Newsletter I Issue 5 I February 2014

Investing in Opportunities
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RainGain goes back to the grassroots

A symposia with Local Authorities from France, UK, Belgium and The Netherlands

On the **23rd October** at **the** Mac/Val Museum (Vitry-sur-Seine, France), the RainGain partners gathered together and met the representatives from Local Authorities to foster an exchange on local experiences and their need of high-resolution data and modeling.

The first part of the meeting was dedicated to local experiences in water management and in flood risk reduction: the speakers presented different solutions that are currently used, such as the Hydrix radar in Antibes or the real-time automated management system of the Brièvre river, as well as new solutions that are being developed and tested. Two presentation were then given on urban resilience and how this concept can been concretely implemented in our cities. In the afternoon, the discussion concerned the comparison between the legal framework in the four member countries and the two RainGain platforms for training and information that will be created during the project.

About 50 persons attended the meeting: academics, representatives from Local Authorities, water utilities and weather services from France, the United Kingdom, the Netherlands and Belgium. Many participants of expressed the desire to continue the debate in the future.

The European Local Authorities' Meeting on High-Resolution Water Management has been organised by CG94, LGFF, City of Rotterdam, Aquafin. The detailed agenda, the presentations and a short reportage by CG94 are available on raingain.eu.

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How flood risk warning system in the UK can improve? Some enlightening insights from public officers and flood professionals

In the summer of 2007, due to heavy showers, a series of destructive floods occurred in the UK. With 7,300 businesses, 48,000 houses flooded, 13 deaths and 3.2 billion pounds worth of damages, the emergency was considered the largest in peacetime Britain. Two years later, an Extreme Rainfall Alert service was launched to improve the management and prediction of this type of flooding. The warning service was replaced in 2011 by the Surface Water Flood Risk Assessment**.**

Local Authorities and flood professionals that presently use the warning service in the UK provided useful information for the RainGain partners on the benefits and limitations of the current system. These outputs were the result of an online survey of two workshops organised by Imperial College and Local Government Flood Forum.

Susana Ochoa-Rodriguez from Imperial College gives us an insight into the consultation activities undertaken between February 2012 and May 2013 in the framework of the RainGain project.

The first workshop held in February 2012 at WSP House, London.

Why there was a need to examine needs, opinions and understanding of Local Authorities and flood professionals on surface water floods warnings in England?

SO: *We wanted to know the needs and resources of Local Authorities, whom in the UK are the ones in charge of surface water flooding. This will allow us to develop a models and local flood forecasting tools that meet the needs of the end users.*

What are the most interesting results of the online survey and of the two workshops?

SO: *We were positively surprised by the awareness of Local Authorities (LAs) and their capacity to use the existing surface water flood warnings (the ones currently provided by the Flood Forecasting Centre, which are spatially broad). From their replies we learned that they are ready and willing to make use of more localised warnings. In addition, based on their needs and on the resources available to them, both human and monetary, we determined that a low cost, mid-complexity system, accurate but easy to use, is needed for LAs.*

Susana Ochoa Rodriguez from Imperial College London.

How these results will influence the implementation of the RainGain's project in UK?

SO: This feedback allows us to better understand the needs of the potential users of the modelling tools that will be developed by Imperial College in the RainGain project. After the consultations, we have decided to put more efforts in monitoring, to use and develop open source software (in order to reduce costs), and to try to reduce the complexity of the warning system while keeping an acceptable level of accuracy.

The results of the consultations are discussed in the article “Surface water flood warning in England: an overview, assessment and recommendations based on survey responses and workshops” by Susana Ochoa-Rodriguez, Laurie Thraves and Andy Johnston. The paper is available on raingain.eu

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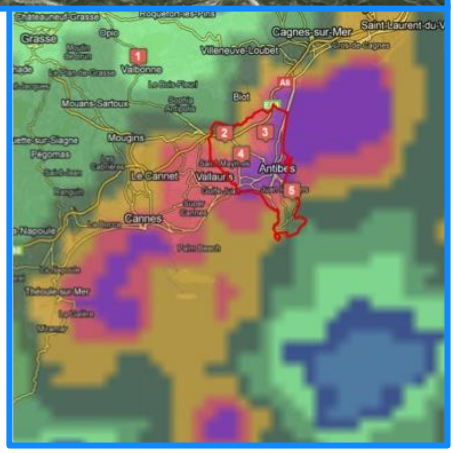
Weather extremes across Europe

Floods alert in South-Est of France: interview to two delegates from Antibes Municipality



The location and a radar image of the X-band radar of Mont Vial (illustrations presented by Emphoux and Alcardi at the RainGain symposia, October 2013).

Floods, landslides, mudslides, fallen trees: southeast of France was hit hard by last weekend weather. Between 17th and 19th January it rained the equivalent of two months in several municipalities of the Var County. In the nearby Alpes-Maritimes County, precipitations were monitored in real time by a dual polarisation X-band radar located on Mont Vial (Malaussène). We asked to **Valérie Emphoux** and **Jean-Marie Aicardi** from the City of Antibes Juan-les-Pins how this emergency was handled.

What were the consequences of these strong rainstorms in your territory and how your service has responded to this emergency?

Var coastal rivers have experienced significant flooding (Gapeau Argens,...), but the County of Alpes-Maritimes was relatively spared. Here the severe weather conditions caused numerous landslides with roads cuts, but relatively few overflows and urban runoff. Before and during the storms, we set up our standard procedure: Weather surveillance, triggering of mass phone calls server to inform the inhabitants in flood-prone areas during orange alert by Météo-France, alerting municipal teams, field monitoring, preparation of possible evacuations, etc. In the end, there was no need to close roads or evacuate people last weekend (FYI a camping was evacuated during heavy rain a few days earlier).

A dual polarisation X-band radar provides the City of Antibes Juan-les-Pins detailed information on precipitations. What is the added value of this device in the management of flood risk, in particular during the recent rainstorm event?

As it was presented at the RainGain symposia in October 2013, this device is used to monitor rainfall evolution in real time (storm cell tracking, total rainfall, instantaneous intensity,...), and also with a 1 hour forecast lead time. It enables us to refine the hydrological analysis we do in real-time with our field observations (soils saturation, urban runoff, loading of stormwater sewer networks, ...) and measurement networks, and to better establish the decisions on urban civil protection response. After the rain event, it allows us to do a quick hydrological analysis.

You noticed a tendency of the residents to underestimate the risk of flooding. How a better perception of risks can support prevention and what is the role of communication and education?

Before the flood, the knowledge of phenomena (possible height and extent water rate...) allows to study the mitigation measures to be implemented by the inhabitants. During the floods, a better perception of risks would allow residents to think about the safest course of action they should take, and to comply with the minimum safety precautions. After the flood, we can imagine that the "psychological" shock is less violent.
Communication and education are key components of prevention, but which require people involvement to inform and educate: this is the main difficulty. Certainly, there are many projects and ideas to be tested in this field, which is currently probably poorly understood if we consider witness statements after each flood.

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Heavy storms in Western Netherlands: things could change in the future

On the 12th and 13rd of October, the West of the Netherlands suffered from floods due to heavy rainfall, especially in the regions around Rotterdam, Amsterdam and Utrecht. The KNMI station in Rotterdam airport registered 54.6 mm in 24 hours on 13 October, while some areas in Rotterdam and the surrounding region received almost 100 mm.

Local water authorities promptly reacted by lowering polder water levels, installing tens of additional mobile pumps, filling storage basin, sending frequent updates on flood control actions.Worst damages were avoided, but the overall estimated costs for these operations amount to several Million Euros. The city of Rotterdam as well as other cities in the area and the fire brigade received many calls reporting flooded roads and flood damage to cellars.

Underpass for cyclists at Delft Station was closed due to almost 0.5m of flood depth.

In the future, these costs can be reduced in Rotterdam. Indeed, thanks to the new rain radar that will be installed on the roof of one of the highest buildings in the city centre, water service operators will have access to detailed information on rainfall and will be able to better cope with intense storms. The X-band radar will provide data at a time and space scale that is needed for urban areas and is currently unavailable. This last generation radar, as well as the one that is being installed in the Paris Region, have been purchased with the support of the Interreg Programme and their implementation is one of the main deliverables of the RainGain project.

A fireman tries to relieve flooding by installing emergency pumps.

Save the date

21st March 2014 : 3rd UK National Observers Group meeting in London

This meeting will provide an opportunity to learn more about RainGain, discuss key aspects of pluvial flood management, and find out about opportunities to get involved in the project. A detailed agenda and the online registration form are available on raingain.eu

31st March 2014 : RainGain international workshop on “fine-scale rainfall nowcasting” in Antwerp (Belgium)

The workshop is aimed at radar/meteo experts and the scientific RainGain partners, and will cover the following topics related to fine-scale and short-term rainfall forecasting, applicable to urban flood forecasting: combination of (X- and C-band) radar data with Numerical Weather Prediction (provided by the national meteo offices), advective-statistical forecast modelling, spatial and temporal downscaling, error/uncertainty estimation in function of forecast lead time / probabilistic forecasts. Visit raingain.eu for the detailed agenda and registrations.

1st April 2014 : RainGain 5th project meeting in Aartselaar (Belgium)

Aquafin will host the next project meeting where partners will gather together for an update on work packages and pilot sites, and to plan future developments. Visit raingain.eu for the detailed agenda and registrations.