



CLIMAAX
climate ready regions

Strategies for Mitigating the Urban Heat Island (UHI) Effect in Antalya, Turkey: Integration of High-Resolution Local Data for Enhanced Climate Resilience (MUHIR) Türkiye/Antalya



**ANTALYA
METROPOLITAN
MUNICIPALITY**

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WHAT IS AN URBAN HEAT ISLAND?

The Urban Heat Island effect refers to the phenomenon where average air temperature values in urban areas exceed those in rural regions.

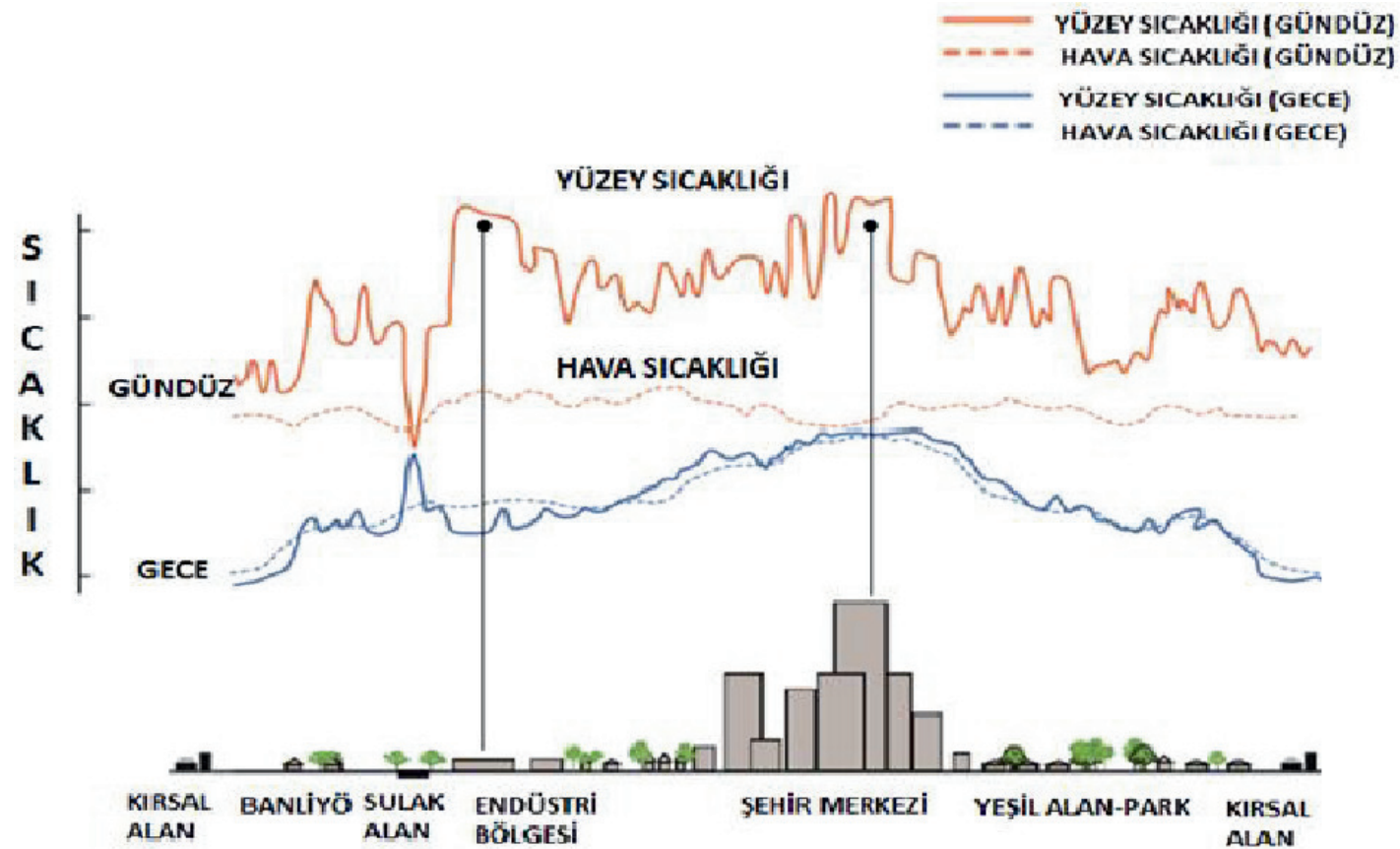
According to the measurements, these variations in air temperature can reach 3-4°C, representing a significant difference.



Negative Impacts of Urban Heat Islands

The Urban Heat Island effect can attain intensities that surpass the threshold of living comfort during specific times of the year, particularly for individuals residing in hot climates.

Indirectly, it leads to adverse effects including health issues, heightened energy consumption for cooling, air pollution, and water scarcity, and may even induce climate changes on a regional scale.



A four-year Horizon Europe (€20m) initiative offering financial, analytical, and practical support for the development of regional climate and emergency risk management plans. CLIMAAX seeks to enhance the harmonization and consolidation of climate risk assessment methodologies and to establish a permanent, standardized data framework for future endeavors. The project commenced in January 2023 and is scheduled to continue until December 2026.

CLIMAtE Risk and Vulnerability Assessment Framework and Toolbox (CLIMAAX)

December 8, 2023 - March 22, 2024



RESULTS OF THE FIRST OPEN CALL

• Municipality of Tirana // TRA4CRA	Albania
• Municipality of Dobrich // ARCADIA	Bulgaria
• Municipality of Garmen // CRAG	
• Municipality of Ruse // Climate Ready	
• Silistra Municipality // TOR: Towards Climate Resilience	
• Department of La Réunion // RISC RA	France
• Dimos Egaleo // Isthemes	Greece
• Municipality of Rafta-Pikermi // R4PRVA	
• Municipality of Xanthi // CARE_X	
• Periferia Attikis // AttikaReady	
• Region of Central Macedonia // Datable	
• Region of Crete // CRETE	
• Municipality of Hegyvidék // MARCAdapt	Hungary
• Marche Region // CLIMArcheX	Italy
• Mountain Community of Valchiavenna // CMV4Clima	
• Meteorological Department Curaçao // CLIMAAXKorsou	Netherlands Antilles
• CIM Beira Baixa // CLIMAAX-BeiraBaixa	Portugal
• CIM Beiras e Serra da Estrela // BSE-CLIMAAX	
• CIM Baixo Alentejo // CLIMAAX-4-BA	
• Municipality of Viana do Castelo // VC-CLIMAax	
• IDA Cluj Metropolitan Area // MECRA-Cluj	Romania
• National Institute of Hydrology and Water Management // CARE-ROPutna	
• Municipality of Târgu Secuiesc // KEZDI_adapt	
• Provincial Secretariat for Urban Planning and Environmental protection // CLIMACHANGE	Serbia
• Banská Bystrica Region // CLIMAAXInsight	Slovakia
• City of Košice // SCOPE	
• Municipality of Quart de Poblet // QdP Climate Adaptation Toolbox Implementation	Spain
• Provincial Council of Alicante // CLIMAAX4CAST	
• Antalya Metropolitan Municipality // MUHIR	Turkey
• Aydın İli Damızlık Sığır Yetiştiricileri Birliği // CİRResDairy	
• İzmir Metropolitan Municipality // CRIZ-ERS	
• Sanlıurfa Metropolitan Municipality // CRAS	

119 Project Proposals



ANTALYA - SEAL
146.000 Euro

1 OCTOBER 2024 - 1 AUGUST 2026

32 Winners

OUTCOMES

CLIMAAX is designed to significantly contribute to the harmonization and consolidation of the practice of regional climate risk assessment (CRA), leaving a substantial legacy for upcoming European initiatives. The project will deliver:



A standardized CRA framework built on current community experience and best-practices;



A Toolbox with data, models and utilities to provide access to European and global open data archives integrated with local data and procedures;



Five European pilot regional CRAs to shape the framework and toolset;

Support for at least 50 regions to create a context

Material and online European regions;

Upscale results into operationalization of the support function.



www.climaax.eu
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CLIMATE RISK ASSESSMENTS
FOR EVERY EUROPEAN REGION



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ANTALYA METROPOLITAN MUNICIPALITY - CLIMAAX

- **Climate Change and Zero Waste Department: A trailblazer in climate change adaptation (Achieving a Score in Adaptation in CDP 2023) and a frontrunner in the fight against climate change, it stands as one of the inaugural Climate Change Departments in Turkey.**
- **Collaboration with the Information Technology Department, GIS Branch, and Disaster Affairs Department in accordance with the municipality's expertise.**



- Effective strategies utilizing SEAP (v2, 2019) and SECAP (2022).
- Member of numerous environmental networks (CoM, METROPOLIS, Cities4Forests, NZCs, CittaSlow, EIT, FEE, etc.).
- 21 Awards for Environmental Conservation and Climate Change Initiatives.

- Collaboration for MUHIR:
- **Antalya Metropolitan Municipality Environmental Council (ANTEnB).**
- **Akdeniz University Department of Space Sciences and Technologies: Associate Professor Dr. Nusret Demir, Associate Professor Dr. Çağdaş Şimşek.**
- **Boğaziçi University Climate Change and Policy Research Center: Professor Dr. Murat Türkeş.**
- **EU4ETTR's Multi-Level Governance Platform for Climate (MLGP): Daiva Matonienė.**



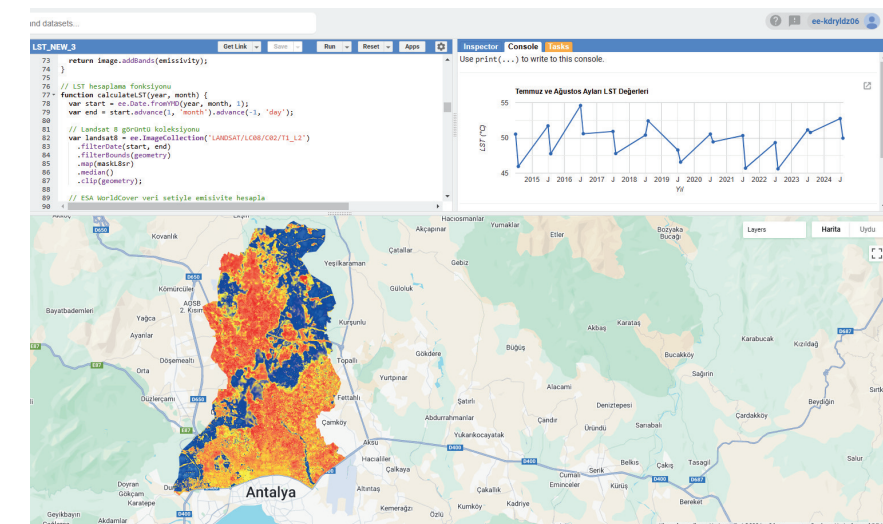
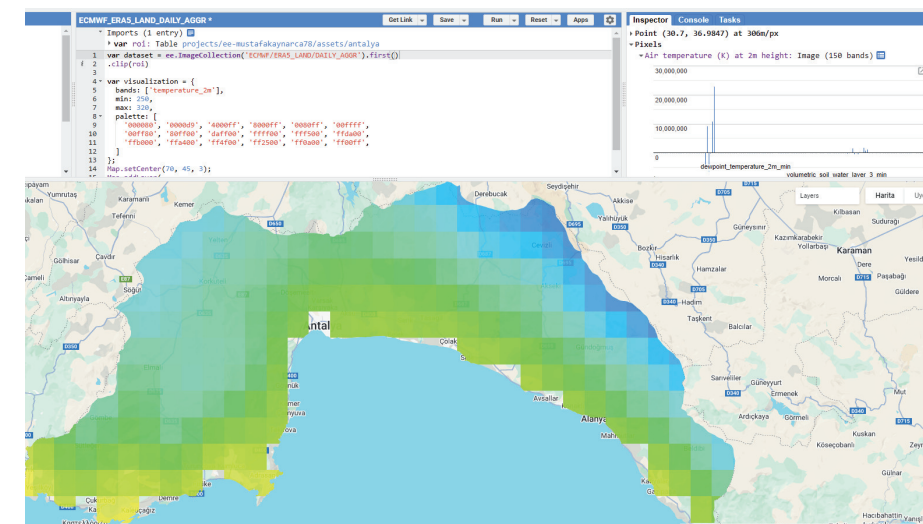
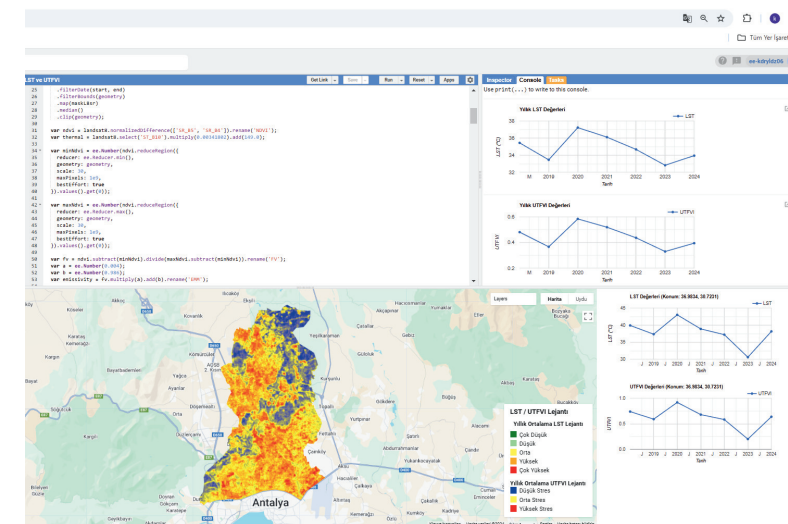
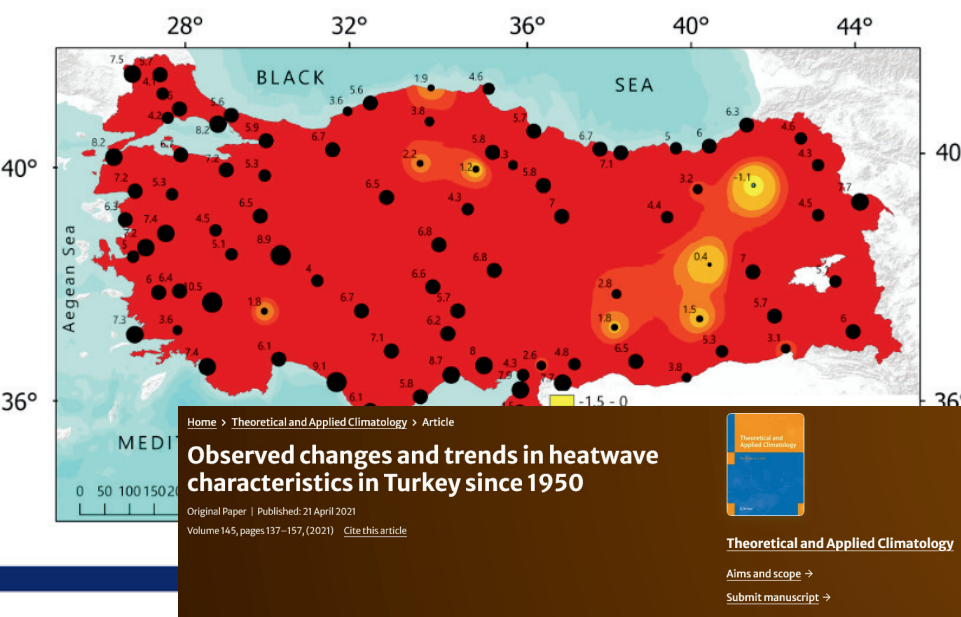
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Problem Definition: Urban Heat Island and Heat Waves – What measures will be implemented in CLIMAAX?

- **Primary Hazard: Urban Heat Island Effect**
- **Initial Objective:**
- **Quantitative assessment of the effects of urban heat islands on public health, water resources, and energy consumption.**
- **Investigating green infrastructure and nature-based solutions to mitigate risks.**

HEATWAVE Workflow for Comprehensive Analysis:
Hazard Assessment 1: Analysis of heat wave hazards utilizing the EuroHEAT methodology.
Hazard Assessment 2: Evaluation of heatwave hazards utilizing EURO-CORDEX data analysis (Xclim package).
Risk assessment 1: Concerning heat waves utilizing satellite-derived data.
Risk Assessment 2: Heat Wave Risk Attributable to Climate Change (Catalonia Case Study).



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Accessibility of outcomes



- Transforming Insights into Action:
- Anticipated Outcomes:**

- **Comprehensive climate risk evaluation of urban heat islands and heat waves specifically for Antalya.**
- **Policy recommendations for sustainable urban planning and disaster resilience.**
- **Local Government: Information for policy formulation, urban planning, and adaptation strategies (e.g., NBSs). A minimum of two (2) new adaptation strategies will be incorporated into Antalya's SECAP.**
- **Communities: A data-informed benchmark for safer, cooler, and more livable environments.**
- **NGOs and Academia: Contributions to Scientific Methodologies in Research.**
- **To transform the project's methodologies and solutions into exemplary practices in a minimum of two (2) cities or regions (Türkiye or the Mediterranean region).**





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ABB, Climate Change and Zero Waste Division
ABB, Information Processing Division, Geographic Information Systems Branch
ABB, Disaster Management Division
ABB, External Relations Division, EU Projects Branch
ABB Mayor's Advisory Office



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