

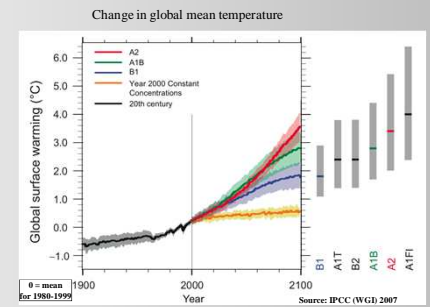
# SUDPLAN - Sustainable Urban Development Planner for Climate Change Adaptation

## Introduction

The SUDPLAN project will develop a web-based planning, prediction and training tool to support long term urban planning. With an open architectural design, SUDPLAN will contribute to a shared information space in Europe.

We all know that the climate is changing, but we don't fully understand how this change will affect the life conditions at the level of cities. Some issues:

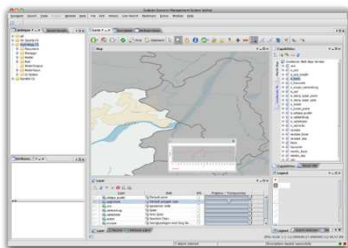
- Global warming may result in unstable, rather than significantly warmer weather at a local level.
- Local air quality may both improve and deteriorate, due to changes in population density and commuting patterns.
- Changing rain patterns can result in both droughts and inundations.



## Scenario Management and 3D Visualization

The Scenario Management System provides a common GUI organising and providing all information and models to the user.

The user may then compare the impact of different planning scenarios under different future climate change assumptions.



### True 3D



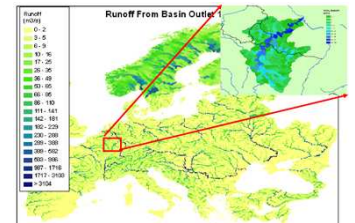
## Common Services

Provide Climate Scenario data on an European scale, available for every city. Also provide models capable of downscaling data to city level.

- All models and results are accessible through OGC SWE interfaces.
- Optional: city specific input can improve the accuracy of the results.

## Models provided:

- Rainfall time series and IDF downscaling
- Storm water generator
- Hydrological conditions and river runoff downscaling
- Air quality downscaling



## Air Quality in Stockholm

Stockholm is one of the Swedish cities that do not meet EU standards for inhalable suspended particles PM10. The Stockholm pilot simulates the future air pollution at the micro scale of individual city blocks or streets.



## Urban Scenario Evaluation:

Comparison of two traffic solutions providing efficient ways to pass the city from north to south by assessing impacts on future air quality

## Migration around Prague

CENIA is particularly interested in the interdependencies between air quality, migration and emissions by commuting.

## Storm Water Flooding in Wuppertal

During a heavy rainfall event, the city's storm water sewage system is quickly blocked by swollen creeks, causing the precipitation to run off on the surface.

Climate change is considered to have an increasing impact on the frequency of heavy storm water events in Wuppertal. The probability of high-intensity events may dramatically change as well.



## Water Pollution in Linz

The Linz pilot focuses on the problem of combined sewer overflows into receiving waters. Proper strategic adaptations can be developed within the catchment area, by comparing the results of today's and of future scenarios, possible effects and changes.

## Model as an OGC service

Sudplan uses standardized interfaces and information models of the Open Geospatial Consortium (OGC) to expose models and their results.

- **Sensor Planning Service (SPS)** interface is used for planning, execution and management of models.
- **Sensor Observation Service (SOS)** interface is used for both uploading input time-series and retrieval of the model results.
- **Web Map Service (WMS)** is used for delivering maps to be visualized by the client (Scenario Management System).

SUDPLAN uses **O&M** for encoding model input time-series and results. To improve the representation of continuous coverages, we have developed a new **O&M Sampling Feature** for describing the sampling grid.

OGC SWE interfaces are implemented based on the **AIT Time Series Toolbox (TSTB)** framework <http://ts-toolbox.ait.ac.at/SUDPLAN/>

Kutschera et al. (2011)

## ACKNOWLEDGEMENT

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## PROJECT COORDINATES

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## More Information: [www.sudplan.eu](http://www.sudplan.eu)

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