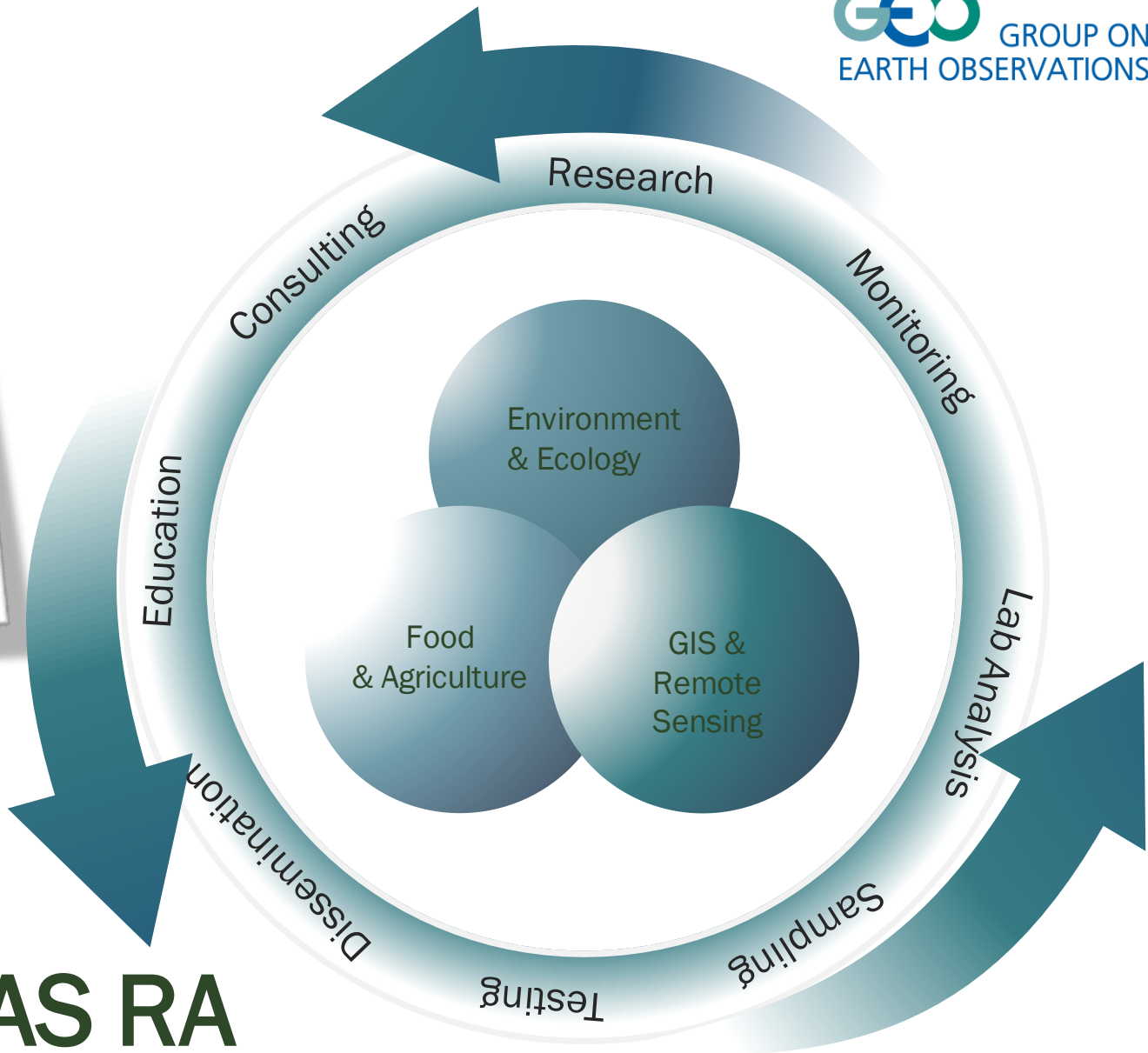




Environmental Earth Observation of urban areas in Armenia:
a perspective on the need for in situ data

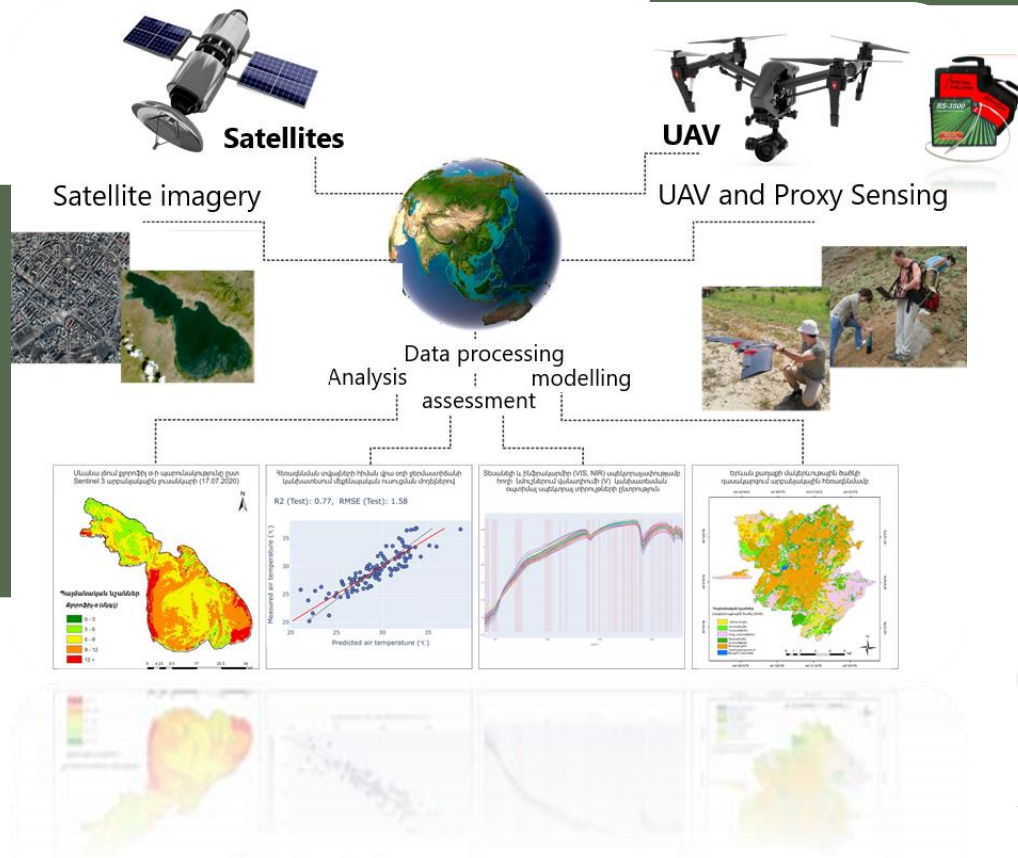


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Environmental Earth Observation in ARMENIA



1. SPACE-BORN SENSING (Satellites)
2. ARIAL SENSING (UAVs: multispectral, thermal)
3. Proxy SENSING (visible and near-infrared (VIS-NIR) spectroscopy)
4. In-situ measurements for calibration and validation

Environmental issues of urban areas: Armenia



- Green areas
- Air quality
- Soil quality
- Water quality
- Etc.

YEREVAN: Capital of Armenia



CAPITAL AND SOCIAL-ECONOMIC CENTER OF ARMENIA

Total area >220 sq. km

Population - 1,060138 million

The goal of the Yerevan's Master Plan

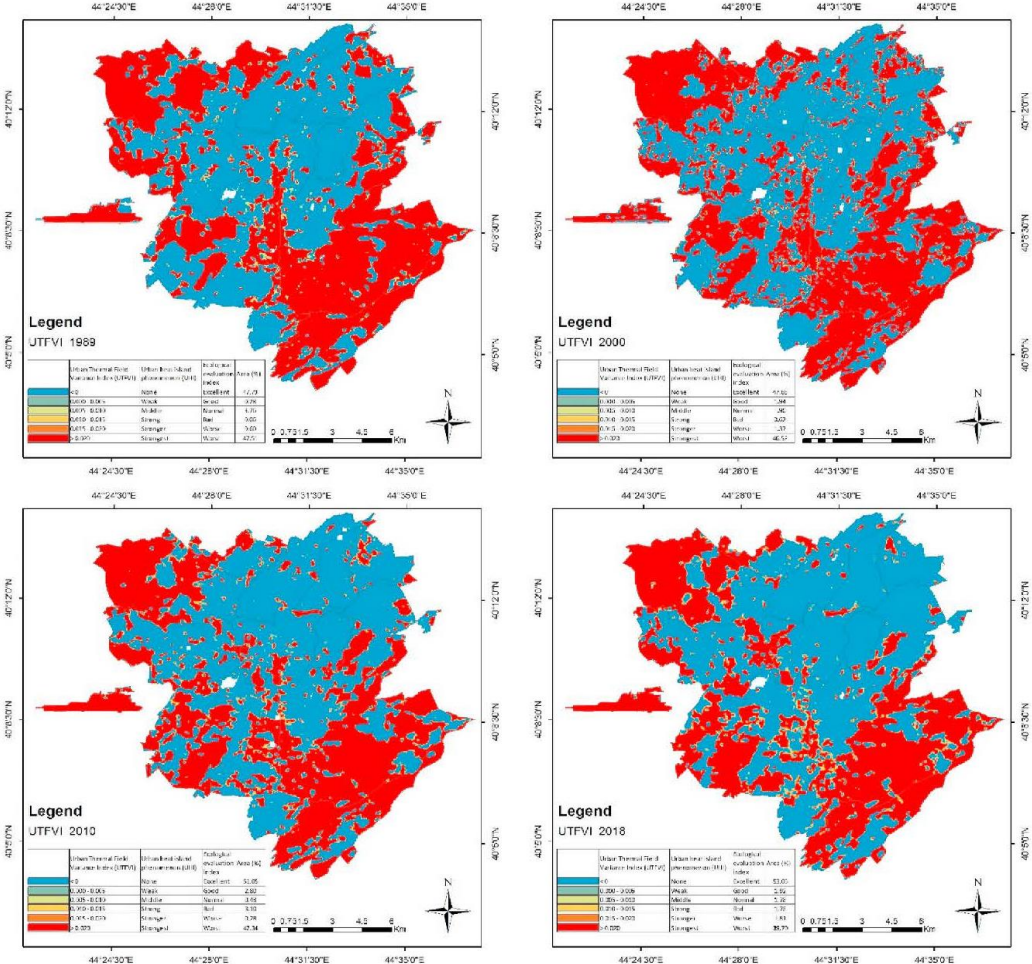
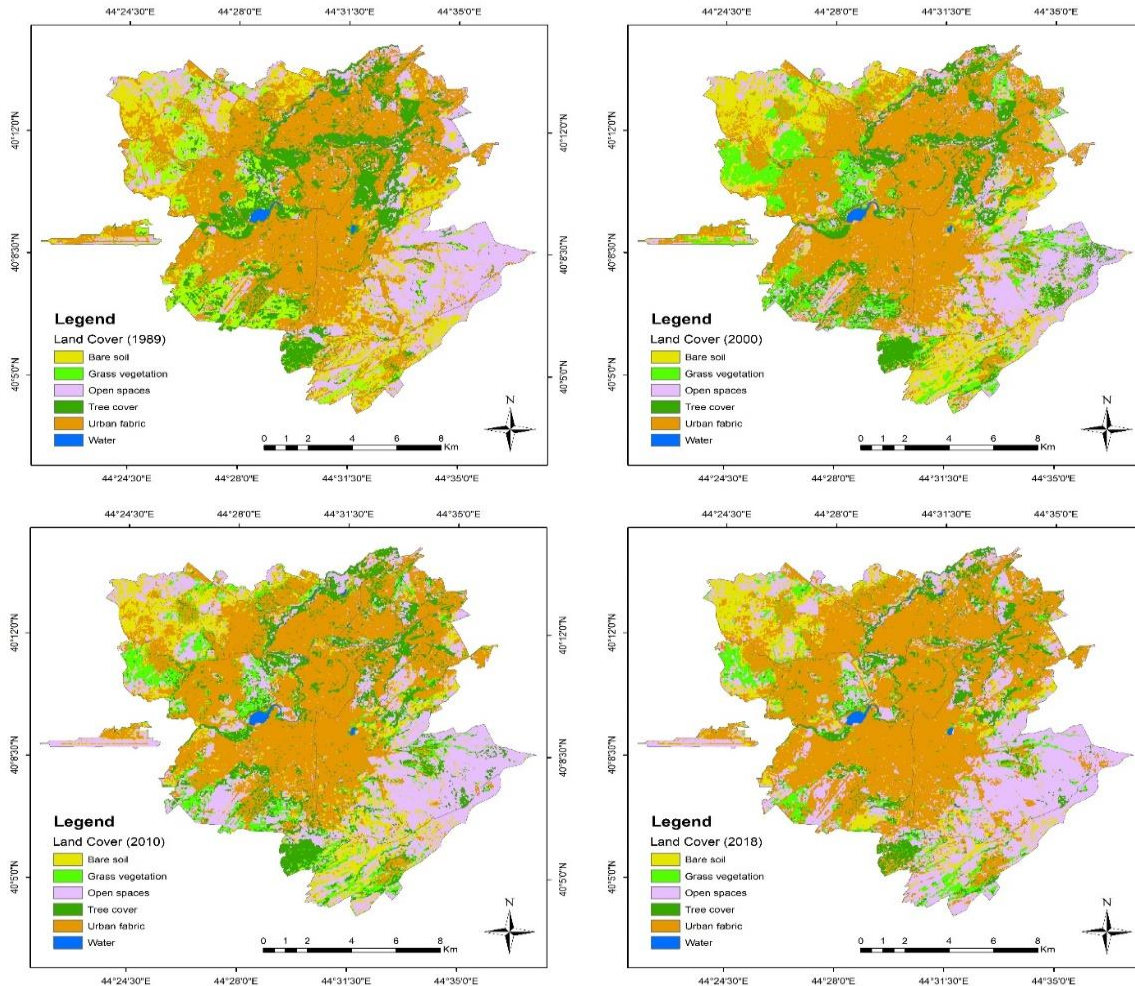
the preparation of an urban development strategy for creation of favorable living conditions and provision of sustainable development.

Earth Observation benefits

Land Cover of the Yerevan for the years 1989, 2000, 2010 and 2018 derived from Landsat 8 OLI

The urban thermal field variance index (UTFVI)*
is widely used to describe the

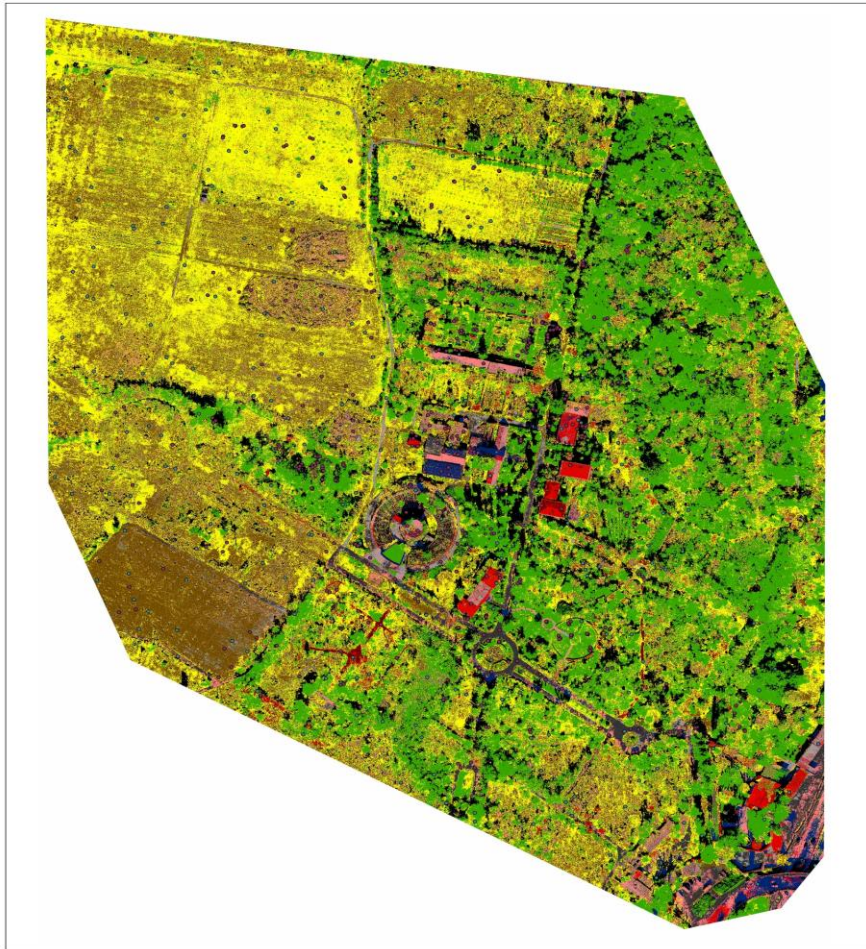
Urban heat island (UHI) effect



In-situ data to monitor spatial variations of air temperature in local climatic zones

YEREVAN BOTANICAL GARDEN

Thermal and multispectral drone survey

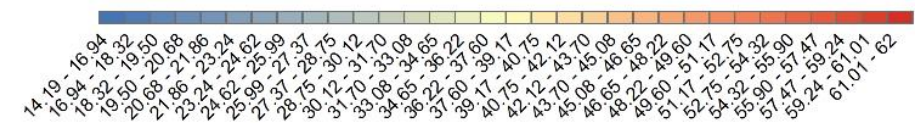
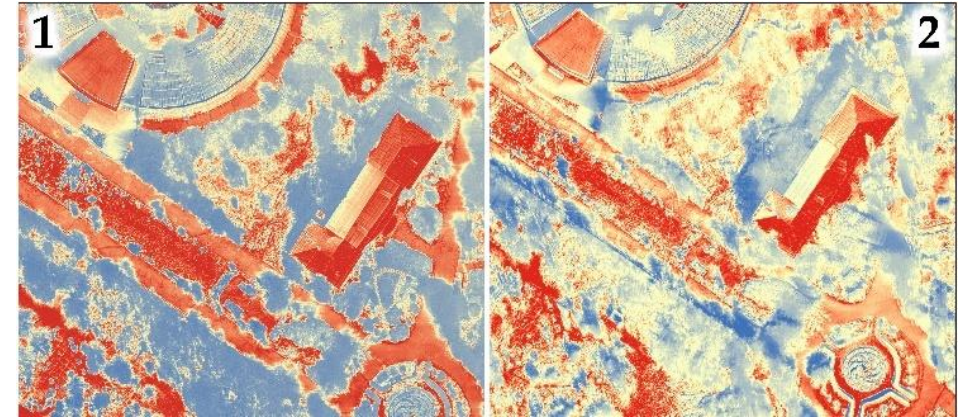


In-situ thermoscopy



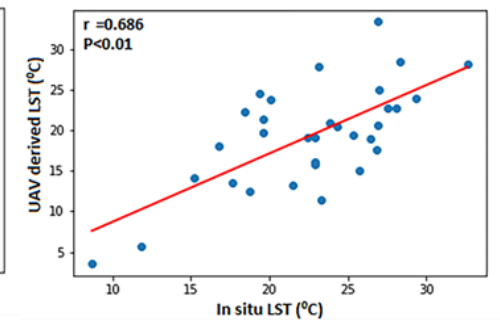
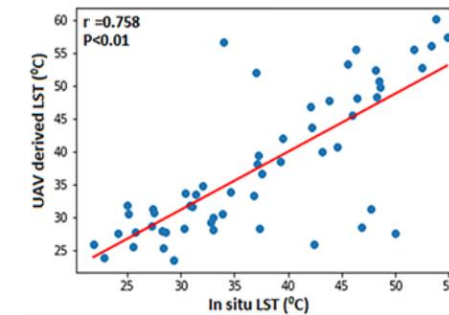
06 Sept 2022

27 Oct 2022



06 Sept 2022

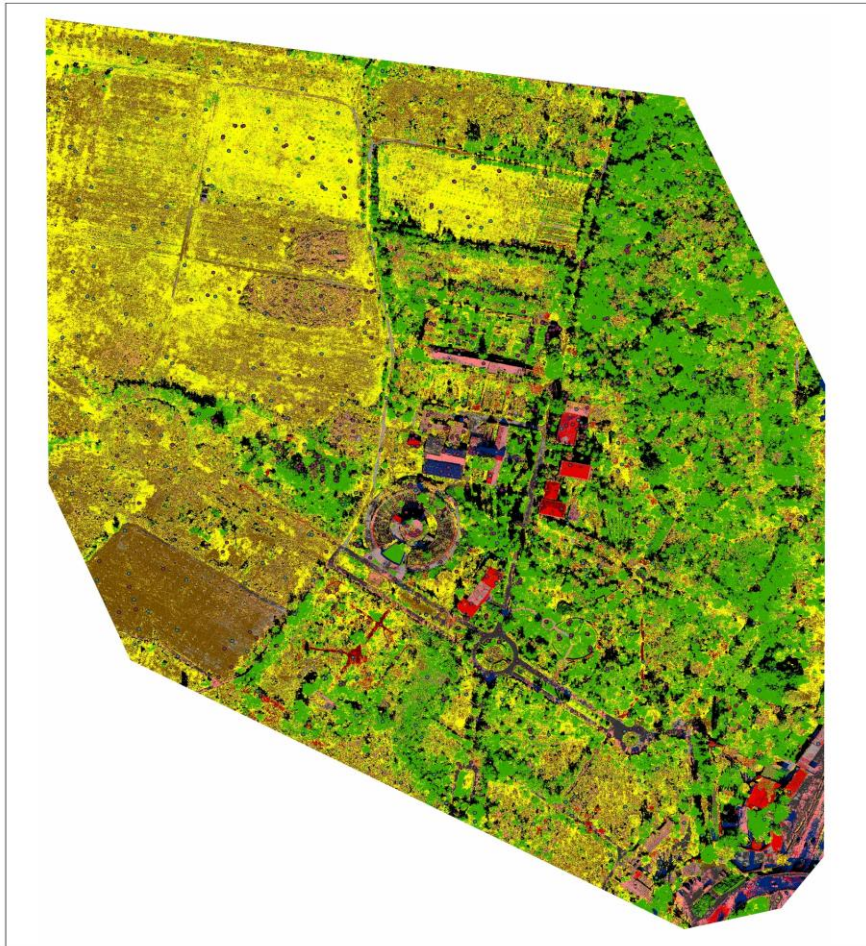
27 Oct 2022



b

In-situ data to monitor spatial variations of air temperature in local climatic zones

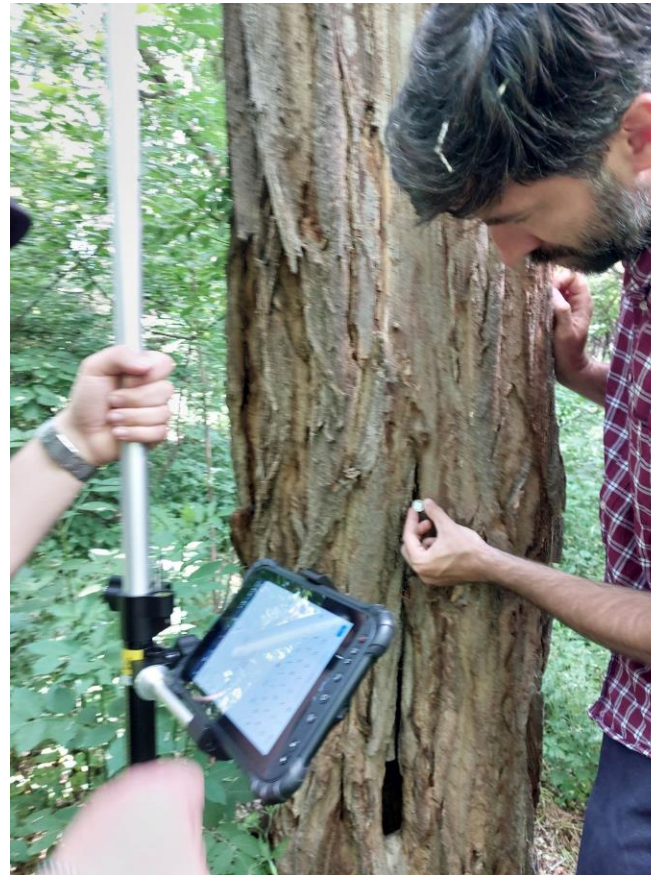
YEREVAN BOTANICAL GARDEN



Land cover classes

| | | | | |
|------------|----------------|----------|--------------|----------|
| Vegetation | Roofs metallic | Asphalt | Solar panels | Shadow |
| Soil | Roofs asbestos | Concrete | Dry grass | Red Sand |

Data loggers: thermochrons



Limitations of *in situ* observations

Method-produced error:

- sampling design
- improper operation of in situ measurement instruments;
- uncalibrated in situ measurement instruments
- ...

Challenges

QUALITY, CALIBRATION AND VALIDATION

DATA POLICY AND ACCESS CONDITIONS

DATA GAPS



CONTACT DETAILS



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