

Report on the second end-user/stakeholder workshop

This deliverable is a report on the workshop(s) addressed to end-users and stakeholders. The goal is getting feedback of the end-user and stakeholders in a second workshop to re-verify their needs and inputs to the project, and verify the functioning of the information flow.

WP No.	5.2	WP title:	Outreach, dissemination and climate services	
Work duration¹⁾	27	Due delivery deadline:		31 October 2015
Nature of the deliverable		R = report		
		P = prototype		
		D = demonstrator		
	X	O = Other		
Dissemination level	X	PU = public		
		PP = restricted to other programme participants, incl. the Commission services		
		RE = restricted to a group specified by the consortium, incl. the Commission services		
		CO = confidential, only for members of the consortium, incl. the Commission services		

1) Work duration = project month

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1. Executive summary

The work package of 4.2 with the focus on impact of climate change on urban systems and work package 5.2 on outreach and dissemination work closely with three relevant stakeholders – the city council of Antwerp BE, Almada PT and Berlin DE. As addressed in D52.07 these selected cities have been influenced by the climatic change in the North Atlantic, and are interested in benefiting from an analysis of the impacts of climate change on their urban dimension. Since the establishment of this clustering (WP4.2 – end-user cities – WP 5.2), a regular exchange has been taking place between the work packages and the end-user cities, returning of feedbacks from the cities has been applied as valuable inputs for targeting and/or re-targeting specific research activities.

Since the last report about the first end-user meeting which was organized in June 2013 in Antwerp, four further end-user meetings were held throughout the last 27 months.

2nd end-user meeting 24-25 Sept 2013, Almada PT

Goal: Kick off meeting with Almada city council representatives, for sharing of views, defining needs and activities to be implemented.

3rd end-user meeting 10-11 Feb. 2014, Brussels BE

Goal: Status of the progress in the implementation of the urban climate simulations.

4th end-user meeting 16 Oct. 2014, Berlin DE

Goal: The aim of the meeting is to update the end-users on the project status and present / discuss the results that have been achieved during the past year. In addition, the requirements and specifications for the upcoming near future scenarios related to the implementation of their urban planning master plans will be fine-tuned and consolidated. Finally, the access and availability of relevant datasets from the end-users will be verified for use in heat stress exposure mapping calculations.

5th end-user meeting 02 Oct. 2015, Almada PT

Goal: All tasks planned within WP 4.2 for end-users have been reached and the end-users were timely informed during the work progress. The purpose of the 5th end-user meeting is to discuss with the end-users about the products delivered (inter alias the data system), receiving their feedback for future improvement, planning possible dissemination activities based on the results and mutually creating an outlook for future/post-project activities.

The report contains discussions held during the various end-users meetings, final results of the development are to be taken from the 5th meeting in Almada (02 Oct. 2015), in which the report

firstly describes the **feedback of end-users** concerning results of the WP42 – Urban impacts on societies delivered to them. The WP42 – Urban Impacts on Society’s outcomes are several maps and data focusing on environmental and socio-economic impacts of climate change and impacts on urban societies;

Secondly the **availability of the maps and data** through NACLIM website and ZENODO platform is defined;

Furthermore, **dissemination activities** within WP52 - Outreach, dissemination and climate services to be further considered and jointly organized with Euporias are pointed out and planned and

Finally the report highlights the **UHI and heat stress products business value** linked to the needs of the NACLIM end-users and the potential of the products / services towards other European cities.

2. Project objectives

{Standard Input} With this deliverable, the project has contributed to the achievement of the following objectives (see DOW Section B.1.1):

Nr.	Objective	Yes	No
1	Assessing the predictability and quantifying the uncertainty in forecasts of the North Atlantic/Arctic Ocean surface state		X
2	Assessing the atmospheric predictability related to the North Atlantic/Arctic Ocean surface state		X
3	Monitoring of volume, heat and fresh water transports across key sections in the North Atlantic		X
4	Quantifying the benefit of the different ocean observing system components for the initialization of decadal climate predictions		X
5	Establishing the impact of an Arctic initialization on the forecast skill in the North Atlantic/European sector		X
6	Quantifying the impact of predicted North Atlantic upper ocean state changes on the oceanic ecosystem		X
7	Quantifying the impact of predicted North Atlantic upper ocean state changes on socioeconomic systems in European urban societies	X	
8	Providing recommendations for observational and prediction systems		X
9	Providing recommendations for predictions of the oceanic ecosystem		X
10	Disseminating the key results to the climate service community and relevant end-users/stakeholders	X	
11	Constructing a dataset for sea surface and sea ice surface temperatures in the Arctic		X

3. Detailed report on the deliverable

2nd Meeting: 24-25 September 2013, Almada PT

Participants:

City Almada:

Nuno Lopes - Head of Division – Environmental Studies and Management , Division Sustainable Environmental Management and Planning Department

Sara Dionísio, Sr Advisor Environmental Studies

João Cleto, Local Energy Management Agency of Almada

VITO: Koen De Ridder

GIM: Catherine Stevens

NERC: Jennifer Riley

Programme

Introduction to NACLIM project and partners

- NACLIM project introduction (Jennifer Riley, ICPO/NERC)
- CLIVAR project introduction and general science introduction (Jennifer Riley, ICPO/NERC)
- UrbCLIM model (Koen De Ridder, VITO)
- UHI (Urban Heat Island) and mapping heat impact on health (Catherine Stevens, GIM)
- Brief flashback of the 1st end user workshop (Catherine Stevens, GIM)

Data requirements: introduction (Catherine Stevens, GIM)

Almada meteorological station visit: a visit of the Almada meteorological station (central Almada, schoolyard) was organized in order to take pictures of it and to collect useful parameters of the station surroundings.

- The climate measurements are conducted by the city, they have added a few instruments on a measurement site for air quality measurements
- Instruments: temperature & relative humidity, both in non-ventilated radiation shield, and 2-D sonic anemometer
- Caution: the thermometer/hygrometer is located at approximately 1 m from the exit of an airco device – it isn't sure what effect that can induce but caution is warranted

Almada presentation

- Building local resilience, Almada, Portugal (Nuno Lopes)

NACLIM data requirements

Almada requirements and needs (Nuno Lopes and Sara Dionísio)

Topics discussed

NACLIM work packages “Impacts on urban societies” are introduced and the requirements are presented to Almada partners.

The main discussion focussed on the data input requirements for the UHI model (UrbClim model) and the exposure maps which will be created from the UHI output and socio-economic data collected from the end-users.

Other topics were discussed such as the end-users’ needs and expectations from the NACLIM project.

Outcome of the discussion

A list of available data (UrbClim input data and exposure map input data) was discussed and Almada end-users agreed on timescales over which the data will be provided to the NACLIM partners.

Almada end-users are not critical about the model uncertainty, more important for them is that the scientists should try to give a broad *range* of possible values (e.g. as in the IPCC reporting).

Nuno (Almada) favours high resolution: 100 m rather than 250 m. Koen De Ridder (VITO) explained some constraints related to that. E.g., higher resolution means that we have to consider shorter periods. Also: we cannot look at too fine details since the UrbClim model does not consider individual roughness obstacles (buildings). Other models do exist (microscale urban climate models) that can resolve much finer features, but these cover only small portions of the city, and can simulate only short periods of the order of hours to days; anyway these models are not considered in NACLIM.

In a new study, lichen has been used as a bio monitoring tool for heavy metals, but also to identify effects of temperature & humidity (sclerophily).

In this context, the ecosystem services evaluation was mentioned as a topic of interest by the Almada representatives.

Almada city has a Green Infrastructure plan, and land use planning in general considers issues such as “improving natural cooling” and “urban green corridors”.

Almada city has conducted a broad survey of expected climate change-related effects on the city, and the increase of the number of extremely hot days is certainly a concern that came out of this exercise.

Almada end-user requirements and expectations were discussed. It was agreed that VITO will first run the period May-Sep 2013, which includes an intense heat wave (July 2013), and for which data for both central Almada as the coastal station should be available.

These runs will be done using the generic (CORINE-based) model configuration to allow model validation, and later on, when maps based on local data become available, we will re-run the model (at least for a short coinciding period).

Almada end-user is also interested in identifying hotspots in Almada city; in making predictions/projections for 2100 to be used to assist downscaled adaptations; and in identifying population exposure to a heat wave, for example population exposed to last summer heat wave (2013). It's important to take in consideration the *perception* of heat waves.

Almada also expressed interest in 'zooms' at high resolution to investigate hot spots with a micro scale model. This information could then be used for high resolution studies to make diagnose. This is unfortunately not possible in NACLIM, but it was mentioned that we ought perhaps to look for alternative opportunities (Horizon 2020?)

Apart from that, Almada has expressed interest in far-future (2070-2100) climate projections. Koen De Ridder (VITO) explained that for such long simulations the land use change scenarios for these periods appear to be not available

NACLIM project will reinforce the willing of the end-user to integrate climate adaptation to the city master plan. Adaptation is not a policy in itself, but it is integrated in existing policies such as those related to water, landslides, urban planning ...

Actions that have been fulfilled after the meeting: October 2013

Almada end-users to provide the following required data:

- Input data to be used in the UrbClim model, including metadata (high priority) by October 2013
 - 3D building city model
 - Input data (from 2011) that will be used to generate 3D city model. This set of data is not yet completely validated. Almada end-users will inform us when the final data will be validated and available.
 - Prior to 2011 the last validated 3D city model data was generated in 2001.

- Vegetation
 - Detailed vegetation layer
 - Green infrastructure plan layer
 - Urban agriculture network layer
- Roads and railways
- Soil sealing
 - Potential permeability layer
- Land Use Land Cover layers
 - Detailed land use land cover (2007) and updated detailed land use land cover (2011)
- Validation data coming from Almada city centre and “rural” area meteorological stations, their parameters and their locations by October 2013. The heat waves in 2006 and last summer (July 2013) are relevant and need to be considered.
 - The meteorological station in central Almada for the period from 2002 to now (xls).
 - Nuno will check the availability of the coastal station also.
- Socio economic data (low priority) by statistic units (2011) by January 2014
 - Population density
 - Age structure
 - Schools and hospital statistics and their location
 - Unemployment
 - Income
- Other data
 - Daily energy computation data during heat waves (June, July and August 2013)
 - João (energy expert) said he will try to find daily electricity consumption¹, to be matched against the UHI simulations in order to find relations between both.

GIM: to provide a data guideline table to help the users in their data collection activities by end of October 2013.

¹ FYI - the effect of the UHI + heat waves on energy consumption was considered in the original NACLIM proposal, but has been removed after the project budget has been cut. So this link is probably outside the scope of NACLIM.

3rd meeting: 10-11 Feb. 2014, Brussels BE

Participants

City Almada: Sara Dionisio, Nuno Lopes

City Antwerp: Griet Lambrechts

City Berlin: Jörn Welsch

VITO: Koen De Ridder, Dirk Lauwaet

GIM: Catherine Stevens, Bart Thomas

NERC: Jennifer Riley

UHAM: Chiara Bearzotti

Urban climate simulation results (VITO)

Dirk Lauwaet (VITO) gave an overview of the urban climate results obtained so far. Both the goals of the work package in the broader NAACLIM context and focus of the first year of work (to validate the UrbClim model for the cities Antwerp, Almada, and Berlin) were highlighted.

After a brief explanation of the model configuration (resolution, domain size, etc.) and the available observational data, validation results for the three cities were presented. When modelling the urban-rural temperature difference in Berlin and Antwerp, the results fairly consistently showed a bias of a few tenths of a °C, a root mean square error of around 1° or sometimes less, and a correlation coefficient mostly of the order of 0.7. For Almada only the error statistics remain somewhat higher than those mentioned above. This is attributed to the particular dry conditions there during the summer and the model overestimation of the sensible heat flux. Work is currently being undertaken to improve these results.

Finally, VITO gave an overview of the road ahead, which will focus on conducting urban climate projections. This is a technical challenge especially given the limitations of the available GCM outputs, (which are needed to force the UrbClim model for the projections).

Other feedbacks from the end-users:

Joern Welsch (Berlin) expressed interest in an intercomparison of different modeling results for Berlin.

Nuno Lopes (Almada) gave some figures on excess mortality during the summer 2013 heat wave in Almada. From the three user representatives, there was a considerable interest in obtaining maps with an indicator for “temperature mitigation potential of vegetation. Such an indicator would help to quantify the sensitivity of the local climate with respect to changing the amount of green coverage in the city. Such information appears to have considerable policy value, and is also a useful tool for awareness creation.

UrbClim input data processing (GIM)

Catherine Stevens presented on the following points:

- **General methodology for the processing of indices:** PAI (Planar Area Index), FAI (Froital Area Intex), Mean Building height etc.
- **Overview of progress on the Berlin input indices:** most of the Berlin indices have already been processed and they will soon be delivered to VITO to be integrated to Urbclim model.
- **Overview of progress on the Antwerp input indices:** The Antwerp indices processing models are already set up and will be fine-tuned and run in February for delivery to VITO at the end of February 2014.
- **Overview of progress on the Almada input indices:** The Almada indices are not yet processed. It is planned to process the indices in March 2014 for delivery to VITO by the end of that month.

End users input data missing/issue/status

Berlin

No data is missing for the processing of Berlin indices. Berlin end-user notifies that new buildings and vegetation layer with height will be available by the end of February. However, this data will not be used in the indices processing but could be used to validate/countercheck the existing data already used.

Antwerp

No particular discussion of the Antwerp data.

Almada

To be able to process the Almada indices some data needs to be delivered:

- A more recent building cover with their respective height. The available **building layer with height** information is from 2005. It will be necessary to get a new version of it.
- Soil sealing / land use land cover
- Vegetation cover

ACTIONS that have been fulfilled:

Almada end users to provide a new non-validated building layer, in format DWG, containing polylines of building and points with height of building.

GIM to process this data to create a building layer containing closed polygons with heights. This layer is to be used to set up and pre-run indices models and will be delivered to Almada end-user for countercheck.

Scenarios: Relevance and priorities?

During the discussion of the different scenarios for each city it became apparent that their respective requirements converged into the following common set of scenarios:

- I. Scenarios linked to urban planning and existing urban plans/projects
 - Effect of the urban heat island (UHI) on urban planning both today and in the future
 - Impacts of green roofs linked to potential green roof map/plan for each city for the timeframe 2030 - 2040 onwards
 - Impacts of the change in albedo (reflectivity) of buildings (e.g. through change to green roof type)
 - Impacts of city expansion on climate change (e.g. projected Land use land cover (LULC))

- II. Scenarios using projected population figures:
 - Effects of the densification of the population and development of new areas of settlement
 - Impacts on the vulnerable population of the cities (e.g. focussing on young children in schools and areas of elderly populations)

Predicting/projecting scenarios up to 2100 will help cities produce future adaptation strategies downscaled from the VITO model outputs. The most interesting period for scenarios for all end-users is 2025-2045. The first scenario should be set up and start to be run by the end of 2014. In order to run such future scenarios the end users must provide necessary information (see individual action points below).

ACTIONS that have been fulfilled:

VITO to summarise the scenarios in an Excel spreadsheet and make available to the end-users

Almada end-user review the master city plan

Antwerp green roof potential map should be available by the end of 2014

Berlin's 15 year plan should be made available for integrated in the scenarios

NACLIM dissemination activities

EGU abstracts

VITO and GIM participation at EGU 2014 conference was noted (<http://www.egu2014.eu/>).

Almada end-users ask to receive a copy of the two abstracts submitted by GIM

Newsletter

It was proposed to remove the section on WP 4.1 from the newsletter and to add it at the end as a short work status summary when applicable.

End-users needs and involvement in the NACLIM project

The end-users all expressed the wish to receive more information via documentation such as leaflets or flyers explaining the project, its status and the added value for end-users.

The end-users would like to have a greater visibility on the website and a greater information resource for them to be able to use to promote the project to their local city councils.

Emphasis should be placed on communicating this information using clear, non-jargon fuelled terminology and phrasing. Information to potentially be published could include:

- City profiles
- Relevant maps
- Project activities and results

ACTIONS that have been fulfilled: Chiara (project office) and Jennifer (NERC) create da 'home page' for each end-user under "Urban impacts" tab (<http://naclim.zmaw.de/Urban-impacts.2227.0.html>) on the NACLIM website www.naclim.eu,

Almada is the first city to provide initial data (text and images) for publication in the internet. Berlin and Antwerp followed shortly after.

All three cities agreed on a preferred template by 14 April for the information to be displayed.

4th meeting: 16 Oct. 2014, Berlin DE

Participants

City Almada: Nuno Lopes and Sara Dionisio,

City Antwerp: Lieve Custers

City Berlin: Jörn Welsch and Isabel Knerr

VITO: Koen De Ridder and Dirk Lauwaet

GIM: Bart Thomas and Mart Grommen

NERC: Jennifer Riley

MPG: Chiara Bearzotti

UHAM: Detlef Quadfasel

Presentation NACLIM results and end-users

Presentation Dirk Lauwaet, VITO: Overview completed work

- The UrbClim model
- Urban heat island effect (UHI) and number of heat wave (HW) days per year and per city at three different time scales, i.e. the situation today (1986-2005), near future (2026-2045) and far future (2081-2100)
- Comparison between model results based on generic datasets and local end-users datasets → although the impact on the results at city level might be rather limited, the added value of the applied approach is found in the flexibility to run different scenarios and produce consistent results with local city data that are used in their urban master plans.
- Upcoming work: investigation of green elements in the city on the local climate.

Discussion:

- For future scenarios, the reference Tmin and Tmax (minimum / maximum daily temperatures) for the calculation of heat waves are used as these for today's situation. The underlying assumption is that people cannot adapt that fast to a new climate situation. In addition, the results for different time scales can be better compared and hence the effect of changing climate is more clearly expressed.
- Mainly the air temperature is considered in the UrbClim model, but the effects of shadows or other cooling elements are not taken into account. Because of that, the present model should not be used for very fine scale analyses.
- In UrbClim no difference is made between ground (e.g. grass) and top (e.g. trees) vegetation in the calculation of the fraction vegetation cover.
- Impact of varying fraction vegetation cover on the UHI → uniform increase at city level ("general greening") versus local measures ("concentrated greening" such as new parks). General effects of greening at the city level only of importance in case of drastic changes, local effects might be more important and effective to convince policy makers.
- Accessibility of green areas is also important as it gives the citizens possibilities for cooling → might be better to have a couple of little parks spread over the city instead of a single big park.
- City of Berlin has an own climate model on 10m scale → mainly interested in the UHI projections for the future as no model results are available yet for the future time scales.
- Use normalized color scale for all maps that are produced for better understanding / comparison

Presentation Bart Thomas, GIM: Results on urban morphology indices and UHI and HW days

- Extracted relationships between urban morphology indices and surface soil sealing
- Maps with PAI, FAI, H_AVG, H_STD, SVF, F_VEG, F_ULU, LULC for 3 cities
- Results on urban heat island effect and heat wave days / intensity / duration

- Overview completed / pending scenarios
- First introduction to exposure mapping scenarios
- Overview received and missing data from the end-users

Discussion:

- Almada has got new and more accurate land use land cover data → adapt the results with this information
- Pay attention to the presence of the big park and the vegetated area near the military base in the NE of Almada and their impact on the UHI results
- Administrative border of Almada falls outside the grid → enlarge the grid
- The users do not have an own definition of heatwaves → applied definition (ref. federal agency for public health in Belgium) is accepted
- Difference between housing units and single family homes in Berlin urban plans → housing units can refer to all types of household units (e.g. an apartment in an apartment building) while single family homes refer to individual houses (i.e. a subset of housing units)

Presentation Nuno Lopes, City Almada: Overview environmental plan for the city of Almada

- Urban future plan with green infrastructure (GI) → major green infrastructure versus urban green infrastructure + green corridors network → multifactorial map of green.
- The city of Almada copes with environmental changes like coastal erosion, extreme rainfall and increasing temperatures.
- Overview of the expected / desired NACLIM outcomes

Discussion:

- Increased mortality is used as an argument to convince policy makers about the problem of increasing temperatures in cities, but this argument is objectionable (people might die anyway later on = “harvesting”) → Include more and better arguments to communicate the impact of the UHI effect like quality of life, economical losses, city preparedness, etc.
- Nuno is seeking for arguments to convince policy makers for including the environment and green infrastructure in future urban planning projects. The NACLIM project can help with that → importance of selecting the right output maps
- Urban planning scenarios → urban and local plans → polygons with usage type, % sealed surface, population increase requested → will be checked by Almada
- Almada also interested to see a breakdown of the results according to urban, rural and littoral zones → deliver updated LULC map with an additional attribute related to this classification to avoid any confusion on the interpretation of the existing LULC codes (typically in Portuguese)

Discussion on UHI scenarios for the end-users

Scenarios to be considered:

Almada:

- Scenario in near future, assuming all planned urban expansion projects will be implemented
- Scenario without Lisbon

Antwerp:

- Scenario in near future related to the ongoing urban densification project with an expected population increase of 100 000 inhabitants

Berlin:

- Scenario in near future, assuming all planned urban expansion projects will be implemented

Discussion on expected exposure mapping results

- Exposure of total population and population per age class
- Vulnerable locations like schools, hospitals, rest homes, childcare / daycare facilities

Visibility on the website for the end-users

UHI report for Q3 2014 to be uploaded on the website. The page for Berlin is to be done as soon as possible with pictures and text, following the model of the other two cities. Some contact details need to be added to the website too.

ACTIONS that have been fulfilled:

- Chiara Bearzotti (project office): Update of the UHI report in the list of the reports.
<http://naclim.zmaw.de/Urban-impacts.2227.0.html>
- Jörn Welsch and Isabel Knerr (City Berlin): Berlin page to do by end October in English.
<http://naclim.zmaw.de/Berlin-DE.2820.0.html>
- Lieve Custers: Provide contacts to be added to the webpages to Chiara by end October and to revise the current text
- Nuno Lopes and Sara Dionisio: provide contacts to be added to the webpages to Chiara by end October and to revise the current text

Webpages of the cities

For each city following sections have been added at the bottom of each profile (first entry point in the website) and in the Data System of CT4.2 (second entry point in the website)

1. Results from the project
2. Maps and datasets

3. Publications
4. Links to other projects or initiatives or useful resources

Brochure on the end-users

- o Chenbo Guo (Project office) sent the brochure in Adobe Illustrator / paper copies via mail to Nuno, Sara, Lieve and Jörn so that they could print other copies or translate it in local languages

End-users' city webpages

The end-users will link on their city webpage to the naclim.eu webpage.

Collaboration NACLIM – EUPORIAS: impacts of heat stress on human health (mortality) over a specific urban area (Xavier Rodo)

The idea of using the WP5.3 funding for extending some activities of WP4.2 has been discussed, but this has to be verified with the EC officer because WP5.3 is devoted to dissemination and not to pure research activities.

5th meeting: Final Results! 02 October 2015 Almada PT

Participants

City Almada: Nuno Lopes and Sara Dionisio,

City Berlin: Jörn Welsch

VITO: Koen De Ridder and Dirk Lauwaet

GIM: Bart Thomas and Catherine Stevens

UHAM: Chenbo Guo and Martin Moritz

Almada end-users feed-back

Almada end-users expressed their satisfaction about WP42 - Impact on urban on society's results (maps and data).

The end-users stated their willingness to integrate the data (*.shp) in their own GIS (Geographical Information System) and combine it with their own GIS data in order to create new products.

Concerning maps, it is important to them to understand the class's definition and the way data is mapped. They mentioned the importance of the 4th day of heat day in matters of mortality.

Undeniably the fourth days of heat wave, the mortality increased intensely.

Maps help communicating information to decision makers. Therefore “dummy” maps with clear view on numbers of heat waves day over the time or maps showing the delta between present and future situation (difference in number of heat waves days) are more powerful, pertinent and useful to show the impact of urban plans.

The end-users communicated their interests about getting maps at better/higher resolution.

- Better resolution (100m) to suite with Master Plan which has a scale of 1/10.000.
- Higher resolution to analyse particular hotspots in the city.

They stressed the benefits of greening impacts studies done by VITO to validate greening adaptation measures of the Master Plan.

The end-users are willing to participate to new calls of tenders and to continue the projects. They are interested in being involved in a project with the focus on cities needs instead of a research project such as NAELIM in which cities are the final end-users.

Actions to be taken

- Provide “dummy “maps of base scenario at the past/present, near future and far future situation with same classes’ definition (GIM)
- Provide urban planning scenario present and near furfure delta data (*.shp) (GIM)

Berlin end-users feed-back

Berlin City already has got UHI detailed data and maps for present situation and near future time frame but not for far future. They mentioned their interest in far future (2081-2100) prediction results and mapping.

Maps are used to enhance communication to decision makers and citizens. Therefore it is important to deliver maps that are easily understandable for politicians and common citizens and to provide comprehensive description on maps for non-technical audience.

Actions to be taken

- Provide 2 pages describing products: UHI data and heat stress mapping results (VITO-GIM) - End of December 2015

Antwerp end-users feed-back

The city of Antwerp could not participate to the end-users meeting.

Actions to be taken

- Plan a meeting with Antwerp end-users to collect their feedback (VITO-GIM)

Data and OA

The group agreed to publish data and maps on both NACLIM homepage and ZENODO.

Heat stress and heat stress exposure maps and related data are already available on NACLIM website. UHI data are made available on request.

The standard of file format is the following:

- Description and metadata: xlsx , pdf;
- Map - pdf;
- Data - NetCDF, txt, shp.

End-users are integrating data in their own GIS (Geographical Information System). An agreement is made with end-user to notify WP52 team coordinators (Chenbo Guo - UHAM or Catherine Stevens-GIM) when new products are created. An announcement will be done on NACLIM web site.

Dissemination activities: < 3 min. short movie & workshop

Urban impact on society movie

Producing a movie about NACLIM project is part of dissemination activities. The end-users and WP coordinators propose to produce a film of at least 3 minutes with a story board on the Urban Impact Societies. Almada end-users suggest integrating end-users interviews and a flight simulation over a city presenting the UHI results which are mapped over a 3D city model.

To disseminate the results of WP 42 – Urban Impact on Societies over other European cities, this film should be made available for the first quarter of 2016. It is important to take the opportunity to jointly produce this film with Euporias.

Actions to be taken

- Produce a movie (UHAM and VITO/GIM) - October - December 2015

Dissemination workshop

Another point discussed is the need to organize workshop to disseminate NACLIM Urban impacts on society's results over European cities. The co-organisation with Euporias and IC3 is to be taken in consideration.

A workshop is to be planned for the 1st half of 2016. Instead of addressing the upcoming call, the dissemination workshop shall have a long-term effect and possibly get in touch with more end-user cities.

Actions to be taken

- Organize a joint workshop NACLIM – Euporias - IC3
- To be clarified for a comprehensive preparation of the workshop (UHAM, GIM, VITO)
 - Define the target group (cities and institutions to be invited)
 - Decide on place/location of the demonstration
 - Draft the concept of the workshop, should also be part of the film
 - Budget check
 - Set up the time schedule

UHI and heat stress products business value

The aim of this discussion is to assess the business value of WP42- Urban Impacts on Societies products.

Added-value

The added value of such products is clearly acknowledged in the following fields:

- Public health: to be used as dissemination tool,
- Urbanism and environmental studies: to reinforce master plan and local plans,
- Mitigation and adaption measures: to evaluate the impacts of such measures.

Almada end-users highlighted the limits of mitigation measures. The increase of number of heat wave days has an environmental impact but also an economic impact with an increase of more of 50% of energy cost during such climatic events. Consequently, cities make adaptation measures and also environmental protection, a central point of discussion.

Budget

WP42- Urban Impacts on Societies product and tools are essential. Nevertheless due to their belonging of innovation field, budget and legal codes are not available to uphold them.

Actually most of the cities has no budget to self-finance such project and are depending on European Projects.

It's also important to take in consideration the difficulties to participate to national funding and call of tenders for external enterprises. Furthermore the funding process is really slow.

Product thema

In NACLIM projects, the focus is made on health. Other following themes are relevant and it is pertinent to extend the products to those themes:

- Natural hazards such as flooding and soil erosion,
- Rainfall distribution,
- Energy.

Target group

Mediterranean cities such as Almada are surely interested by UHI studies and heat stress exposure mapping. They are facing similar issues and therefore develop similar strategies in matters of environmental protection, climate adaptation and health prevention plans. They mentioned the importance to contact the proper service in municipalities, i.e. Resilience, environmental, department.

Eastern cities, ICLEI cities and Smart Cities may also be considered as target group.

4. References (Bibliography)

Cf. D42.20 (2014), Report on the first subset of urban climate simulation results

Cf. D42.33 (2015), Report on the final urban climate simulation results

Cf. D52.7 (2013), First end-user/stakeholder meeting report

Reports can be viewed at <http://naclim.zmaw.de/Deliverables.2224.0.html>

5. Publications

Peer reviewed articles:

Title	Main author All authors	Title of the periodical or the series	Number, date or frequency	Publisher	Year of publication	Permanent identifiers-DOI	Is/Will open access- provided to this publication?
N/A							

Plan for future publication:

In preparation OR submitted?	Title	Main author All authors	Title of the periodical or the series	Is/Will open access[2] provided to this publication?
N/A				

6. The deliverable is delayed: Yes

This deliverable was postponed for 2 months from August 31st to October 31st 2015. The reason was the 5th end-user meeting within the framework of the general assembly 2015 which was held on 30th September / 2nd October 2015 in Almada Portugal. As the last report of this work package, we believe this extension of deadline allows us to report overall activities and interactive exchange among the relevant work packages (4.2/5.2) and the end-user cities.

7. Changes made and difficulties encountered, if any

No changes have been made to the scope of the initial work plan.

8. Efforts for this deliverable

Please estimate how many person-months have been used up for this deliverable

Partner	Person-months	Period covered
GIM	3	1 August 2013 – 31 October 2015
VITO	1	1 August 2013 – 31 October 2015
NERC	3	1 August 2013 – 31 October 2015
UHAM	2	1 August 2013 – 31 October 2015
Other partners		
MPG	0,025	1 August 2013 – 31 October 2015
UPMC	0,025	1 August 2013 – 31 October 2015
UiB	0,025	1 August 2013 – 31 October 2015
UniRES	0,025	1 August 2013 – 31 October 2015
GEOMAR	0,025	1 August 2013 – 31 October 2015
DMI	0,025	1 August 2013 – 31 October 2015
HAV	0,025	1 August 2013 – 31 October 2015
FMI	0,025	1 August 2013 – 31 October 2015
MRI	0,025	1 August 2013 – 31 October 2015
NIOZ	0,025	1 August 2013 – 31 October 2015
SAMS	0,025	1 August 2013 – 31 October 2015
NERSC	0,025	1 August 2013 – 31 October 2015
DTU	0,025	1 August 2013 – 31 October 2015
MSS	0,025	1 August 2013 – 31 October 2015
Total	9,35	

Total estimated effort for this deliverable (DOW) was **8.85** person-months. The names of the scientist involved are mentioned on the cover page of this report.

9. Sustainability

- *Lessons learnt: both positive and negative that can be drawn from the experiences of the work to date and*
- *Links built with other deliverables, WPs, and synergies created with other projects*

Lesson learned

In the Initial NACLIM description of work, it was only foreseen two end-users workshop. We clearly identified the need of more workshops. This is due to the need of setting up a proper collaboration with the end-users but also to define users' requirements, to present results, to ask feedbacks and to maximize the impacts of final products in order to integrate them in end-users master plan.

The involvement of end-user is clearly a positive aspect of the project. They all participate of most of the 5th end-users organised. Moreover, it is sometimes difficult for end-users such as city to commit working hours to participate in a research project such as NACLIM, or to obtain permission to travel from their hierarchy.

Every city access and use the results (maps and data) in a different way. Therefore the appropriated presentation (thematic mapping) is really important to feed their specific needs. The products are mainly used to raise the awareness to their decision makers.

Links built with other deliverables, WPs, and synergies created with other projects

We were established links to CT1 and CT3. The cooperation with these two core themes were further developed at the annual meeting in Berlin in October 2014 and in Almada in October 2015.

10. Dissemination and uptake activities (August 2013 – October 2015)

- Indicate here which type of activities from the following list: Publications, conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.
- Indicate here which type of audience: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias ('multiple choices' is possible).

Type of activities	Main leader	Title (+website reference)	Date	Place	Type of audience	Size of audience	Countries addressed
Workshop	VITO/GIM	2 nd End-user Workshop	24-25 Sep. 2013	Almada PT	Project + Cities	10-12	Europe
Workshop	VITO/GIM	3 rd End-user Workshop	10-11 Feb. 2014	Brussels BE	Project + Cities	10-12	Europe
Workshop	VITO/GIM	4 th End-user Workshop	16 Oct. 2014	Berlin DE	Project + Cities	10-12	Europe
Workshop	VITO/GIM	5 th End-user Workshop	02 Oct. 2015	Almada PT	Project + Cities	10-12	Europe
Quarterly Newsletter	GIM/VITO	Impact on urban societies – WP 4.2 Newsletter	2013 – 2015 Quarterly basis	Homepage Mailing list	End-user cities	10	NACLIM project members
Poster	GIM	Session Climate: Past, Present, Future B. Thomas : “Extraction of Urban Morphology Parameters from Generic European Datasets: A Case Study for Antwerp, Berlin and Almada”	27 Apr. – 02 May 2014	EGU2014 Vienna	Scientific community	100	Worldwide
Poster	GIM	Session Climate Services - Underpinning Science C. Stevens: “Urban Impact Assessment and Adaptation Strategies to Climate Change in Europe: A Case Study for Antwerp, Berlin and Almada”	27 Apr.– 02 May 2014	EGU2014 Vienna	Scientific community	100	Worldwide
Presentation	VITO	Urban Heat Islands (K. de Ridder) Talk held at Centre Paul Duvignaud	19 Dec. 2014	Brussels (BE)	General public, college students	50	Europe
Presentation	City of Almada/VITO	Talk held by City of Almada (S. Dionisio) based on maps provided by Dirk Lauwaet (VITO) at Kick off Seminar of the project ClimAdaPT.LOCAL	15 Jan. 2015	Lisbon (PT)	Scientific community	100	Portugal, Europe
Presentation	VITO	Urban Heat Islands (W. Lefebvre)	28 Mar. 2015	Ghent (BE)	Amateur meteorologists	50	Europe
Participation + discussion	City of Almada/VITO	Participation of city Almada of training event “Ecosystem-based Adaptation Workshop: Biodiversity and the changing climate”, which was part of the ICLEI World Congress 2015 program	08 Apr. 2015	Seoul (KR)	Diverse	30	International

Type of activities	Main leader	Title (+website reference)	Date	Place	Type of audience	Size of audience	Countries addressed
Poster	GIM	Session "Climate Services - Underpinning Science" – B. Thomas/M. Grommen: Bart Thomas and Mart Grommen Response of Urban Systems to Climate Change in Europe: Heat Stress Exposure and the Effect on Human Health	12 – 17 Apr. 2015	EGU2015 Vienna	Scientific community	> 1000	Worldwide
Presentation	GIM	Session "Urban climate, urban heat island and urban biometeorology" – M. Grommen: Interaction between Cities and Climate Change: Modelling Urban Morphology and Local Urban Planning Scenarios from Open Datasets across European Cities	12 – 17 Apr. 2015	EGU2015 Vienna	Scientific community	100	Worldwide

{Additionally Standard Input}

The complete list of dissemination activities is available on the NACLIM website @ <http://naclim.zmaw.de/Dissemination.2509.0.html> as well as the ECAS portal – RP: section “List of Dissemination Activities”.

Uptake by the targeted audience: according to the DOW, your audience for this deliverable is:

X	The general public (PU)
	The project partners, incl. the Commission services (PP)
	A group specified by the consortium, incl. the Commission services (RE)
	This reports is confidential, only for members of the consortium, incl. the Commission services (CO)

This deliverable was included to ensure the timely availability of urban climate simulation results, in particular for use by NACLIM partner GIM, since GIM needs these data as input for further analysis and processing to generate maps containing human exposure to heat stress. VITO (providing the urban climate simulation results) and GIM have been holding regular (every few months) meetings to discuss issues related to model in- and outputs, hence we do not foresee any trouble regarding the uptake of the results described in this report.

The actual data of VITO are available at the various national data centres, the model-run data tailor-made for the end-user cities are provided in the internal area of the project’s homepage, the interactive exchange among the project partners WP4.2/5.2 and the end-user cities takes place at numerous workshops and during the general assemblies of the project. Data policy s. data management of the project (<http://naclim.zmaw.de/CT4-2-Data-Collection.2821.0.html>)