



Adaptation of the Meuse to
the Impacts of Climate Evolutions



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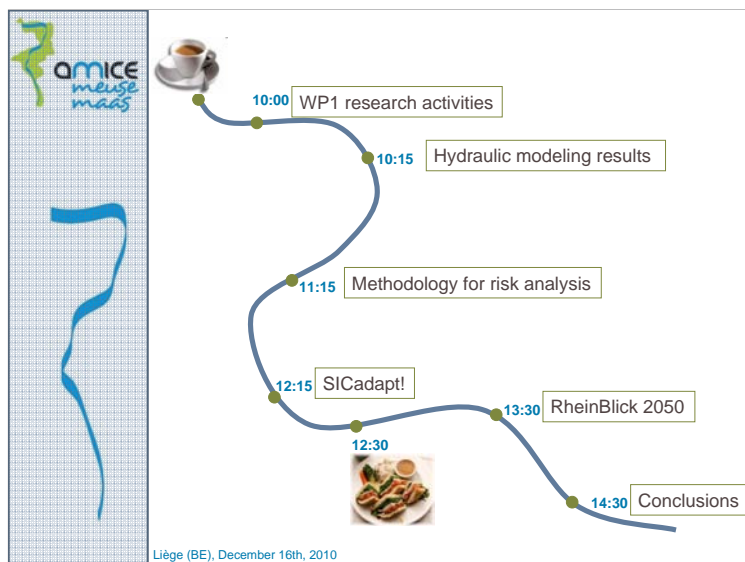
WP1 progress meeting

Liège (BE), December 16th, 2010

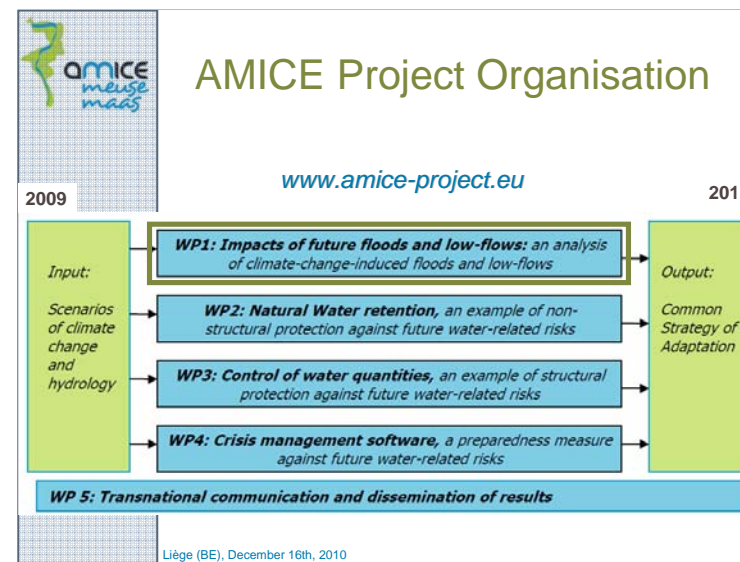
Welcome everyone to the second progress meeting dedicated to research on climate change within AMICE.

I am glad to see all of you could make it despite the heavy snow.

My name is Maité Fournier and I am the coordinator of the AMICE project. I work for EPAMA, the body responsible for water management on the French Meuse basin and tributaries.



I will start by giving you an overview of our project and its research activities. Then we will come to the main focus of today which is the presentation of the hydraulic modeling results for the river Meuse and tributaries. After, that we will discuss how these results will be used for flood risk assessment. Just before lunch you will see that AMICE is not alone to deal with climate change adaptation and that, thanks to the strategic cluster SICadapt!, we can create synergies with other projects and other topics than water. In the afternoon, we will get a short overview of what has been going-on on our neighbour river the Rhine, and we can start a discussion on the opportunity to create similar scientific activities on the Meuse.




So what is this project about ?

Our aims are to produce adaptation strategies to climate change which is coherent at the international basin level, to support and promote integrated and resilient water infrastructures, to communicate on water and adaptation, and finally to widen the partnership initiated by the International Commission for the Meuse.

We have split our efforts into 5 WP (workpackages).

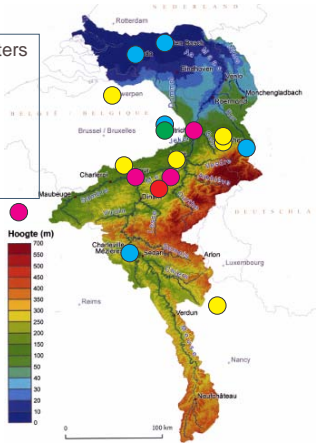
The project started in 2009 and will last until 2012.



Partnership


- 6 Universities and research centers
- 5 Water managers
- 4 Public Authorities
- 1 Emergency center
- 1 Association

- 3 Netherlands
- 3 Germany
- 3 Flanders
- 5 Wallonia
- 3 French



Liège (BE), December 16th, 2010


To implement this ambitious project, we gathered 17 institutions from all around the Meuse basin and from 4 countries : the Netherlands, Germany, Belgium and France.




Funding

8,9 million € total budget
2,8 million € ERDF

“The North West Europe Programme aims to capitalise on the cooperation between key actors to address territorial issues across the NWE area. This is in order to contribute to the NWE’s economic competitiveness while equally promoting regionally balanced and sustainable development”

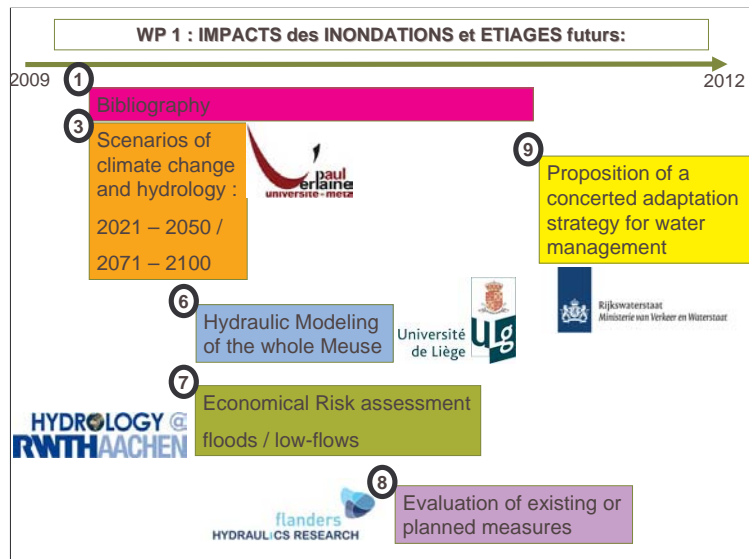


www.nweurope.eu



Liège (BE), December 16th, 2010

Our total budget is 8.9 million € and a third is funded by the European Programme Interreg IV B.



Let's get back to the 1st WP.

We are following the classic organisation of any water-related study: start with literature review, gather climate data, run rainfall-runoff models and hydraulic models, carry-out impact assessment and damage quantification, and finally propose relevant measures.

However in AMICE there are new challenges:

-All these actions need to be coordinated at international level despite different datasets and tools. To achieve this, we have established a scientific coordinator for each set of tasks. The coordinator starts with an inventory of data and practices within each region by sending-out a questionnaire to the involved Partners. He proposes the methodology and gather results produced by each Partner. He also coordinates the writing of the technical report and is responsible for the general communication of our findings.

-We are dealing with floods but also low-flows. Low-flows are rather rare on our basin and little documented. We need here to set-up new methodologies and indicators.

-Action 8 is what is called « climate-proofing »: we need to check that existing or planned infrastructures will still be efficient in the face of climate change.

WP1 needs a very close cooperation and we hold around 7 meetings per year.

WP1 achievements

AMICE Database

Search Resources

(Bibliography - WIKINDX Master Bibliography)

Members of Type: Book, Book Article, Book Chapter Number, Journal Article

Members of Category: 1 Language, 11 English, 12 French, 13 Dutch

Members of Keyword: 14C dating, 1910, 1993, 1995

Search on Field: Title, Operator, Notes, Abstract, Order

Search word(s):

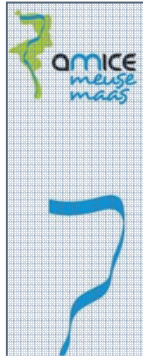
Search Method: OR, AND, Exact phrase

Order by: Title, Publisher, Publication Year, Timestamp

<http://www.amiceproject.eu/biblio/>

9 general categories
expert search tool
> 800 references

One of our first achievements is the creation of a transnational online reference database. It is accessible via the AMICE website and contains more than 800 references. The database can be search by category, author, date, publication, etc.



WP1 achievements

Generic way of working:

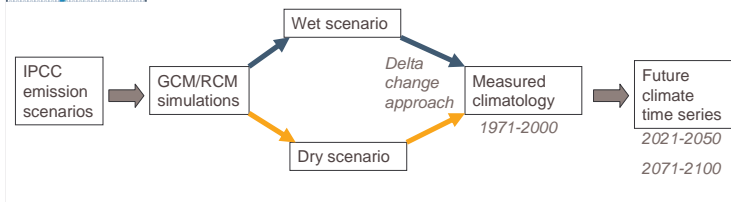
Scientific coordinator send questionnaires

=> Data needs and methodology

Conclusion 1 : A new modelling experiment is required for producing hydrological scenarios for Amice

Conclusion 2 : Synthetic nationally-based climate scenarios should be defined

Conclusion 3 : A transnational climate scenario should be inferred from national scenarios



Action 3 conclusions are that there is:

- > No ready-to-use (i.e. bias corrected) climate simulations at the Meuse basin scale
- > Insufficient time to perform bias corrections for an ensemble of climate simulations
- > Most of the climate simulations are available only beyond 2050
- > Large uncertainty in ensemble climate simulations
- > **Gaps of knowledge** between published applicable information and quantifiable statements and Amice project requirements

Therefore, we need to set-up our own climate scenarios for the international Meuse basin. We chose to use the Delta-change approach.



WP1 achievements

Climate results

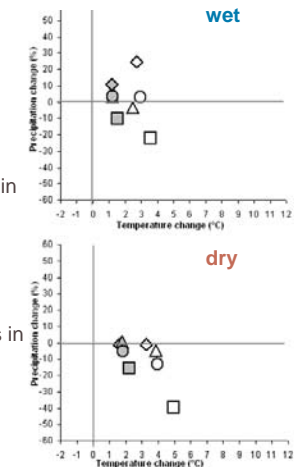
Transnational scenarios

❖ High increase of precipitations in wintertime for the wet scenario

❖ No clear precipitation trend for autumn and spring

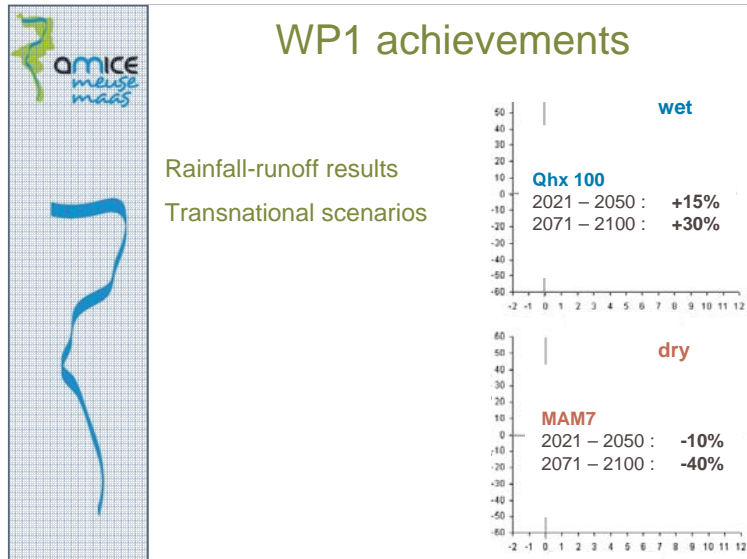
❖ High decrease of precipitations in summertime, for both scenarios

❖ Higher temperatures for all seasons and all scenarios



The transnational scenario is the result of the weighted mean of national values.

The seasonal values can hide important information. The increase of precipitation could be the result of longer rainfalls or of more frequent intense rains. The seasonal value does not give information on the rainfall pattern but only on the quantity.



We used two parameters:

- Qhx is the hourly discharge for a 100 year return period flood event
- MAM7 is the minimum annual mean value on 7 days and represents low-flows



These achievements were presented on March 11th 2010 in Metz, France.

All details of the methodology, description of models and databanks, results split per country are available in a Technical report that can be downloaded from the AMICE website.

Summaries are also available in English, French, German and Dutch.



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