

## News from LIFE LOCAL ADAPT

The second year of LIFE LOCAL ADAPT is running. In all project regions, a close cooperation with different municipalities was established. We started with consultations and workshops to identify and discuss problems and needs related to climate change and adaptation. The next steps are, e.g., the preparation of adaptation measures, the dissemination of our work and the exchange of experience with other projects.

If you are interested to receive these information we would like you to register for the newsletter on [www.life-local-adapt.eu](http://www.life-local-adapt.eu).

With warm regards

Prof. Dr. Christian Bernhofer

Project coordinator

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## Current project status in Styria

Heavy rain, heat, storms, drought – the climate is changing worldwide and Styria is also highly exposed. Weather caprioles from late frost to heavy rainfall lead to severe damage to the environment and to humans who live in these regions. At the beginning of August Upper Styria was badly affected by heavy rainfall. The storm caused damage measured in millions. See our internal Report (page 14 till 16)

[http://media.steiermark.at/flexpaper/FlexB\\_StmkRepSeptember17/index.html](http://media.steiermark.at/flexpaper/FlexB_StmkRepSeptember17/index.html)

To support climate change adaptation in Austria, the federal government and all Austrian federal states commissioned a study called “ÖKS 15 – climate scenarios for Austria”. The results of this study are based on the latest available scientific models and is now available for each federal province. You can download the Factsheet from the following link:

<http://www.technik.steiermark.at/cms/ziel/132190538/DE/>

In Styria, the climate change impacts include increasing of weather extremes like heat stress, heavy rain, flood and drought as well as endangering of the local infrastructure. According to the climate Factsheet for Styria (ÖKS 15), climate change is represented by:

- the average air temperature will rise at an average to 4° Celsius till the end of this century
- the amount of precipitation will not change

massive but in the future there will be a seasonal increase of 24%.

- freeze days will be halved over the next century, from 146 to 73 days per year.
- in the future day's great heat is getting more frequent, +36 great heat days (days with a maximum temperature of more than 30°C) and +48 summer days (days with a maximum temperature of more than 25°C), also the days of cooling will rise.

In that perspective, we must learn to live with climate change and seek ways and means to adapt. To get deeper information about adaptation measures, Styria planned to hold 25 Workshops in the municipalities (five workshops in five regions).

The goal of our Workshops is to establish climate change adaptation plans for every Region who participates the LLA Project. Five Regions in Styria are part of the Project –**Deutschlandsberg, Weiz, Hartberg, Gleisdorf and Mariazell.**

Climate change and mitigation measures are topics that are generally well known from municipalities in Styria. Nevertheless, it is important to bring the individual climate conditions closer to the regional Stakeholders. For this reason, we commissioned a company to create individual climate Factsheet with the indicators temperature and precipitation for every Region. With this kind of Factsheet we started our first Workshops.



## KLIMASZENARIEN FÜR DIE GEMEINDE GLEISDORF BIS 2100

**INFORMATIONEN  
ZUR METHODIK UND DEFINITIONEN**

## MITTLERE LUFTTEMPERATUR GEMEINDE GLEISDORF

OXS15 Klimafactsheet | Klimaszenarien für die Gemeinde Gleisdorf bis 2100

**Hauptaussagen**

- Für 1971-2000 beträgt die mittlere Lufttemperatur 9,2°C. Sie weist eine Schwankungsbreite von ±0,2°C auf (siehe Diagramm und Tabelle).
- Für beide Szenarien ist in naher und ferner Zukunft im Mittel mit einer signifikanten Zunahme der Temperatur zu rechnen, welche eindeutig über der derzeitigen Schwankungsbreite liegt (siehe Diagramm).
- Die mittlere Temperaturzunahme ist im Winter und Sommer annähernd gleich (siehe Tabelle).
- Die räumlich gleichförmige Temperatur durch die Modelle bedingt - klimatar nicht dargestellt worden.
- Im Szenario RCP8.5 (business-as-usual) des 21. Jahrhunderts der Temperatur stärker ausgeprägt als im Szenario RCP4.5 (Klimaschutz-Szenario).
- Diese Aussagen finden sich sinngemäß in den Factsheets.

**Vergangene und simulierte Entwicklung der mittleren Lufttemperatur**

**Beobachtete Werte und simulierte Änderungen der mittleren Lufttemperatur**

Jahresmittel	1971-2000		2021-2050		2071-2100	
	RCP4.5 (Klimaschutz-Szenario)	RCP8.5 (Business-as-usual)	RCP4.5 (Klimaschutz-Szenario)	RCP8.5 (Business-as-usual)	RCP4.5 (Klimaschutz-Szenario)	RCP8.5 (Business-as-usual)
in	9,2	+1,2	+2,0	+2,9	+2,0	+2,9
Mittel	9,3	+1,3	+1,6	+2,3	+1,7	+2,3
von	9,1	+0,5	+0,5	+1,7	+1,7	+2,0
Winter	8,6	+1,2	+1,7	+2,1	+1,9	+2,8
Sommer	10,0	+1,5	+1,3	+1,6	+1,4	+2,0
Mittel	-0,3	+1,5	+1,3	+1,6	+1,4	+2,0
von	-0,1	+0,8	+1,1	+0,7	+1,1	+1,6

Winter: Dezember - Januar / Februar / Sommer: Juni - Juli - August

## MITTLERE LUFTTEMPERATUR GEMEINDE GLEISDORF

OXS15 Klimafactsheet | Klimaszenarien für die Gemeinde Gleisdorf bis 2100 | Lufttemperatur

**Beobachtete Lufttemperatur und simulierte Temperaturänderung für das business-as-usual-Szenario**

1971-2000:  $\Delta$  9,3°C für die Gemeinde

2021-2050 | RCP8.5:  $\Delta$  +1,6°C für die Gemeinde

2071-2100 | RCP8.5:  $\Delta$  +3,9°C für die Gemeinde

Factsheet for Gleisdorf © Land Steiermark

## The first Workshop in Deutschlandsberg

The first LLA Workshop in Deutschlandsberg took place on 3rd April 2017. 13 Stakeholders discussed together with Land Steiermark and Andreas Gobiet from ZAMG (Zentralanstalt für Meteorologie und Geodynamik) about the climate challenges the region need to deal with. After a theoretical input from Land Steiermark and ZAMG about climate change and the

Factsheets, we asked the Stakeholders about their regional experience with global warming. The Stakeholders told us that Deutschlandsberg has to deal with a bunch of challenges like extreme weather events, Neophytes, pests, drought, heat waves etc. With the Factsheets we have the possibility to get deeper information about the climate con-



ditions that Deutschlandsberg has to expect until the end of this century. The goal of the first Workshop was therefore to define three additional indicators for the regional Factsheet. At the end of the day, the Stakeholders choose the following Indicators, which are of particular interest for the region:

- Days of great heat
- Cooling degree days
- Heating degree days

The indicators will be evaluated from the company Spatial Analysis (together with Wegener-Center and ZAMG).



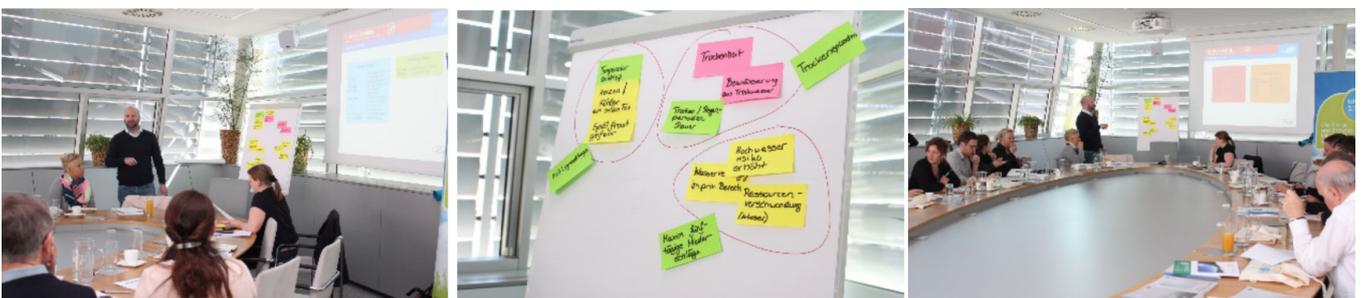
First Workshop in Deutschlandsberg © Land Steiermark

## The first Workshop in Gleisdorf

The first LLA Workshop in Gleisdorf took place on 21st April 2017. With 16 Stakeholders, we discussed the climate situation for the region. Stakeholders from Gleisdorf report, that they already have to deal with climate change challenges like extreme weather events, storms,

parasites, heavy rain, late spring frost etc. For the regional Factsheet the Stakeholders choose the following Indicators:

- Max. day precipitation
- Periods of drought
- Cooling degree days



First Workshop in Gleisdorf © Land Steiermark



## The first Workshop in Weiz

The first LLA Workshop in Weiz took place on the 16th May 2017. 25 interested Stakeholders took the chance to discuss the climate situation in Weiz. The Stakeholders told us that Weiz has to deal with an increase of Neophytes, late spring frost, longer vegetation periods, increasing frequency of heavy and intense rainfalls

and flooding. To get deeper information about the regional effects of climate change, the Stakeholders choose the following indicators for the Factsheet:

- Heating degree days
- Beginning of plant vegetation period
- Max. day precipitation



First Workshop in Weiz © Land Steiermark

## The first Workshop in Mariazell

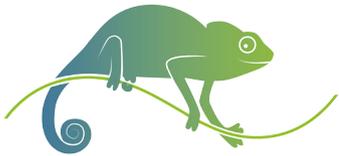
In Mariazell the first Workshop took place on 9th June 2017. In Mariazell we had interesting discussions about climate change with five Stakeholders. Mariazell is a very tourist region; the Stakeholders reported that they have to deal with more heavy rainfalls and higher temperatures in winter, which influences the

ski tourism; more heat days and an increase of disaster missions in the last 10 years. For the regional Factsheet the Stakeholders choose the following indicators:

- Summer days
- Days with extreme precipitation
- Sunshine duration



First Workshop in Mariazell © Land Steiermark



## The first Workshop in Hartberg

Finally yet importantly, we had our first Workshop in Hartberg on 23rd June 2017 with 20 actively municipal Stakeholders. Hartberg as a economic region has to deal with late spring frost, heat stress, parasites, water supply risk, lack of snow, more storms, hail and drought. At

the end of the Workshop, we had the following indicators for the regional Factsheets in Hartberg:

- Tropical nights
- Periods of drought
- Max. day precipitation



First Workshop in Hartberg © Land Steiermark

The regions need to deal with a bunch of challenges. Below you can find an overview about

the additional three indicators for every region:

Pilot Region	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
<b>Deutschlandsberg</b>	Temperature	Precipitation	days of great heat	cooling degree days	heating degree days
<b>Gleisdorf</b>	Temperature	Precipitation	max. day precipitation	periods of drought	cooling degree days
<b>Weiz</b>	Temperature	Precipitation	heating degree days	beginning of plant vegetation period	max. day precipitation
<b>Mariazell</b>	Temperature	Precipitation	summer days	days with extreme precipitation	sunshine duration
<b>Hartberg</b>	Temperature	Precipitation	tropical nights	periods of drought	max. day precipitation



The 2nd Workshop will take place at the end of 2017 where we will put our focus on climate adaptation measures (with the assistance of the Factsheets). Every pilot region should get a individual climate adaptation plan. From this plan, the pilot region can choose a pilot measure that should be implemented during the project time – we will discuss this kind of topic at our 3rd and 4th Workshop. In the last

Workshop we will evaluate the implemented pilot measure(s) and the municipal gain in experience and knowledge in the field of climate change adaptation. For further information about the project and the pilot regions in Styria please visit our webpage:

<http://www.technik.steiermark.at/cms/ziel/133000927/DE/>

## Improvement of heat stress resilience

Because of global warming, we have to reckon with more intensive heat waves. Past periods of high temperatures like in summer 2003 in Europe, 2006 in west Europe, 2008 in north Europe, 2010 in Russia and last 2013 in Europe (Austria) clearly showed us the negative effects of heat waves for vulnerable groups like children, elderly and sick people. Therefore the WHO recommends the development of strategies, plans and measures in order to guarantee optimum protection of public health.

For this reason Styria published a heat protection plan in 2011. Actually we have the third edition which was last edited in 2016. In the heat protection plan Styria you can find general information about climate change in Styria, environmental conditions like pollutants, health effects, heat stress within the workplaces and by working outside and definitions and frameworks about heat stress.

The heat protection plan makes also a connection to other environmental factors. In the pro-

tection plan you can find an action plan. Within this Action plan you have definitions about “heat wave”, general basics of medicine, heat exhaustion and dehydration, heat-stroke, heat-death, sunburn and heat rash. There is also a information about risk groups like babies and young children, elderly people, people who are chronically sick, socially isolated individuals and immobile persons.

If there are three consecutive days with high heat stress (heat stress is a combination of temperature and humidity), the action plan takes place. Through the activation of the heat health warning system all organisations and risk groups (which are in the database) are receiving an e-mail from ZAMG with informations about the regional heat load forecast and information sheets. The heat protection plan is also available online

[http://www.verwaltung.steiermark.at/cms/dokumente/11685019\\_74834789/5bf0a2bc/HSPI\\_Stmk\\_2017.pdf](http://www.verwaltung.steiermark.at/cms/dokumente/11685019_74834789/5bf0a2bc/HSPI_Stmk_2017.pdf)



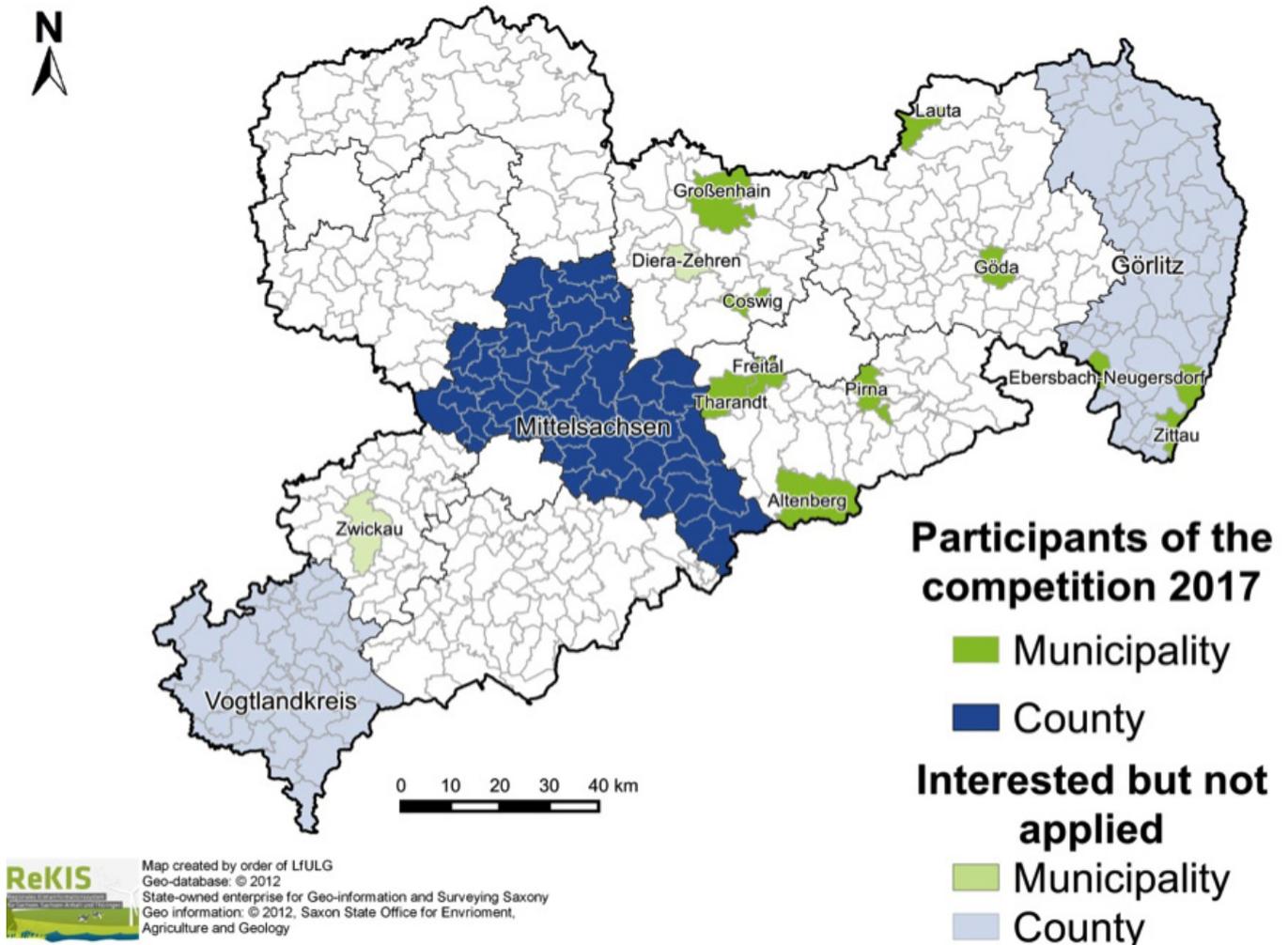
# Key Milestone in Saxony

## Competition for municipal climate change adaption finished

Until August 31st 2017 Saxon counties and municipalities had the chance to apply for a competition at the Saxon State Office for Environment, Agriculture and Geology (LfULG). Therefore project outlines for climate change adaption could be handed in. Overall 15 municipalities and counties were interested in the competition and at the end 12 ideas were submitted by 11 participants. A jury checked and

judged the drafts at the end of September. Five projects were chosen and will be supported with round about 30.000 € for non-investment measures, e.g. planning, analysis and workshops.

At December 7th 2017 the winners will be announced at the Climate-Status-Colloquium at the "Sächsische Aufbaubank" (Saxon Reconstruction Bank) in Dresden.





# LIFE LOCAL ADAPT 2. Annual Meeting

## 2. LIFE LOCAL ADPAT Project meeting in Graz on 20. and 21. June 2017

In June 2017, the first joint project meeting took place after the kick-off in August 2016. These annual meetings take place at one of the partners institutions. This year our Styrian partners were the hosts. After the first project phase of almost one year, there was much to report. Therefore, we started with a mutual exchange on activities in the respective regions and countries. This was followed by cross-partner and cross-national reports on specific topics and tasks from the respective management of the work packages.

A particular aspect of the meetings is to become more familiar with the surroundings and activities of the host partner and to receive suggestions for the own work. For this, Dr. Andreas Gobiet, a regional representative of the Central Institute for Meteorology and Geodynamics (ZAMG) in Austria, presented and dis-

cussed the characteristics of climate change in Styria and questions of climate adaptation. This lecture as well as an overview presentation on LIFE LOCAL ADAPT by the project coordinator Professor Bernhofer was available to an extended audience of the Department of Energy Technology and Climate Protection (Office of the Styrian Provincial Government) in Graz.

Another important point was the introduction of upcoming



Annual project meeting in Graz/Austria in June 2017 © TU Dresden



Representatives of all partners at the annual meeting in Graz © Land Steiermark



First meeting of the Steering Committee of LIFE LOCAL ADAPT © Land Steiermark



## LIFE LOCAL ADAPT 2. Annual Meeting

project tasks, in order to organize the cooperation of the partners and to get to know their preliminary work in advance. The upcoming tasks include questions on how to deal with heavy rain and heat stress as well as measures to improve resilience in urban and landscape planning. The already existing heat protection

plan of Styria and experiences with it played a central role. All in all, thanks to the excellent organisation of our Styrian partners, it was, despite the heat of June, a successful and lively project meeting, which showed project progress and promoted communication between the partners.



Busy agenda and intensive discussions during the meeting © Land Steiermark



Dr. Andreas Gobiet (ZAMG), Claas Teichmann (GERICS) and Christian Bernhofer (LLA, TU Dresden) (left to right) © TU Dresden



### ALTER-Net Conference 2017

ALTER-Net<sup>1</sup> conference 2017 with the following theme: “Nature and society: synergies, conflicts, trade-offs” has taken place from 2 – 4 May 2017 in the beautiful city of Ghent, Belgium. Pursuing synergies, conflicts and trade-offs in the relationship between nature and society was the main aim of this biannual international gathering. Omnipresent topics included ecosystem services and human well-being, biodiversity research or sustainability. Complexity of nature-society interactions was reflected in various keynote speeches – starting from “Human well-being and environmental goods: what is lost through no net loss?”, moving to classical human-wildlife conflict “Coexisting with wildlife in the Anthropocene: balancing multiple trade-offs in crowded landscapes” or inspecting the role of “Science in a post-truth world”, among many others. You can download all keynote presentations here:

<http://www.alter-net.info/outputs/conf-2017/presentations/keynotes>

Some parallel sessions also shifted spotlight from natural to urban environment and adaptive management, exploring “Environment and health in urban environments” or “Nature-society interactions in cities: a specific challenge in the ‘Urban age’”. Several interesting presentations focused on greening the

cities - “Economic valuation of ecosystem services provided by green urban areas: a review”, “More than just green – biocultural diversity of urban parks in two European capitals” or “Effects of greening policies in the context of urban shrinkage and reurbanization: synergies, trade-offs and conflicts”. Others were related to an increasingly actual issue of human health in urban environment – “Cultural ecosystem services and urban health: Knowledge and gaps”, with close linkages to green and blue infrastructure – “Engagement with urban blue structure in the Helsinki Metropolitan Area: Obstacles and opportunities”.

In order to support the science-policy interface, the organizers together with attending researchers compiled “*Policy Brief - Pursuing benefits for nature and society*”, presenting some of the key research findings and practical experiences that were presented at the conference.



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<sup>1</sup> A Long-Term Biodiversity, Ecosystem and Awareness Research Network.



## 3rd European Climate Change Adaptation Conference - ECCA 2017

### Our Climate Ready Future – Glasgow, 5th - 9th June 2017

An overall number of 850 participants from countries literally all over the world and diverse backgrounds (academic community, practitioners, politics, representatives of business sector and NGOs) attended the conference, fulfilling the overall vision “to inspire and enable people to work together to discover and deliver positive climate adaptation solutions that can strengthen society, revitalise local economies and enhance the environment”. The programme of the conference included 3 plenary ses-

sions, 82 topically specific parallel sessions, a poster drinks reception and a film screening. Special space was given to young speakers, who stressed the need for deeper involvement of young people in climate action and policymaking at all levels. Project LIFE LOCAL ADAPT was represented at the poster session with the contribution E. Lorencová et al.: From national to local level: supporting the development of urban adaptation strategies in the Czech Republic.



Key note speech at the plenary session - Baroness Brown of Cambridge © CzechGlobe



## Conferences

Since Scotland is in the forefront of climate change adaptation efforts, the conference has offered ten inspiring excursions ranging from adaptations in urbanised areas to natural flood

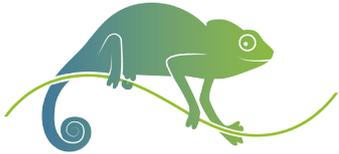
management in rural areas and adaptation of specific business sectors (e.g., tourism, whisky production).



Climate change adaptation in urban environment - Sustainable urban drainage in Glasgow.  
© CzechGlobe



Climate change adaptation in rural areas - excursion to the Eddleston Water Catchment'. © CzechGlobe



## Conference of the European Society for Ecological Economics

The 12th Conference of the European Society for Ecological Economics with the following theme: “Ecological Economics in action: building a reflective and inclusive community” has taken place from 20 – 23 June 2017 in the beautiful city of Budapest, Hungary. Main topics included ecosystem services and approaches towards values and valuation of nature, science-policy interface, environmental justice, sustainability or degrowth. Among others, one keynote session “Ecosystem services on the ground” brought nice examples of actual real usability of the concept as well as its limits in a local context. Another focused on “Values and valuation in ecological economics”, shifting a spotlight from final benefits to core processes and describing the latest approach towards a

pluralistic ecosystem services framing from IPBES. Watch the presentations of keynote speakers at the ESEE 2017 Youtube channel.

In this huge variety of environmental and ecological economics related issues, certain space was as well given to the ubiquitous topics like climate change, cities and urban environment. Several interesting presentations took place in the parallel sessions focused on urban ecosystem services and the multiple benefits of green and blue infrastructure – e.g. “Ecosystem services to mitigate climate change in cities”, “Green versus grey solution for flood control of Leuven city (Belgium)” or “Valuing ecosystem services for urban planning”.



© CzechGlobe



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### **Climate-information for cities and municipalities**

The “Regional Climate Information System” (REKIS) is currently adapted to provide information for municipalities. They can inform themselves about climate data, adaption measures, funding opportunities and events. It is planned to release the modified platform in the middle of 2018.

### **2nd Status Colloquium on Climate in Dresden, 7 December 2017**

At the Status Colloquium recent findings on regional climate change will be presented including a presentation of LifeLocalAdapt and the winners of the first competition for municipalities.

<https://www.umwelt.sachsen.de/umwelt/klima/45464.htm>

### **9th Annual Global Forum in Urban Resilience & Adaptation, 26 - 28 April 2018**

Resilient Cities 2018, Bonn

<http://resilientcities2018.iclei.org>

### **European Geosciences Union General Assembly 2018, 8 - 13 April 2018**

Vienna, Call for Abstracts 13. Oct. 2017 - 10. Jan. 2018

<https://egu2018.eu/home.html>

### **Annaberger Klimatage on 16 - 17 May 2018 at Annaberg/Saxony**

Scientists from Germany and abroad, representatives of political and educational institutions, authorities and non-governmental organisations discuss recent results of climate change research, climate impact and adaptation.

<https://www.umwelt.sachsen.de/umwelt/klima/22721.htm>

### **Adaptation Futures 2018, 18 - 21 June 2018**

Dialogues for Solutions, Cape Town, Call for Abstracts 15. Nov. 2017 - 15. Jan. 2018

<https://www.umwelt.sachsen.de/umwelt/klima/22721.htm>



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For further information please visit our website: [www.life-local-adapt.eu](http://www.life-local-adapt.eu)

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