

# Technical Background of CityCLIM

## GCCP

### Technical Details

## Generic City Climate Platform



## What is CityClim?

CityCLIM is a European Union-funded project designed to develop an open platform for climate information and mitigation services. It integrates data from Earth observation sources, ground measurements, and urban weather prediction models to provide detailed weather forecasts for various European cities. The project acknowledges the significant impact of climate change on urban life, particularly the Urban Heat Island (UHI) effect, and addresses these challenges through mitigation and adaptation strategies.

### Generic City Climate Platform (GCCP)

The Generic City Climate Platform (GCCP) is a Software-as-a-Service (SaaS) solution developed as part of the CityCLIM project to provide climate adaptation and mitigation services for cities. It **integrates diverse climate data sources, including ground measurements, airborne and satellite data, to offer an advanced urban weather model.** The platform serves as a one-stop shop for City Climate Services, helping both city administrations and citizens understand, predict, and respond to climate-related challenges.

- Services**
- **Citizen Climate Knowledge Services (CCKS):** A public service that informs, warns, and engages citizens on climate change and extreme weather events, encouraging awareness and adaptation.
  - **City Administration Services:** A decision-support tool for city planners and policymakers to analyze, simulate, and implement sustainable urban climate strategies.

INFORM CITIZENS ON CLIMATE CHANGE

WARN CITIZENS ON ARISING HAZARDS

ONE-STOP SHOP FOR CITY CLIMATE SERVICES

SUPPORT MITIGATION & ADAPTATION STRATEGIES

ADVANCED URBAN WEATHER MODEL

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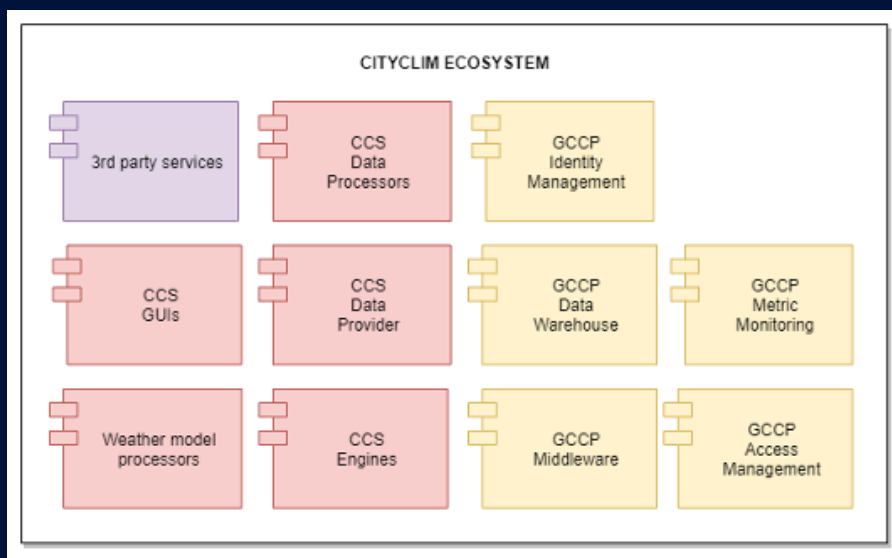




## Generic City Climate Platform

The Generic City Climate Platform (GCCP) represents a cloud solution that manages the interaction of all components within the CityCLIM ecosystem, while ensuring

- logging and telemetric collection and analysis with adequate visualization (e.g., performance, service usage, data access, ...),
- managing external communication, e.g., routing, rate limiting, load balancing for APIs and DDoS protection for web-site endpoints,
- a state-of-the-art identity management system to integrate authentication and authorization mechanisms (e.g., Single-Sign On, account and token management),
- storage management and data operation workflows allowing communication with the data warehouses using cloud-provider specific software development kits and APIs,
- storage capacities for various types of data.



Core elements of the CityCLIM ecosystem, where the GCCP components are highlighted in yellow.

### Key Features of the In-Situ Data Processor

The architecture of the GCCP allows independent operation from integrated City Climate Services, and moreover, has an open design in the sense that it supports the extension by new services within the urban domain and beyond. This extendable design allows a utilization by 3rd party services and component providers when implementing new services in the context of urban climate services. Therefore, the GCCP extends the target groups of CityCLIM by potential service and components contributors, i.e.,

- Developers who are interested in using the storage capacities, have access to already integrated workflows and data for the implementation of new software solutions.
- companies (or service providers), that are interested in extending the CityCLIM ecosystem by integration of further applications in the context of challenges induced by climate change.
- It also provides ready-to-use data sets that have the potential to spark both scientific research projects, as well as support efforts of administrations and businesses to develop data-based mitigation strategies to adapt to the effects of climate change.

### Further Information

Technical interested reader finds in the developer guide Manual 4 “Development and Integration” at <https://www.cityclim.eu/info-material> further information about the GCCP, its functionality and benefits when utilizing it to own development projects.

