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Learn more about the ten locations where RainGain solutions will be implemented

Across North Western Europe water managers have developed different practices and solutions to react to critical rainfall and flood risk; some concentrate on infrastructural investments to prevent flooding, while others tend to focus on early warning and emergency management. To exchange strategies and for a better insight of the present strengths and weaknesses, a comparison between different locations is relevant.

The factsheets (available on raingain.eu) depict the ten pilot locations where RainGain will implement new systems of rainfall estimation and forecasting, together with new methodologies to predict flooding in real time: The City of Leuven, Cranbrook and Purley (Greater London), Torquay (Torbay, UK), Jouy en Josas, Sucy en Brie and Morée Sausset (Paris Ragion), Rotterdam City Center and the areas of Kralingen and Spaanse Polder.

For each site, a "Presentation sheet" and a "Technical sheet" have been produced. The first one contains a general description of the pilot location, its environmental settings, as well as local urban pluvial flood risk problems with references to historical floods and their impact, and an overview of flood mitigation solutions adopted. The second one describes some technical aspects: existing monitoring system, spatial data available and specifications on the adopted urban pluvial model.

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Investing in Opportunities
This project has received European Regional Development Funding through INTERREG IV B.
INTERREG IVB

An exceptional thunderstorm measured drop by drop at École des Ponts ParisTech

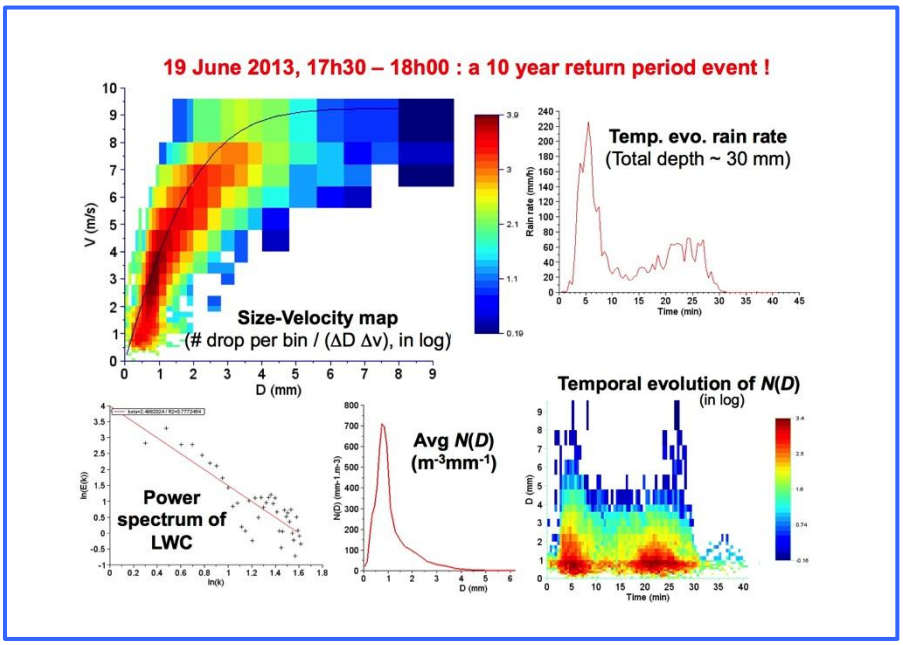
On Wednesday afternoon, violent storms hit the Paris Region. Between 5 p.m. and 8 p.m., the Fire brigade of Paris received 6,462 calls related to the storms, a number that is usually reached in 24 hours. 1,600 of these calls concerned flood problems (huffingtonpost.fr).

These intense rainfall events were measured by the present weather sensor PWS100, recently installed on the roof of the École des Ponts ParisTech. With a return period of 10 years, the storm that occurred from 17:20 to 17:50 is an exceptional event of great interest for the researchers of the RainGain project.

The Present Weather Sensor 100 (© Caroline Rose / École des Ponts ParisTech).

The PWS100 (Campbell Scientific) detects in real time the size and speed of hydrometeors (rain, hail, snow...) and couples this information with measurements of temperature, humidity and visibility to distinguish different types of precipitations.

With the present weather sensor and other measuring devices, such as the X-band radars, purchased with 50% of funds from the Interreg IVB NWE Programme, intense rainfall events can be observed at fine scale and can be better understood. These studies lead to a better management of the risk of stormwater floods in the city, such as those that have affected the Île-de-France Region in the last days.



The results of the sensor measurements, A.Gires et al. Contact: auguste.gires@leesu.enpc.fr

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RainGain meets the inhabitants from North-West European region

RainGain at Festival de l'Oh!

Every spring, the Marne and the Seine river sides become very lively during Festival de l'Oh!, a great event dedicated to water in all its forms that takes place in Val-de-Marne (France) since 2001.

On the 25th and 26th of May 2013, the RainGain partners attended the festival to present the project to the general public. The **RainGain tend** was located on the Charentonneau Island, in the Marne river, and a free boat service from Paris was provided by the Conseil général de Val-de-Marne. About 300 people visited the tend and the exhibition on the RainGain outcomes in the Paris region: 85 adults participated to a scientific quiz on the project implementations, while their children were involved in the experiments of the "Crazy Scientists" on meteorology, radar technology and urban water cycle.

Julien Richard (École des Ponts ParisTech) explains to two children how works the X-band radar.

Visitors from Paris get off the boat of Festival de l'Oh!

With Jean-Roland Tartas (Les Savants Fous) illustrates how X-band waves detect rain events.

RainGain visits three secondary schools

The RainGain project has been presented in three secondary schools of Paris Region: Jean Perrin Secondary School (Vitry-sur-Seine) on 14th June, Lucie Faure School (Paris) on 18th June and Lucie Aubrac Secondary School (Champigny-sur-Marne) on 20th July.

Through interactive presentations and educational games, Auguste Gires from Ecole des Ponts ParisTech, Abdellah Ichiba from CG94, together with the Crazy Savants, have explained how an X-band radar works and how it can reduce the risks of floods and water pollution in the city.

These workshops have been organised in the framework of "Festival Paris Montagne", an event aimed at promoting scientific knowledge among students from disadvantaged areas of Paris.

A student from Lucie Faure Secondary Schools does an exercice on urban water cycle

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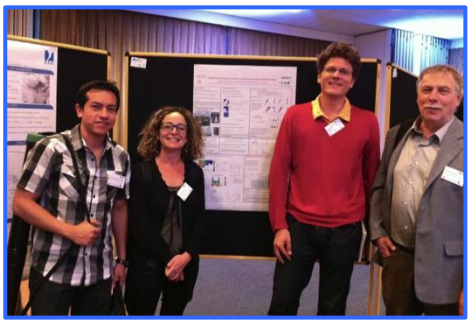
Recent events

RainGain at the IPC 2013

The 11th International Precipitation Conference, organised by Hydrology and Quantitative Water Group and Royal Netherlands Meteorological Institute (KNMI) in Ede-Wageningen (The Netherlands), has been an opportunity to exchange ideas and expertise on precipitation processes, their observations, estimation, modelling and prediction.

Pierre Tabary from Météo France chaired the session on "Precipitation Observations", while Daniel Schertzer from Ecole de Ponts ParisTech chaired the "Precipitation statistics and Climatology" session. Moreover, 9 researchers presented their work and some of the developments that have been achieved in the framework of RainGain.



Ricardo Reinoso Rondinel, Guenda Bruni (TU Delft), Auguste Gires, Daniel Schertzer (École des Ponts ParisTech) in front of their posters.

Together with the posters presented by Guenda Bruni, Ricardo Reinoso Rondinel from Tu Delft, Patrick Willems from KU Leuven and Auguste Gires, Ioulia Tchiguirinskaia, Daniel Schertzer from École des Ponts ParisTech, the following presentations were held by the RainGain researchers:

- High resolution radar observations of intense rainfall: cellular structures in rain fronts. *H. Russchenberg*;
- New Challenges for Multifractals and Precipitations. *D. Schertzer*, I. Tchiguirinskaia, and S. Lovejoy;
- Validation of a spatio-temporal multifractal model of small scale rainfall variability with the help of dense networks of point measurements. *A. Gires*, I. Tchinguirinskaia, D. Schertzer, A. Berne, A. Schellart, and S. Lovejoy ;
- Radar rainfall event reconstruction using Bayesian radar-raingauge data merging: analysis of the associated uncertainty and its propagation through urban storm-water drainage modeling. *L. Wang*, S. Ochoa-Rodriguez, N. Eduardo Simões, and C. Onof;
- High resolution rainfall estimates based on X-band radar technology for urban hydrological modeling. M.C. ten Veldhuis and *H. Russchenberg* ;
- Multifractal IDF and non-conservation of the rain rate. *I. Tchiguirinskaia*, D. Schertzer, and G. Fitton.

Save the date

21st, 22nd and 23rd October : 4th Project Meeting and Local Authorities Meeting

On 21st October 2013, École des Ponts ParisTech will host the next Project Meeting where RainGain partners will meet for an update on work packages and pilot sites and to plan future developments. The conference “High resolution in hydrology”, open to the public, will follow on 21st afternoon and end on 22nd evening. On 23rd October, the Local Authorities Meeting will be held at the Paris Town Hall, with representatives from water board, local governments, citizen associations from UK, France, Belgium and The Netherlands. The draft agenda is available on raingain.eu, suggestions are welcome (contact: rosa.vicari@leesu.enpc.fr).