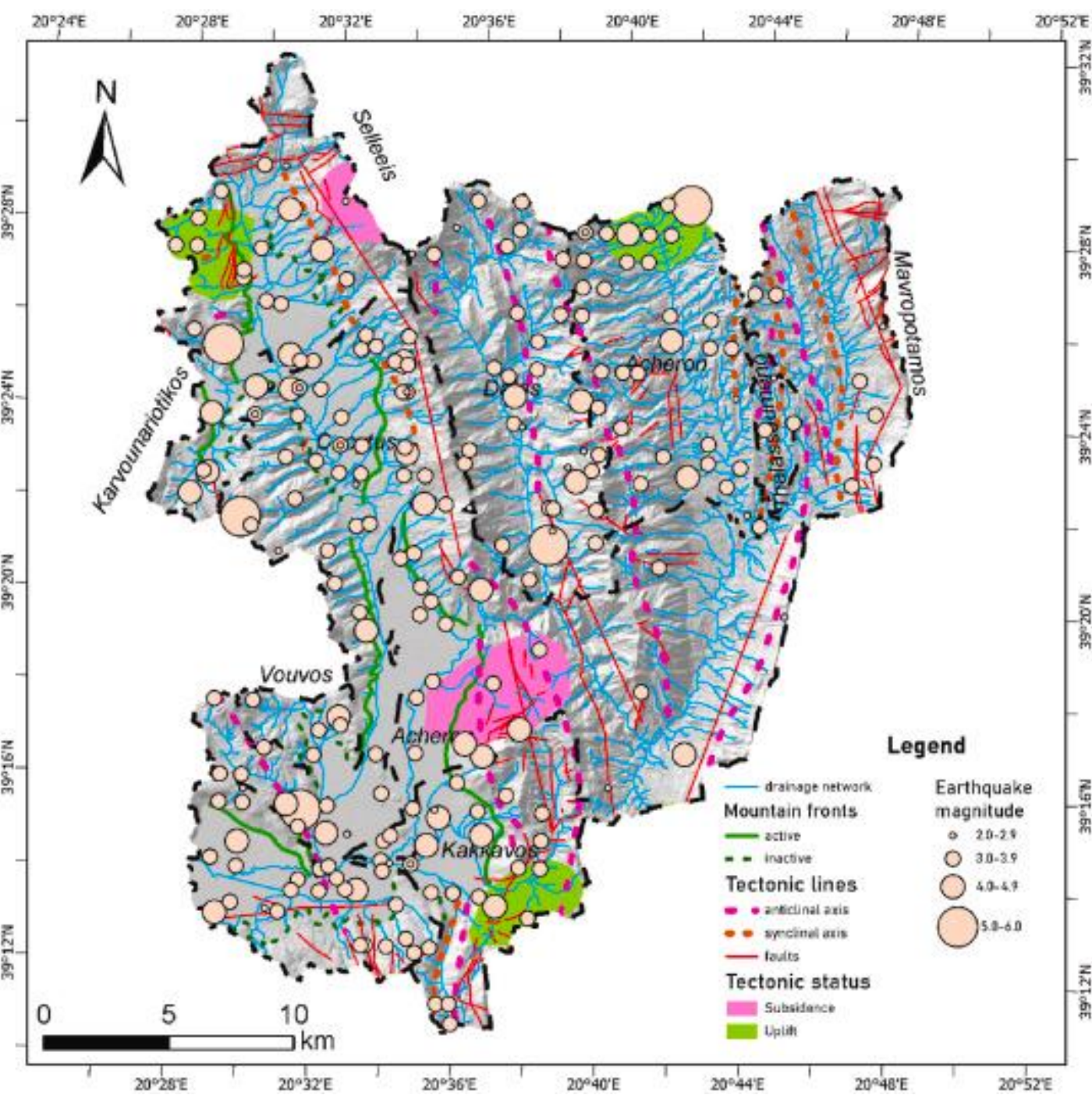
Applications of GIS



TOPOGRAPHY &
RELIEF

Applications of GIS

EARTHQUAKES

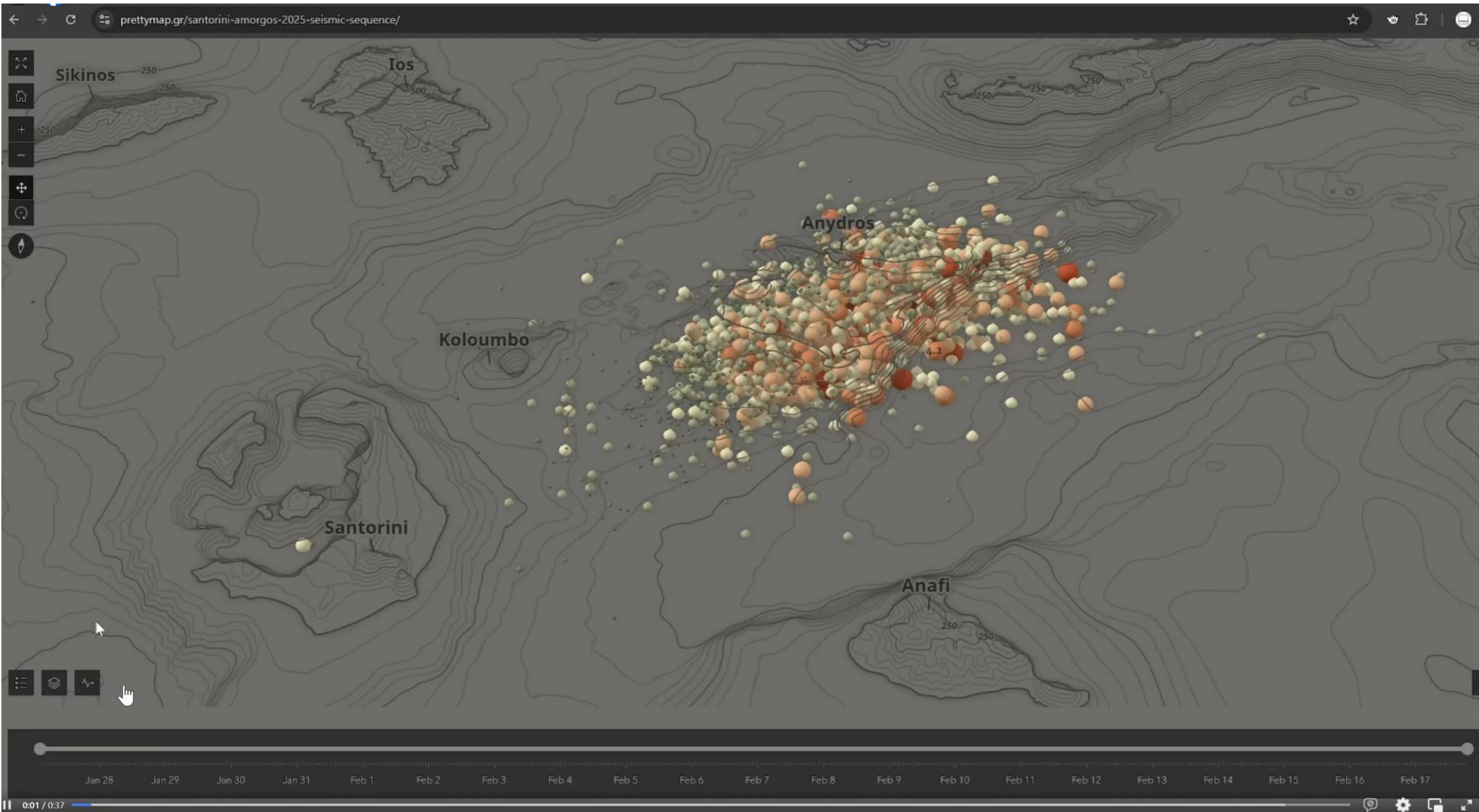


Spyrou *et al.*, 2024;

<https://doi.org/10.1016/j.jsg.2024.105240>

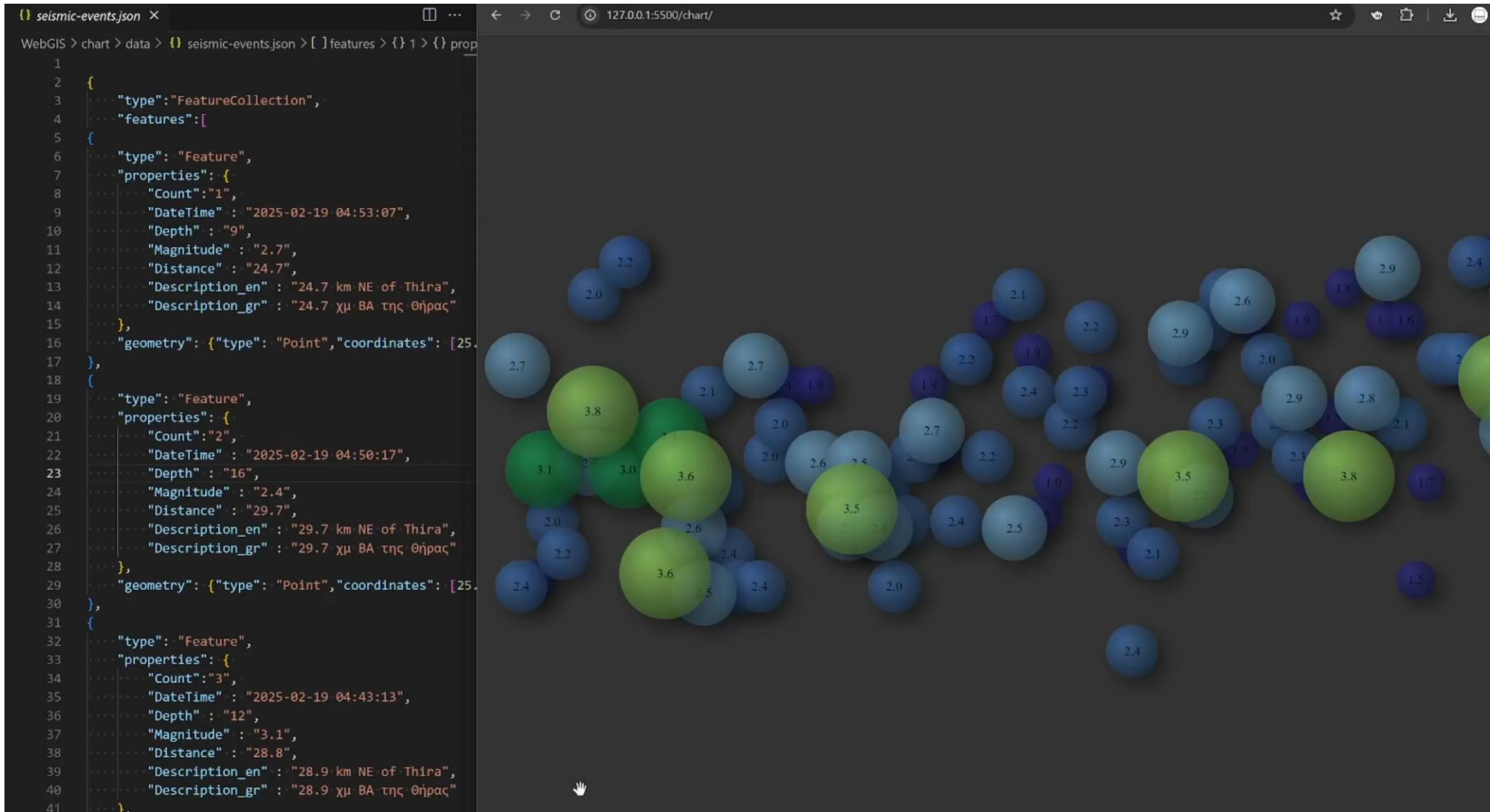
Applications of GIS

EARTHQUAKES



By Spyros Staridas

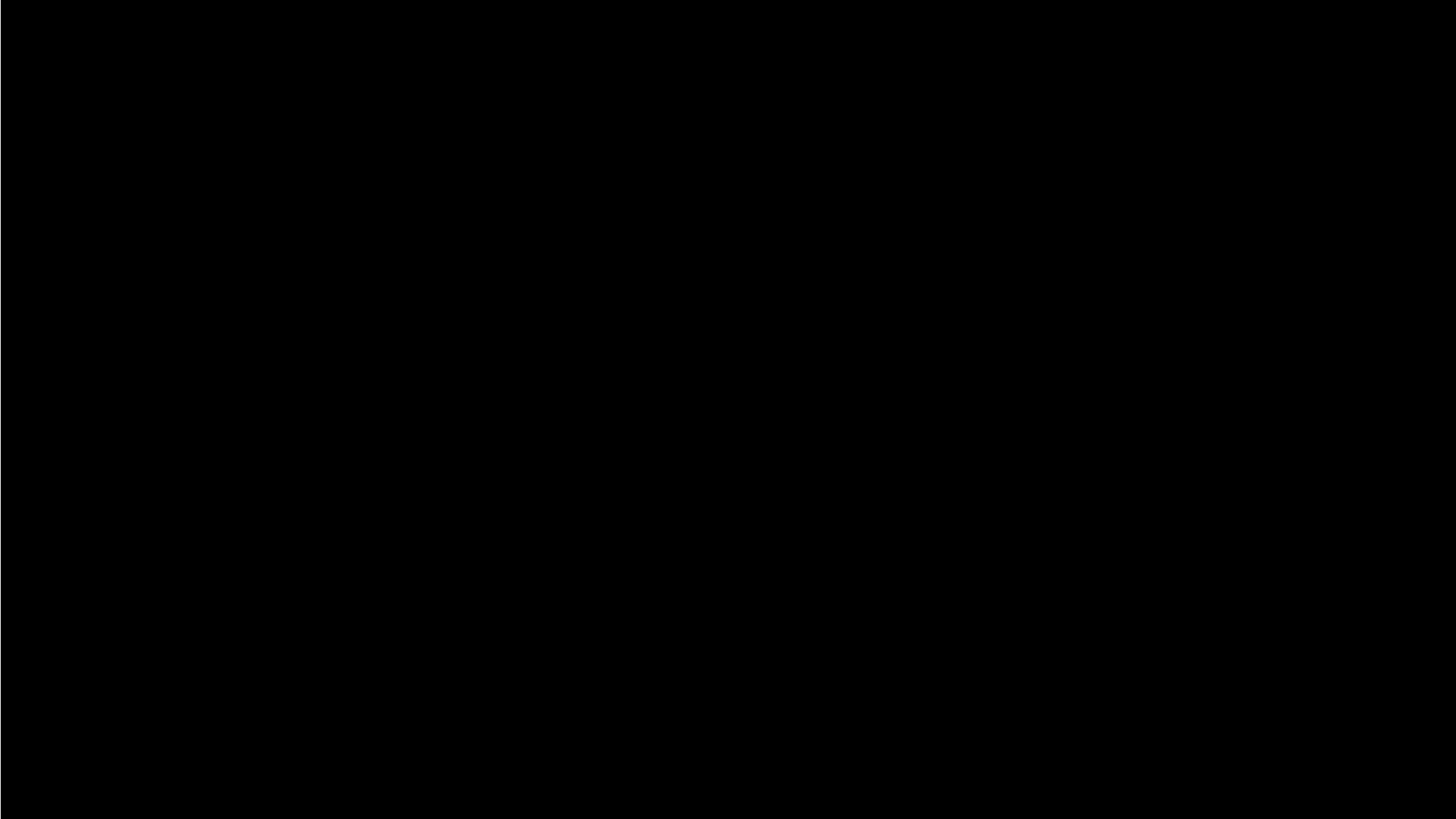
Applications of GIS

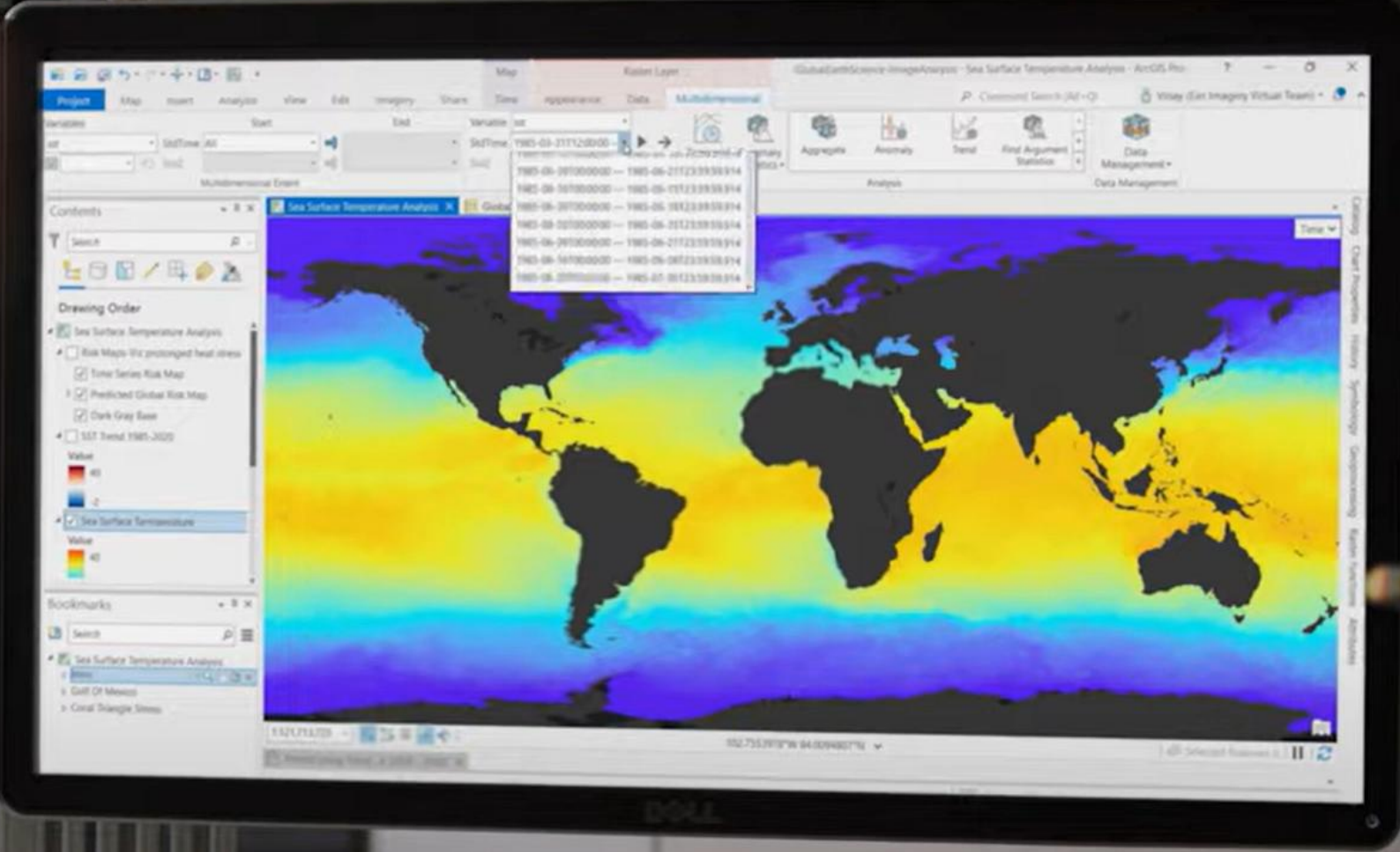


EARTHQUAKES



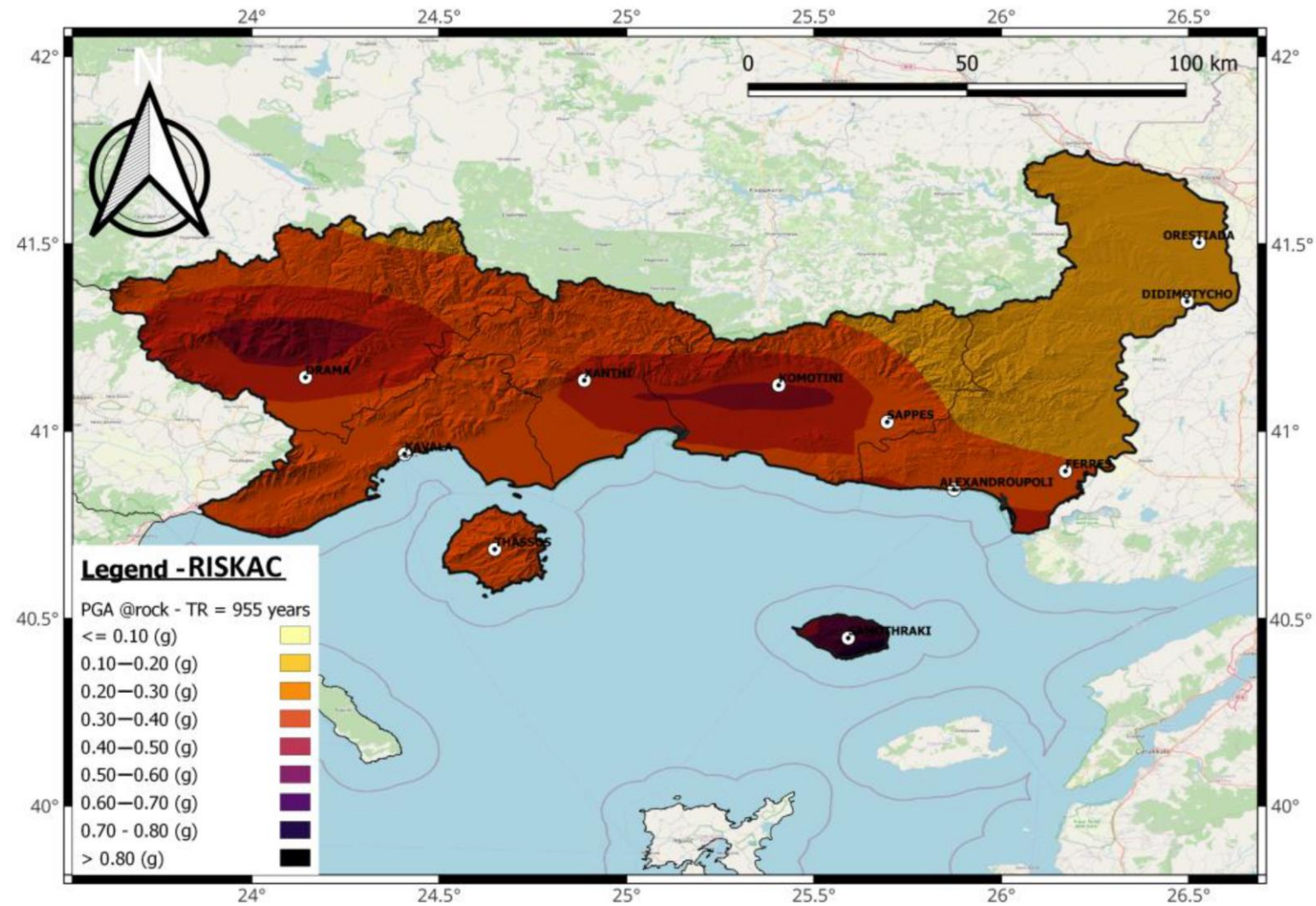
By Spyros Staridas





Applications of GIS

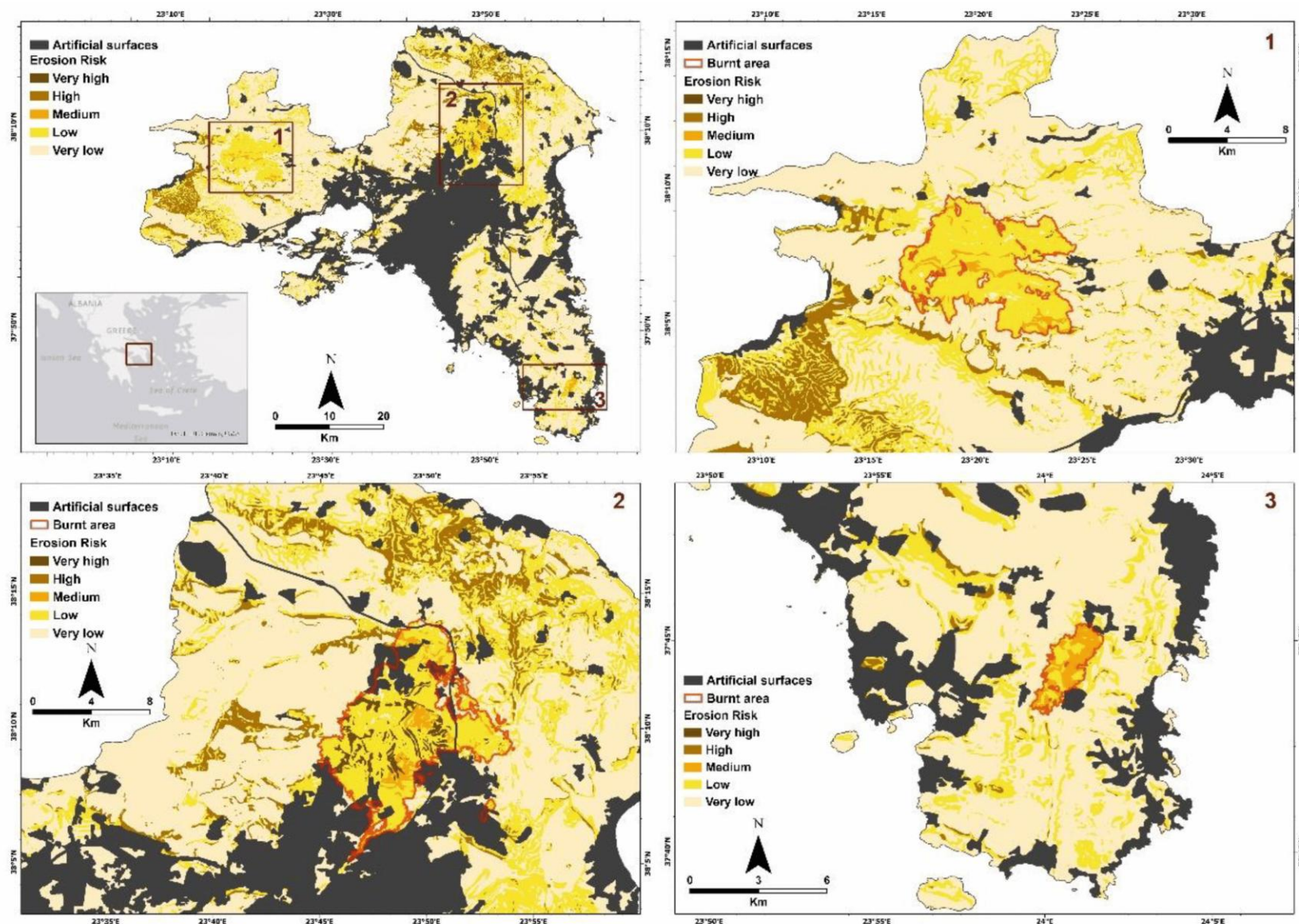
Modeling: EARTHQUAKE HAZARD



(a)

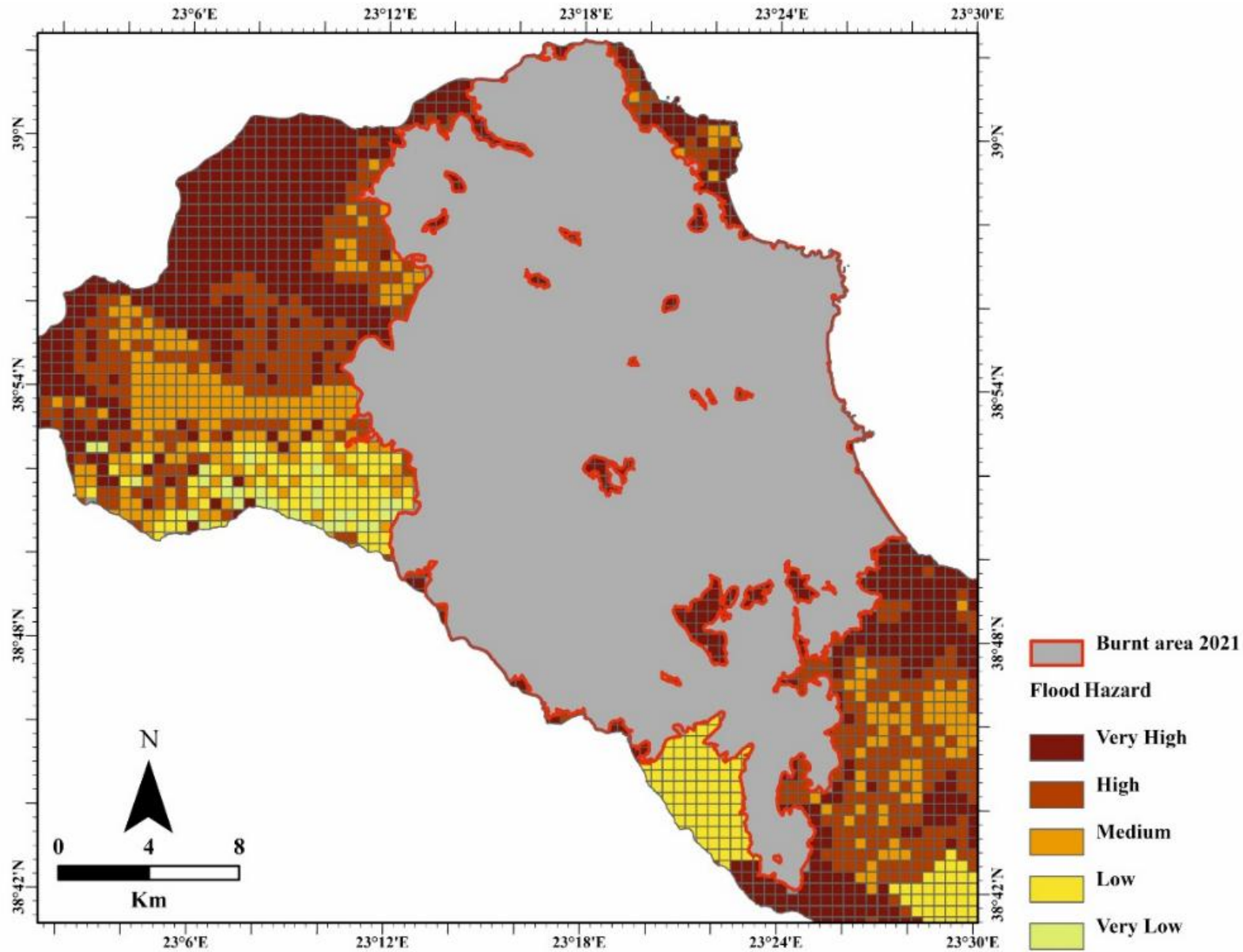
Applications of GIS

Modeling: RUNOFF EROSION RISK



Applications of GIS

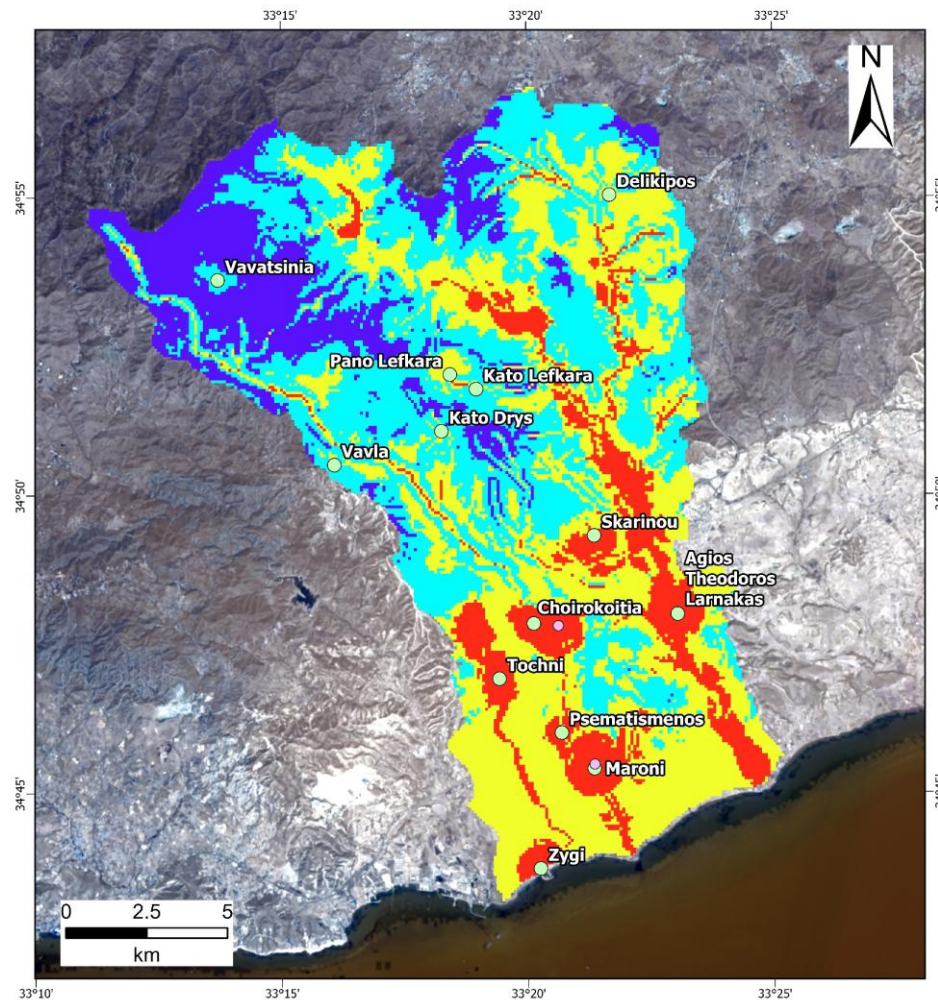
Modeling: FLOOD RISK



Applications of GIS

Modeling: FLOOD RISK

Multicriterial methods



Flood Vulnerability Map

Vulnerability

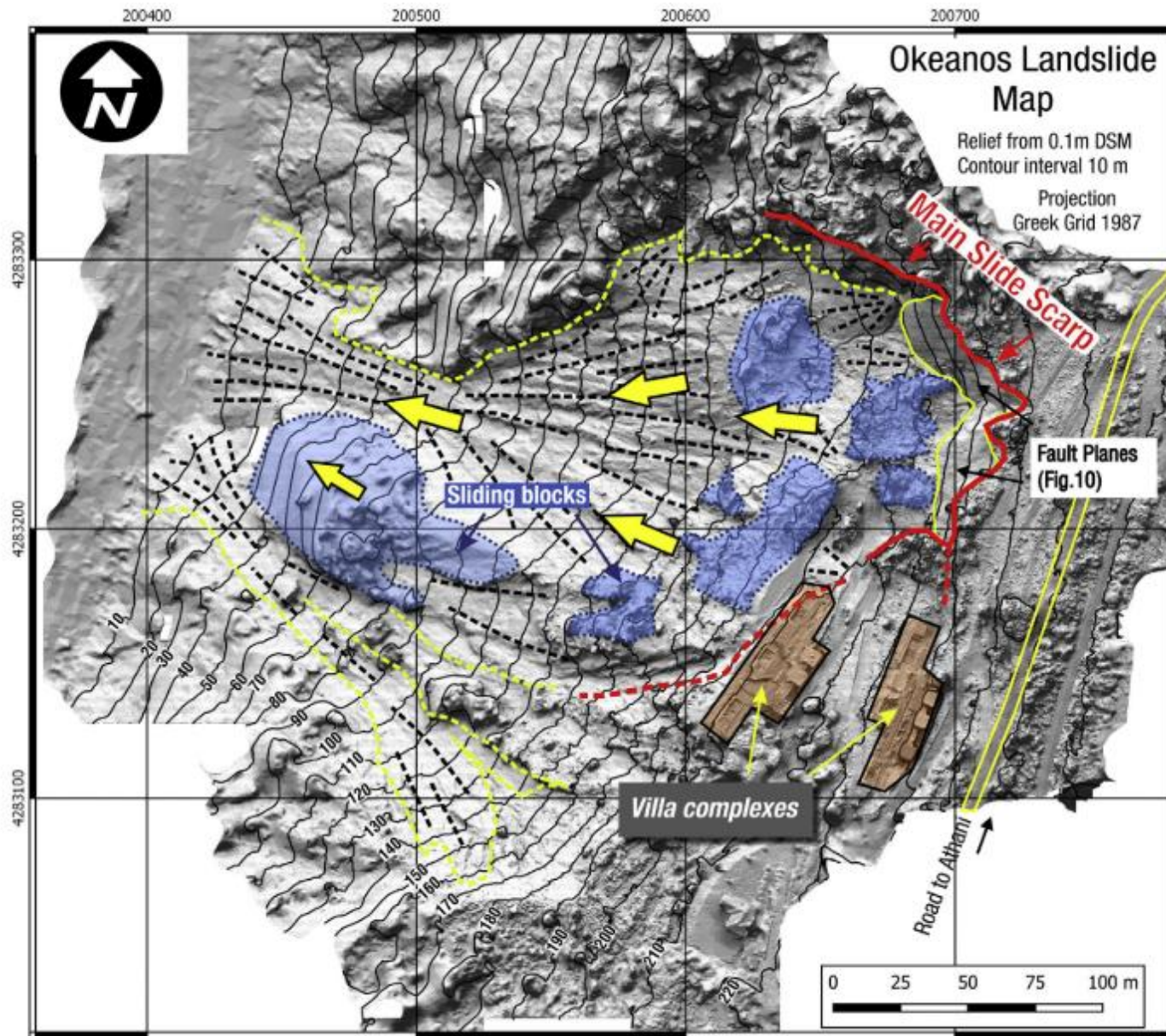
- Low
- Moderate
- High
- Very high
- Sub watershed

- Archaeological sites
- Residential areas

Saitis et al., 2024 (in press)

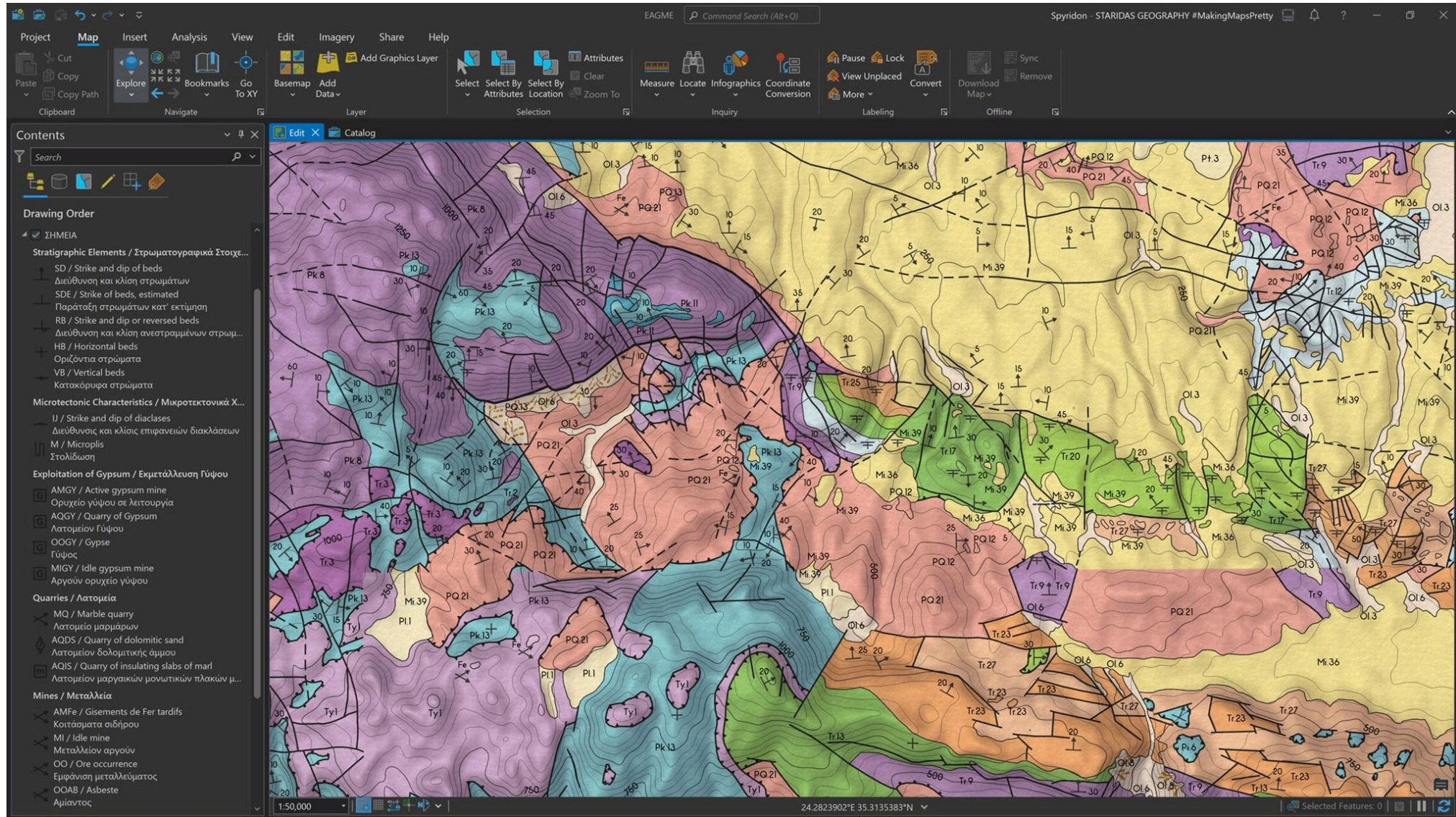
Applications of GIS

Modeling: LANDSLIDES



Applications of GIS

GEOLOGY

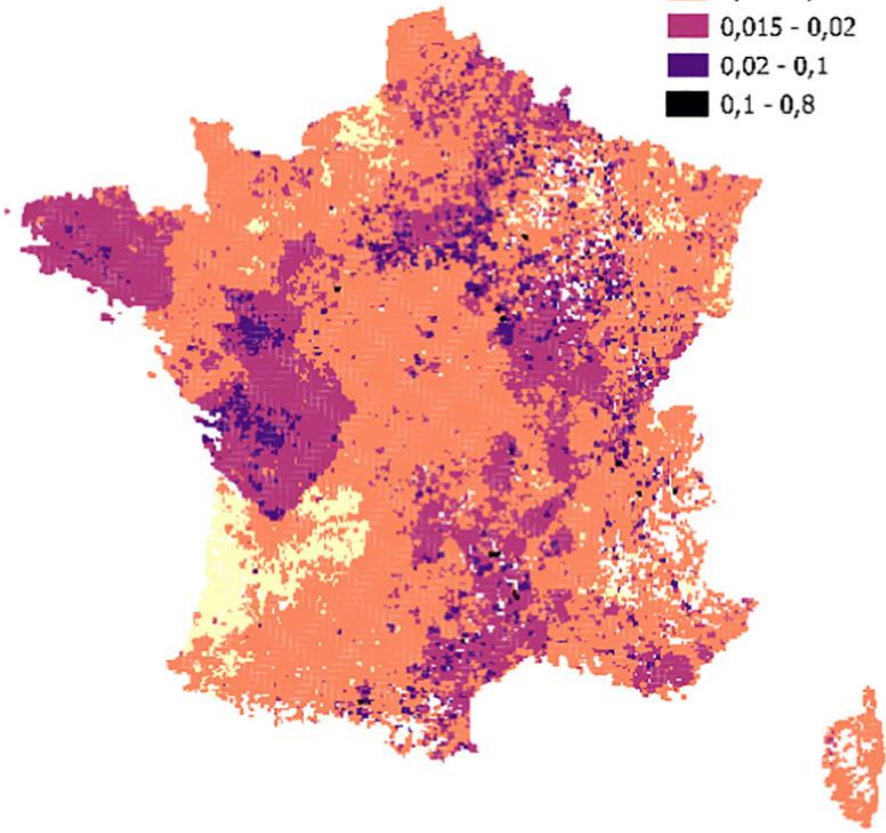
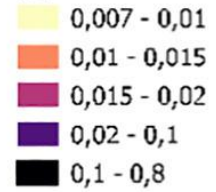


Applications of GIS

A

Blood lead level P50

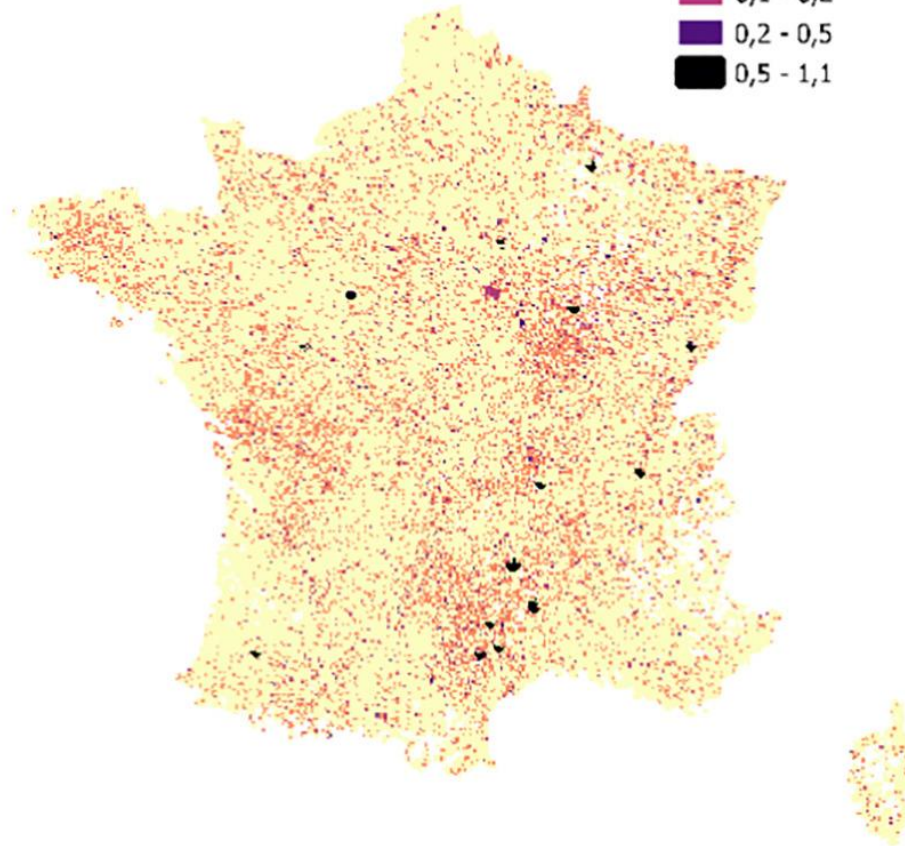
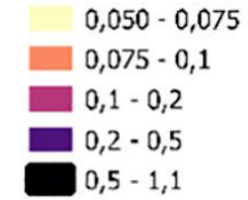
µg/L



B

Blood lead level P95

µg/L



MEDICINE

Legend

Data Information

Display Filters

Map Viewer

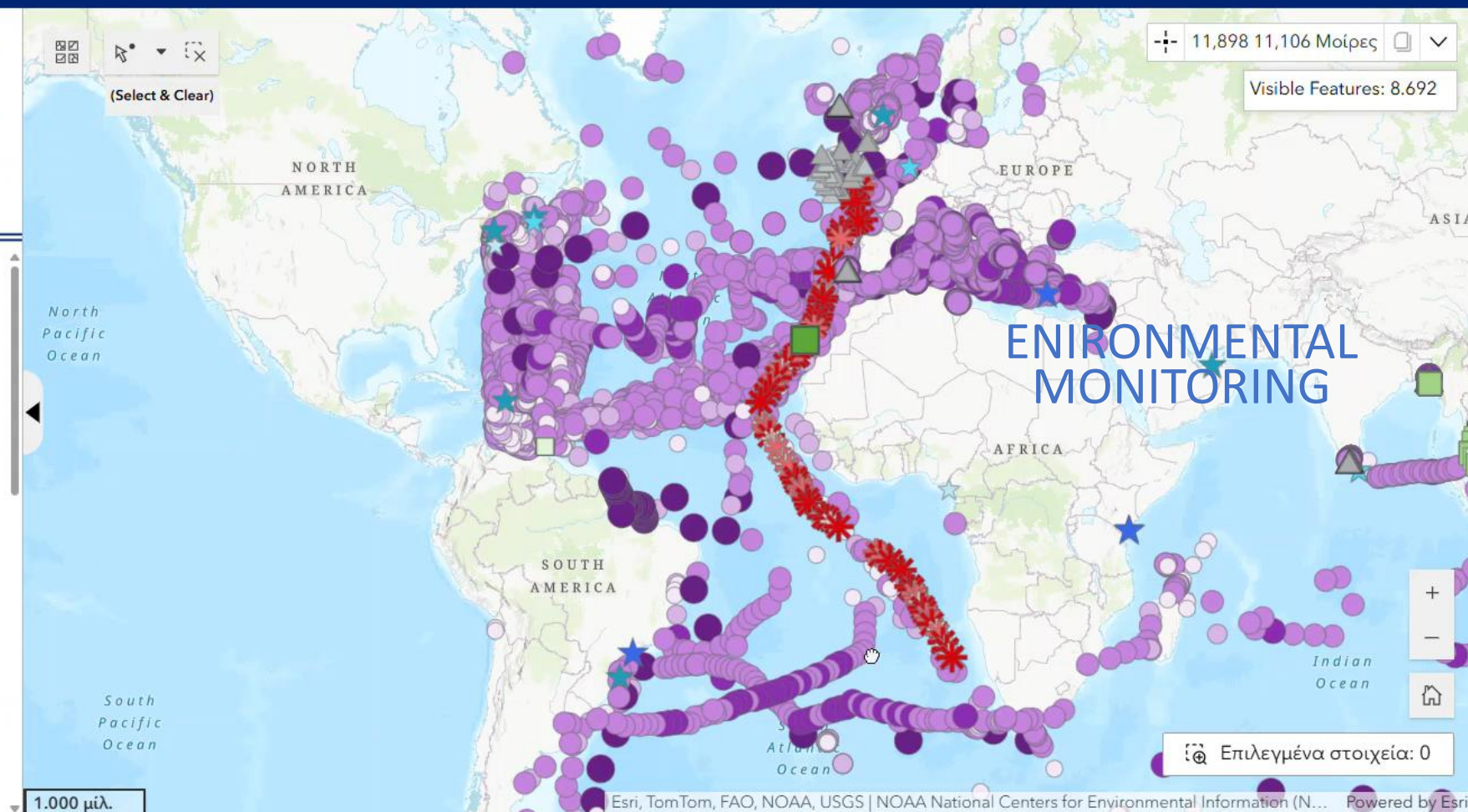
Data Table

[Click to view the metadata for the Microplastics data](#)

[Data Usage Disclaimer](#)

Marine Microplastic Concentrations

- Beach, Very High, >40000 pieces/m³
- Beach, High, 30000-40000 pieces/m³
- Beach, Medium, 500-30000 pieces/m³
- Beach, Low, 100-500 pieces/m³
- Beach, Very Low, 0-100 pieces/m³
- Nurdle Patrol, Very High, >200 pieces/10 mins
- Nurdle Patrol, High, 40-200 pieces/10 mins
- Nurdle Patrol, Medium, 2-40 pieces/10 mins
- Nurdle Patrol, Low, 1-2 pieces/10 mins
- Nurdle Patrol, Very Low, 0 pieces/10 mins
- Ocean Sediment, Very High, >200 pieces kg-1 d.w.
- Ocean Sediment, High, 150-200 pieces kg-

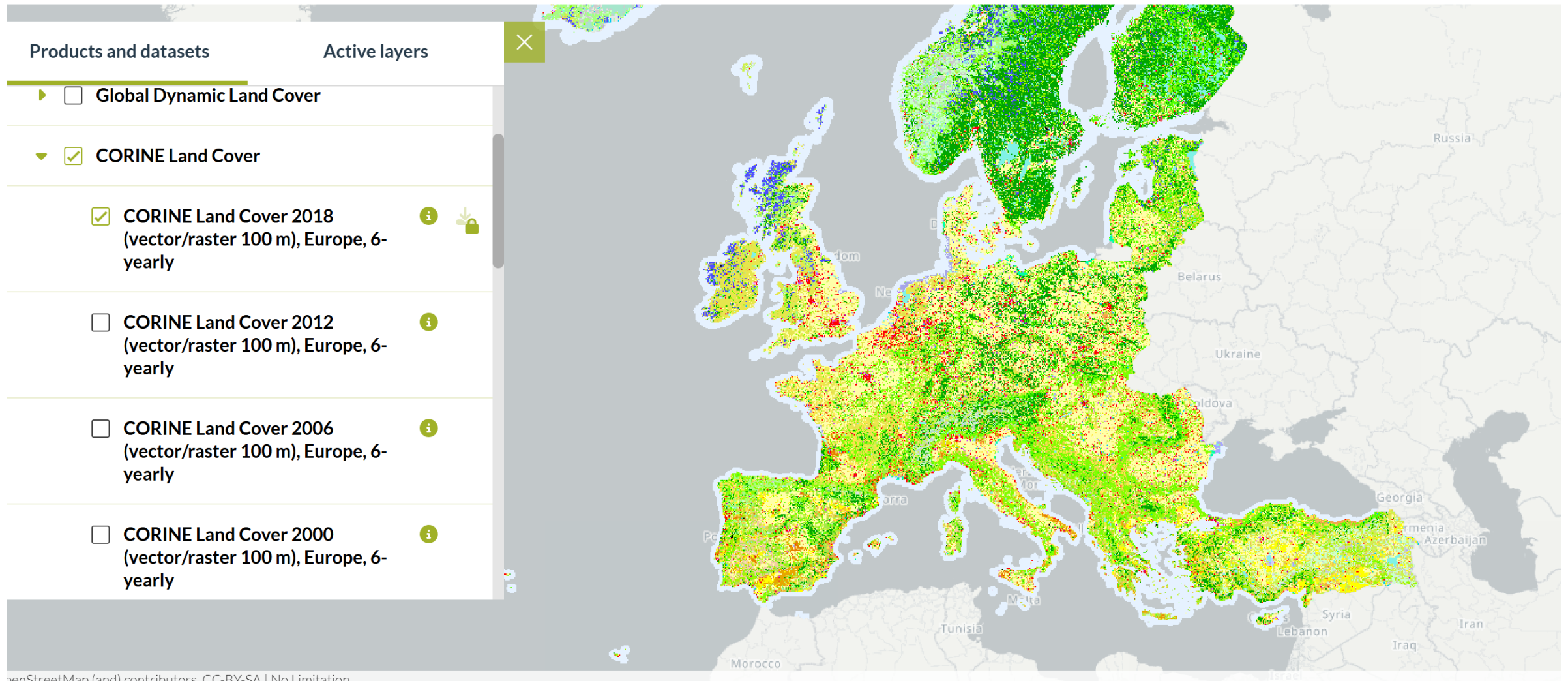


Global Air Quality

Global Particulate Matter 2.5 Micrograms or Smaller (PM 2.5)
1998 - 2016

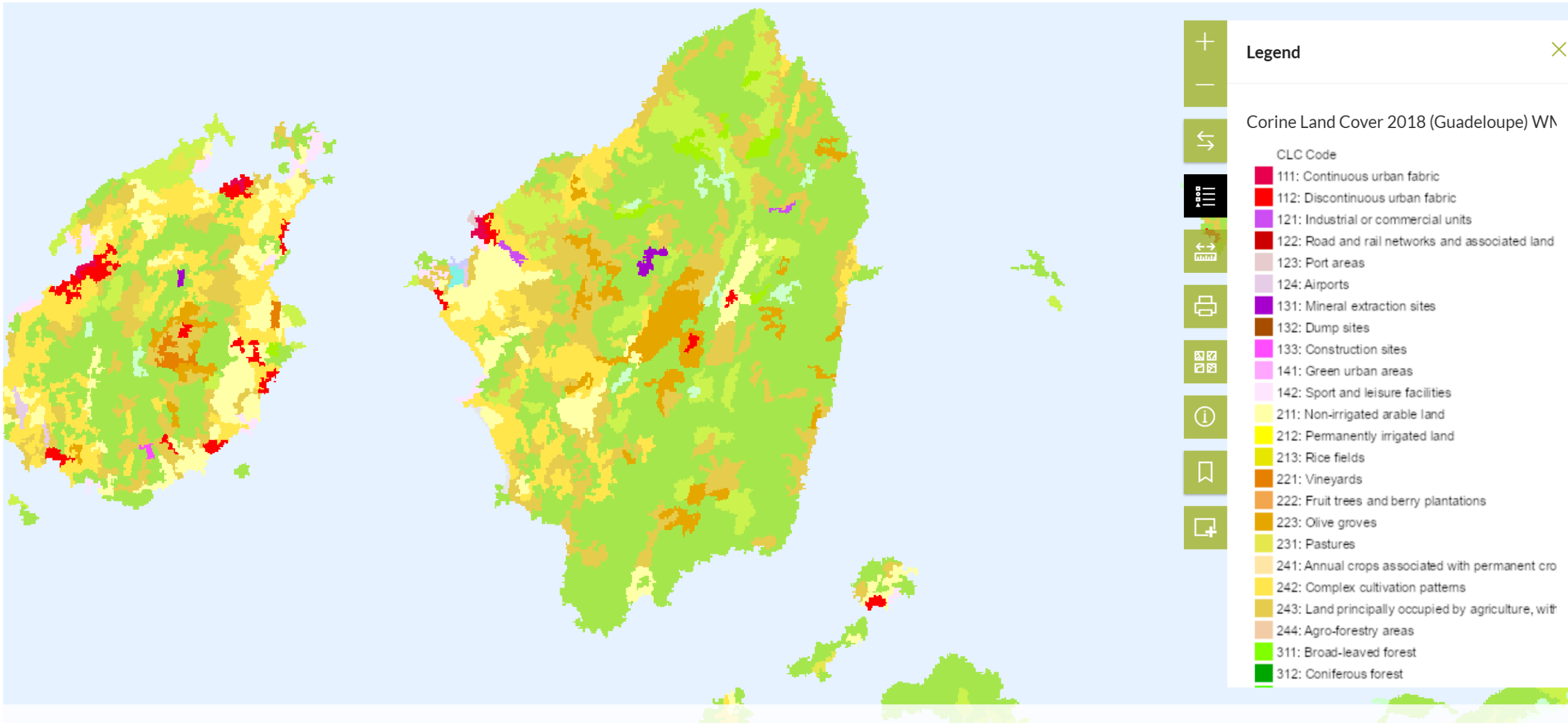
Applications of GIS

URBAN FABRIC

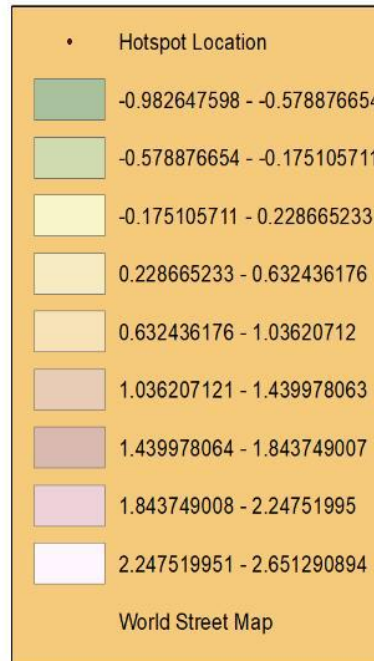
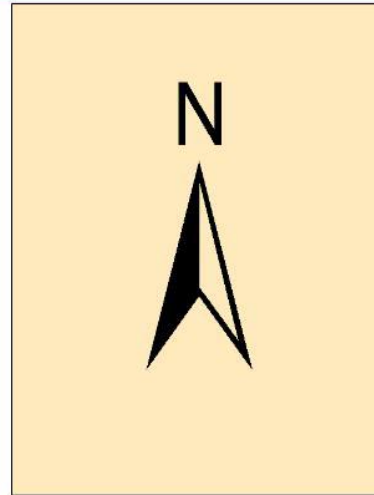
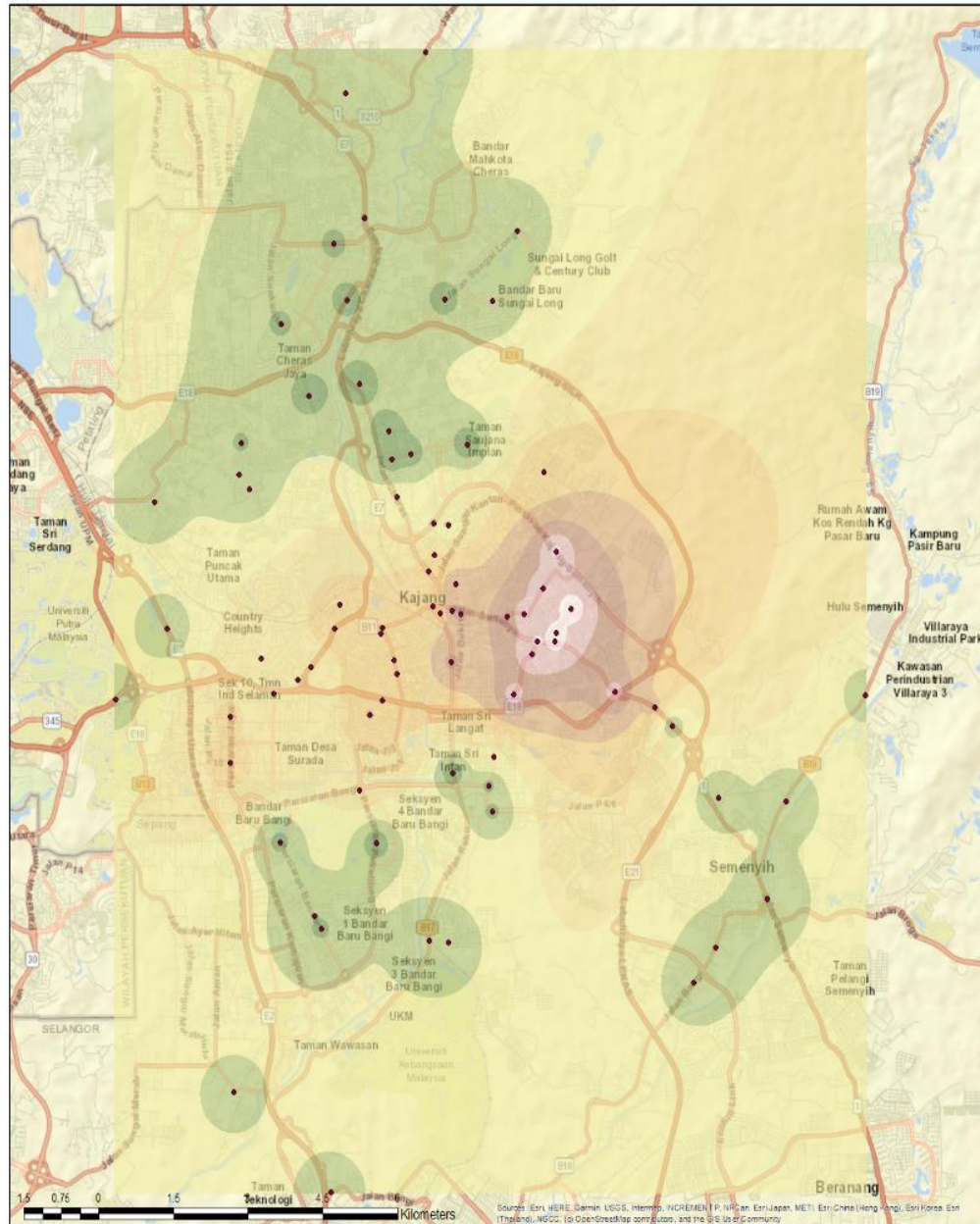


Applications of GIS

Land Use



Hotspot Map of Road Accident Locations in Kajang, Selangor



Applications of GIS

ROAD SAFETY

Hisam *et al*, 2022;

<https://journals.sfu.ca/ijg/index.php/journal/article/download/2257/1173/3547>

Student Loan Debt in the U.S.

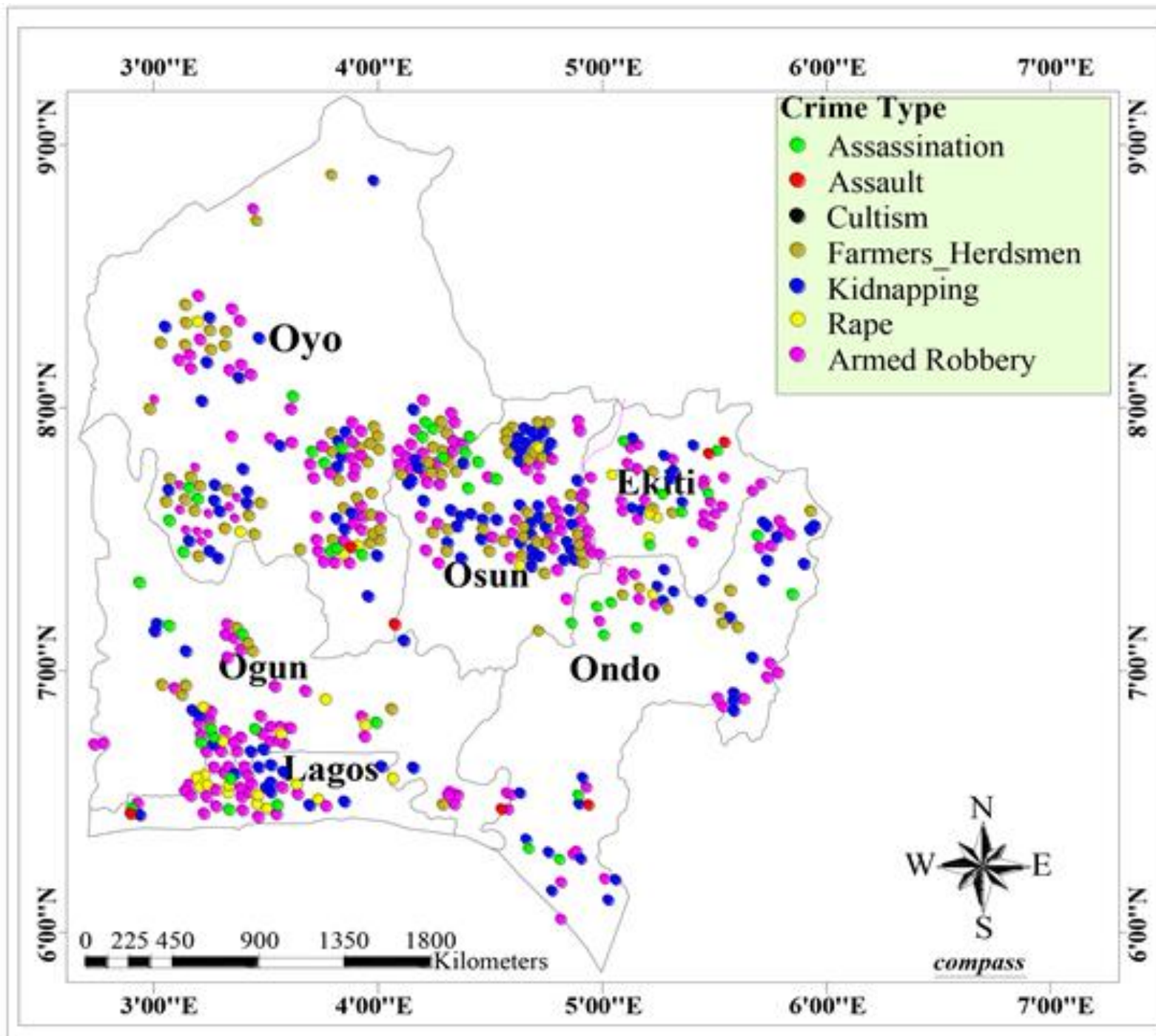
Data provided by the U.S. Department of Education
Figures up to date as of April 3, 2022

Applications of GIS

CRIMINOLOGY

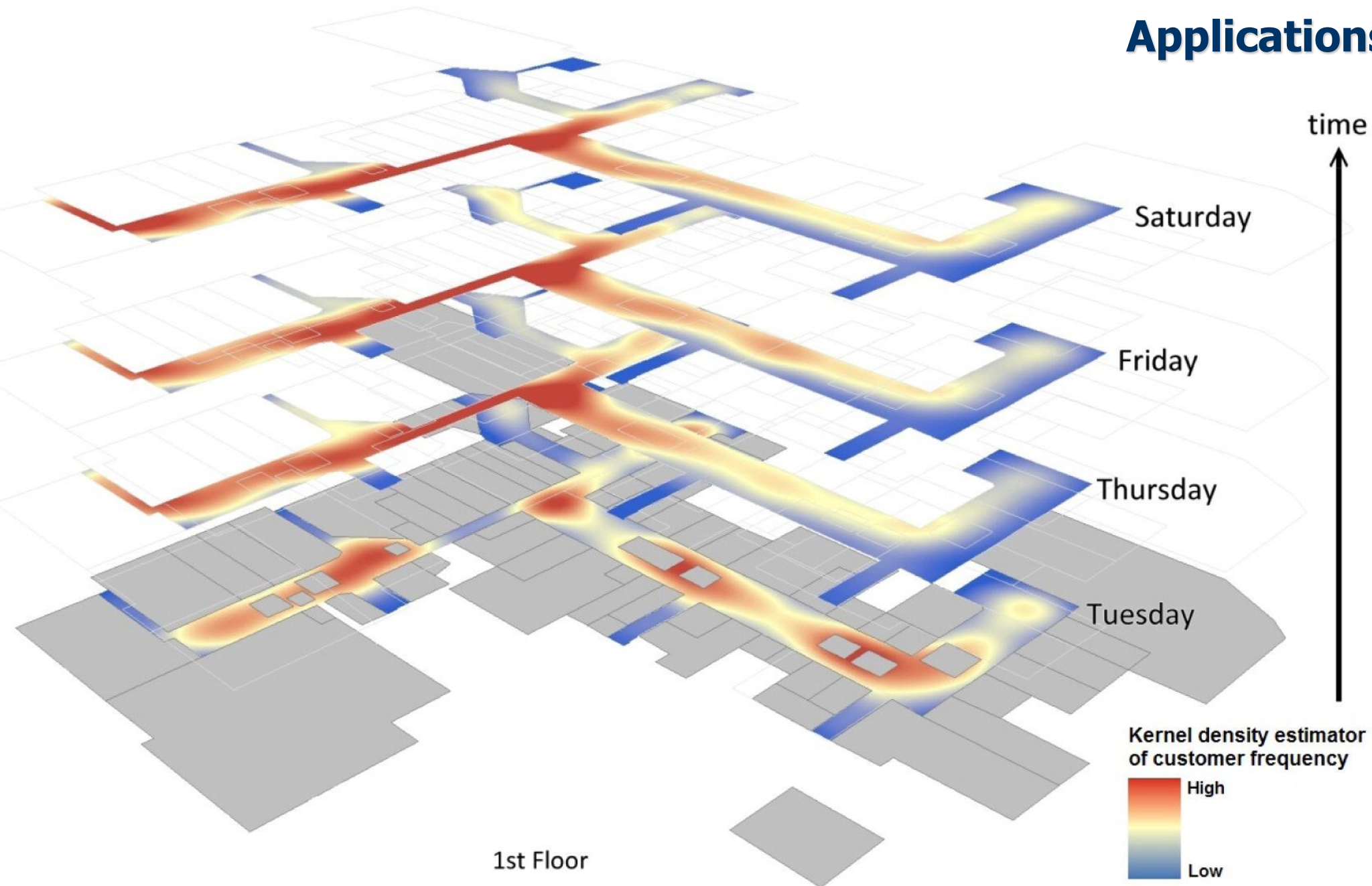
Oyinloye *et al.*, 2023;

<https://doi.org/10.4236/jgis.2023.153017>



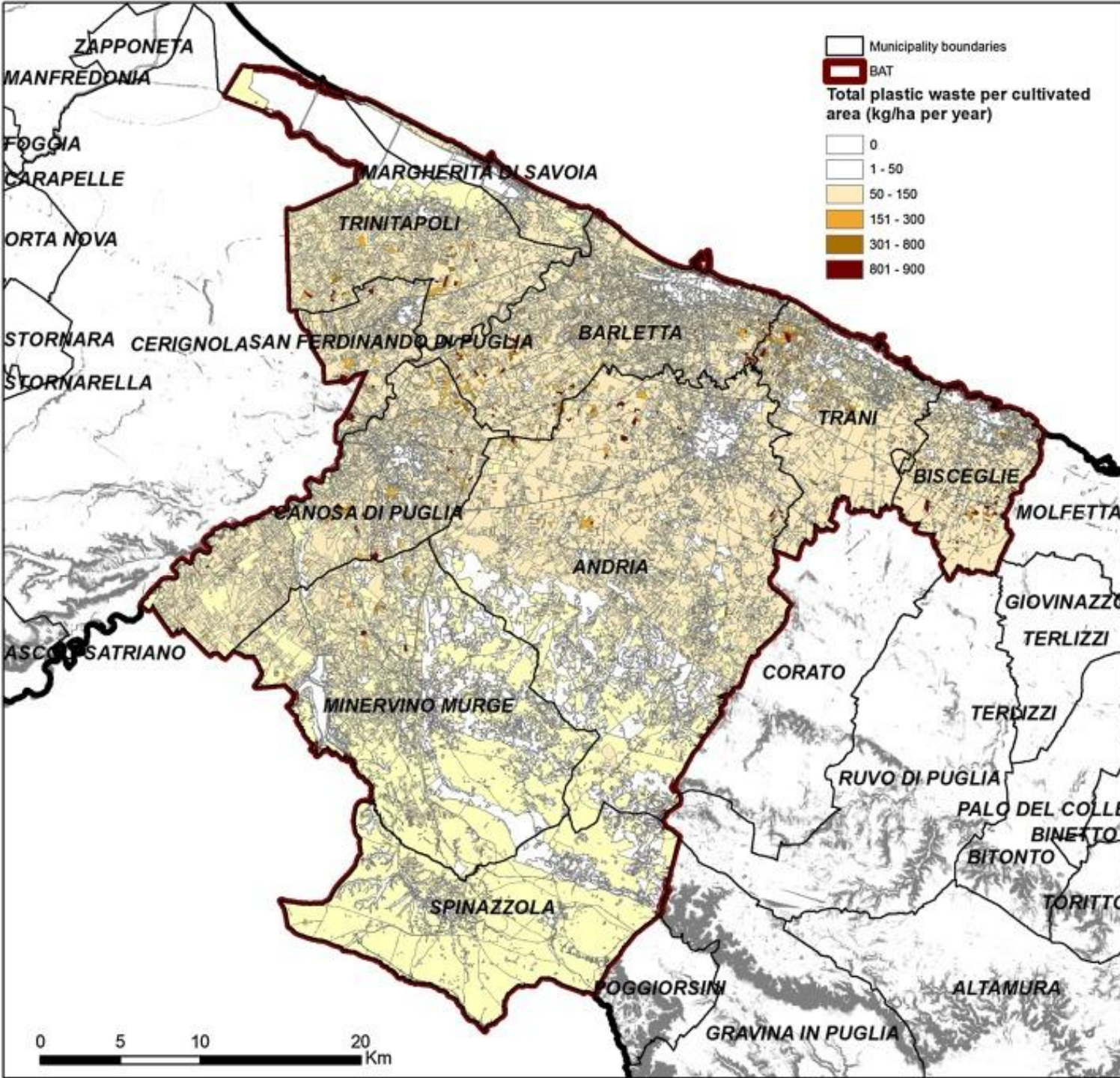
Applications of GIS

TRADING & ECONOMY



Applications of GIS

WASTE MANAGEMENT



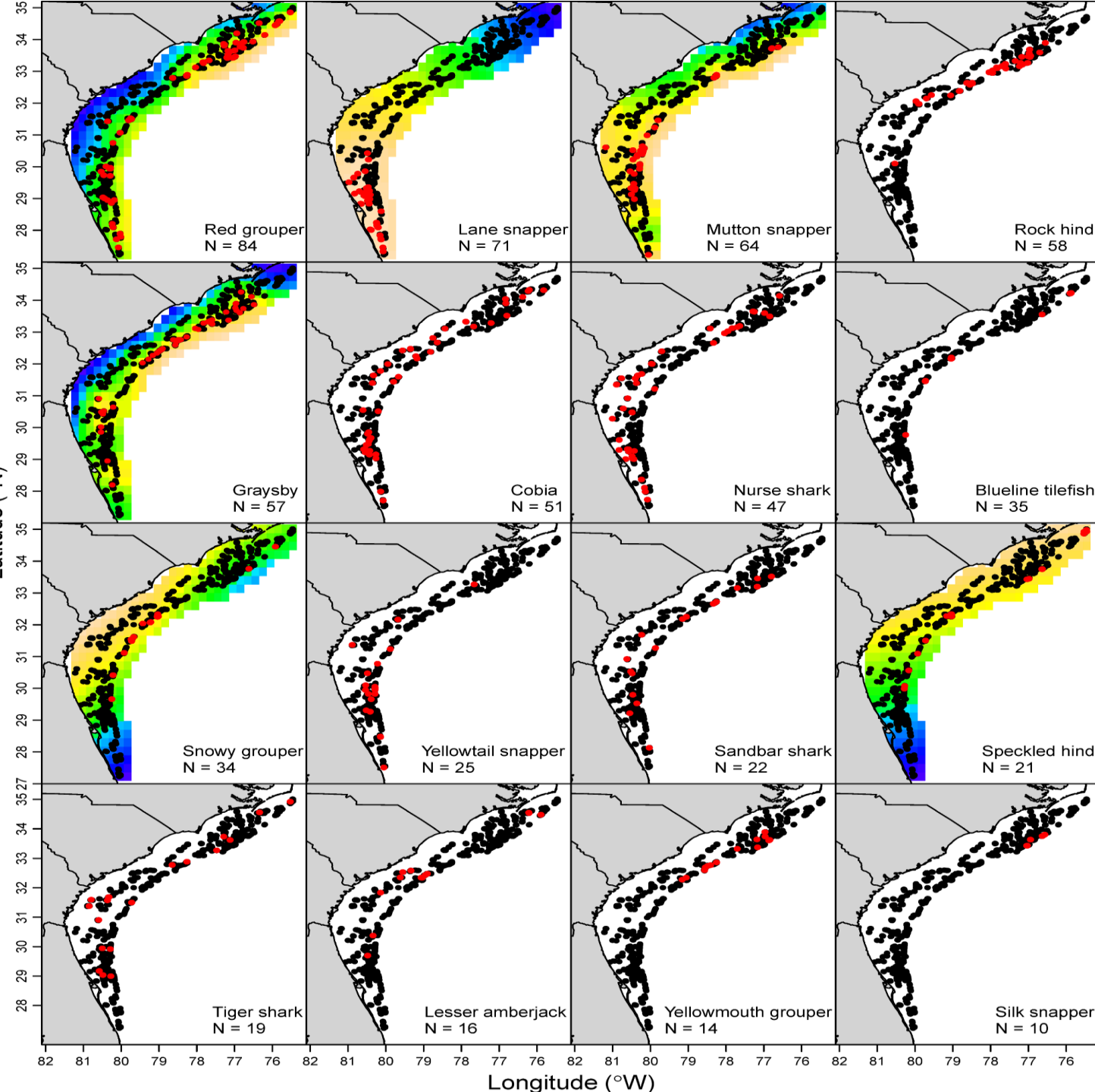
Blanco et al., 2018;
<https://doi.org/10.1016/j.resconrec.2018.06.008>

Applications of GIS

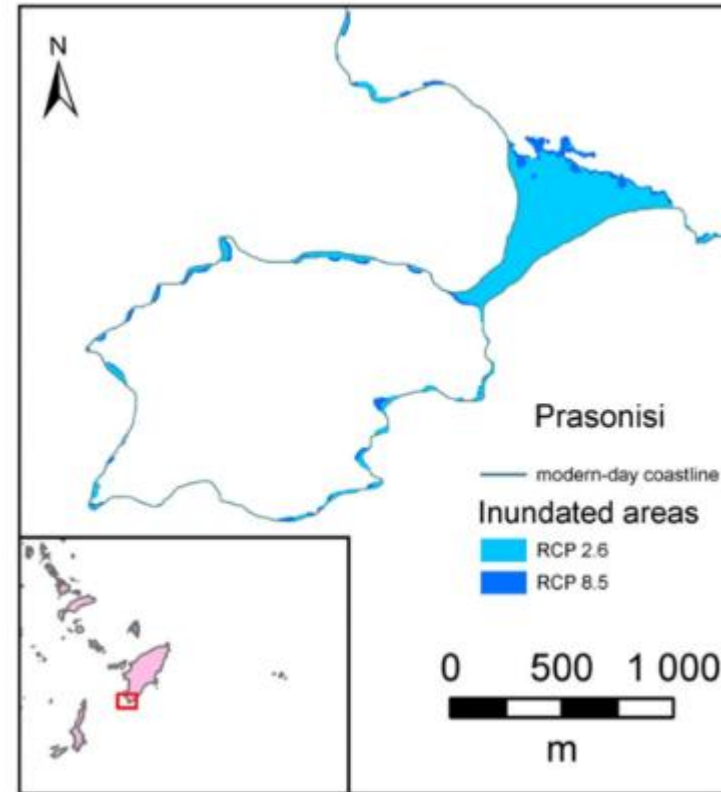
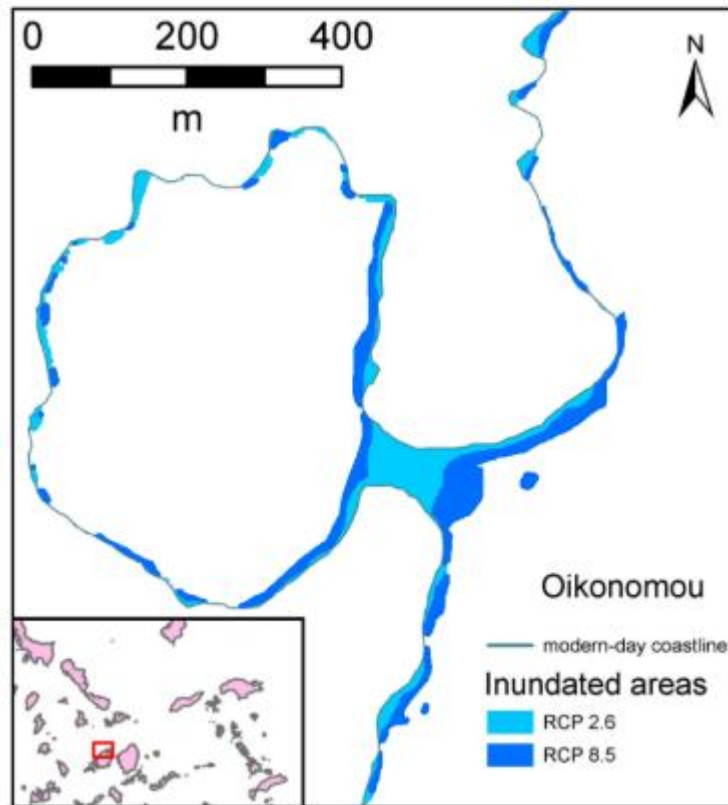
ECOLOGY

Bacheler *et al.*, 2016;

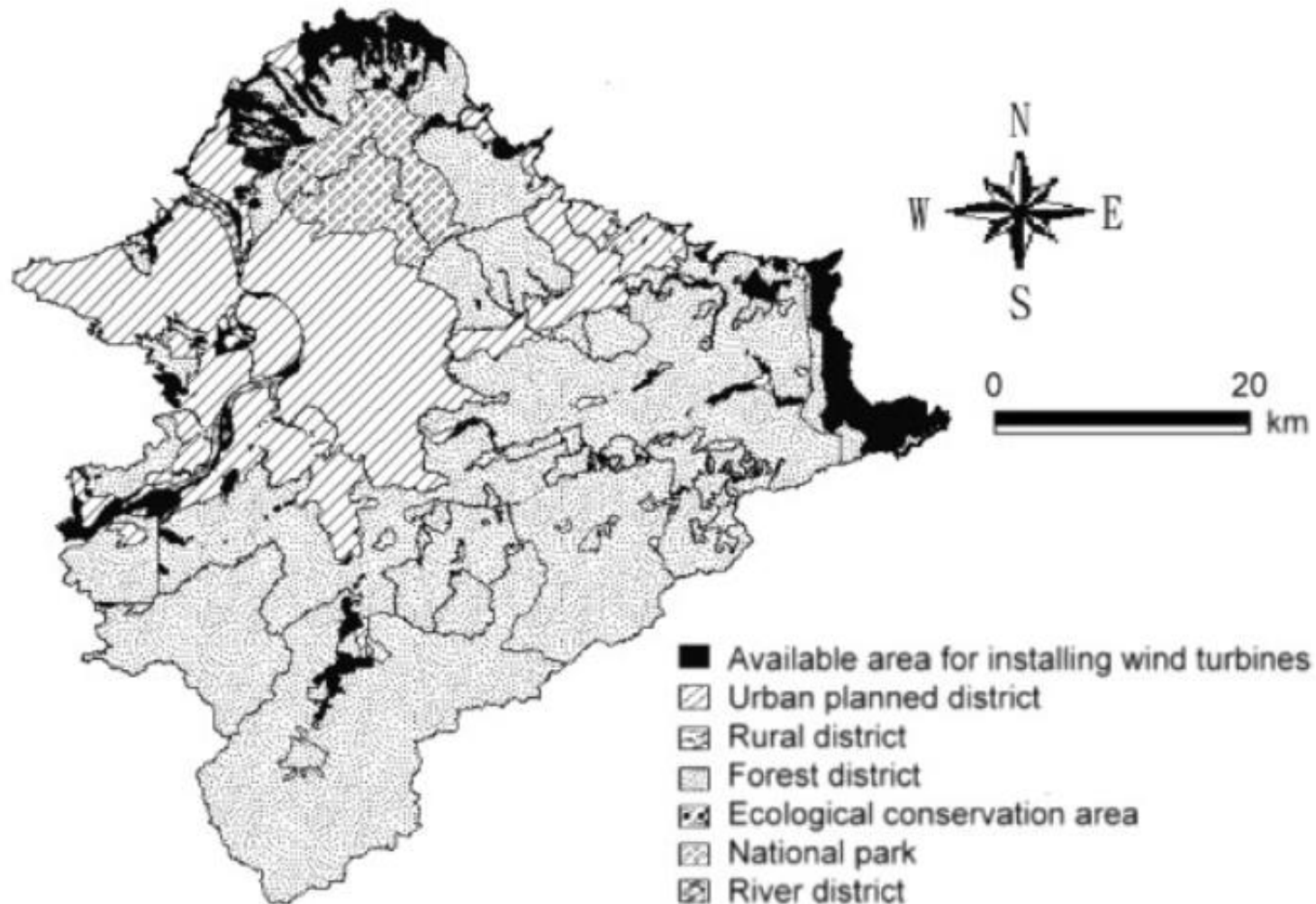
<https://doi.org/10.1371/journal.pone.0162653>



COASTAL ZONE MANAGEMENT



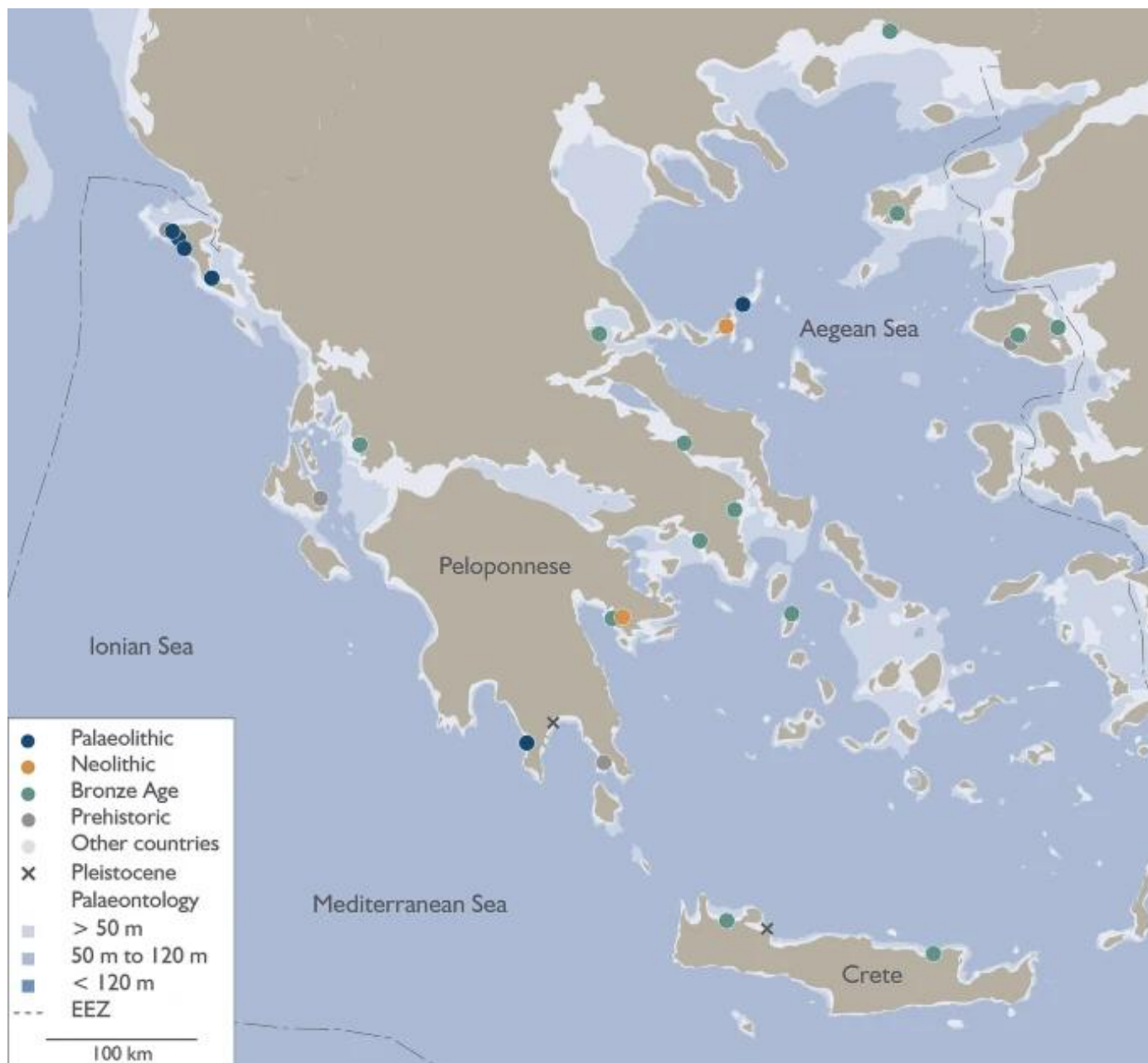
Applications of GIS



RENEWABLE ENERGY

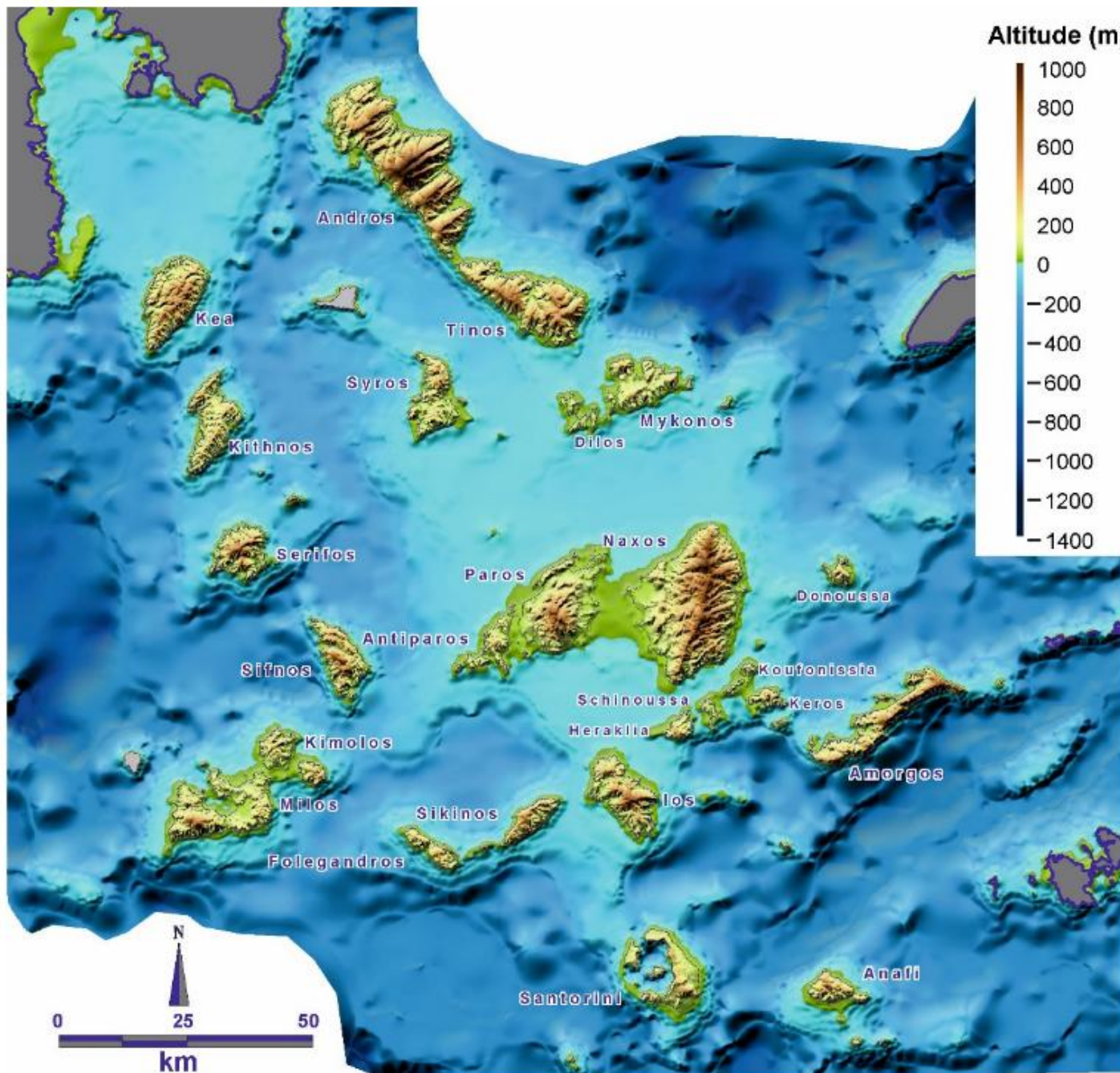
Applications of GIS

ARCHAEOLOGY



Applications of GIS

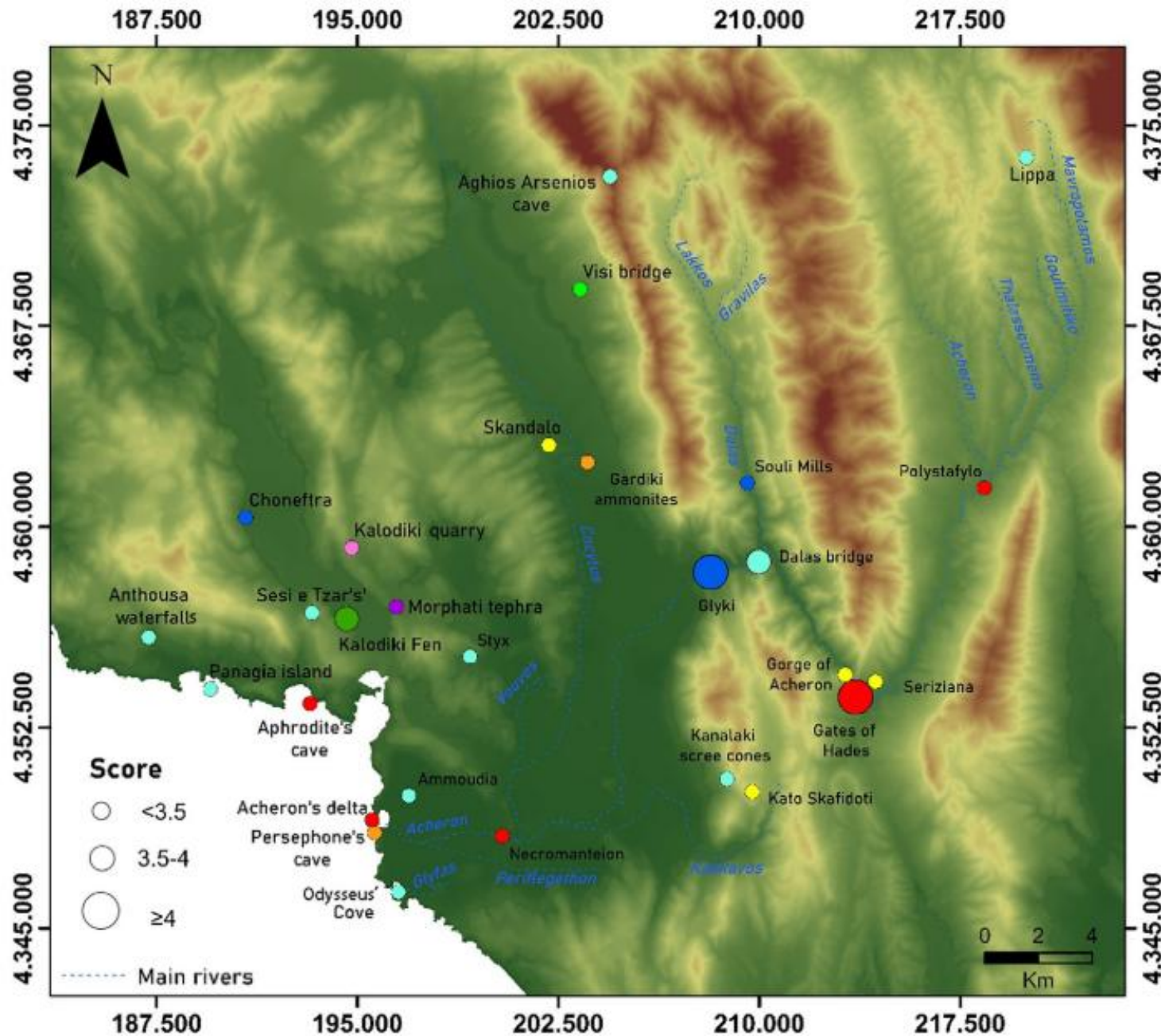
PALAEOGEOGRAPHY



Evelpidou *et al.*, 2021; <https://doi.org/10.3390/geosciences11120512>

Applications of GIS

CULTURAL & NATURAL HERITAGE



feed
the world?



clean up
the world?



power
the world?

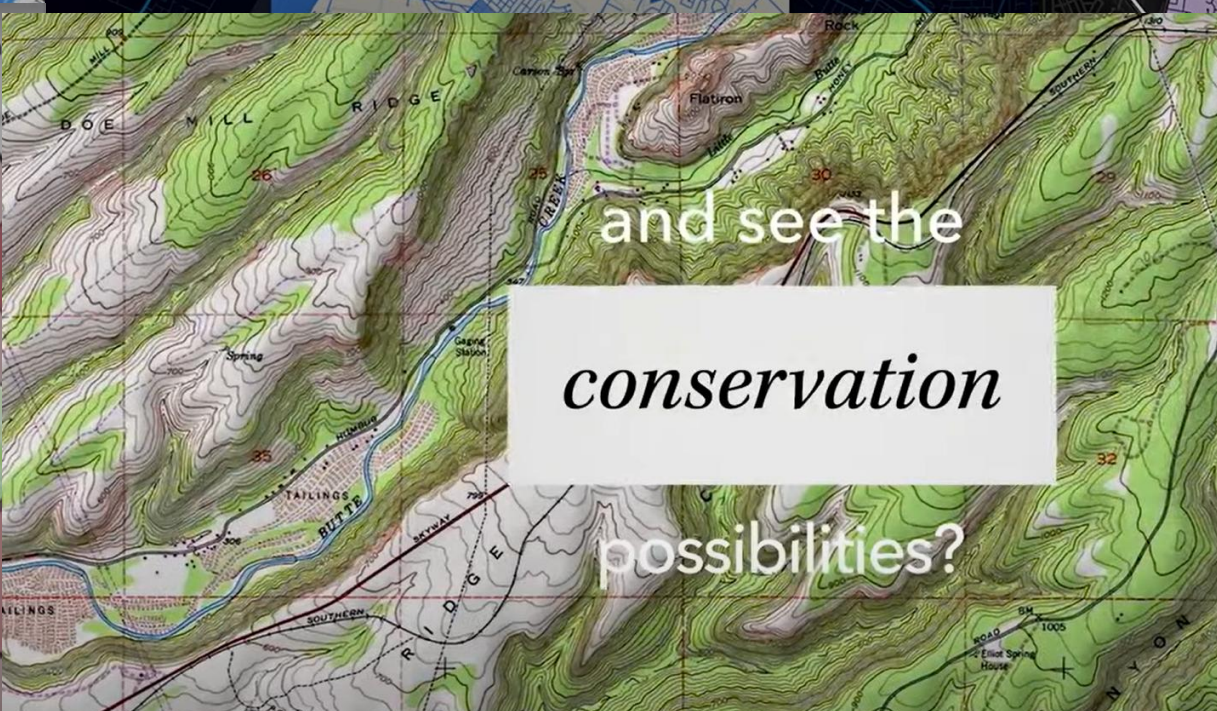


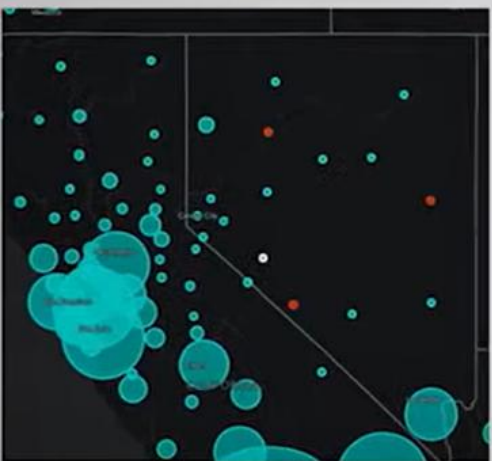
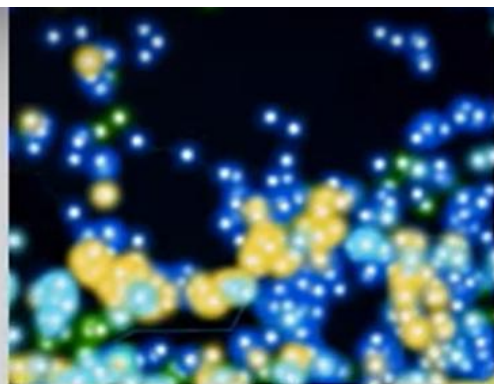
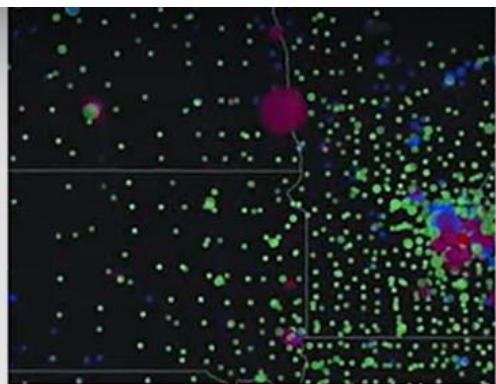
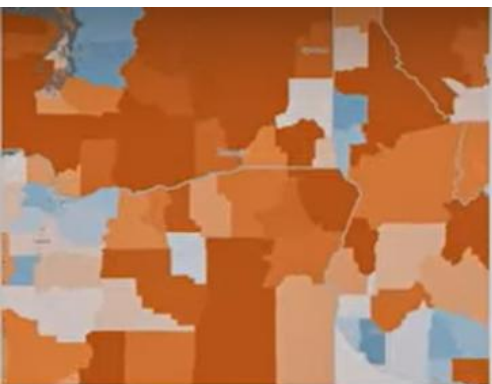
and see the

healthcare

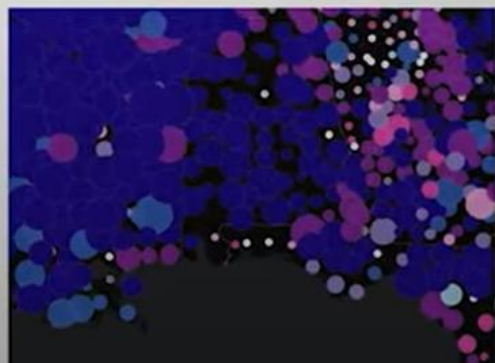
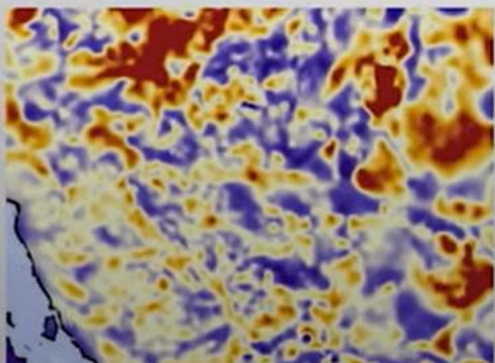
possibilities?







see the *land use* patterns?

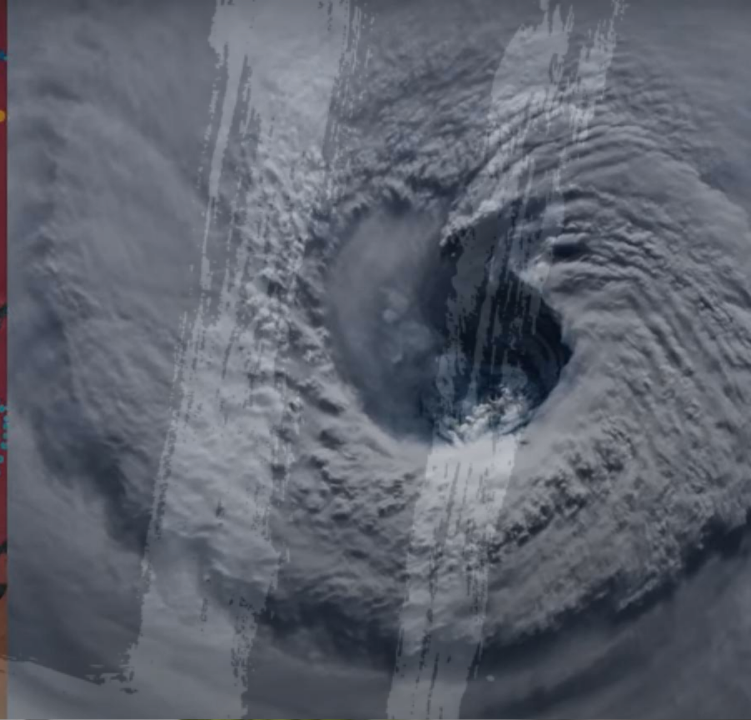




protect
& defend



protect
& defend



be resilient?

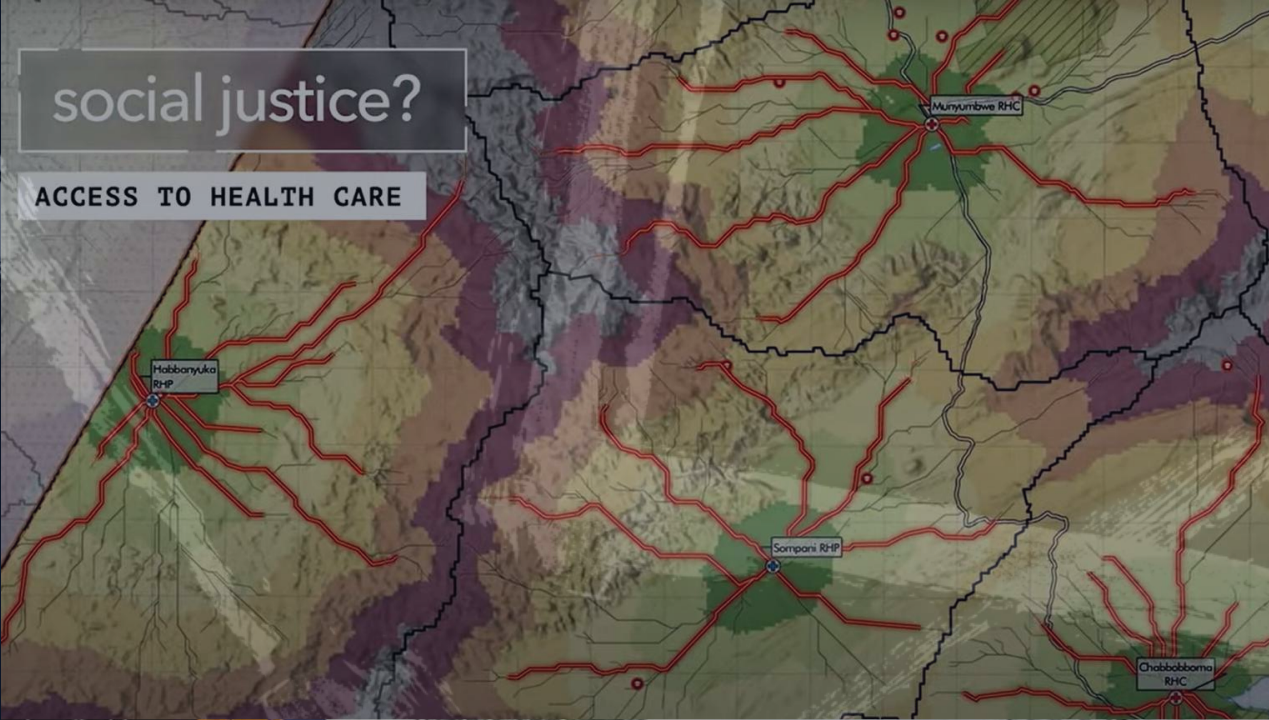
FLOOD PLANNING



build
smarter

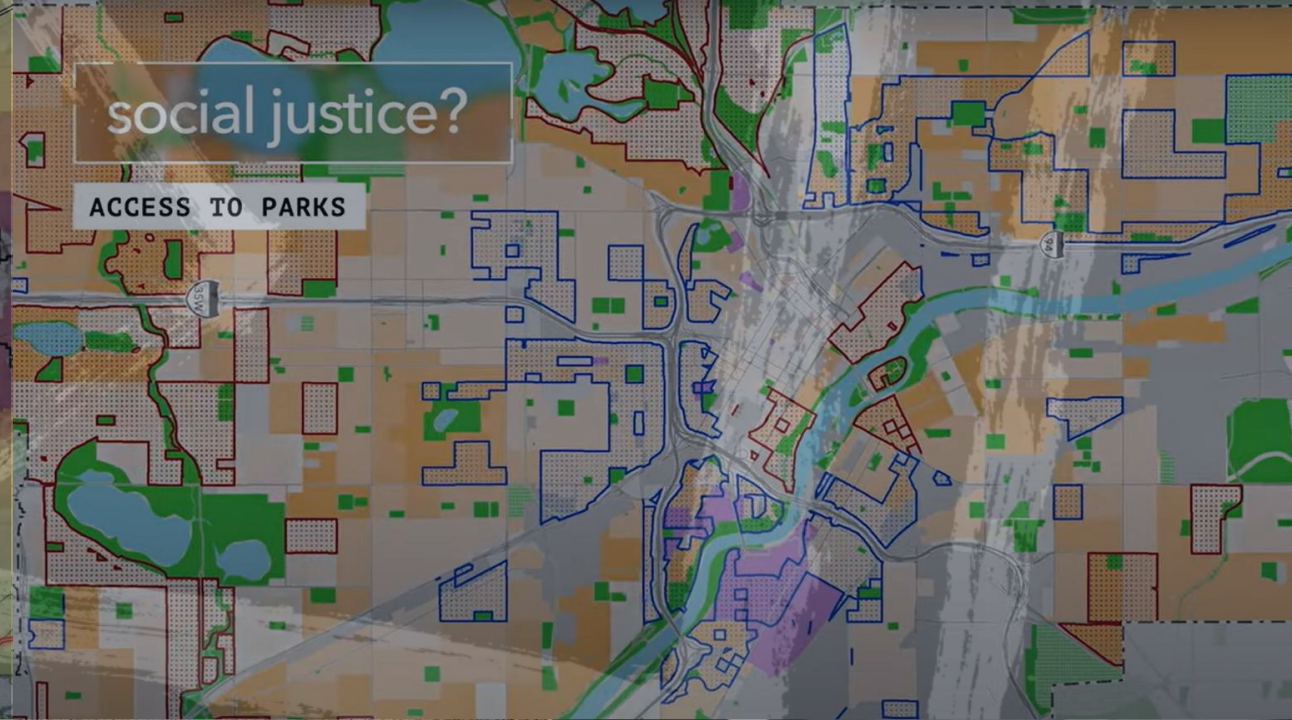
social justice?

ACCESS TO HEALTH CARE



social justice?

ACCESS TO PARKS



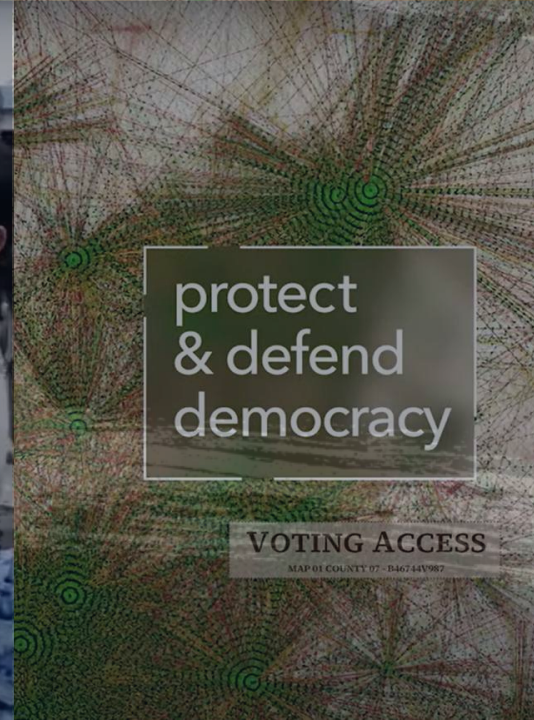
protect



protect
& defend
democracy

VOTING ACCESS

MAP 01 COUNTY 07 - B46744V987



An aerial photograph of a rural landscape, likely agricultural land, divided into numerous rectangular plots. The plots are colored in various shades of green, brown, and tan, indicating different land uses or vegetation. A prominent yellow line runs vertically down the center of the image, separating the left and right halves. The text 'geo-analyze?' is overlaid in the center, spanning across the yellow line.

geo-analyze?



geo-analyze?



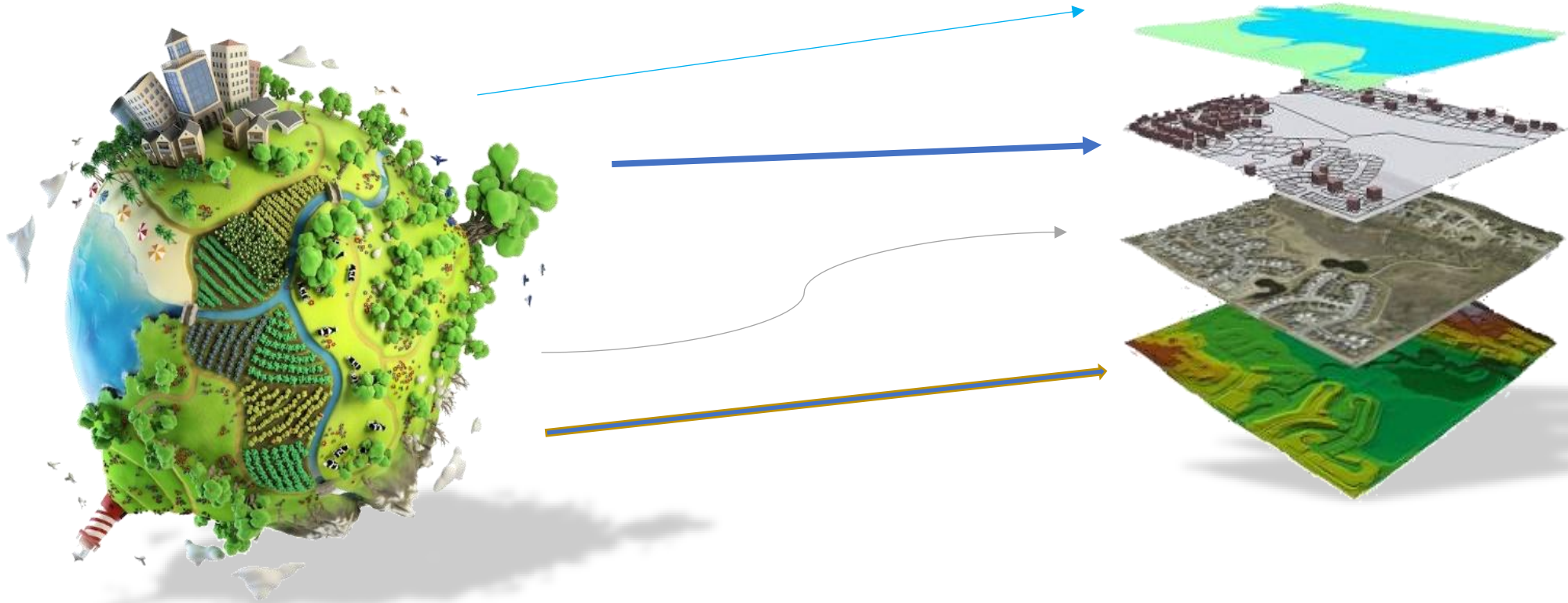
Postgraduate Program

Geographic
Information
Systems



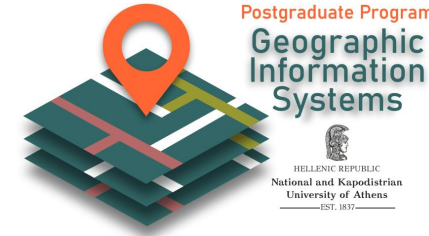
HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
EST. 1837

Why study GIS at NKUA?



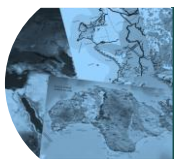
<https://gis.geol.uoa.gr/>

○ *MSc “Geographic Information Systems” - Top benefits with flexible hours*



WHY SELECT IT?

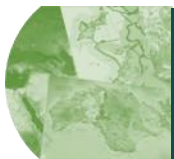
- ⊗ Distance learning (synchronous & asynchronous distance learning) 
- ⊗ Flexible curriculum, specially designed for working people 
- ⊗ International Curriculum/
Certified Attendance in English 
- ⊗ Free access to software and services of the company ESRI, for the entire duration of the Program
- ⊗ Versatile practical applications and empirical knowledge
- ⊗ It is a modern tool that can enrich all scientific disciplines



- *English-speaking MSc programme*



- *The first Master's Program in Greece, regarding Geographic Information Systems*



- *GIS Visualization-Modeling-Programming*



- *Database management and decision making*



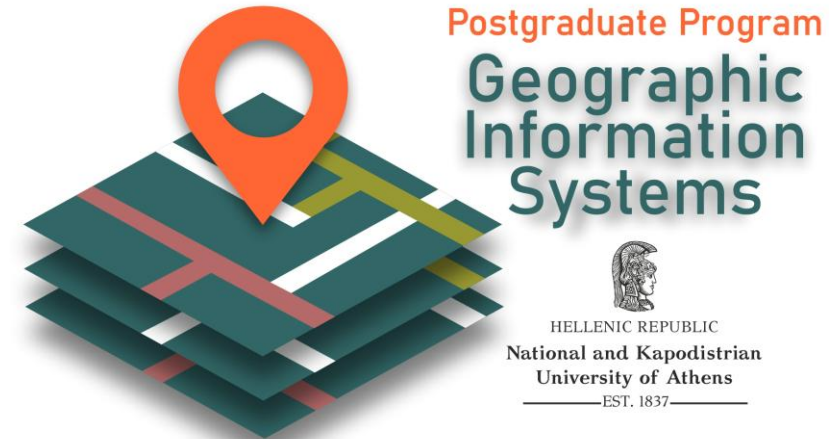
Data

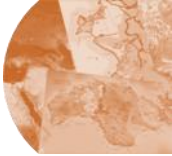
Analysis

Management

Visualization

Validation



- 
- *MSc “Geographic Information Systems” - Top benefits with flexible hours*



GENERAL INFORMATION

- ⊗ Courses start in October
- ⊗ Duration of studies: four (4) semesters
- ⊗ Total credit units (ECTS): 120



GIS

creating the world you want to see

Thank you very much! Eager to “see” you as our students!