

II JORNADA DE PATRIMONI HIDRÀULIC CANALS DE REG

H₂OMAP: Aprenentatge innovador a través del mapatge del patrimoni hidràulic

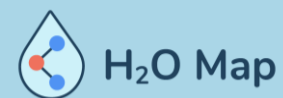
Delia Trifi

Universitat Jaume I

Organitza:



COMUNITAT DE REGANTS
VILA-REAL



Col·labora:



Co-funded by the
Erasmus+ Programme
of the European Union



Ajuntament
de Vila-real

Qué és el projecte H2OMap?

- És un projecte Europeu Erasmus + tipus KA201. Permet conèixer i així protegir el patrimoni natural i cultural que comparteixen tots els ciutadans europeus.
- El projecte segueix els objectius de l'Agenda 2030 per al Desenvolupament Sostenible, sensibilitzant no sols a nivell cognitiu i científic, sinó també a nivell ètic i de responsabilitat cívica.



Qui participa en el projecte H2OMap?

Es tracta una col·laboració estratègica dels següents socis europeus per a la creació d'eines tecnològiques:

Universitats:



(Coord.)

Càtedra FACSA de Innovació en el Ciclo Integral del Agua (Coord.)
Càtedra Diputació de Castellón de Centros Históricos e Itinerarios Culturales
Geospatial Research Group (Geotec)
Educació, Patrimoni i Investigació en Ciències Socials (EPICS)



Architectue and Urban Design (AUDE)



Instituto Interuniversitario de Geografía



Instituts:



Objectius



1) Millorar les habilitats en ferramentes TIC

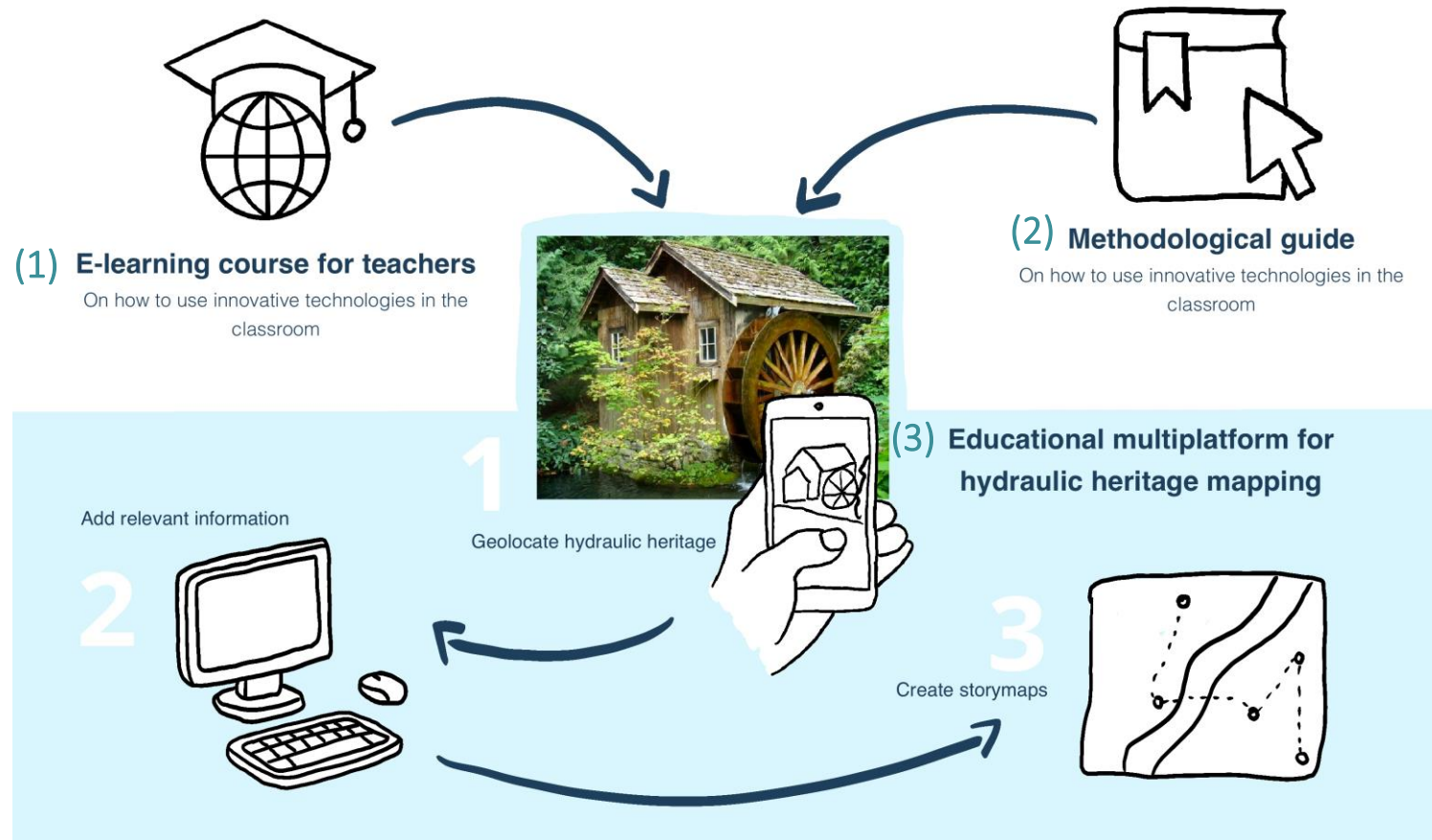


2) Augmentar l'interés en la tecnologia, enginyeria i matemàtiques (STEM).



3) Posar en valor el patrimoni hidràulic europeu

Metodologia del projecte H2OMap



1) Curs per a professors

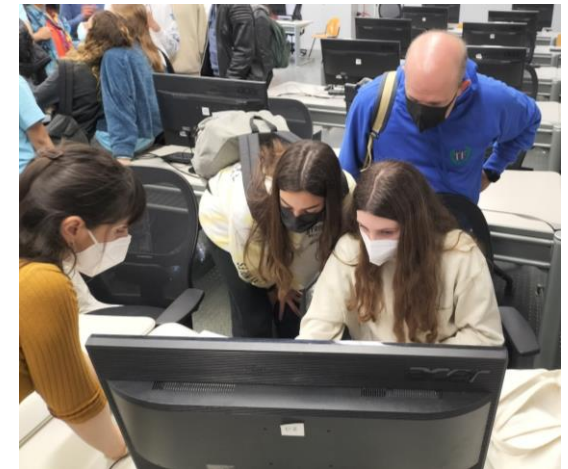
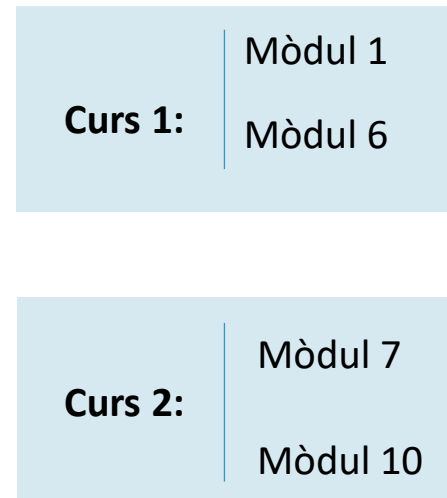
Els cursos per a professors han consistit en una sèrie de vídeos distribuïts en mòduls vinculats entre si on els docents han pogut visualitzar continguts tant de patrimoni hidràulic a nivell europeu com tutorials per a poder implementar les eines cartogràfiques.

Els meus cursos Aula Virtual (UJI)

Resum dels cursos

Actuals ▾ Cerca Sort by last accessed ▾ Llista ▾

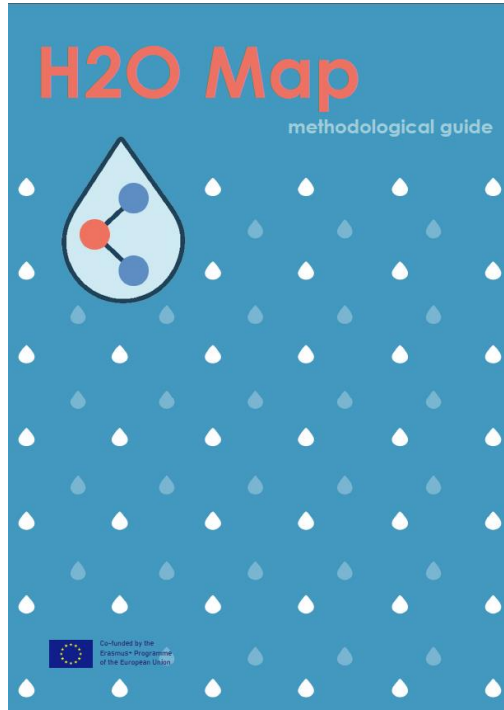
FOR9708/1 FOR9708/1 - Eines educatives innovadores per a l'avaluació del patrimoni hidràulic amb TICs (2020/2021)
Formació per a PDI, PAS i comunitat universitària



Aplicació en l'aula

2) Guia metodològica

La guia metodològica és un manual pràctic que ajuda els professors a promoure una activitat docent innovadora estructurada per a millorar els coneixements a través d'eines específiques. Aquestes també milloren les habilitats TIC i STEM dels estudiants.



The 2030 Agenda sets 17 Sustainable Development Goals launched in 2015 and to be achieved within the next 15 years. As evidence of the importance of water resources for the pursuit of the 17 total objectives concern water. Objectives 6 and 14 are specific on the topic:

GOAL 6: CLEAN WATER AND SANITATION Ensure availability and sustainable management of water and sanitation facilities for everyone.

GOAL 14: LIFE BELOW WATER Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

The additional objectives that promote good practices for water management are goal 1 for natural resources, goal 7 for the abolition of pollution on air, water, and soil, goal 8 for clean energy, and goal 13 for climate change and its consequences. Despite efforts to achieve universal access to water as a human right, economic difficulties, legal shortcomings, and an appropriate cultural approach remain between the will and the actual realization of the process of a global level.

UN AGENDA 2030

THE CHARACTERS OF HYDRAULIC SCIENCE

LEONARDO DA VINCI

«The [the water] never said fertilizes the sea, where, no longer disturbed by the winds, it stands still and rests with its surface perpendicular to the center of the world»

«the water, that falls from above into the other water, encloses within itself a certain amount of air, which, through the slow submerges with it and with a fast motion rises upwards, reaching the soft surface, clothed with the thin spherical body.»

HISTORICAL ERA

Particularly significant historical periods influenced some cities in their shape and their society. Just think of the medieval villages, cities of Roman origin, or the centers born with the industrial revolution. In this case, it is possible to concentrate the research on those hydraulic artifacts that date back to this period.

«An example can be to map all the artifacts dating back to a limited period or an architectural style, contributing to the identity of a historically characterized place.»

History and bibliography

Navigating in shallow canals or going upstream, the boats were pulled by horses, led by riders, or by the boommen themselves who towed the embankment on the banks called towpaths.

To facilitate navigation, boats were built, also called Chiave or Forke, not water elevators that joined streams of different heights and allowed boats to go up or down the stream.

Figure 1 - Canal in Biadene, Parma. Source - Shiva Lal Palla, Parma University.

WATER TROUGH

General description:

The term water trough refers to any container used to quench the thirst of domestic animals, usually a container or tank, consisting of a simple channel of wooden boards or tree trunks, or a stone, concrete, or masonry plant.

Types of trough:

As a very generic term, we can identify different types of water troughs, which are distinguished by size and construction material. Typical rural environments are water troughs consisting of large tanks in stone, concrete, or wood, used to quench several animals at the same time.

Figure 2 - Stone water trough. Credit - Source - Pablo Abalo Tera, UP University.

they are easier to manage since there are no permissions, authorizations, etc. This is why the type databases have been as popular as those used in ArcGIS, or, recently, GeoPackage (GPKG) files adopted as a standard in QGIS, to the detriment of the outdated shapefile format. A PostGIS/PostgreSQL database was created for the H2O Maps project. It includes the following data repositories, or schemas (Figure 10), to use the database terminology:

- public: this database consists of geometries with the spatial elements that students will need to introduce wells, fountains, etc., and all related tables.
- hydro: list of spatial tables related to hydrology: basin boundaries, sub-basins, swamps, lakes and reservoirs, rivers and watercourses, etc.

Figure 10 - Tables in public schema. Elaborated by the authors.

Figure 11: Multi-levels

Source: Internet

In addition to the tables, the following elements are included:

Views: These are very frequent queries to one or more tables, so for simplicity, they are given a name. They are often used for reporting or publishing on Internet geoportals with specific layers. For example: lists of hydrological elements of a municipality, or of an outflow, or close to a river, etc.

Programming of functions: Functions are small utilities programmed to obtain certain functionality. In fact, database extensions such as PostGIS consist of many functions (about 700 ranging from the most basic, such as calculating a polygon's area or perimeter, to more complex ones (Voronoi, interpolations, clustering, etc.). We sought to make the most of PostGIS's ability to define functions to create those that may be of interest to our project. For example, the "river_distance" function produces the name and distance of the river closest to a given point (a well, waterwheel, etc.). The functions can also be used as query controls in digitization, e.g. to insert points that overlap with administrative boundaries

Completa i estructurada

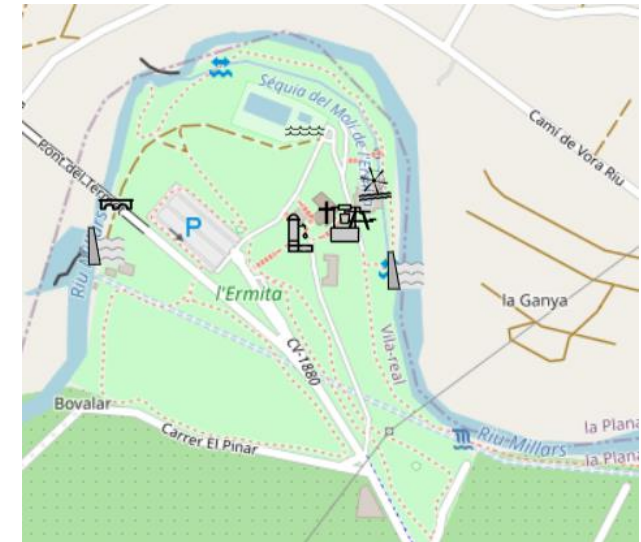
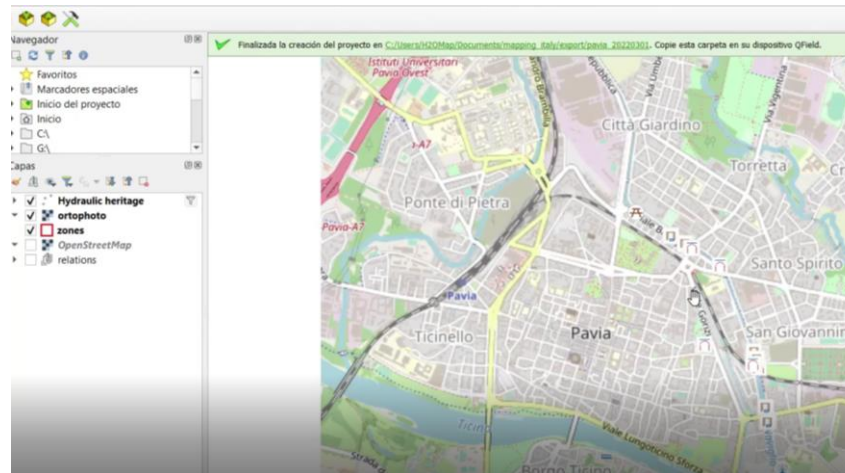
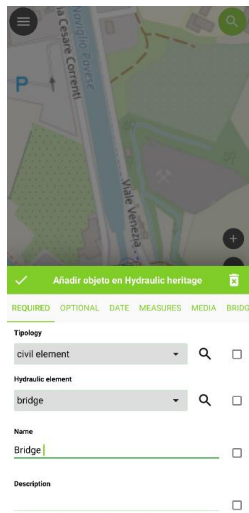
3) Multiplataforma



Work efficiently

Be anywhere

Open anything

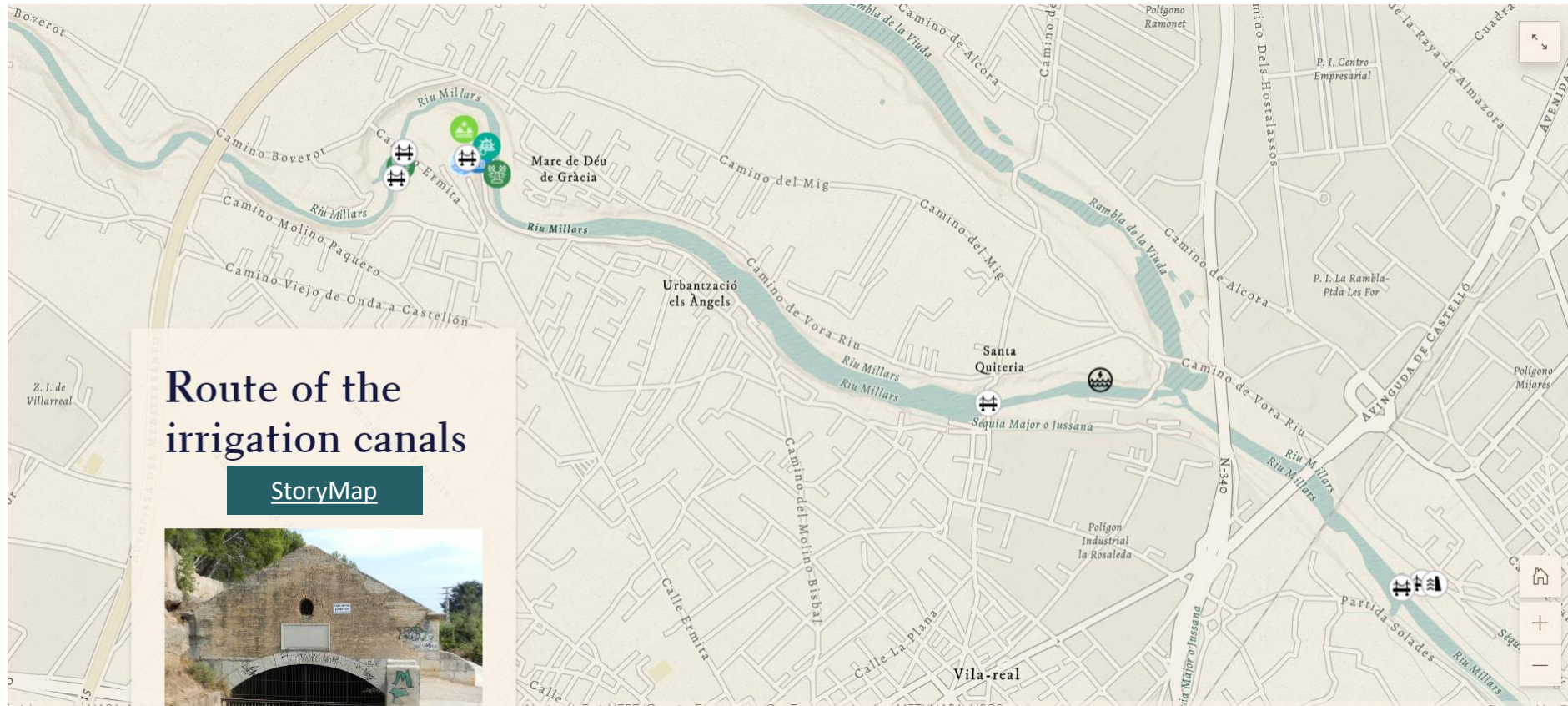


3) Multiplataforma



ArcGIS Online

Creació de StoryMaps a partir dels treballs de camp:



Treball de camp. 1ª LTTA

VILA-REAL



Molino de Bisbal.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
pre-industrial element	elemento preindustrial	elemento pré-industrial	elemento preindustriale	mill	molino	moimho de água	mulino ad acqua

Fue construido a partir de 1776 y destruido por una riada en 1952. Inicialmente fue un molino harinero pero en el siglo XX también fabricó tachas, hielo y borra.

Pantinet de Santa Quitèria.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
civil element	elemento civil	elemento civil	elemento civile	swamp	pantano	pântano	palude

Pequeño embalse construido en 1983 para regular los caudales del río que se derivan en el azud de Almassora-Castelló un poco más abajo. De esta forma se permitió a los regantes eliminar los riegos nocturnos y distribuir el caudal retenido durante el día.

Puente medieval sobre el río Millars.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
civil element	elemento civil	elemento civil	elemento civile	bridge	puente	ponte	ponte

Construcción de finales del siglo XIII que se realiza para permitir el paso sobre el río Millars del nuevo Camino Real que conducía a la ciudad de Vila-real fundada en 1274.

Molino del Terraet.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
pre-industrial element	elemento preindustrial	elemento pré-industrial	elemento preindustriale	mill	molino	moimho de água	mulino ad acqua

Construcción conocida desde 1397, aunque fue demuido en el siglo XV. Vuelve a funcionar en el siglo XVI y de nuevo fue demuido en el siglo XVII por otra riada. Volvió a funcionar como molino harinero durante el siglo XIX, pero la riada de 1922 se llevó todo el rodete y parte del molino, terminando aquí su actividad como tal.



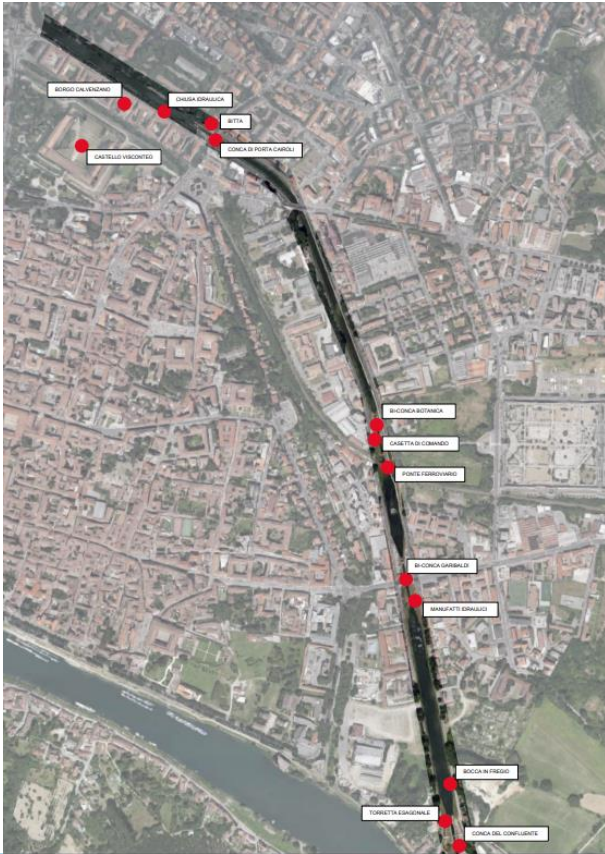
Treball de camp. 1ª LTTA

📍 VILA-REAL



Treball de camp. 2ª LTTA

PAVIA



Naviglio Pavese pathway

Castello Visconteo.

The Naviglio Pavese was realized to irrigate the castle's gardens (XIV century).

Borgo Calvenzano.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
Civil element	elemento civil	elemento civil	elemento civile	Building s complex	Complejo de edificios	Complexo de prédios	Complesso di edifici

Borgo Calvenzano is a complex of buildings designed as a commercial infrastructure of the Naviglio Pavese. It was built in 1816.

Chiusa idraulica.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
Civil element	elemento civil	elemento civil	elemento civile	Hydraulic lock	Bloqueo hidráulico	Trava hidráulica	Chiusa idraulica

It has been constructed in parallel with the Naviglio Pavese during the first years of 1800. It was necessary to divert water in excess.

Conca di Porta Cairoli.

class_name	class_es	class_pt	class_it	name	name_es	name_pt	name_it
Civil element	elemento civil	elemento civil	elemento civile	conca	cuenca	bacia	basin

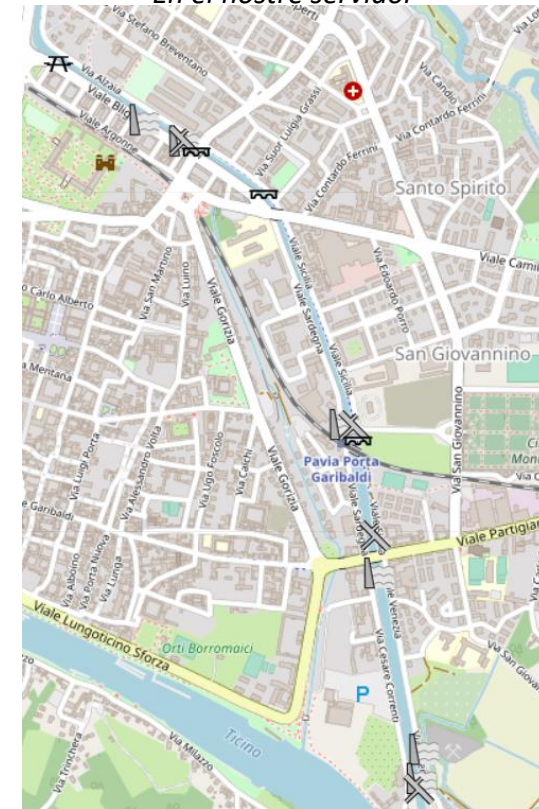
It allows to overcome the unevenness of the canal for navigation. The Project has been developed thanks to Napoleone's engineers, but it was built under austro-hungarian reign.

Bitta

It is a bollard located along the Basin area and it was useful to keep the boats stable during the water fulfillment of the basin. Each Bollard was of property of a noble family that gave it to the city. The name/symbol of the family was impressed on it to show its importance.



En el nostre servidor



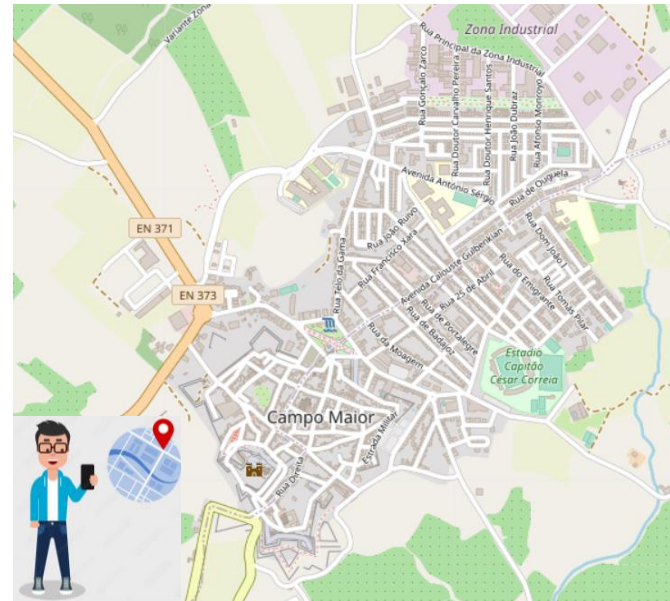
Treball de camp. 2ª LTTA

📍 PAVIA



Próxims treballs

- Casos de estudi duts a terme per els instituts.
- Divulgación científica.
- Treball de camp en Portugal, 3^a LTTA.

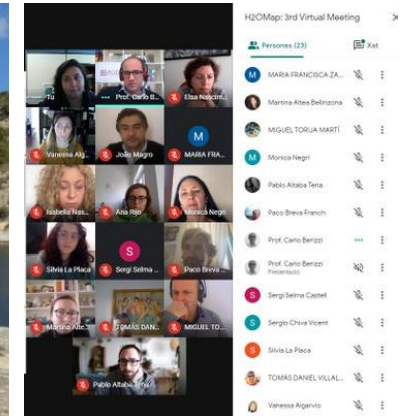


Lliçons apreses

- Gestionar un projecte durant la COVID.
- Equip motivat
 - Objectius clars.
 - Activitats definides.
 - Iniciatives continues, no deixar morir el projecte.
- Importància de la difusió/justificació.



Donar continuïtat a l'eina de mapatge hidràulic



II JORNADA DE PATRIMONI HIDRÀULIC CANALS DE REG



Gràcies
per la vostra atenció.

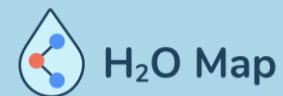
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