

HydroEurope 2025



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Newcastle
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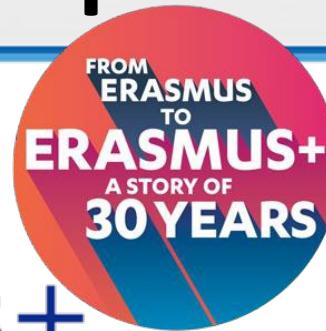
Brandenburgische
Technische Universität
Cottbus - Senftenberg



What is HydroEurope?



Erasmus+



HydroEurope is a Strategic Partnership under Erasmus+

The 6 partners of the HydroEurope Project are:

- University of Nice Sophia-Antipolis, France
- Brandenburg University of Technology Cottbus Senftenberg, Germany
- Technical University of Catalonia, Spain
- Newcastle University, United Kingdom
- Warsaw University of Technology, Poland
- Vrije Universiteit Brussel, Belgium

Strategic Partnerships:

http://ec.europa.eu/youth/programme/partnerships/strat_partnerships_en.htm

Erasmus+: http://ec.europa.eu/programmes/erasmus-plus/index_en.htm

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What is HydroEurope?



**Problem-oriented project-based learning concept for:
online, hybrid, and face-to-face teaching mode**



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What is HydroEurope?

- Innovative & collaborative educational approach.
- Combination of in-depth academic theoretical concepts and intensive practice and operational analysis of concrete case studies.



Collaborative work by teams distributed within the different participating institutions.

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UNIVERSITÉ
CÔTE D'AZUR

What is HydroEurope?

- Who are we? An international network!....
30-40 nationalities!!!!
- More than 100 participants per year... for the last 20 years
- Concept leading to the development of sister programs :
 - HydroAsia (since 2007)
 - HydroLatinAmerica (since 2009)
- Continuous enrichment with new teaching classes, modules and material



The image is a collage of screenshots from three international hydrology research programs. At the top, the HydroAsia website features a 'Participating institutions' section with logos for Polytechnic University of Valencia, University of Tokyo, and AIT. Below it, the HydroLatinAmerica website shows a 'Last day Hydro 2015' video and a 'Wet season hydroinformatics 2015' banner. The bottom section of the collage displays the HydroEurope website, which includes a 'Welcome to HydroEurope' message, a 'Co-funded by the European Union' logo, and logos for various partner universities: UPC (Universitat Politècnica de Catalunya), VUB (Vrije Universiteit Brussel), Warsaw University of Technology, Newcastle University, b-tu (Brandenburgische Technische Universität Cottbus - Senftenberg), and Université Côte d'Azur.

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What is HydroEurope?

- **Main topic:** hydroinformatic methods and tools for water resources and water-related hazards management strategies
- **Specific topic of the current HydroEurope program:** *Accidental water pollution*
- Developing exercises on various case studies during the online period
- Evaluation of the exercises during the face-to-face period
- Implementing the exercises within the curricula as regular contents



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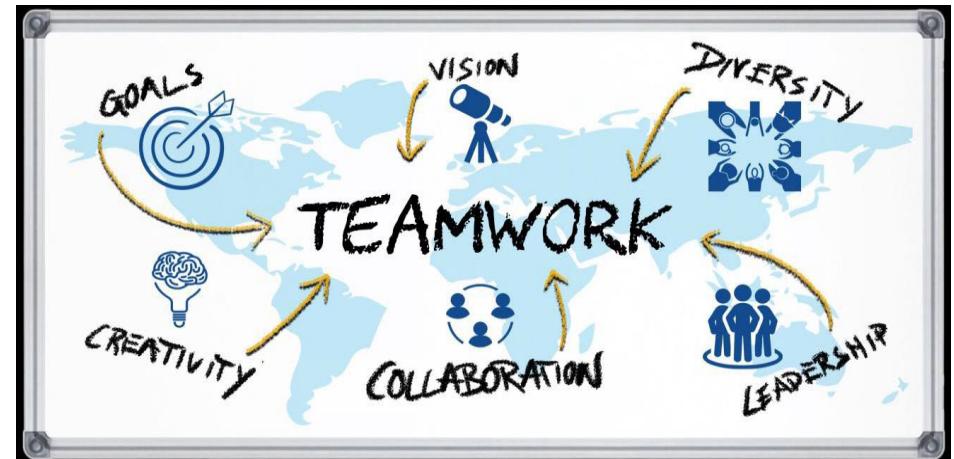


What is HydroEurope?

- How do we operate?

Competences and skills development simulating an international work-like environment via:

**Problem-oriented
project-based learning
concept for:
online, hybrid, and face-to-face teaching mode**



Supported by:

- Supervision team composed of academic and industrial partners from the network
- Standard and uprising tools and dataset; digital platforms and their services



Your HydroEurope?



How do we operate, what will you get?

- **Phase 1** – November 8th to February 16th, online teamwork & individual work
- **Phase 2** - 17th to 1st of March, two weeks of face-to-face activities for intensive work and multicultural exchanges hosted in Universitat Politècnica de Catalunya, Barcelona

Improve your technical competencies and soft skills exponentially via :

- ✓ **multicultural and enriching interactions**
- ✓ **an approach simulating an international professional environment**

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What are we analyzing?

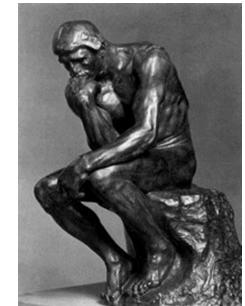
- Uncertainty



- Flash flood and Climate Change



- Accidental water pollution



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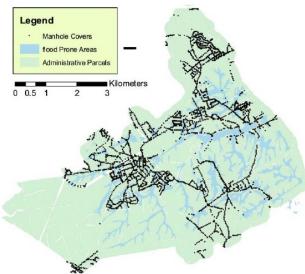


How do we study these phenomena?

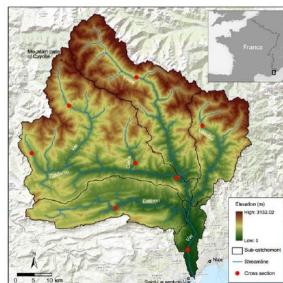


Finding case of studies with different characteristics and conditions

Belgium



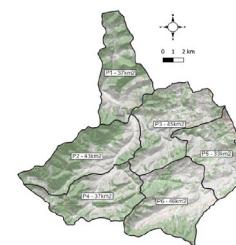
France



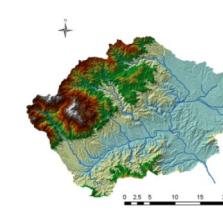
Germany



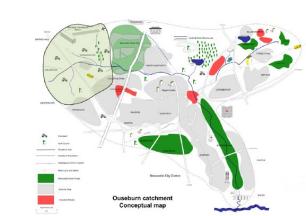
Poland



Spain



UK



Tervuren
catchment

Var (Vésubie)
catchment

River Ahr
catchment

Skawa
catchment

Tordera
catchment

Pandon Burn
catchment

Basins located in different parts of Europe, with different conditions
(climate, land use, topography, activities, etc.)

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What do we need to do?

- Each team will analyze a case of study (6 teams – 6 case of study)
- Part of your work before the face to face sessions in Barcelona will be to organize information (input data) and to analyze it (filtering) to be used in your case of study
- The information can be:
 - Rainfall data
 - Discharge data
 - Land use
 - Temperature data
 - Water quality indicators
 - ...
- Learning how to use tools that will help you to analyze the problems observed (GIS, hydrologic-hydraulic modeling, statistical tools, etc.)
- Some information will be provided some other will need to be searched



What will be provided

- Most of the input data (hydrometeorological data)
- Digital elevation models, although several information can be downloaded from internet and public institutions
- Land use maps (Copernicus, Corine, etc.)
- Climate Change projections (ask team tutors for local projections)
- Tutorials from different tools that will guide you in the tasks that will be required to develop
- Extra information can be searched individually (or by team to improve results)

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What will be required to present as results?

- The analysis will be done considering the impact of Climate Change (CC) in flash flood events
- The task can be focused on:
 - Study of past flash flood events
 - To analyze return period magnitude
 - To analyze CC scenarios and their impacts
 - To evaluate the catchment under different CC projections
 - Statistical analysis of past and future rainfall events
 - Effect of CC projections on IDF curves
 - Flash flood assessment under CC scenarios
 - Assessment of LID measures on flash floods
 - Hydrological response of the catchment
 - Forecast and real time operations under flash flood events
 - Groundwater response to flash flood events
 - Water quality and accidental water pollution
- Tutors will guide you to develop a specific task. Teams will have to provide answers to issues and to propose measurements





Main tasks you will have to carry out

- You will be asked to provide some material for evaluation
- Team will have to prepare:
 - A **1st presentation** when arriving in Barcelona showing what have been doing before the face to face sessions (November – February)
 - PowerPoint presentation (or similar) with all the information that you consider useful for the explanation of the topic
 - Around 15 min to present + 10 minutes questions
 - A **2nd presentation** after the first week face to face showing results of the first week
 - Around 15 min to present + 10 minutes questions
 - A **final** presentation showing the results of the second week (some needed results from the previous weeks can be shown if needed)
 - Around 15 min to present + 10 minutes questions
- Use the google tools (ppt, doc, etc.) provided to you at the team site

Tutors will mark you according to your involvement in the work done since November until the end of the program (day work, reports writing, oral presentations, etc.

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Schedule – HydroEurope 2025

February 17 th - Sunday 23 nd											
Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday				
09:00 - 10:00	Opening program		Presentations (not scheduled yet)		Team presentations (2 nd)	Field trip	Free				
10:00 - 11:00		Team presentations (1 st)	Team work								
11:00 - 12:00			Team work								
12:00 - 13:00			Lunch time								
13:00 - 14:30		Team presentations (1st) / Team work		Team Work		Team presentations (2 nd) / Free	Free				
14:30 - 18:00											
February 24 th - Sunday 28 th											
Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday				
09:00 - 10:00	Presentations (not scheduled yet)			Team final presentations	Free						
10:00 - 11:00											
11:00 - 12:00	Team work										
12:00 - 13:00											
13:00 - 14:30	Lunch time										
14:30 - 18:00	Team Work			Team final presentations / Closure ceremony							

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Sites of interest

- Web of the program: <https://hydroeurope.upc.edu/>
- Web of the Project: <https://sites.google.com/view/hydroeurope2025>
- Team websites:

Team	Partner	Supervisor/Tutor	Supervisor/Tutor	Case Study	Platform
Team01	UPC Barcelona	Gonzalo Olivares		La Tordera	https://sites.google.com/view/hydroeurope2025-team1
Team02	VUB Brussels	Nahad Helmi		Terverun	https://sites.google.com/view/hydroeurope2025-team2
Team03	BTU Cottbus	Frank Molkenthin		Ahr	https://sites.google.com/view/hydroeurope2025-team3
Team04	NU Newcastle	Caspar Hewett	Nadia Skifa, Juan Pablo de la Fuente	Pandon Burn	https://sites.google.com/view/hydroeurope2025-team4
Team05	UCA Nice	Jelena Batica		Vesubie	https://sites.google.com/view/hydroeurope2025-team5
Team06	WUT Warzawa	Grzegorz Siniocyn		Upper Skawa	https://sites.google.com/view/hydroeurope2025-team6

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- Questions and comments?



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