



MONITORING, FORECASTING AND DEVELOPMENT OF ONLINE PUBLIC EARLY WARNING SYSTEM FOR EXTREME PRECIPITATIONS AND PLUVIAL FLOODS IN URBAN AREAS IN THE HUNGARIAN-SERBIAN CROSS- BORDER REGION

Acronym: URBAN-PREX

Project code: HUSRB/1602/11/0097

Duration: 01.11.2017 – 31.10.2019.

CONSORTIUM OF URBAN-PRÉX PROJECT

LEAD BENEFICIARY:

- University of Novi Sad, Faculty of Sciences (UNSPMF).

Project manager: dr Stevan Savić

BENEFICIARIES:

- University of Szeged, Department of Climatology and Landscape Ecology (SZTE)
- University of Novi Sad, Faculty of Technical Sciences (UNSFTN)
- Municipality of Szeged (MOS)
- City of Novi Sad, PUC Water and Sewage Utility Novi Sad (VIKNS)

TOTAL BUDGET AMOUNT: 750.789,88 Euros

CO-FINANCING BY INTERREG-IPA CBC HUNGARY-SERBIA PROGRAM: 638.171,39 Euros

GOALS OF THE URBAN-PR EX PROJECT

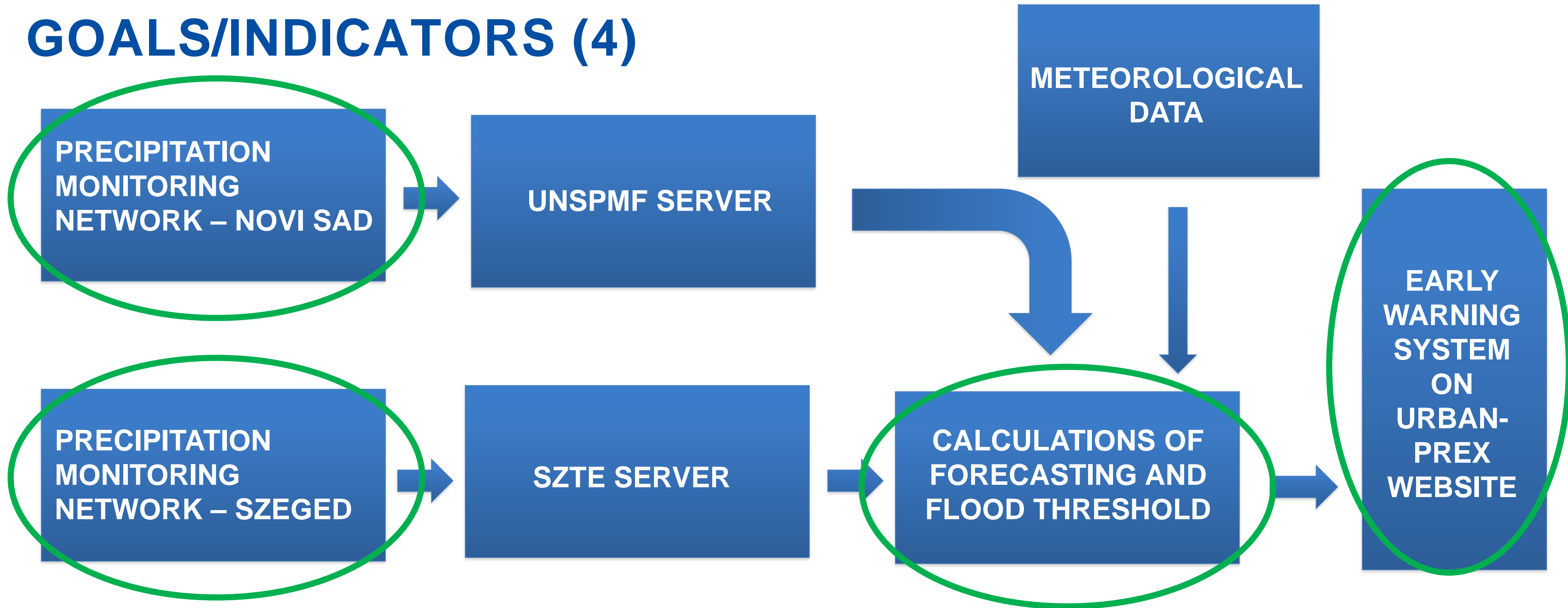
DETAIL MONITORING OF PLUVIAL FLOODS IN URBAN AREAS BASED ON EXTREME AND INTENSIVE PRECIPITATIONS.

FORECASTING OF PRECIPITATION IN ORDER TO PREDICT THIS KIND OF HAZARD.

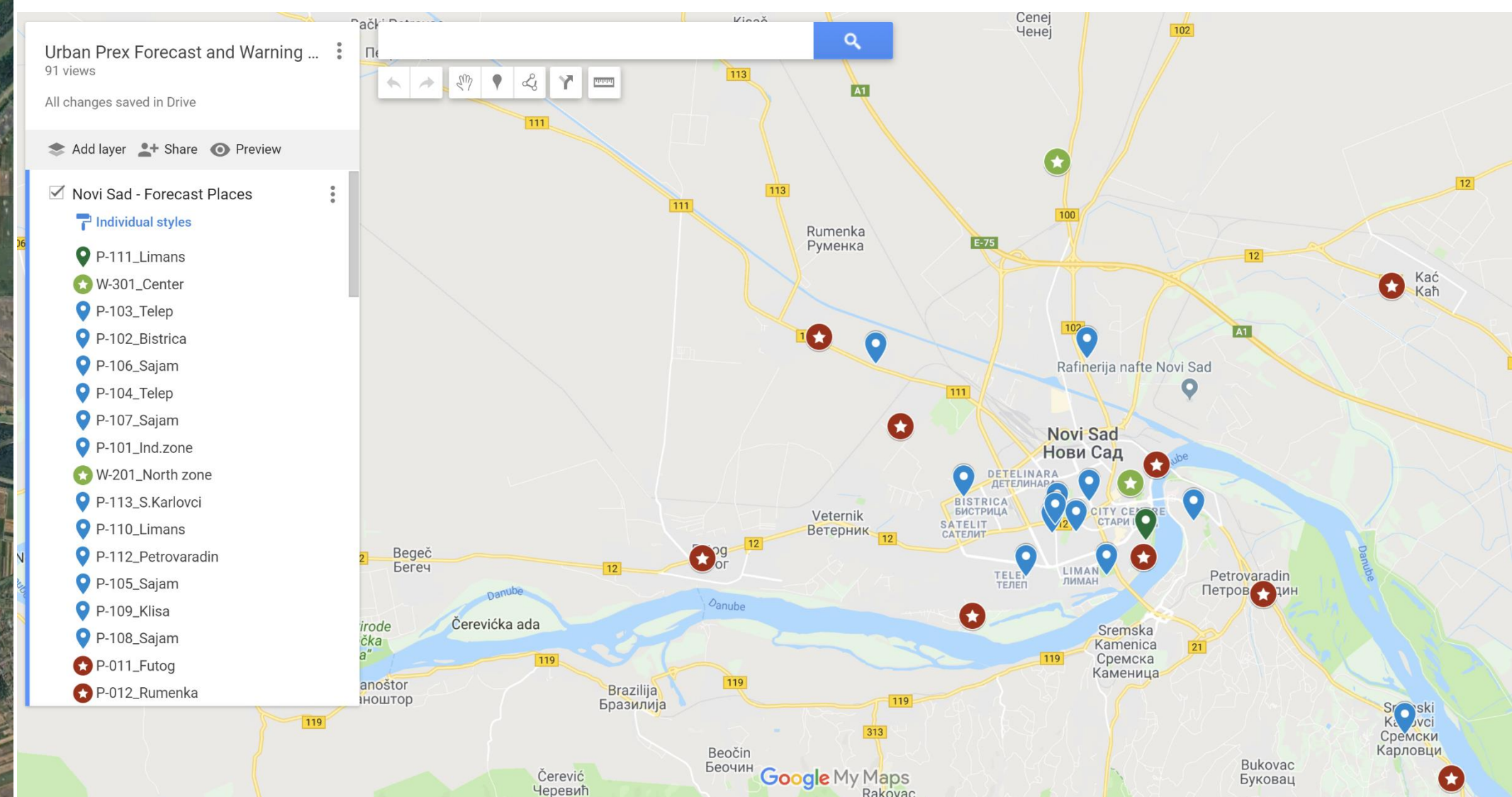
TO INFORM INSTITUTIONS, STAKEHOLDERS AND POPULATION ABOUT PLUVIAL FLOODS.

MONITORING AND RESULTS WILL BE USED FOR PREVENTION, MITIGATION AND ADAPTATION.

THE PATTERN HOW WE REACHED OUR GOALS/INDICATORS (4)

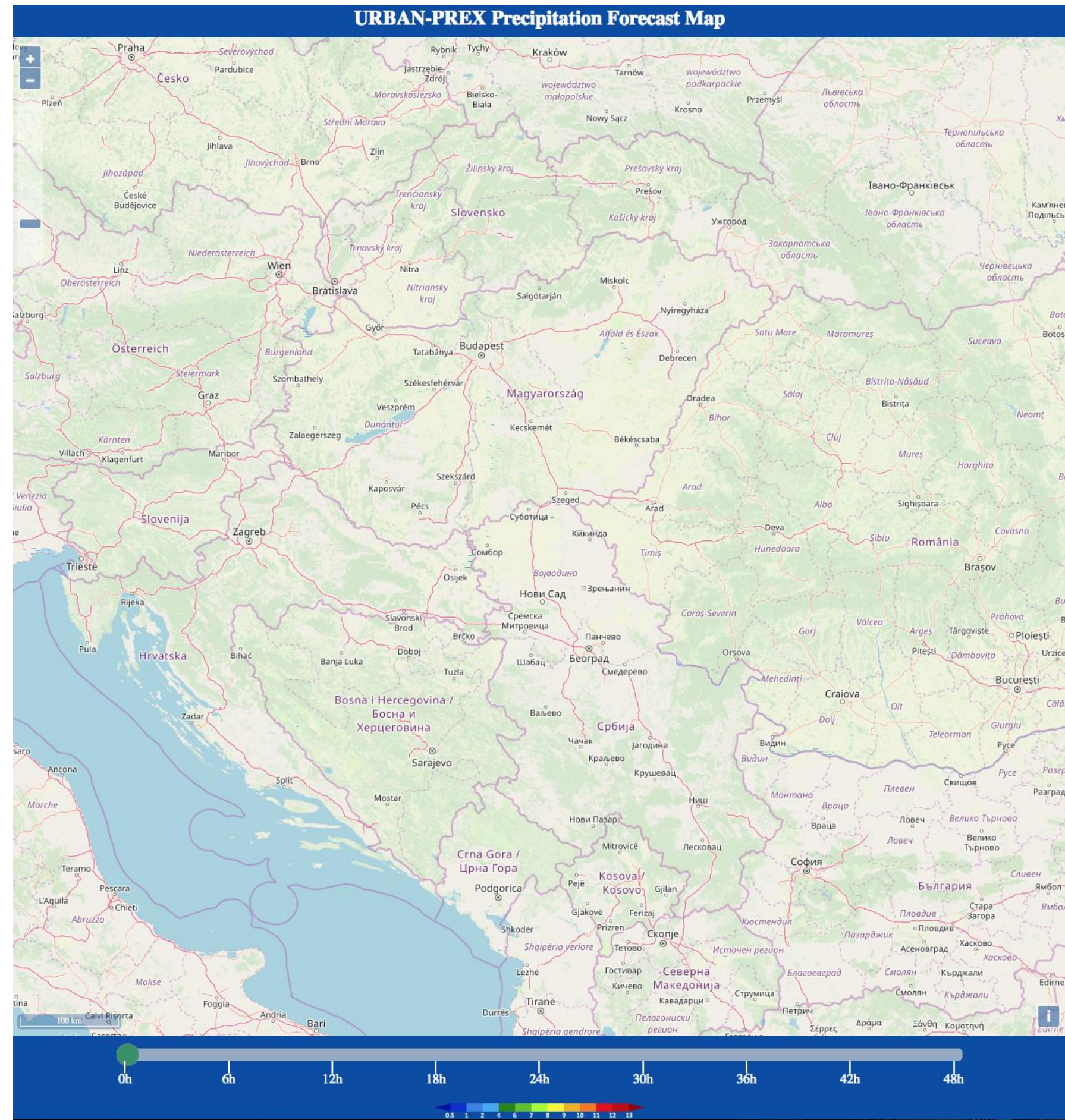


DEPLOYMENT OF TWO PRECIPITATION STATION NETWORKS



MORE INFO: Tamás Gál (SZTE) and Dragan Milošević (UNSPMF)

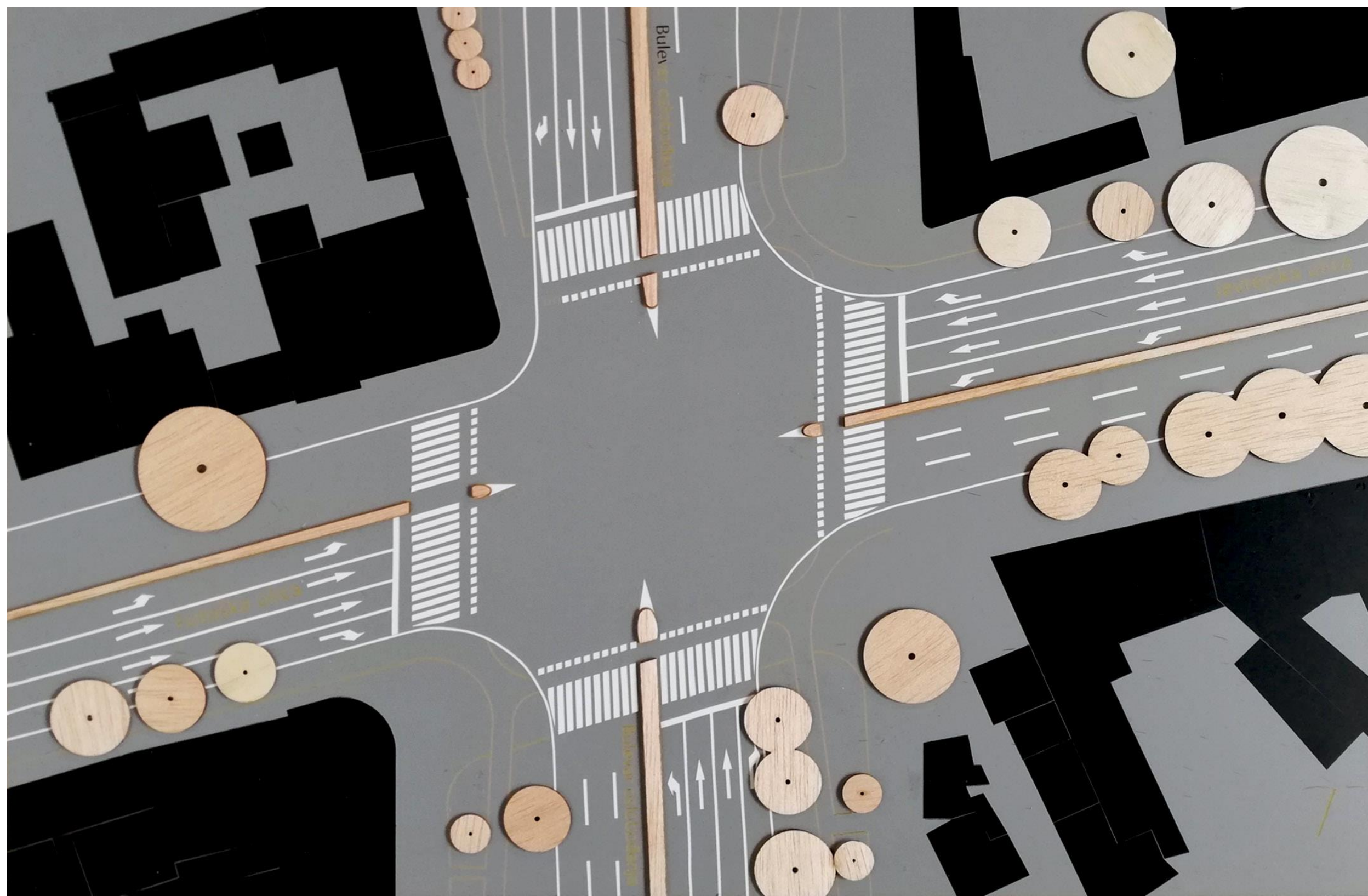
PRECIPITATION PREDICTION MODEL – 2-DAY FORECAST



MORE INFO: Gyöngyösi András
Zénó (SZTE)

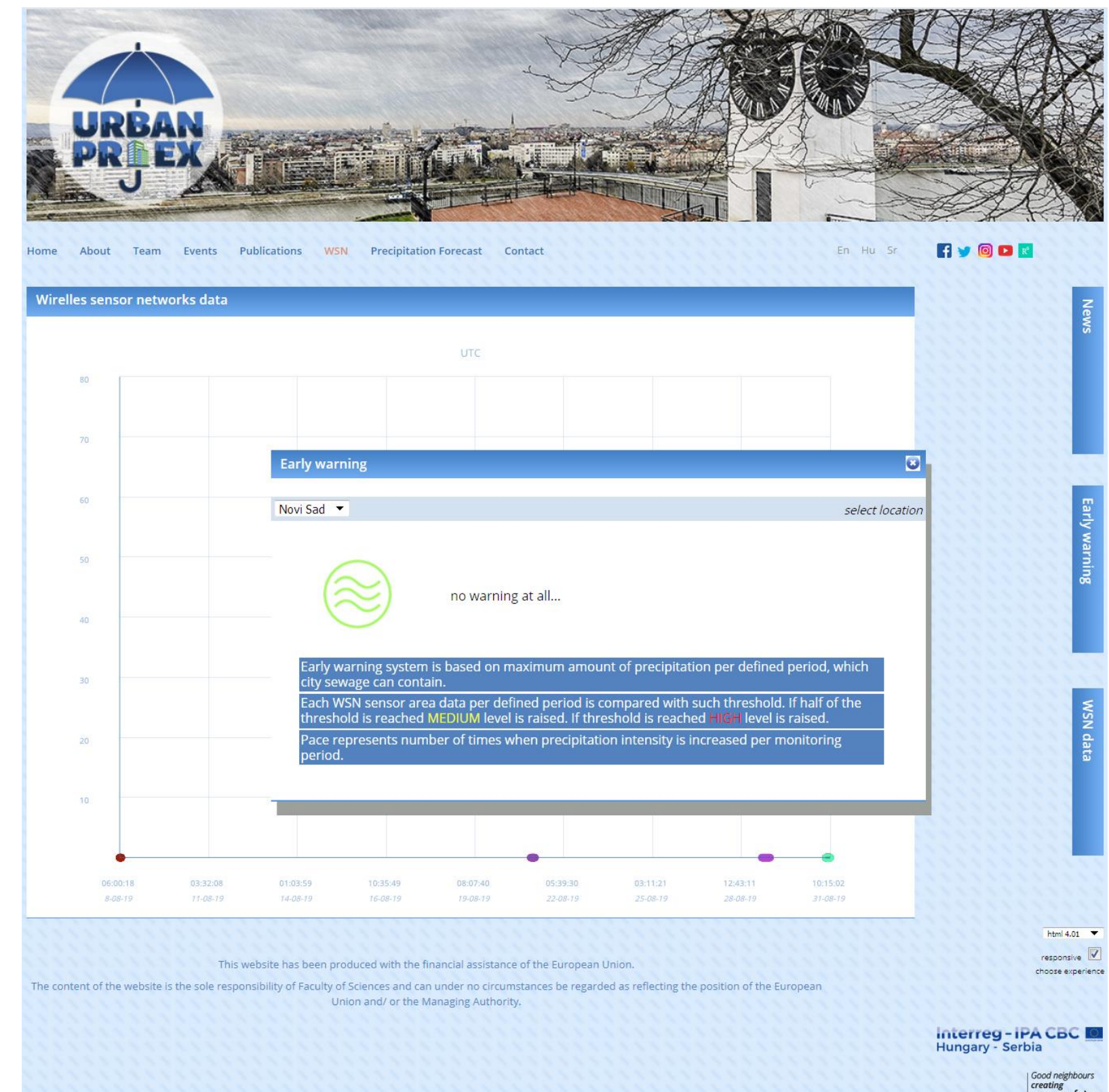
URBAN SCALE MODELING AND FLOOD VISUALISATION IN NOVI SAD

MORE INFO: Ivana Bajšanski
(UNSFTN)



EARLY WARNING SYSTEM – precipitation detection

- calculation is based on real-time data collected from WSN stations
- stations measure and send measurements using remote configuration settings
- automatic detection of precipitation
- when precipitation is detected, stations enters 'fast' in which it sends continually sends data using minimum possible values (for measuring and transfer of data) = *increased reliability of early warning system*



EARLY WARNING SYSTEM

- calculations are based on threshold given by city sewage company
- two levels of notification
- detection is based on predefined areas
- system detects precipitation pace (whether precipitation increase over calculated period)

- test example picture:

a) from 7 measurements there were only one increase in precipitation amount 1/7


b) station sensor threshold detection (detection if measured data has reached station sensor threshold limit)

Early warning - Medium

Novi Sad

select location

early warning is based on data received from WSN stations

level	id	volume	pace	
	101	14.215 l/s	1/7	error - sensor threshold reached

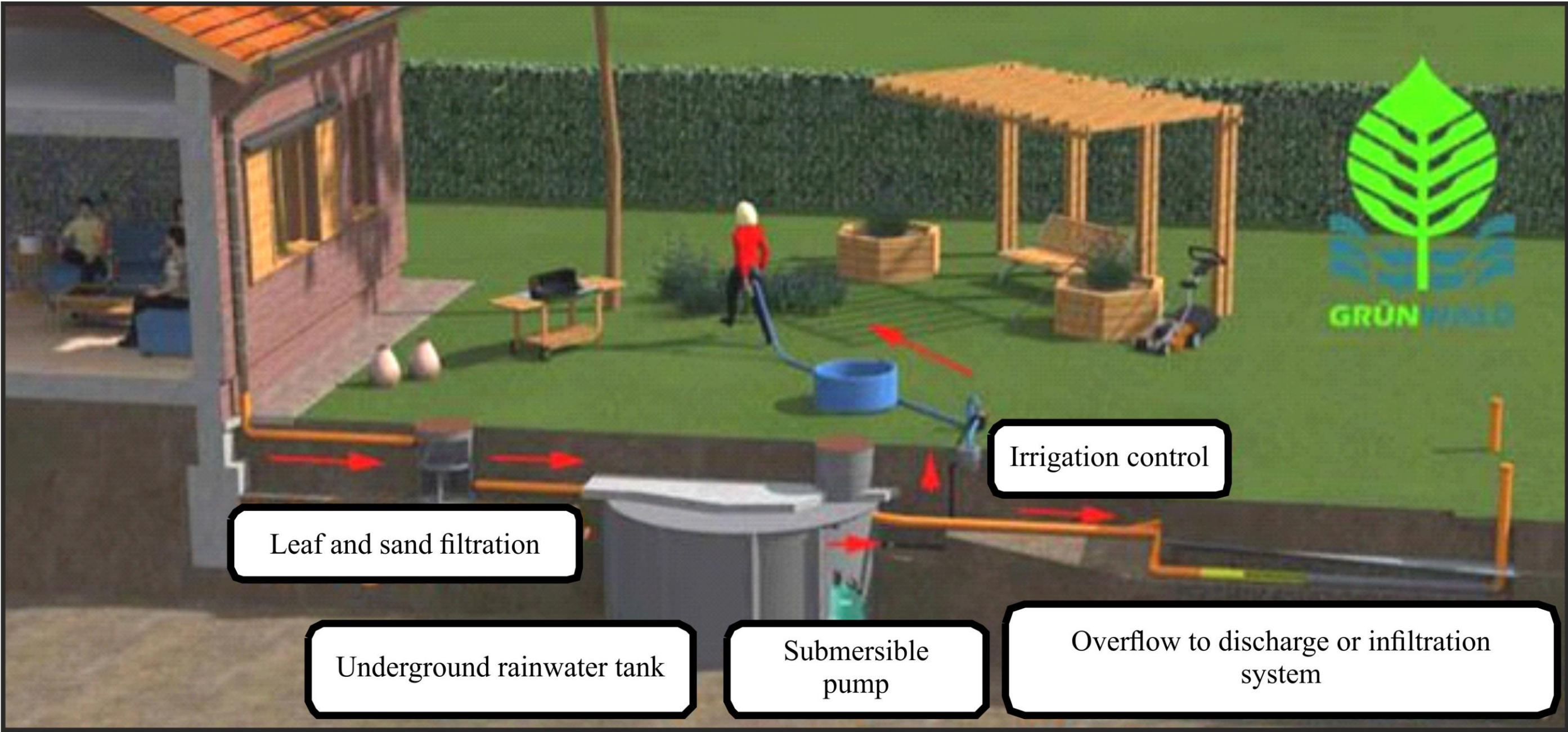
Early warning system is based on maximum amount of precipitation per defined period, which city sewage can contain.
Each WSN sensor area data per defined period is compared with such threshold. If half of the threshold is reached **MEDIUM** level is raised. If threshold is reached **HIGH** level is raised.

WSN data

latest data

id	local time	precpt. amount. since last measurement.	air temp/inside case	precpt. intensity / action hum.	
101 (Futog Veternik)	5-06-19/14:39:00:Europe /Belgrade	5.531 mm	23.69 C	58.126 mm	hide
201 (Rimski Sančevi)	5-06-19/14:36:02:Europe /Belgrade	9 mm	23.9 C	65 %	hide

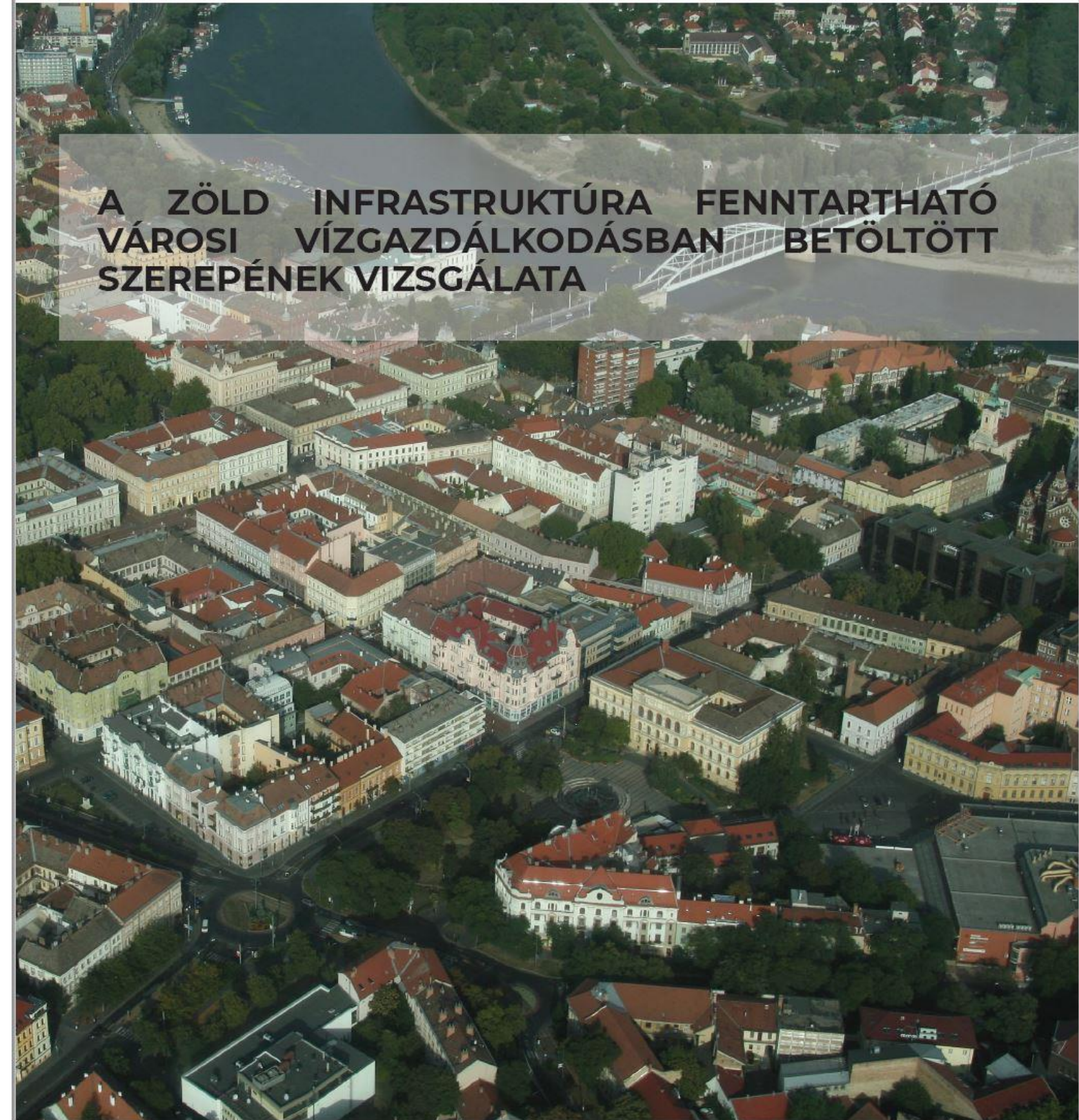
WATER MANAGEMENT SYSTEM IN SZEGED





SUSTAINABLE WATER MANAGEMENT STRATEGY

MORE INFO: Csete Ákos (SZTE)



A ZÖLD INFRASTRUKTÚRA FENNTARTHATÓ
VÁROSI VÍZGAZDÁLKODÁSBAN BETÖLTÖTT
SZEREPÉNEK VIZSGÁLATA





MORE PROJECT PUBLICATIONS

EXPERT PROJECT STUDY (SRB; HU)

GEODETIC STUDY FOR NOVI SAD (SRB)

SOCIOLOGICAL STUDY (SRB; HU)

PROJECT FINAL PUBLICATION (ENG; SRB;



PRAĆENJE, PROGNOZIRANJE I RAZVOJ ONLINE JAVNOG
SISTEMA ZA RANO UPOZORAVANJE NA EKSTREMNE
PADAVINE I POPLAVE U GRADSKIM SREDINAMA
MEĐUGRANIČNOG PODRUČJA MAĐARSKJE I SRBIJE

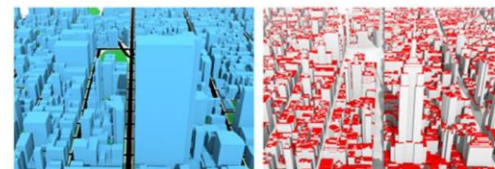
REZULTATI ANKETNOG ISTRAŽIVANJA STANOVNIŠTVA
PREKOGRAIČNOG PODRUČJA

URBAN-PREX
HUSRB/1602/11/0097

Novi Sad, 2019.

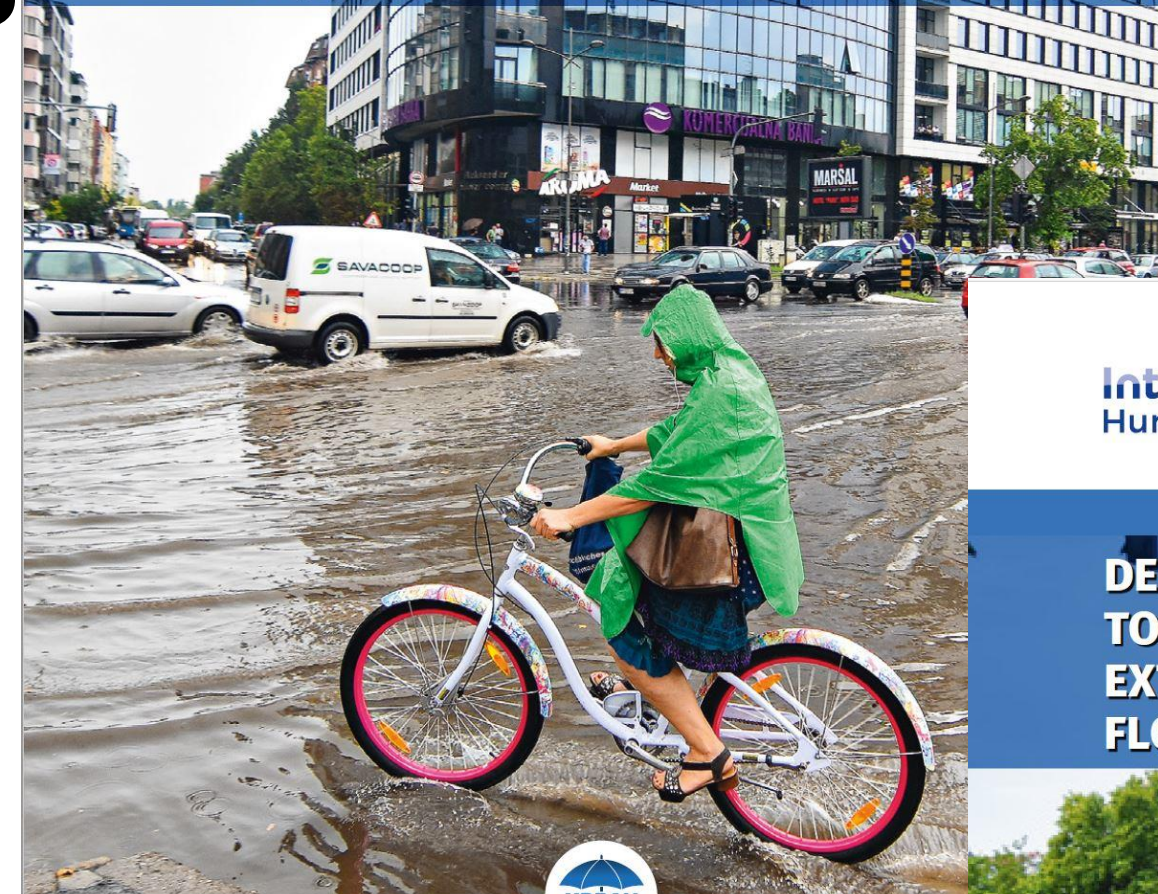


STUDIJA PROSTORNOG ISTRAŽIVANJA



Dragan Milošević, Ivana Bajšanski, Dragan Dolina,
Uglješa Stankov, Milana Pantelić, Vladimir Marković

EKSTREMNE PADAVINE I PLUVIJALNE
POPLAVE U URBANIM SREDINAMA:
STUDIJA SLUČAJA - NOVI SAD, SRBIJA



DEVELOPMENT OF ADAPTATION SYSTEM
TO PREVENT CONSEQUENCES OF
EXTREME PRECIPITATIONS AND PLUVIAL
FLOODS IN CENTRAL EUROPEAN CITIES



Novi Sad (Serbia) - Szeged (Hungary)
2019.



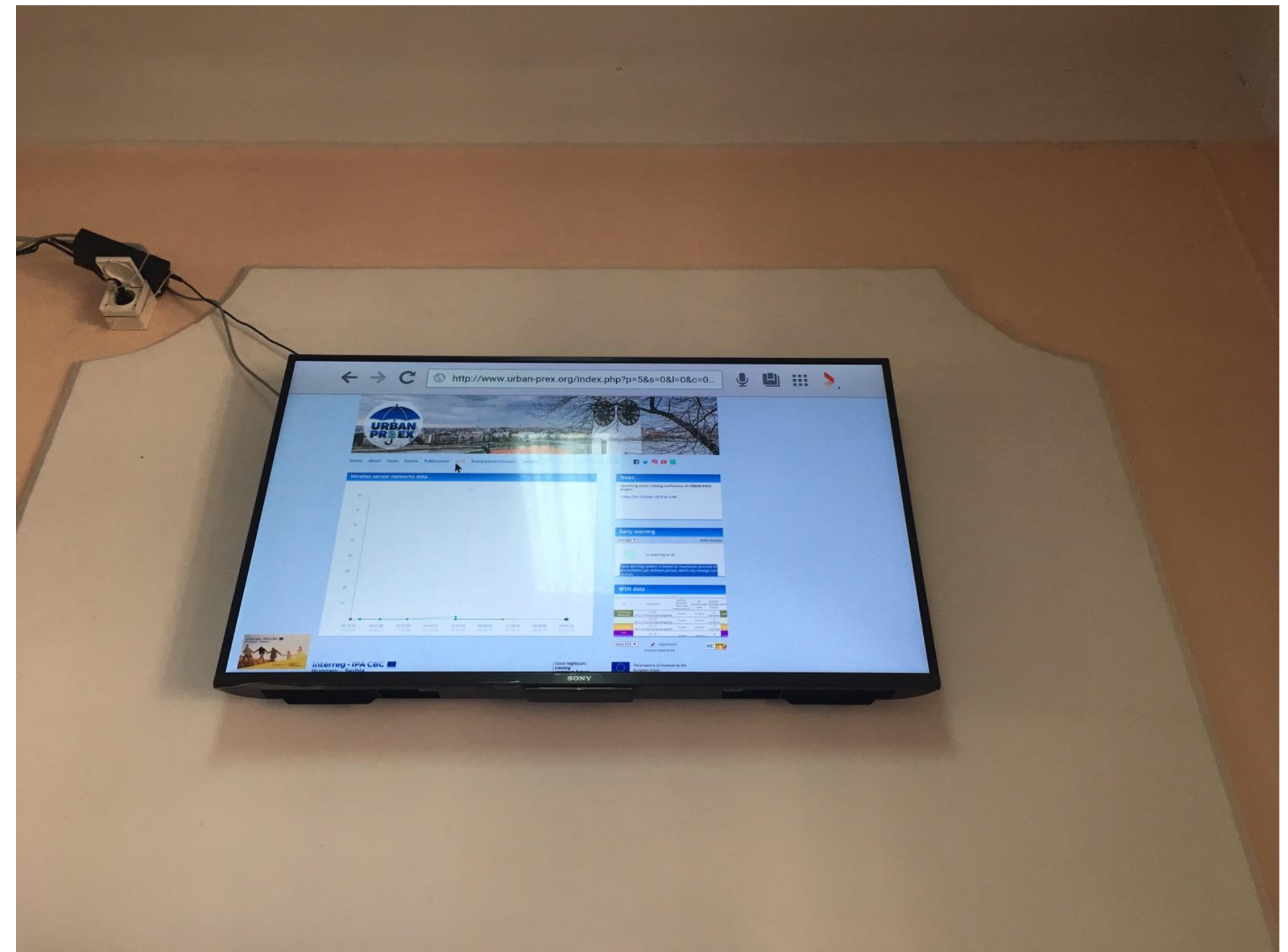
PROJECT VISIBILITY ACTIVITIES

SOCIAL NETWORKS:

WEBSITE; FACEBOOK, RESEARCH GATE, TWITTER, INSTAGRAM; YOUTUBE.

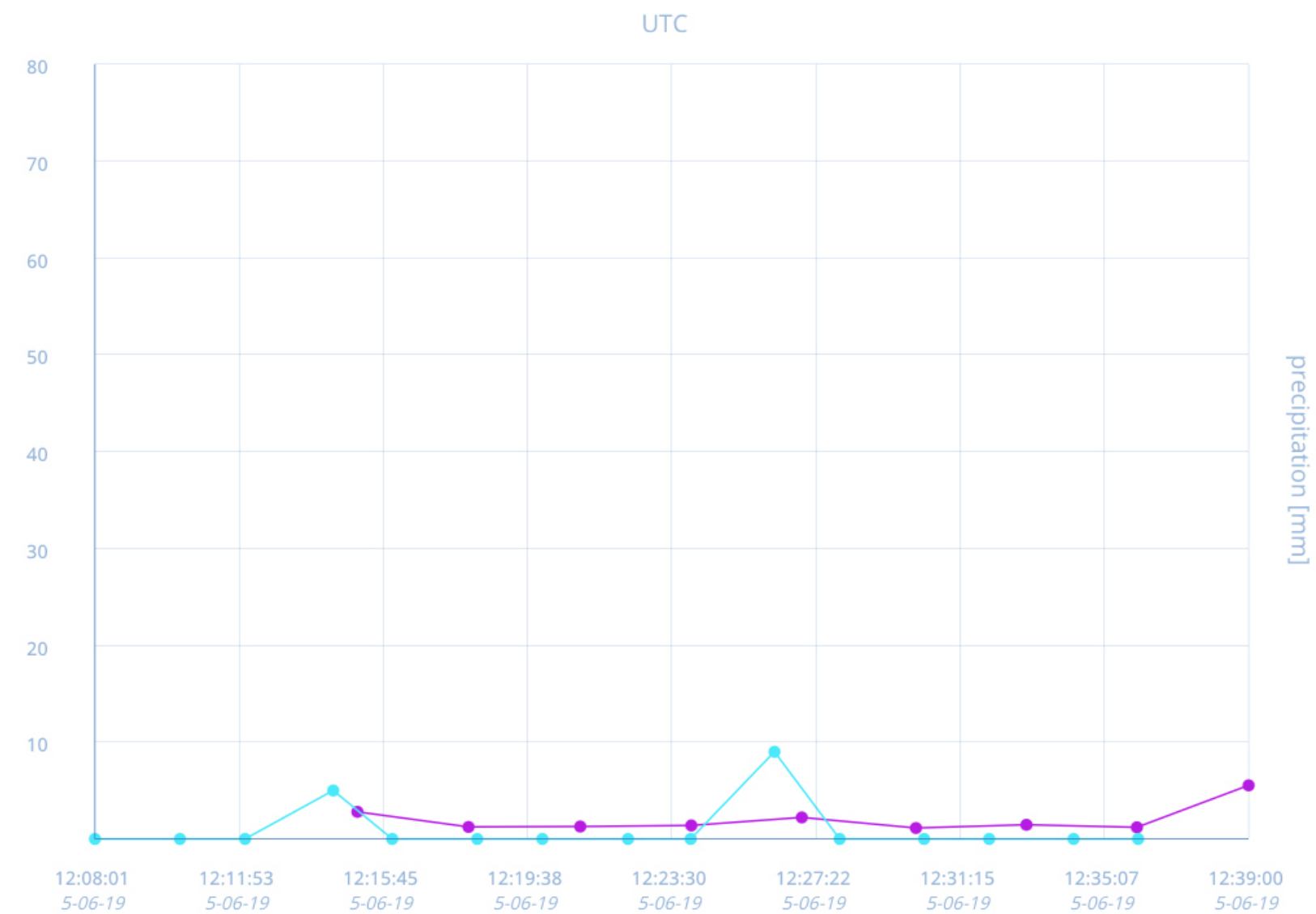
PROJECT EVENTS:

- 1 Opening conference in Novi Sad
- 6 Workshops for stakeholders in both cities
- 2 Project seminars in both cities
- 1 Closing conference in Szeged
- 5 Open day events in Szeged
- 7 Online public display systems in Novi Sad

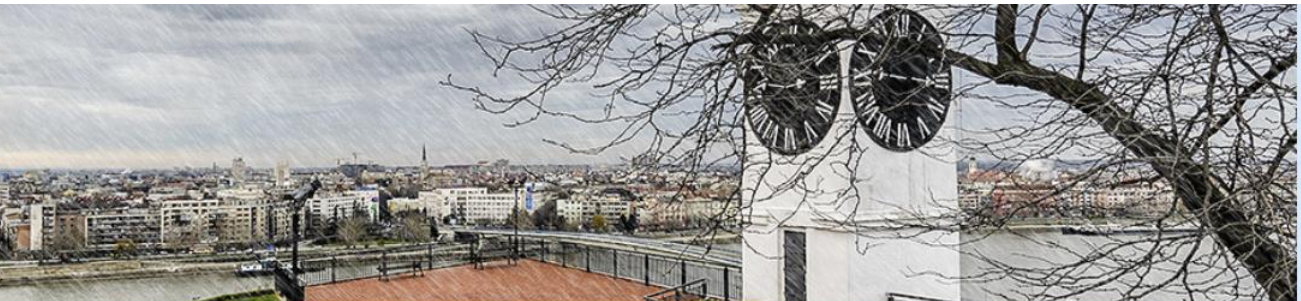





Wireless sensor networks data








example: charts based on web site input data



HomeAboutTeamEventsPublicationsWSNPrecipitation ForecastContact

EnHuSr



Wireless sensor networks data

UTC

precipitation [mm]

WSN data

latest data

id	local time	precpt. amount, since last measuremnt.	air temp/inside case	precpt. intensity / hum.	action
101 (Prstog Veleznik)	31-08-19/11:15:03:Europe /Belgrade	0 mm	31.25 C	0 mm/min	hide
102 (Bistrica)	31-08-19/11:23:25:Europe /Belgrade	0 mm	26.44 C	0 mm/min	hide
103 (Telex)	31-08-19/11:10:04:Europe /Belgrade	0 mm	32.56 C	0 mm/min	hide
104 (Adamovićevo naselje)	31-08-19/11:23:16:Europe /Belgrade	0 mm	35.06 C	0 mm/min	hide
105 (Adamovićevo naselje)	21-08-19/21:05:01:Europe /Belgrade	0 mm	38.44 C	0 mm/min	hide
106 (Sajmište)	31-08-19/11:20:01:Europe /Belgrade	0 mm	30.31 C	0 mm/min	hide
107 (Grbavica)	31-08-19/10:39:04:Europe /Belgrade	0 mm	30.31 C	0 mm/min	hide
108 (Sajmište)	31-08-19/11:25:00:Europe /Belgrade	0 mm	27 C	0 mm/min	hide
109 (Kisa)	29-08-19/13:10:02:Europe /Belgrade	0 mm	27.31 C	0 mm/min	hide
110 (Limani)	31-08-19/11:25:02:Europe /Belgrade	0 mm	34.37 C	0 mm/min	hide
111 (Limani)	31-08-19/11:25:03:Europe /Belgrade	0 mm	32.56 C	0 mm/min	hide
112 (Petrovaradin)	31-08-19/11:10:00:Europe /Belgrade	0 mm	25.94 C	0 mm/min	hide
113 (Štremski Karlovci)	31-08-19/11:10:01:Europe /Belgrade	0 mm	30.44 C	0 mm/min	hide
114 (Centar)	31-08-19/11:10:02:Europe /Belgrade	0 mm	32.69 C	0 mm/min	hide
115 (Rimski Šančevi)	31-08-19/11:10:03:Europe /Belgrade	0 mm	33.56 C	0 mm/min	hide
201 (Rimski Šančevi)	8-08-19/09:00:59:Europe/Belgrade	0 mm/min	26.7 C	64 %	hide
202 (Centar)	31-08-19/11:15:02:Europe /Belgrade	0 mm/min	29.4 C	67 %	hide

This website is the sole responsibility of the European Union and/ or the Managing Authority.

Interreg - IPA CBC
Hungary - Serbia

Good neighbours
creative

example: one of the portable device viewing modes – output from WSN stations



Urban-Prex

Stevan Home Find Friends

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@urbanprex

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Liked Following Share Add a Button

Write something...

Share a photo or video

Advertise your business

Start a live video

Get messages

Community Service



ABOUT URBAN-PR EX



Tweets 22 Following 46 Followers 5 Likes 1

Follow

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Phone, email, or username

Password

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Log In


New to Twitter?

Sign up

Urban Prex
@urbanprex
Joined November 2017

Photos and videos

Tweets Tweets & replies Media



Urban Prex @urbanprex · Apr 13
URBAN-PR EX opening conference [youtu.be/Fj27HTDE1c](#) via @YouTube


URBAN-PR EX opening conference

Promo clip of the URBAN-PR EX opening conference held at December 12th 2017.

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URBAN-PR EX project

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Novosadska TV dr Stevan Savic 8 maj 2018

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URBAN PR EX Workshop May 2018

38 views · 1 year ago

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Yes No

Project

URBAN-PR EX (Monitoring, forecasting and development of online public early warning system for extreme precipitations and pluvial floods in urban areas in the Hungarian-Serbian cross-border region)

Ugljesa Stankov · Stevan Savic · Dragan Milošević · [Show all 7 collaborators](#)

Goal: Climate change is expected to increase the frequency and intensity of precipitation and pluvial flood occurrences in urban areas of Central Europe. Thus, the proposed project presents an outstanding opportunity to develop and implement an innovative monitoring, forecasting an...
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Project log

References

Questions

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PROJECT VISIBILITY ACTIVITIES

Android applications:

URBAN-PREX flood visualisation

URBANPREX-Weather

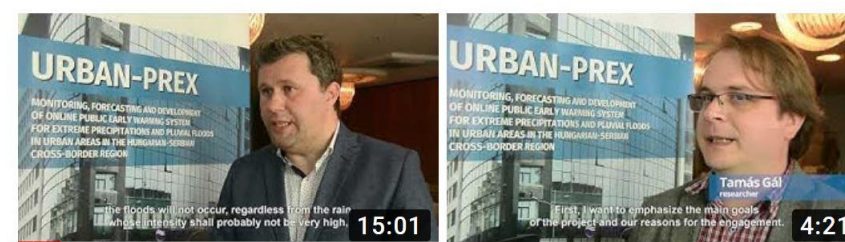
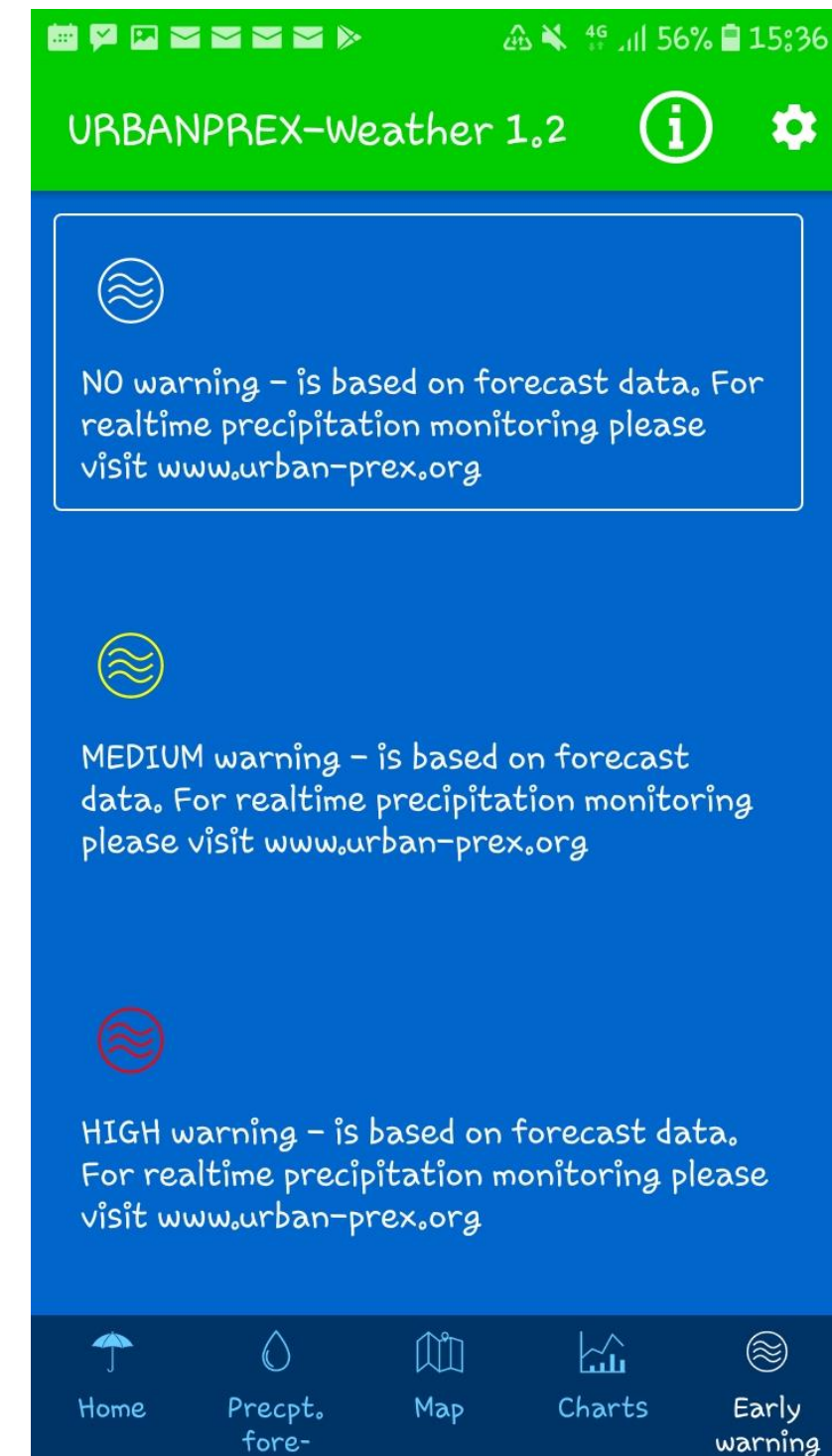
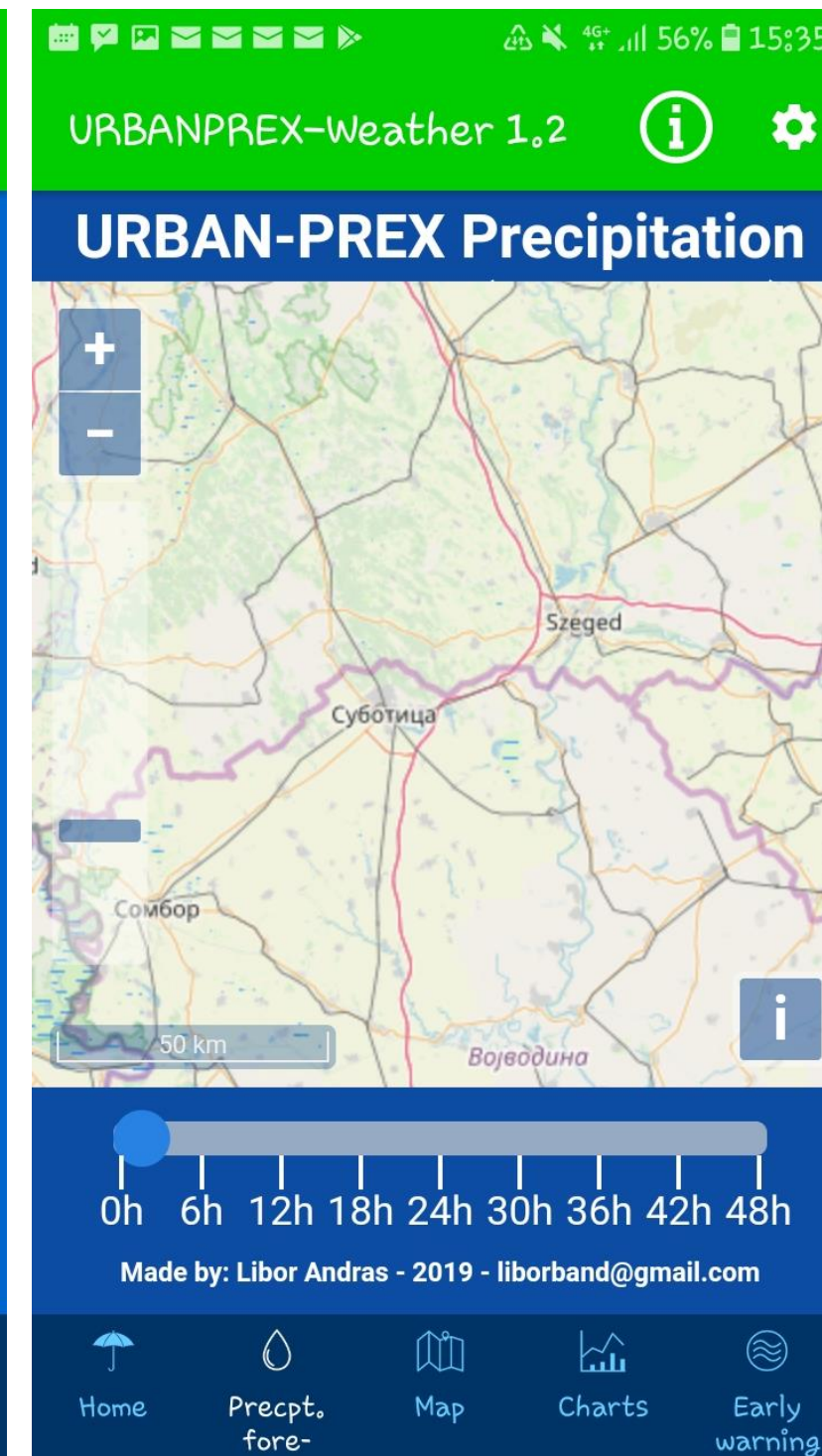
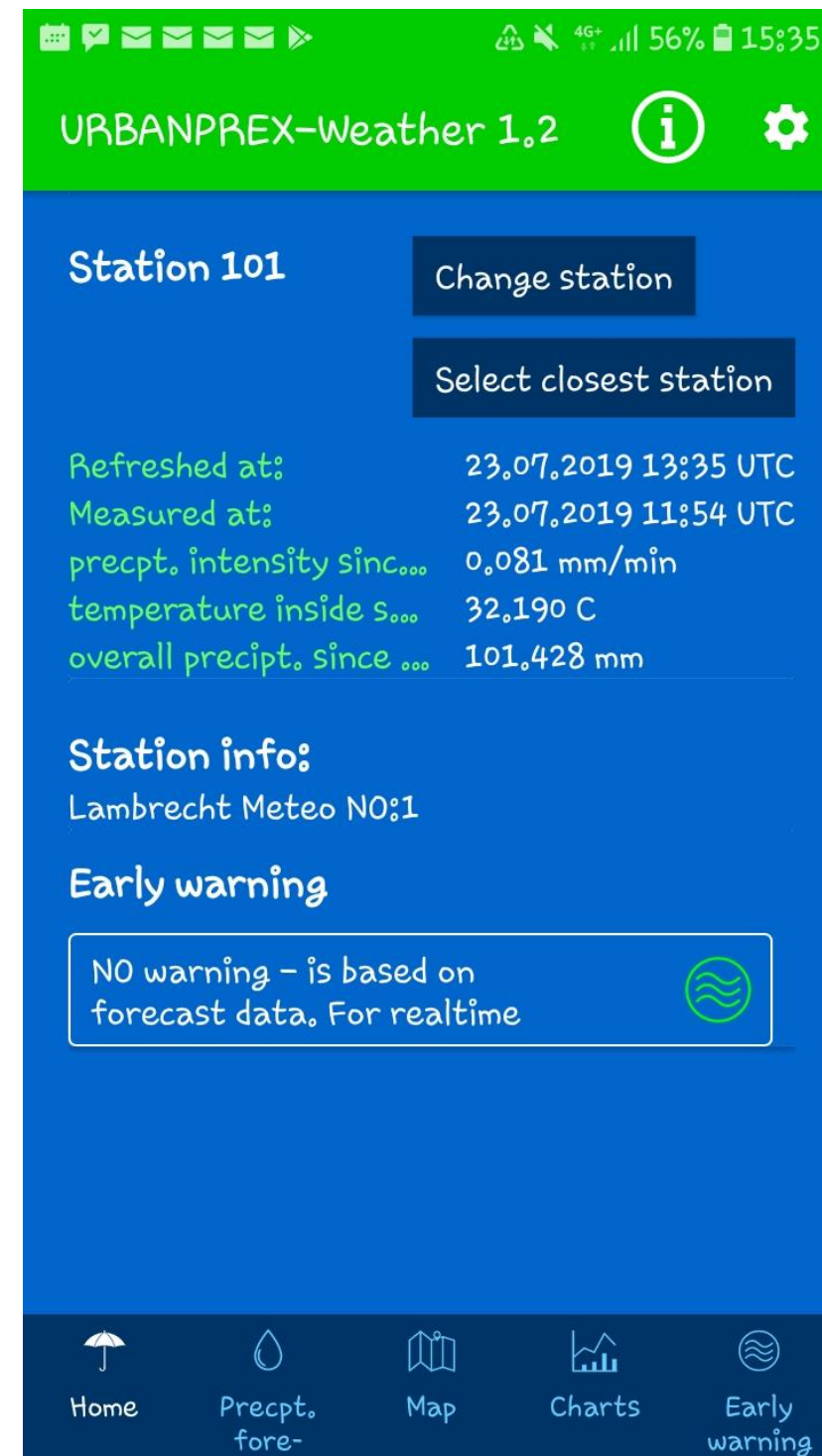
Promo video clip:

4 minutes version

<https://www.youtube.com/watch?v=s-i3CF47jMo>

15 minutes version

<https://www.youtube.com/watch?v=xKh-mKubld8Y&t=14s>



URBAN-PREX promo clip (15 minutes version)

URBAN-PREX promo clip (4 minutes version)

CONTACTS

E-mails:

stevan.savic@dgt.uns.ac.rs (rukovodilac projekta)

or

tgal@geo.u-szeged.hu

Project website:

www.urban-prex.org



THANK YOU FOR YOUR ATTENTION

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