



*CENTAUR: CENTAUR: Cost Effective
Neural Technique for Alleviation of Urban
flood Risk*

D4.2 CENTAUR Web Site

Lead Partner: USFD
Revision: 22nd September 2017

Report Details

Title: CENTAUR Web Site

Deliverable Number (If applicable): 4.2

Author(s): Will Shepherd

Dissemination Level: Public

Document History

Version	Date	Status	Submitted by	Checked by	Comment
0.1	2/3/2016	Draft	Will Shepherd		
1.0	2/3/2016	Draft	Simon Tait		
1.1	4/3/2016	Final	Will Shepherd	Simon Tait	As submitted to Sygma
2.0	22/7/2017	Updated Final	Will Shepherd	Simon Tait	Revised report following website update and overhaul as discussed at review meeting. Version submitted to Sygma.

Acronyms

AC	AC AGUAS DE COIMBRA EM
EAWAG	<i>EIDGENOESSISCHE ANSTALT FUER WASSERVERSORGUNG ABWASSERREINIGUNG UND GEWAESSERSCHUTZ</i>
EMS	ENVIRONMENTAL MONITORING SOLUTIONS
UoC	UNIVERSIDADE DE COIMBRA
USFD	UNIVERSITY OF SHEFFIELD
VWOL	VEOLIA WATER OUTSOURCING LTD.

Acknowledgements



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 641931.

The contents of this document reflect the view of the authors. The Executive Agency for Small and Medium-sized Enterprises (EASME) of the European Commission is not responsible for any use that may be made of the information it contains.

Executive Summary

This is a brief report to show the status of the CENTAUR website as at 22nd September 2017, following an overhaul and update as discussed at the periodic review meeting. The CENTAUR site is located at <http://www.sheffield.ac.uk/centaur>, this address was obtained prior to the start of the project and the site has been populated since the start of the project.

The site will be updated and expanded as appropriate throughout the project duration.

CONTENTS

Executive Summary	3
1 Introduction.....	5
1.1 Partners Involved in Deliverable.....	5
1.2 Deliverable Objectives	5
1.3 Report Description.....	5
1.4 Overview of Website and Online Presence	5
2 The Current Website	6
3 Conclusions.....	10

1 Introduction

1.1 Partners Involved in Deliverable

USFD; EMS; Steinhardt.

1.2 Deliverable Objectives

A CENTAUR project website (Deliverable 4.2) will be created by USFD, providing details of the project partners (beneficiaries), an outline of the research program, details of project outputs and trial results. The website will be aimed at an external audience and will link with the partners' websites. The website will have areas for the consortium partners and also the public.

The commercial offering will only be promoted via the web once the product reaches sufficient maturity and is ready to take to market. There is a need to protect the product from market competition in the development stage; a fine balance is required to excite the market but not to unduly alert potential competition. Promotion will also be via the commercial partners' websites – in particular, EMS and Steinhardt. This will be part of a coordinated marketing effort.

1.3 Report Description

This report shows the status of the website following an overhaul and update in September 2017. As the project has progressed and the Coimbra pilot testing has started, it is timely for more information about the project and interaction with stakeholders to begin.

1.4 Overview of Website and Online Presence

The project website was made live during the first month of the project and populated with basic information about the project. This expanded during the following two months to give a more comprehensive overview by the time the website deliverable was due to be submitted. Some further additions followed until the website was considered a good introduction to the project and was left static until the project team felt that more regular updates were required to build more interest in the CENTAUR system in advance of initial sales through the SMEs. During the review meeting the website was discussed and it was highlighted that a social media presence was needed. In September 2017, a project twitter account was created and this coincided with an overhaul and general update of the website to enhance the appeal of the website and provide more up to date information. During the final twelve months of the project news articles will be added for any significant updates and tweets will be posted to maintain and build interest in CENTAUR.

2 The Current Website

As at 22nd September 2017, the CENTAUR website consists of 7 main pages – the Homepage, an About page, a News and Updates page, a Project Partners page, an Outputs page, an Events page and a Contact page.

The homepage for the project gives a brief overview of what CENTAUR is about and information on the funding, as shown in Figure 1, it also includes recent tweets from the project's [@centaur_h2020](#) twitter account.

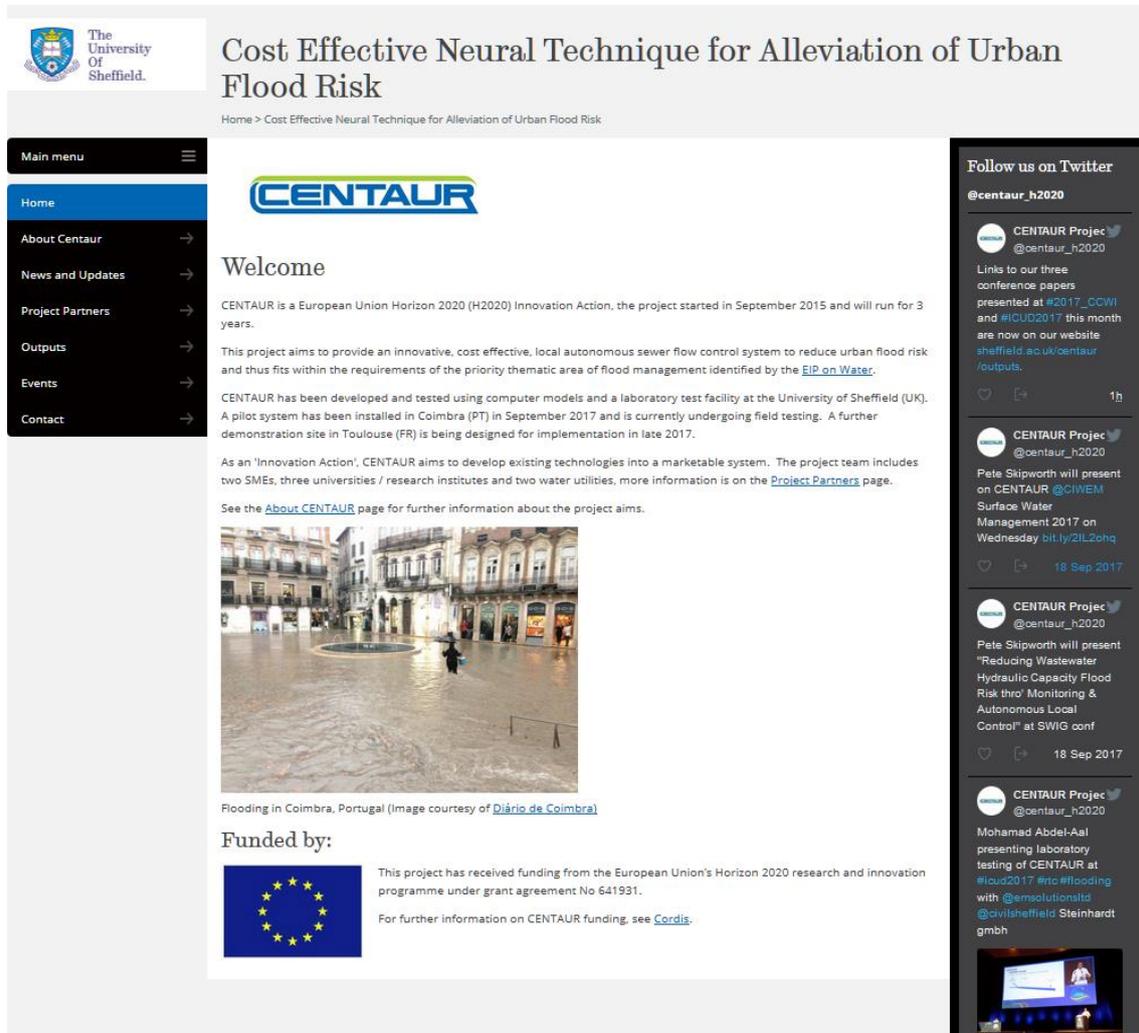


Figure 1: CENTAUR homepage

The About page (Figure 2) gives details about the rationale and aims of the project. The News and Updates page includes articles providing more in depth updates than are possible on the twitter feed (Figure 3). The Project Partners page (Figure 4) shows the logo of each partner, clicking on a logo takes the visitor to the partner's website (either to their homepage, or to a specific page about CENTAUR), it also includes a table showing the role of each partner in CENTAUR. The Outputs and Downloads page (Figure 5) is split into three sections, firstly Publications which provides links to conference papers and journal articles, secondly the Project deliverables section provides links to the completed public deliverables and finally Other outputs which currently includes a software tool hosted on GitHub. Deliverable reports which have not been approved by the EC include a disclaimer stating that they may be subject to change until they have been approved. The Events page (Figure 6) lists conferences and trade shows where

CENTAUR has been or will be represented, and also past and future project meetings. Finally, the Contact page (Figure 7) gives links for anybody wishing to find out more about the project or to enquire about CENTAUR sales.

Cost Effective Neural Technique for Alleviation of Urban Flood Risk

Home > Cost Effective Neural Technique for Alleviation of Urban Flood Risk > About Centaur

What is CENTAUR?

The project aims to provide an innovative, cost effective, local autonomous sewer flow control system to reduce urban flood risk. CENTAUR is an acronym of the full project title: Cost Effective Neural Technique to Alleviate Urban Flood Risk.

Why is CENTAUR needed?

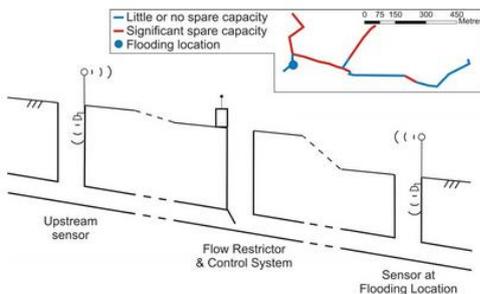


One of the most widespread and significant impacts of climate change will be increased frequency and severity of urban flooding, which has the potential to impact the lives of thousands of citizens within the EU alone.

The resources of water utilities and local authorities are constrained by the current economic environment (less funding and staff) and also policies such as those to reduce carbon emissions to mitigate climate change. Traditional 'resource intensive' solutions to dealing with urban flooding (such as the construction of underground detention tanks) are becoming increasingly cost prohibitive in many scenarios. In addition, such 'design-engineer-build' solutions can only be designed to mitigate a specific defined level of risk.

Given significant uncertainties in future climate and the variable nature and density of urban environments this means such solutions may be significantly over or under designed over medium time scales (20-30 years).

How does CENTAUR work?



CENTAUR will use data driven approaches to develop real time control strategies to activate existing in sewer storage at the local scale. Sophisticated computational techniques will be combined with specially designed flow control devices to reduce flood risk.

CENTAUR will be an autonomous de-centralised system, acting without the need of a central control fed by a hydrodynamic model. Its self-learning capabilities mean that it is inherently adaptable and capable of adjusting to changing flow patterns over time, as can be caused by climate change, land use or population change.

Why is CENTAUR different?

Many previous RTC projects have been conducted, but most of them (e.g. Vienna, Dresden, Aarhus) are large scale systems based on entire drainage networks. These systems are characterised by complex sensor networks, linked to centralised control systems governed by calibrated hydrodynamic modelling tools and fed by radar rainfall data.

Figure 2: About CENTAUR page

Cost Effective Neural Technique for Alleviation of Urban Flood Risk

Home > Cost Effective Neural Technique for Alleviation of Urban Flood Risk > News and Updates

News and updates

New conference papers

22 September 2017 Three papers presented at the CCWI and ICUD conferences during September 2017 are now available to access through the CENTAUR website.



Search

By year:

All years

By keywords:

Search

Pilot testing in Coimbra

20 September 2017 Pilot testing of the CENTAUR system has now started in the city of Coimbra in Portugal. Coimbra is an historic city with a history of urban flooding, the dependable climate provides an ideal location for testing CENTAUR.



CENTAUR Laboratory Test Facility

17 March 2017 In order to test the control hardware and algorithm developed for the CENTAUR project a laboratory facility has been constructed. The CENTAUR laboratory facility is at full scale and consists of a 30 m long, 0.2 m diameter 'sewer' pipe with four manholes which are 1.5 m high and 1 m in diameter.



Figure 3: News and Updates page (showing article summaries)

Cost Effective Neural Technique for Alleviation of Urban Flood Risk

Home > Cost Effective Neural Technique for Alleviation of Urban Flood Risk > Project Partners

Project Partners



Click on logo to go to partner's website.

Partner	Nature	Country	Key Roles
University of Sheffield	University	United Kingdom	Project co-ordinator; technical leadership of the system control and software development; laboratory test facility construction and operation.
Environmental Monitoring Systems	Small / Medium Sized Enterprise	United Kingdom	Responsible for configuring the local monitoring, communication and control system and integration with and control of the flow control device (in collaboration with Steinhardt); installation, trialling and refining the system at full scale; commercialisation.
Veolia Eau	Water Utility	France	Will work on the development of the techniques required for the successful deployment of CENTAUR. Will carry out the full scale testing of CENTAUR at a demonstration catchment and validate its overall performance.
Universidade de Coimbra	University	Portugal	Technical leadership of the demonstration and implementation of CENTAUR; installation of CENTAUR system within pilot catchment; modelling and monitoring sewer network; development of installation protocol.
Águas de Coimbra	Water Utility	Portugal	Operator of the pilot catchment; supply of data; installation and maintenance of monitoring equipment and the test CENTAUR device in collaboration with EMS and UoC.
Eawag	Research Institute	Switzerland	Investigation of optimal system configurations, resilience, impacts of data uncertainty and benefits of a functional pilot CENTAUR system.

Figure 4: Project Partners page

Cost Effective Neural Technique for Alleviation of Urban Flood Risk

Home > Cost Effective Neural Technique for Alleviation of Urban Flood Risk > Outputs

Outputs and downloads

Throughout the CENTAUR project, conference and journal [publications](#) will be produced and made publicly available alongside several of the EC [deliverable reports](#). During the project a software tool and dataset will also be made available, see the [Other Outputs](#) section below.

Project publications can also be found on the [CENTAUR OpenAire page](#). We also have a [ResearchGate project page](#) and a [Zenodo community](#).

Publications

Date	Conference / Journal	Title	DOI*
September 2017	14 th IWA / IAHR International Conference on Urban Drainage (ICUD2017)	Developing and testing a Fuzzy Logic algorithm to alleviate the risk of flooding by controlling a flow control device in a laboratory setting	10.5281/zenodo.890882
September 2017	14 th IWA / IAHR International Conference on Urban Drainage (ICUD2017)	Real time flow control to utilise existing in-sewer storage	10.5281/zenodo.891133
September 2017	15 th International Computing & Control for the Water Industry Conference (CCWI 2017)	Optimising a Fuzzy Logic Real-Time Control System for Sewer Flooding Reduction using a Genetic Algorithm	10.15131/shef.data.5363572.v1
February 2017	Environmental Modelling & Software	Appraisal of data-driven and mechanistic emulators of nonlinear hydrodynamic urban drainage simulators	10.1016/j.envsoft.2017.02.006 (subscription required) or see Green open access version
November 2016	CIWEM Urban Drainage Group Autumn Conference & Exhibition 2016	CENTAUR: Real time flow control system for flood risk reduction	10.5281/zenodo.400969
November 2016	14 th Computing and Control for the Water Industry Conference (CCWI)	Where to install flow control gates in order to maximise in sewer storage and reduce urban flood risk?	10.5281/zenodo.584104
August 2016	8 th International Conference on Sewer Processes and Networks (SPNS)	Alleviating The Risk of Sewer Flooding using Fuzzy Logic in a Real Time Control System - An Experimental Study	10.5281/zenodo.399119
February 2016	Water	Semi- vs. Fully-Distributed Urban Stormwater Models: Model Set Up and Comparison with Two Real Case Studies	10.3390/w8020058

* DOI = [Digital Object Identifier](#), this provides a permanent web link to the specified resource

Project deliverables

Date	Deliverable Number	Title
September 2017	D4.4	Data Management Plan
August 2017	D2.5	Report on initial strategy for CENTAUR system deployment in Coimbra
August 2017	D4.1	Communications Plan
October 2016	D2.4	Report on redundancy and impacts of data uncertainty

* Deliverables in *italics* have been submitted to the EC, but have not been approved and hence may be subject to change.

Figure 5: Outputs and downloads page

Cost Effective Neural Technique for Alleviation of Urban Flood Risk

Home > Cost Effective Neural Technique for Alleviation of Urban Flood Risk > Events

Events

Information on conferences and trade shows where CENTAUR has been / will be represented and also project meetings.

Event	Location	Date
EIP Water Conference / EASME "Boosting Research & Innovation in the Water Sector: The Impact of EU-funded actions" side event, this poster will be presented describing the CENTAUR project	Porto, PT	27 th to 29 th September 2017
Sensing in Water 2017 conference, Pete Skipworth will present "Reducing Wastewater Hydraulic Capacity Flood Risk through Monitoring and Autonomous Local Control"	Nottingham, UK	27 th & 28 th September 2017
General Assembly Meeting 5	Toulouse, FR	25 th & 26 th October 2017
CIWEM Urban Drainage Group Autumn Conference and Exhibition 2017 presentation "CENTAUR Smart Utilisation of Wastewater Storage Capacity to Prevent Flooding" and EMS trade stand	Blackpool, UK	8 th to 10 th November 2017

Past events

Event	Location	Date
CIWEM Surface Water Management 2017 , presentation "Deploying Autonomous Local Real Time Control to Achieve Adaptive Surface Water Management"	London, UK	20 th September 2017
ICUD Conference presentations "Real time flow control to utilise existing in-sewer storage" and "Developing and testing a Fuzzy Logic algorithm to alleviate the risk of flooding by controlling a flow control device in a laboratory setting"	Prague, CZ	14 th & 15 th September 2017
CCWI Conference presentation "Optimising a Fuzzy Logic Real-Time Control System for Sewer Flooding Reduction using a Genetic Algorithm". Also EMS trade stand.	Sheffield, UK	5 th to 7 th September 2017
General Assembly Meeting 4	Coimbra, PT	15 th & 16 th May 2017
Twenty65 conference , presentation "Virtual storage system for flood protection and other applications"	Manchester, UK	4 th & 5 th April 2017
CIWEM Urban Drainage Group Autumn Meeting 2016 , presentation "CENTAUR: Real time flow control system for flood risk reduction" and EMS trade stand	Blackpool, UK	9 th to 11 th November 2016
CCWI Conference 2016 presentation "Where to install flow control gates in order to maximise ins ewer storage and reduce urban flood risk?"	Amsterdam, NL	7 th to 9 th November 2016
General Assembly Meeting 3	Coimbra, PT	25 th & 26 th October 2016
Presentation at SPN8 (Sewer Processes and Networks) conference "Alleviating The Risk of Sewer Flooding using Fuzzy Logic in a Real Time Control System - An Experimental Study"	Rotterdam, NL	31 st August to 2 nd September 2016
General Assembly Meeting 2	Coimbra, PT	9 th & 10 th March 2016
General Assembly 'Kickoff' Meeting 1	Sheffield, UK	10 th & 11 th September 2015

Figure 6: Events page

Cost Effective Neural Technique for Alleviation of Urban Flood Risk

Home > Cost Effective Neural Technique for Alleviation of Urban Flood Risk > Contact

Contact information

For general project enquiries, please contact [Will Shepherd](#) via email.

For sales enquiries contact [EMS](#) or [Steinhardt](#).

Figure 7: Contact page

3 Conclusions

- A publicly accessible website has been created and delivered in the first 2 months of the project.
- An overhaul of the website was carried out in September 2017.
- A project twitter account ([@centaur_h2020](#)) has been created.
- The website will be updated with events, publications and news article throughout the project.