

The PEARL knowledge base platform

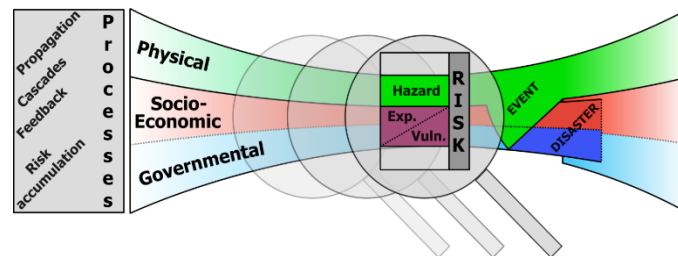
for resilience measures and strategies,
and on the integration of PEARL results into the planning and policy making processes

International Water Week,
Amsterdam, the Netherlands, 2-6 November 2015

Presenter: Christos Makropoulos,
Assistant Professor, NTUA

The PEARL project

Protecting **coastal cities** from extreme hydro-meteorological conditions: risk evolution;
model cascades; risk analysis; decision support: built around several cases



The PEARL Knowledge Base

The PEARL knowledge base is (will be) a “**comprehensive repository**” of:

- ❑ **Resilience measures and strategies** for flood management including engineering, environmental and operational strategies and solutions for adaptation and mitigation
- ❑ **Applications** of resilience measures (single or combined) i.e. real, modelled/simulated case studies or even prototypes/physical models enabling the extraction of **lessons learned** and knowledge of “suitability” of measures per type problem and case study
- ❑ **Tools** supporting measures’ selection such as **multi-objective optimization algorithms** and **multi-criteria decision analysis methods** along with their **references**. Utilising the identified tools, users are qualified to examine alternative interventions options and evaluate strategies and measures alone or in combination against efficiency indicators

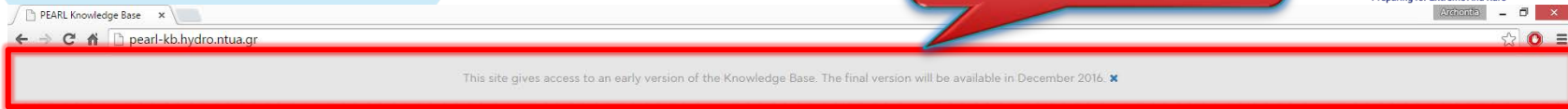
An early version of the Knowledge Base is available through:

<http://pearl-kb.hydro.ntua.gr/>

perl-kb.hydro.ntua.gr

Notification
«early version»

pearl 
Preparing for Extreme And Rare



pearl 

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[Pivot](#)

[About](#)

[Contact](#)

[Search...](#)



Welcome to PEARL Knowledge Base

Track down measures and tools supporting
selection of resilience strategies



MEASURES



CASE STUDIES



TOOLS

Home page

The screenshot shows the PEARL Knowledge Base website. The browser address bar displays 'pearl-kb.hydro.ntua.gr'. The website header includes the 'pearl' logo and navigation links: 'Explore', 'Pivot', 'About', 'Contact', and a search bar. The main content area features a blue background with the text 'Welcome to PEARL Knowledge Base' and 'Track down measures and tools supporting resilience strategies'. Below this, there are three prominent red callout boxes with white text: 'Home page Mouse on Measures', 'Home page Mouse on Case Studies', and 'Home page Mouse on Tools'. Each callout points to a corresponding icon and section: 'MEASURES' (represented by a blue circle with a white wavy line and bar chart icon), 'CASE STUDIES' (represented by a blue circle with a white document and drop icon), and 'TOOLS' (represented by a blue circle with a white wrench and screwdriver icon). The 'TOOLS' section also includes the text 'Search for software tools supporting the selection of resilience strategies'. The footer contains the European Union flag, funding information, social media icons (Facebook, Twitter, LinkedIn), and additional navigation links: 'Explore', 'Pivot', 'About', and 'Disclaimer'.

PEARL Knowledge Base

pearl-kb.hydro.ntua.gr

pearl

Explore | Pivot | About | Contact | Search...

Welcome to PEARL Knowledge Base

Track down measures and tools supporting resilience strategies

Home page
Mouse on Measures

Home page
Mouse on Case Studies

Home page
Mouse on Tools

MEASURES

CASE STUDIES

TOOLS

Search for software tools supporting the selection of resilience strategies

The project received funding from the European Union's Seventh Framework Programme for Research Technological Development and Demonstration under Grant Agreement No 603663

Explore | Pivot | About | Disclaimer

Initialising a query... on Measures

The screenshot shows the PEARL Knowledge Base website. The browser address bar displays 'pearl-kb.hydro.ntua.gr'. The website header includes the 'pearl' logo and a navigation menu with 'Explore', 'Pivot', 'About', and 'Contact'. A search bar is also present. The main content area features a large blue background with the text 'Welcome to PEARL Knowledge Base' and 'Track down measures and tools supporting selection of resilience strategies'. Below this text is a downward-pointing arrow. At the bottom of the main content area, there are three circular icons: 'MEASURES' (highlighted with a red box), 'CASE STUDIES', and 'TOOLS'. The 'MEASURES' icon depicts a blue circle with white wavy lines and a bar chart. The 'CASE STUDIES' icon shows a blue circle with a white document icon and a drop. The 'TOOLS' icon features a blue circle with a white wrench and screwdriver icon.



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Explore Pivot About Disclaimer

Filtering measures... based on Problem Type

Pluvial, Groundwater, Fluvial, Coastal, Drain & Sewer Flooding

The screenshot shows the PEARL Knowledge Base web application. The browser address bar displays 'pearl-kb.hydro.ntua.gr/filter/'. The page features a navigation bar with the 'pearl' logo and a search bar. Below the navigation bar, a red box highlights the filter tabs: 'PROBLEM TYPE', 'MEASURE TYPE', 'SPATIAL SCALE', and 'LAND USE'. A red callout bubble labeled 'Main Classes' points to this area. The main content area displays a colorful illustration of a city with five numbered callouts: 1. PLUVIAL FLOODING (rain clouds), 2. GROUNDWATER FLOODING (water rising from the ground), 3. FLUVIAL FLOODING (river flooding), 4. COASTAL FLOODING (waves crashing over a wall), and 5. DRAIN & SEWER FLOODING (water overflowing from a pipe). A red callout bubble labeled 'Filtering Measures through Illustrations' points to this illustration. To the right, a sidebar titled 'All Filters' contains a list of problem types with checkboxes: Pluvial flooding, Groundwater flooding, Fluvial flooding, Coastal flooding, and Drain & Sewer flooding. A red callout bubble labeled 'Visual Interface' points to the sidebar. Another red callout bubble labeled 'And/or through checkboxes' points to the checkboxes in the sidebar. At the bottom of the sidebar are two buttons: 'SHOW MEASURES' (green) and 'SHOW CASE STUDIES' (orange).

PEARL Knowledge Base

pearl-kb.hydro.ntua.gr/filter/

pearl

How to use: To view measures navigate through the tabs or the filters

PROBLEM TYPE MEASURE TYPE SPATIAL SCALE LAND USE

1 PLUVIAL FLOODING

2 GROUNDWATER FLOODING

3 FLUVIAL FLOODING

4 COASTAL FLOODING

5 DRAIN & SEWER FLOODING

All Filters

PROBLEM TYPES

- ☐ Pluvial flooding
- ☐ Groundwater flooding
- ☐ Fluvial flooding
- ☐ Coastal flooding
- ☐ Drain & Sewer flooding

MEASURE TYPES

SPATIAL SCALES

LAND USE

SHOW MEASURES

SHOW CASE STUDIES

Filtering measures... based on Measure Type

Engineering, Environmental, Operational

PEARL Knowledge Base Filter

pearl

Explore | Pivot | About | Contact Search...

How to use: To view measures navigate through the tabs or the filters

PROBLEM TYPE MEASURE TYPE SPATIAL SCALE LAND USE

1 ENGINEERING

2 ENVIRONMENTAL

3 OPERATIONAL

Engineering

Environmental

Operational

SPATIAL SCALES

LAND USE

SHOW MEASURES

SHOW CASE STUDIES

And/or through checkboxes

Filtering measure
Through illustrations

Filtering measures... based on Spatial Scale

River Basin, Street, City, Neighbourhood, Building

The screenshot shows the PEARL Knowledge Base website interface. The browser address bar displays 'pearl-kb.hydro.ntua.gr/filter/'. The website header includes the 'pearl' logo and navigation links: 'Explore', 'Pivot', 'About', 'Contact', and a search bar. Below the header, a navigation bar contains tabs: 'PROBLEM TYPE', 'MEASURE TYPE', 'SPATIAL SCALE' (highlighted with a red box), and 'LAND USE'. The main content area features five illustrated categories: 1. RIVER BASIN (blue river), 2. STREET (black road), 3. CITY (orange and blue buildings), 4. NEIGHBOURHOOD (yellow and blue buildings), and 5. BUILDING (yellow house). To the right, an 'All Filters' sidebar lists categories: 'PROBLEM TYPES', 'MEASURE TYPES', 'SPATIAL SCALES' (expanded), 'LAND USE', and two buttons: 'SHOW MEASURES' (green) and 'SHOW CASE STUDIES' (orange). The 'SPATIAL SCALES' list includes checkboxes for 'River basin', 'Street', 'City', 'Neighbourhood', and 'Building'. A red speech bubble on the left points to the illustrations, and another on the right points to the 'SPATIAL SCALES' list.

PEARL Knowledge Base

pearl-kb.hydro.ntua.gr/filter/

pearl

Explore | Pivot | About | Contact | Search...

How to use: To view measures navigate through the tabs or the filters

PROBLEM TYPE | MEASURE TYPE | **SPATIAL SCALE** | LAND USE

1 RIVER BASIN

2 STREET

3 CITY

4 NEIGHBOURHOOD

5 BUILDING

All Filters

PROBLEM TYPES

MEASURE TYPES

SPATIAL SCALES

☐ River basin

☐ Street

☐ City

☐ Neighbourhood

☐ Building

LAND USE

SHOW MEASURES

SHOW CASE STUDIES

Filtering measure
Through illustrations

And/or
through
checkboxes

Filtering measures... based on Land Use

Urban, Suburban, Rural, Coastal, Industrial, Park

PEARL Knowledge Base Filter

pearl-kb.hydro.ntua.gr/filter/

pearl

Explore | Pivot | About | Contact Search...

How to use: To view measures navigate through the tabs or the filters

PROBLEM TYPE MEASURE TYPE SPATIAL SCALE LAND USE

Filtering measure
Through illustrations

And/or
through
checkboxes

URBAN 1 SUBURBAN 2 COASTAL 4 INDUSTRIAL 5 PARK 6 RURAL 3

All Filters

PROBLEM TYPES

MEASURE TYPES

SPATIAL SCALES

LAND USE

☐ Urban

☐ Suburban

☐ Rural

☐ Coastal

☐ Industrial

☐ Park

SHOW MEASURES

SHOW CASE STUDIES

Filtering measures... through checkboxes only

PEARL Knowledge Base Filter


pearl-kb.hydro.ntua.gr/filter/#

pearl

Explore | Pivot | About | Contact Search...

How to use: To view measures navigate through the tabs or the filters

PROBLEM TYPE MEASURE TYPE SPATIAL SCALE LAND USE



1 PLUVIAL FLOODING

2 GROUNDWATER FLOODING

3 FLUVIAL FLOODING

4 COASTAL FLOODING

5 DRAIN & SEWER FLOODING

All Filters

PROBLEM TYPES

MEASURE TYPES

SPATIAL SCALES

LAND USE

- ☐ Urban
- ☒ Suburban
- ☐ Rural
- ☒ Coastal
- ☐ Industrial
- ☐ Park

SHOW MEASURES

SHOW CASE STUDIES

Filtering measure
Through check boxes


List of measures... with or without filters

PEARL Knowledge Base / x Archonta

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Selection & Preview of a measure

Permeable paving




Permeable paving is a range of sustainable materials and techniques for permeable pavements with a base and sub base that allow the movement of water through the surface. In addition to reducing runoff...

Rain garden




A rain garden is a planted depression or a hole that allows rainwater runoff from impervious urban areas, like roofs, driveways, walkways, parking lots, and compacted lawn areas, the opportunity to be...


Increased capacity of sewer/drainage system



Maintenance of hydraulic structures of the storm drainage system




Flood control dam




A flood control dam is a dam built to catch surface runoff and stream water flow in order to regulate the water flow in areas below the dam. Flood control dams are commonly used to reduce the damage c...

Sea Dike




The primary function of sea dikes is to protect low-lying, coastal areas from inundation by the sea. It is a predominantly earth structure consisting of a sand core, a watertight outer protection layer...

Land use conversion



Land use conversion is a general term for large scale geographic change. Afforestation is one such land conversion in which trees are planted on previously non forested areas. Depending on the tree sp...

Stormwater tanks



Stormwater tanks are an effective way of reducing peak flow and equalising flow rates from storm water runoffs in the sewer system. Placed strategically, stormwater tanks mean better utilisation of th...

PROBLEM TYPES

- ☐ Pluvial flooding
- ☐ Groundwater flooding
- ☐ Fluvial flooding
- ☐ Coastal flooding
- ☐ Drain & Sewer flooding

MEASURE TYPES

SPATIAL SCALES

LAND USE

REFRESH

SHOW CASE STUDIES

Redirecting to the list of measures

Detail page of a measure...Flood Control Dam

PEARL Knowledge Base - x

pearl-kb.hydro.ntua.gr/d/ResilientMeasure/1

(Co-) Benefits

Conditions applying the measure

Illustration banner with changing image

Attributes of measure (Name, type, illustrations, applications, etc.)

definition

A flood control dam is a dam built to catch surface runoff and stream water to regulate the water flow in areas below the dam. Flood control dams are constructed to reduce the damage caused by flooding or to manage the flow rate through the dams are multipurpose, therefore even when their main purpose of construction is irrigation, water supply, hydro power etc., they always assist in flood protection and temporal regulation of flow they provide.

benefits

Flood control dams can also assist in replenishing groundwater and trapping sediment. Co-benefits might also be hydro power generation, irrigation, human consumption, industrial use, aquaculture and navigability.

conditions

Dams and reservoirs can be effectively used to regulate river levels and flooding downstream of the dam by temporarily storing the flood volume and releasing it later. The most effective method of flood control is accomplished by an integrated water management plan for regulating the storage and discharges of each of the main dams located in a river basin. Each dam is operated by a specific water control plan for routing floods through the basin without damage. This means lowering of the reservoir level to create more storage before the rainy season. This strategy eliminates flooding. The number of dams and their water control management plans are established by comprehensive planning for economic development and with public involvement. Flood control is a significant purpose for many of the existing dams and continues as a main purpose for some of the major dams of the world currently under construction.

name

LandUse
Rural

MeasureType
Engineering

ProblemType
Fluvial

Scale
River Basin

Illustration
Grand Coulee Dam
General plan of Rapentosa dam
The front elevation of Rapentosa dam
One of the two flood control dams constructed in Kamaraki stream

Example of query... on Measure

I am interested in exploring measures & strategies:

- ❑ for **Pluvial Flooding**,
- ❑ a measure which is **engineering**,
- ❑ independent of **spatial scale** (river basin, city, neighbourhood, etc.)
- ❑ and might be implemented in an **urban and rural** area

Example of query on Measure...Steps

User's "Choices" are depicted both in graphics & checkboxes

PEARL Knowledge Base Filter

pearl-kb.hydro.ntua.gr/filter/#

pearl

Explore | Pivot | About | Contact | Search...

How to use: To view measures navigate through the tabs or the filters

PROBLEM TYPE | MEASURE TYPE | SPATIAL SCALE | LAND USE

1 URBAN

2 SUBURBAN

3 RURAL

4 COASTAL

5 INDUSTRIAL

6 PARK

All Filters

PROBLEM TYPES

MEASURE TYPES

SPATIAL SCALES

LAND USE

- ☒ Urban
- ☒ Suburban
- ☐ Rural
- ☐ Coastal
- ☐ Industrial
- ☐ Park

SHOW MEASURES

SHOW CASE STUDIES

Which measures meet my criteria?

Query's results on measures

PEARL Knowledge Base 1/ x


pearl-kb.hydro.ntua.gr/measures/

pearl

Explore | Pivot | About | Contact | Search...


View Illustrated map ▼

Permeable paving




Permeable paving is a range of sustainable materials and techniques for permeable pavements with a base and sub base that allow the movement of water through the surface. In addition to reducing runoff...

Stormwater retention tank




Stormwater tanks are an effective way of reducing peak flow and equalising flow rates from storm water runoffs in the sewer system. Placed strategically, stormwater tanks mean better utilisation of th...

Floodwall




A floodwall is a primarily vertical artificial barrier designed to temporarily contain the water of a river or other waterway which may rise to unusual levels during seasonal or extreme weather events...

Increased capacity of sewer/drainage system



Increasing the capacity of the sewer/drainage system increases the ability of the system to drain excess surface water during heavy rains and prevent flooding. ...

Maintenance of hydraulic structures of the storm drainage system



Set up regulations on maintenance of the hydraulic structures and drainage network infrastructures so that their maximum conveyance capacity will be unlimited....

« 1 2 3 4 5 »

All Filters

PROBLEM TYPES ▲

- ☐ Pluvial flooding
- ☐ Groundwater flooding
- ☐ Fluvial flooding
- ☐ Coastal flooding
- ☐ Drain & Sewer flooding

MEASURE TYPES ▼

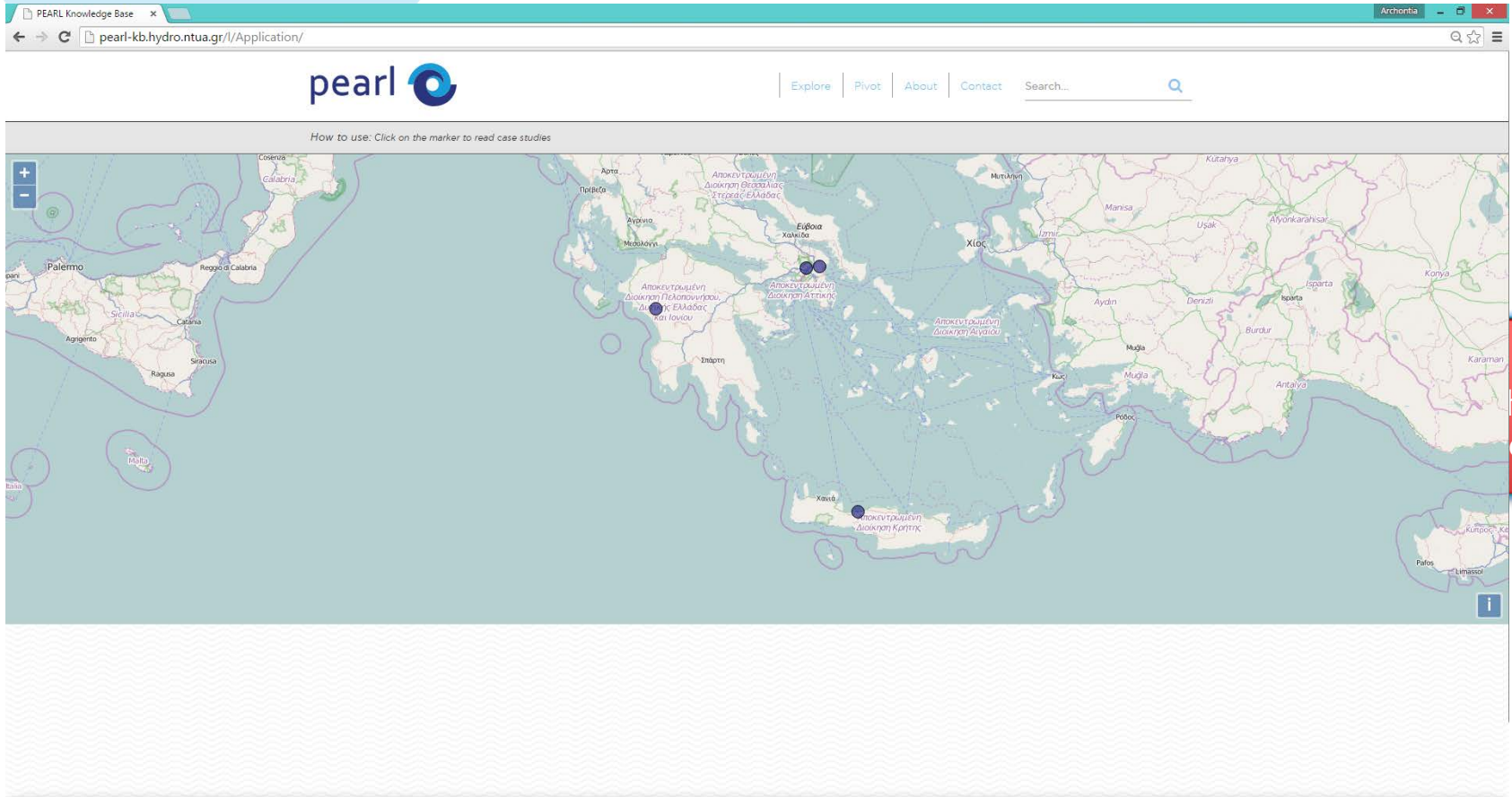
SPATIAL SCALES ▼

LAND USE ▼

REFRESH ↻

SHOW CASE STUDIES

Applications... with or without filters



Initialising a query... on Case Studies

The screenshot shows a web browser window with the URL `pearl-kb.hydro.ntua.gr`. The page features the PEARL logo and a navigation bar with links: [Explore](#), [Pivot](#), [About](#), [Contact](#), and a search bar. The main content area has a blue background with the text: "Welcome to PEARL Knowledge Base" and "Track down measures and tools supporting selection of resilience strategies". Below this, there are three circular icons: a wavy line for "MEASURES", a document with a drop for "CASE STUDIES" (which is highlighted with a red rectangular box), and a wrench for "TOOLS". The footer includes the European Union flag, funding information, and social media icons for Facebook, Twitter, and LinkedIn.

PEARL Knowledge Base

pearl

[Explore](#) | [Pivot](#) | [About](#) | [Contact](#) | Search...

Welcome to PEARL Knowledge Base

Track down measures and tools supporting selection of resilience strategies


MEASURES CASE STUDIES TOOLS

The project received funding from the European Union's Seventh Framework Programme for Research Technological Development and Demonstration under Grant Agreement No 603663

[f](#) [t](#) [in](#) | [Explore](#) | [Pivot](#) | [About](#) | [Disclaimer](#)

Map explorer page

PEARL Knowledge Base | PEARL Knowledge Base | 88.198.145.18/pearl/I/Application/

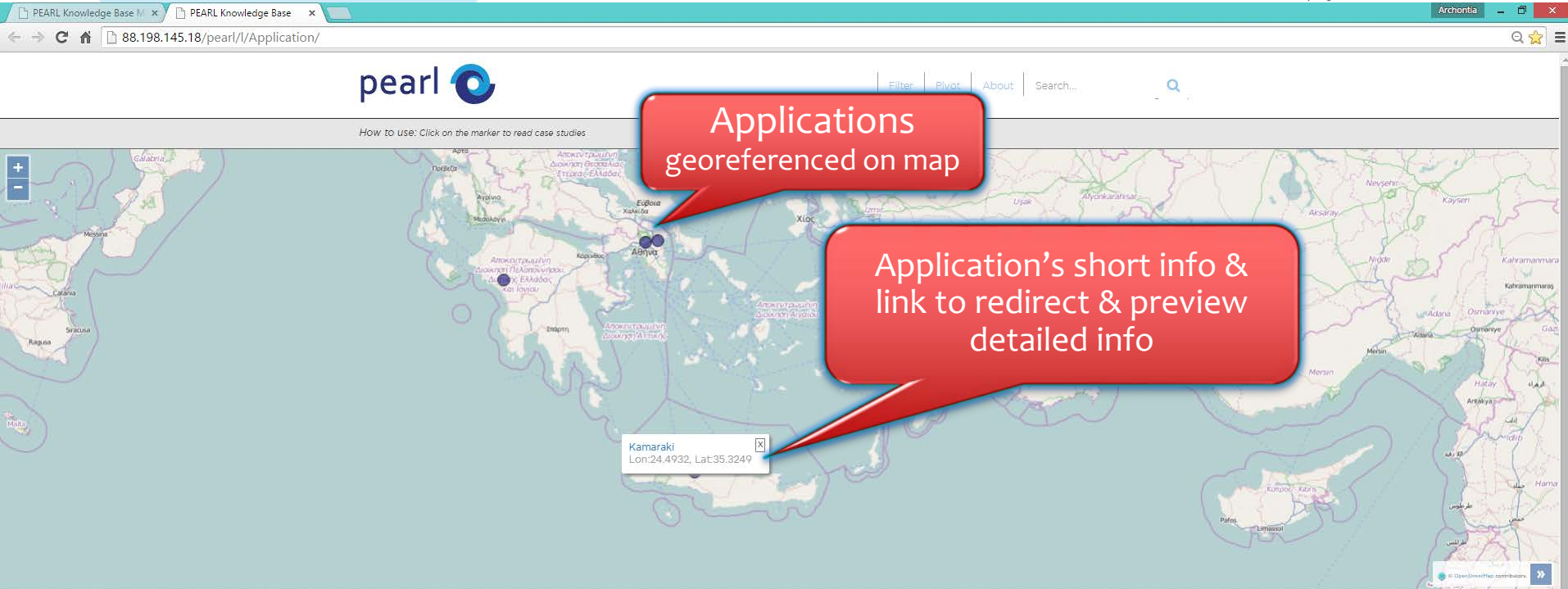
pearl  Filter Pivot About Search...

How to use: Click on the marker to read case studies

Applications georeferenced on map

Application's short info & link to redirect & preview detailed info

Kamaraki
Lon:24.4932, Lat:35.3249



Application of a flood control dam in «Kamaraki» stream

application of measure in Rethymno, Crete, Greece

Description

Lessons Learned

Information

coordinates,
operation cost, etc.)

Illustrations
banner with changing images

description

Rethymno faced severe damages during past flood events the main of which occurred on October 1991 and on November 1999. One of the engineering measures that was implemented was the study and construction of four small flood control dams in the area of the three main streams that cross the city (two in Kamaraki stream, one in Koraka stream). The three of them have already been constructed and the study of Koraka dam has been completed. The aforementioned dams also ensure retention that was causing blockage problems in the main cross sections of the drainage conduits.

lessons learned

The construction of the dams had positive impact and assisted in the partial flood protection of the city. But still, there are several more streams that drain through the city and can cause flood problems. Apart from that, maintenance works in the downstream structures are necessary e.g. cleaning grates that ensure their proper functioning and keep the whole cross sections of the conduits active.

implementation measure

transferable methodology

Yes

ResilientMeasure

Flood control dam

Illustration

One of the two flood control dams constructed in Kamaraki stream

Country

Greece

ImplementationCost

100.000-1.000.000

ResponsibleAuthorityLevel

Local

Impact

Mildly Positive

ApplicationType

Real Case Study

Initialising a query... on Tools

The screenshot shows the PEARL Knowledge Base website in a browser window. The browser's address bar displays 'pearl-kb.hydro.ntua.gr'. The website's header includes the 'pearl' logo, navigation links for 'Explore', 'Pivot', 'About', and 'Contact', and a search bar. The main content area features a blue background with the text 'Welcome to PEARL Knowledge Base' and 'Track down measures and tools supporting selection of resilience strategies'. Below this text is a downward-pointing arrow. At the bottom of the main area are three circular icons: 'MEASURES' (wavy lines), 'CASE STUDIES' (a document with a drop), and 'TOOLS' (wrenches). The 'TOOLS' icon is highlighted with a red rectangular box. A red speech bubble with the text 'Under Development' points to the 'TOOLS' icon. The footer contains the European Union flag, funding information, social media icons for Facebook, Twitter, and LinkedIn, and additional navigation links for 'Explore', 'Pivot', 'About', and 'Disclaimer'.

PEARL Knowledge Base

pearl-kb.hydro.ntua.gr

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Explore | Pivot | About | Contact | Search...

Welcome to PEARL Knowledge Base

Track down measures and tools supporting selection of resilience strategies

MEASURES

CASE STUDIES

TOOLS

Under Development

The project received funding from the European Union's Seventh Framework Programme for Research Technological Development and Demonstration under Grant Agreement No 603663

Explore | Pivot | About | Disclaimer

Call for Contribution...

Would you like to fill in the excel macro-enabled questionnaire and assist in the collection of **Application of Measures** (description, illustrations, references) and enrich the PEARL Knowledge Page?

Contact George Karavokiros (gkaravo@itia.ntua.gr) and Archontia Lykou (alykou@central.ntua.gr) from NTUA

Reference

Please add here references to a documented resilient measures and/or an application of resilient measure (e.g. case study)

pearl

Related entities (at least one selection required)

Measure

Application (e.g. Case study)

Author(s)

Source title

URL

Keywords (comma separated)

Abstract

Editor/Publisher

Source type

Year of publication

Clear all

Mandatory fields are in bold

OK Cancel

References

Resilient Measures

Please add here NEW resilient measures, which are not already listed under the "Measures" sheet.

Name of measure

Definition & Primary Function

Benefits & Co-benefits

Measure Type

Specify in which categories the measure corresponds

☐ Engineering ☐ Environmental ☐ Operational

Application Target

☐ Adaptation ☐ Mitigation

Measure Type Subcategories

Select the subcategories to which the measure belongs

☐ Protection Approaches ☐ Source Control ☐ Infiltration Techniques ☐ Conveyance & Storage Structures ☐ Information, Education & Communication ☐ Land Use Control ☐ Financial Preparedness ☐ Flood Preparedness & Emergency Response & Infrastructures ☐ Recovery ☐ Water Retention or Detention ☐ Resilient Capacity Enhancement ☐ Coastal Management ☐ Conventional Urban Drainage

Spatial Scale

Specify the scale(s) where the specific measure is applied

☐ River Basin ☐ City ☐ Neighbourhood ☐ Street ☐ Building

Land Use

Specify if the measure is applied to the specific land use types

☐ Urban ☐ Coastal ☐ Suburban ☐ Industrial ☐ Rural ☐ Park

Comments

Clear all

Mandatory fields are in bold

OK Cancel

Resilience Measures

Applications of resilient measures

Please add here data related to applications of resilient measures, i.e. case studies, simulations and lab models

pearl

Basic Information

Name

Application type

Country

2nd Country

Longitude

Latitude

Measures

Measure #1

Measure #2

Measure #3

Measure #4

Description of problem and its applied measure(s)

Comments

Implementation

Level of Responsible Authority

Implementation Cost

Other Stakeholders Involved

Impact of floods

before the measures are implemented

☐ Loss of human life ☐ Loss of human life ☐ Damage to property ☐ Damage to property ☐ Crop damage ☐ Crop damage ☐ Loss of livestock ☐ Loss of livestock ☐ Health conditions' deterioration ☐ Health conditions' deterioration ☐ Loss of communication ☐ Loss of communication ☐ Denaturation of roads and bridges ☐ Denaturation of roads and bridges ☐ Disruptions of clean water supplies ☐ Disruptions of clean water supplies ☐ Loss of power ☐ Loss of power ☐ Standstill of economic activities ☐ Standstill of economic activities ☐ Freshwater pollution ☐ Freshwater pollution ☐ Need to evacuate ☐ Need to evacuate

Assessment of measure(s) and methodology applied

How do you think the measure(s) served their purpose of implementation?

Is the methodology generic and transferable?

Lessons learned

Clear all

Mandatory fields are in bold

OK Cancel

Application of Resilience Measures

Illustration of Measure

Measure

Title

Source

Filename

Clear all

Mandatory fields are in bold

OK Cancel

Illustration of Measures

Illustration of Application

Please add here data related to an illustration of an application of resilient measures and/or an application of resilient measure (e.g. case study)

Application

Title

Source

Filename

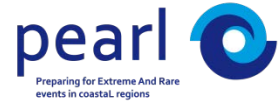
Clear all

Mandatory fields are in bold

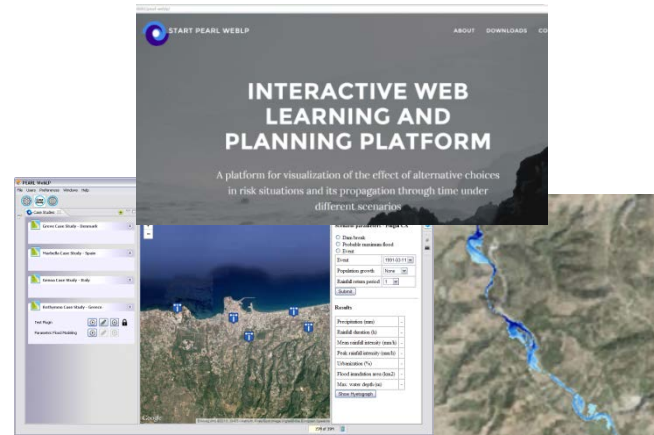
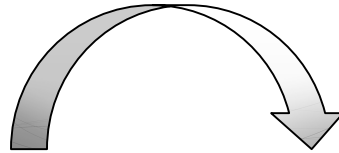
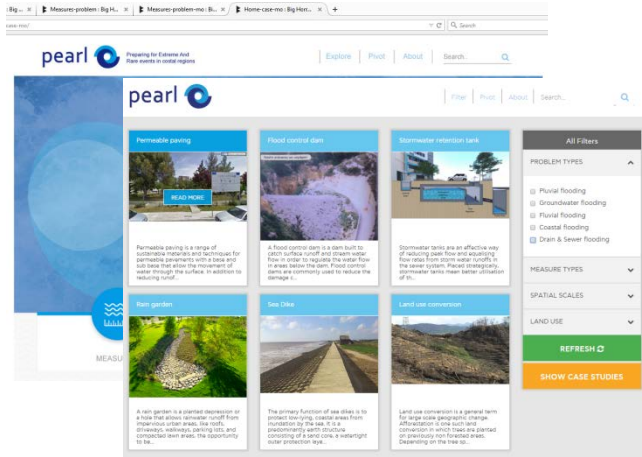
OK Cancel

Illustration of Application

The PEARL Knowledge Base combined with the PEARL Web Learning & Planning platform



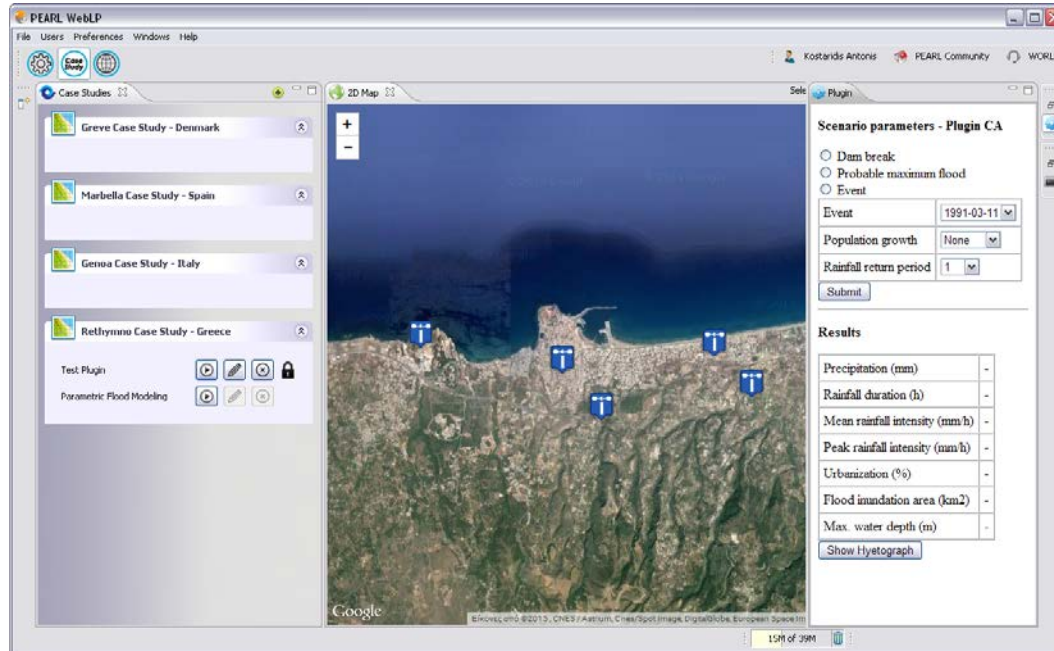
enhancing policy making processes and flood management procedures



Access to the **Knowledge Base** for resilience measures, strategies & tools supporting their selection & enabling end users to find solution to flood problems

An interactive platform enabling visualisation of the **effect of the alternative choices on risk situations** examined through simulated scenarios

The PEARL WebLP

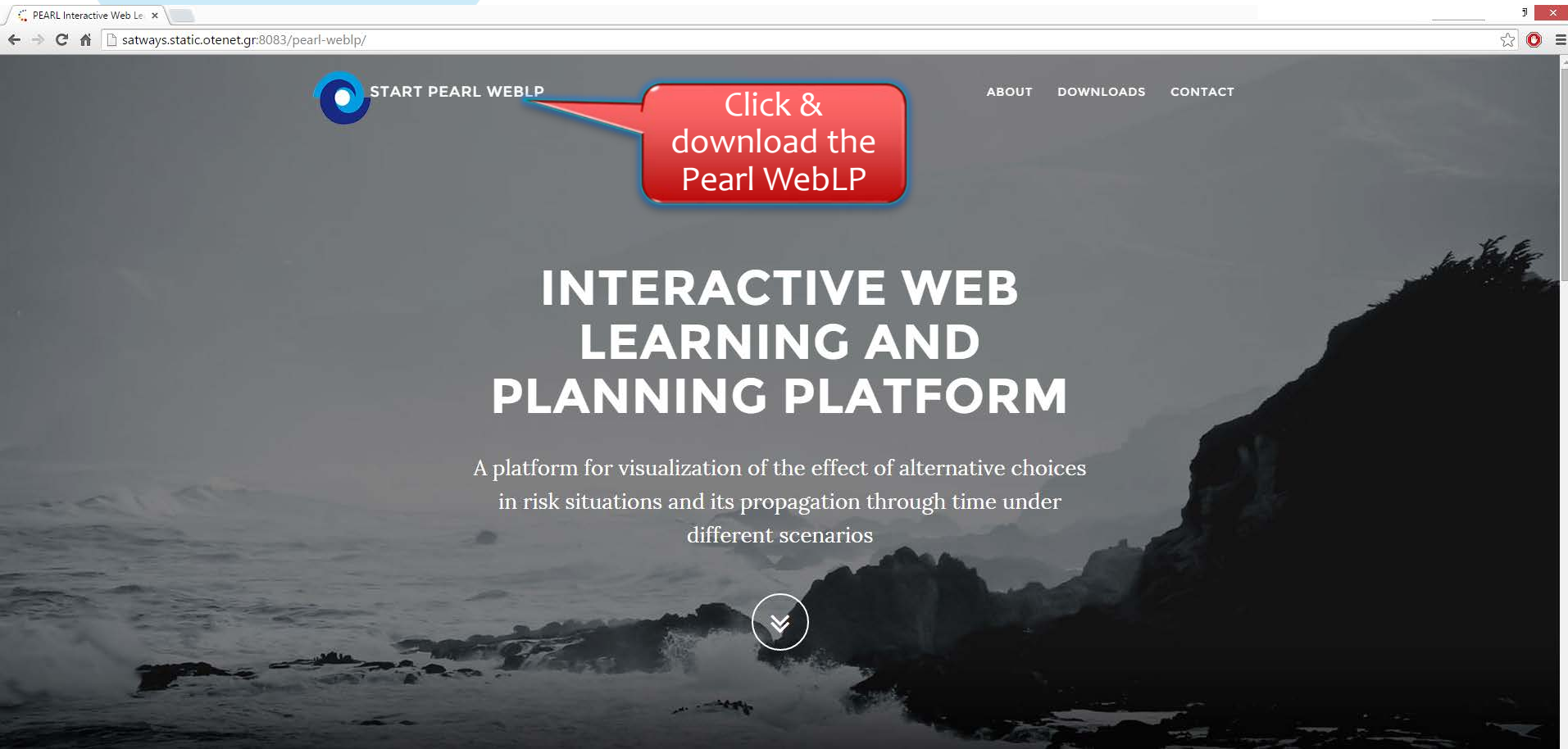


An interactive platform enabling visualisation of the **effect of the alternative choices on risk situations** by giving access to a library of possible future that will assist future analysis and decision making processes of the local authorities

Scenario Manager application per Case

Future downloading of the WebLP from Satways' server:

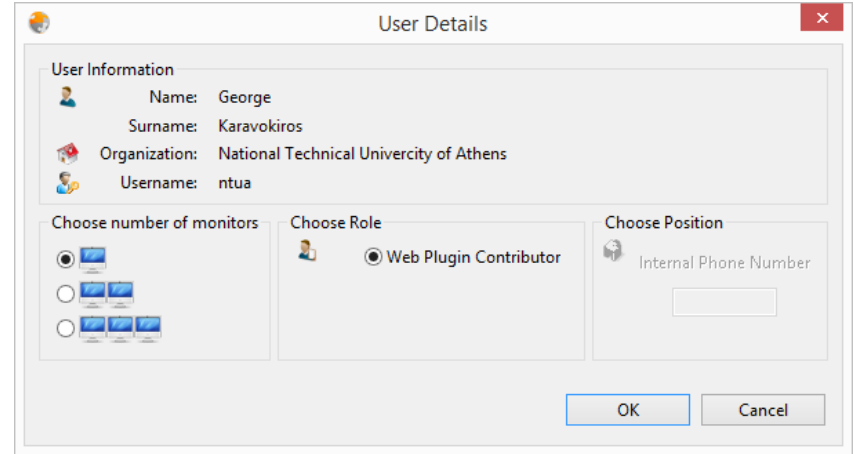
URL: <http://satways.static.otenet.gr:8083/pearl-weblp>



Logging in... using personal credentials



1. Logging in



2. User detail login dialog

Home page

Case Studies
Explorer Views

2D Map View

Scenario Plugin
View

The screenshot displays the PEARL WebLP software interface. The main window is divided into three primary sections:

- Case Studies Explorer Views (Left Panel):** A list of case studies with expandable/collapsible icons. The listed studies are:
 - Greve Case Study - Denmark
 - Marbella Case Study - Spain
 - Genoa Case Study - Italy
 - Rethymno Case Study - GreeceBelow the list, there are two sections: "Test Plugin" and "Parametric Flood Modeling", each with a play button, an edit button, and a lock button.
- 2D Map View (Center Panel):** A satellite map of a coastal area, likely Genoa, Italy, showing the city and surrounding terrain. Several blue location pins are placed along the coastline. The map includes zoom in (+) and zoom out (-) controls in the top-left corner.
- Scenario Plugin View (Right Panel):** A panel titled "Scenario parameters - Plugin CA" containing a form for configuring simulation parameters. The parameters include:
 - Event: 1991-03-11
 - Population growth: None
 - Rainfall return period: 1A "Submit" button is located below the form. Below the form is a "Results" section with a table of simulation outputs.

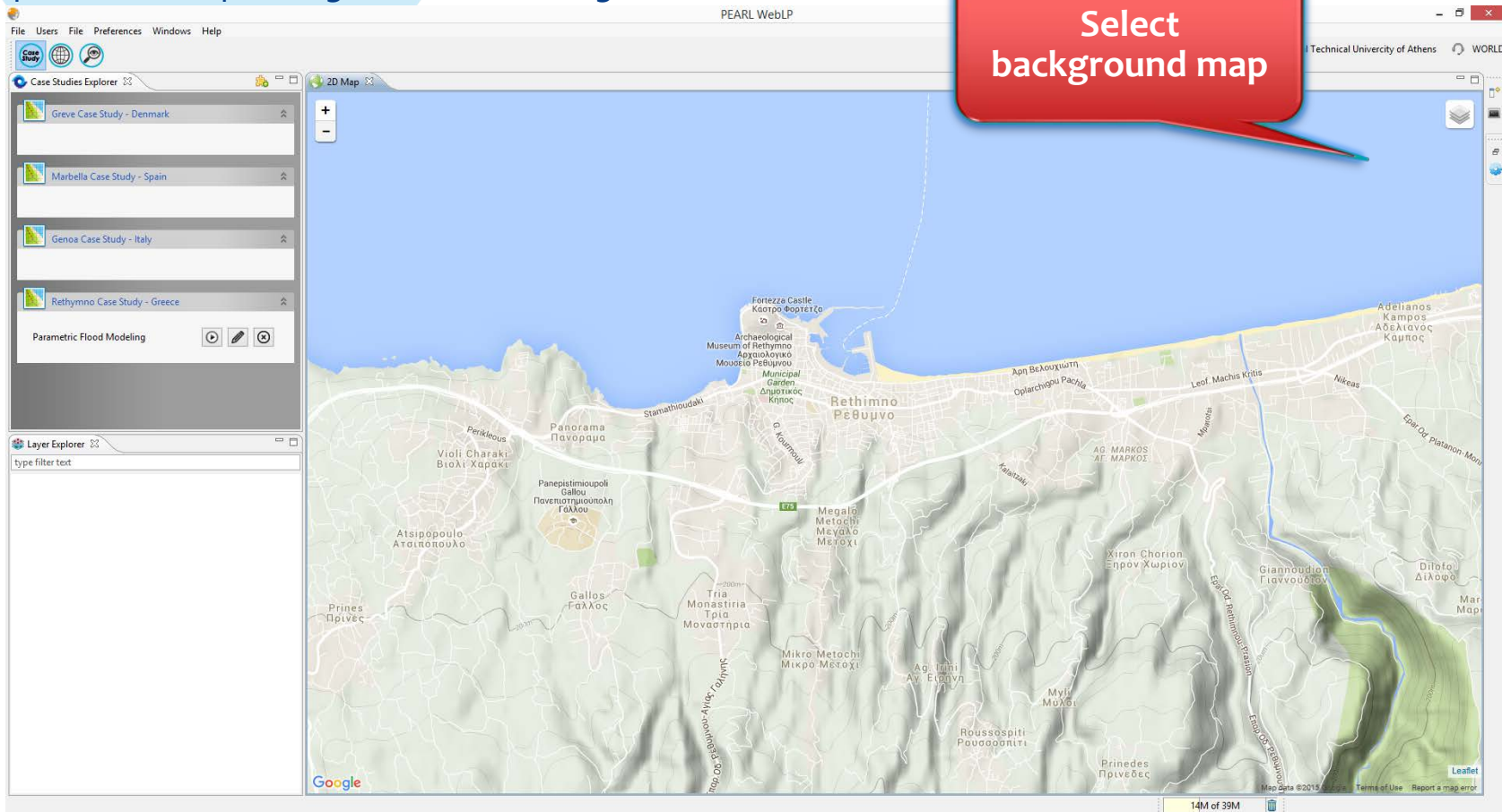
Results	
Precipitation (mm)	-
Rainfall duration (h)	-
Mean rainfall intensity (mm/h)	-
Peak rainfall intensity (mm/h)	-
Urbanization (%)	-
Flood inundation area (km2)	-
Max. water depth (m)	-

At the bottom of the Results section is a "Show Hyetograph" button. The bottom status bar of the application shows "15M of 39M".

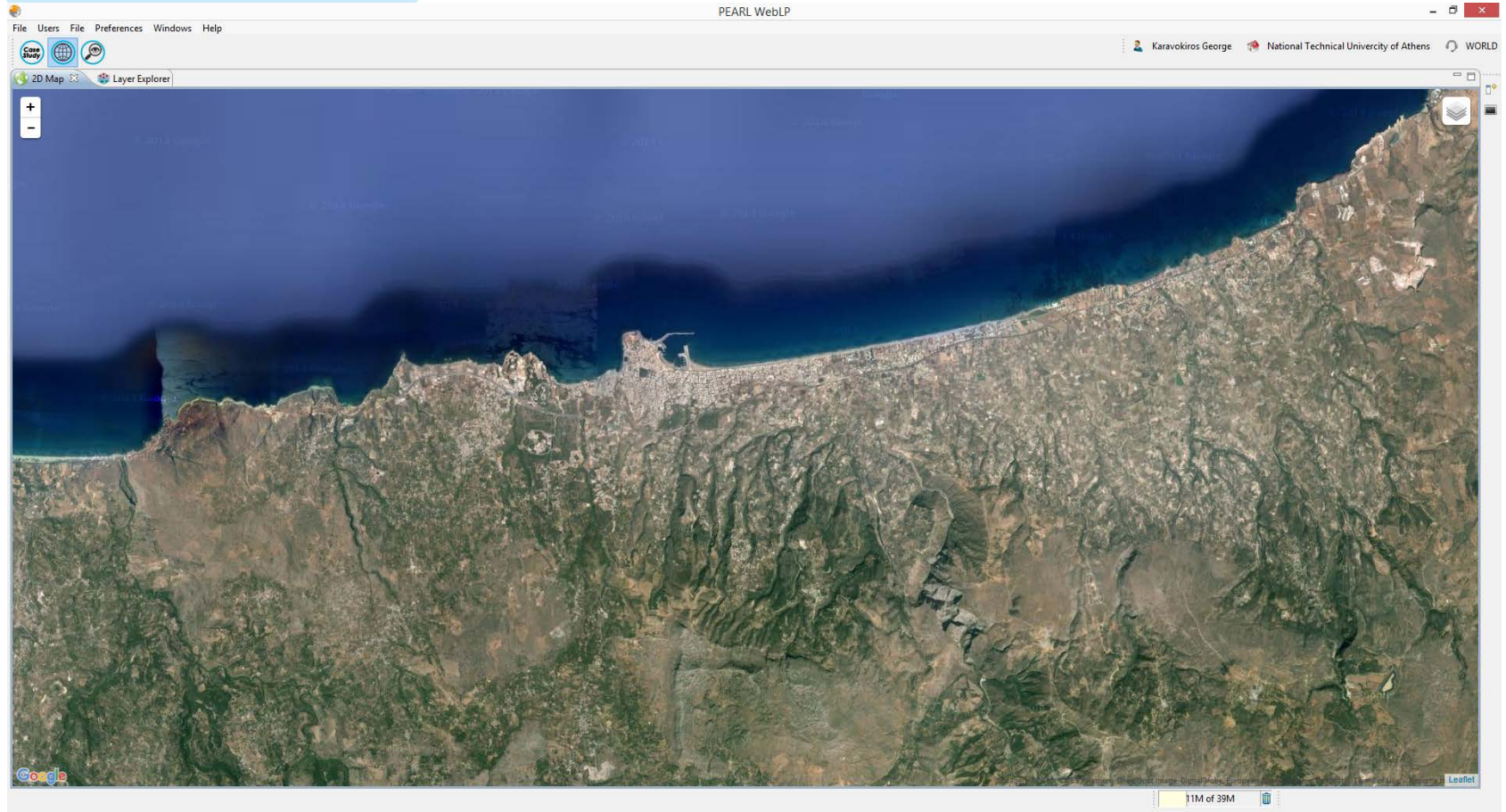
Available background maps

OpenStreetMap, Google Satellite, Google Terrain

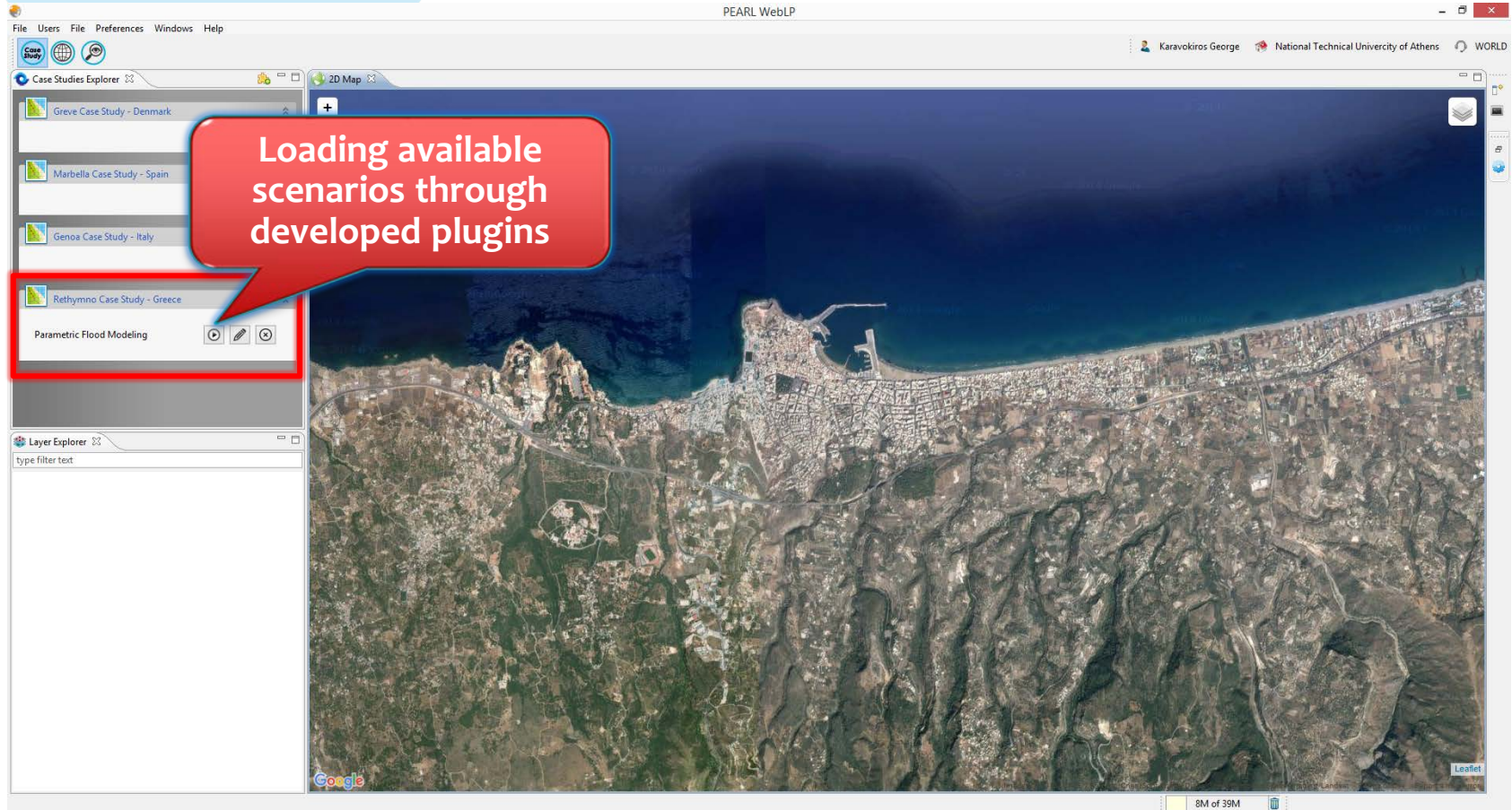
Select
background map



Full screen option



Available scenarios per case studies



Different scenarios & parameters selection

The screenshot displays the PEARL WebLP web application interface. The main area is a 2D map of a coastal city, likely Athens, showing urban areas and surrounding terrain. The interface includes several panels:

- Case Studies Explorer:** A list of case studies on the left side, including Greve Case Study - Denmark, Marbella Case Study - Spain, Genoa Case Study - Italy, and Rethymno Case Study - Greece. Below this list is a section for Parametric Flood Modeling.
- Layer Explorer:** A panel at the bottom left with a search bar labeled "type filter text".
- Event Configuration Panel:** A panel on the right side with a dropdown menu for "Event" (set to "1991-03-11"), a dropdown for "Population growth" (set to "None"), and a dropdown for "Rainfall return period" (set to "1"). A "Submit" button is located below these options.
- Results Panel:** A panel on the right side showing a table of results. The table has two columns: the parameter name and its value (indicated by a minus sign). The parameters listed are Precipitation (mm), Rainfall duration (h), Mean rainfall intensity (mm/h), Peak rainfall intensity (mm/h), Urbanization (%), Flood inundation area (km2), and Max. water depth (m). A "Show Hyetograph" button is located below the table.

Two red callout boxes highlight specific features:

- Opening Scenario Manager (auto-hide selection):** A red callout box pointing to the "Event" dropdown menu in the Event Configuration Panel.
- Viewing Results & Selected Parameters for specific scenarios:** A red callout box pointing to the "Results" panel.

The bottom status bar shows "14M of 39M".

Viewing Scenarios & their results

based on different Precipitation Return Periods

PEARL WebLP

File Users File Preferences Windows Help

Karavokiros George National Technical University of Athens WORLD

Case Studies Explorer

- Greve Case Study - Denmark
- Marbella Case Study - Spain
- Genoa Case Study - Italy
- Rethymno Case Study - Greece

Parametric Flood Modeling

2D Map

Plugin Tool

Scenarios About

Scenario parameters

☐ Dam break ☐ Probable maximum flood

☒ Event

Event: 1991-03-11

Population growth: None

Rainfall return period: 1

Submit

Results

Precipitation (mm)	35.00000
Rainfall duration (h)	8h 13'
Mean rainfall intensity (mm/h)	4.30000
Peak rainfall intensity (mm/h)	8.70000
Urbanization (%)	15.00000
Flood inundation area (km2)	0.52810061419
Max. water depth (m)	1.78000

Show Hyetograph

Google

Imagery ©2015, CNES / Airbus, OneSat/Spot Image, DigitalGlobe, European Space Imaging, Landsat

15M of 39M

Viewing Scenarios & their results

based on structure failures e.g. dam break

PEARL WebLP

File Users File Preferences Windows Help

Karavakios George National Technical University of Athens WORLD

Case Studies Explorer

- Greve Case Study - Denmark
- Marbella Case Study - Spain
- Genoa Case Study - Italy
- Rethymno Case Study - Greece

Parametric Flood Modeling

2D Map

Plugin Tool

Scenarios About

Scenario parameters

☒ Dam break ☐ Probable maximum flood

☐ Event

Event: 1991-03-11

Population growth: None

Rainfall return period: 1

Submit

Results

Precipitation (mm)	-
Rainfall duration (h)	-
Mean rainfall intensity (mm/h)	-
Peak rainfall intensity (mm/h)	-
Urbanization (%)	15.00000
Flood inundation area (km2)	3.10804123165
Max. water depth (m)	6.52000

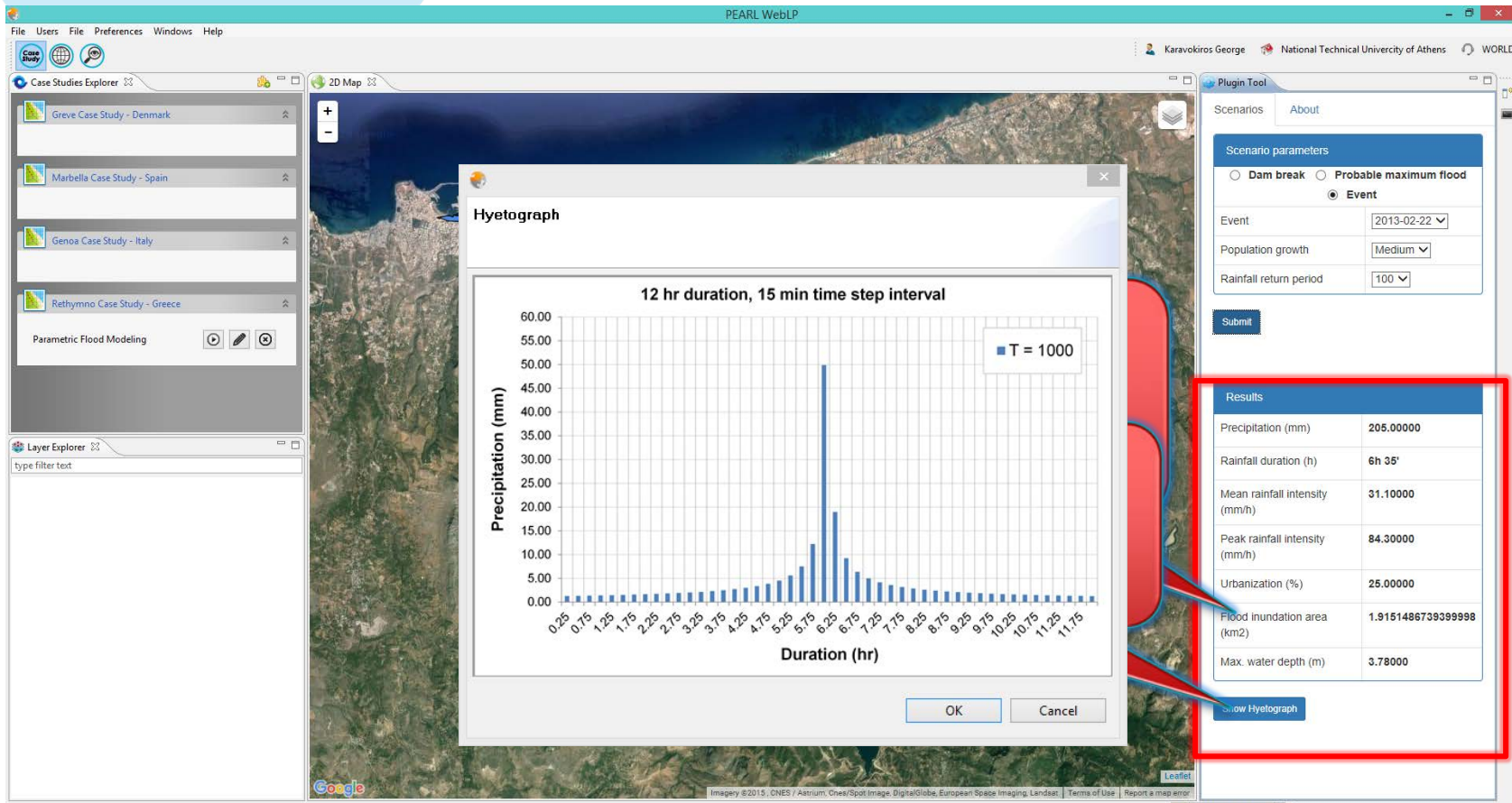
Show Hyetograph

Google

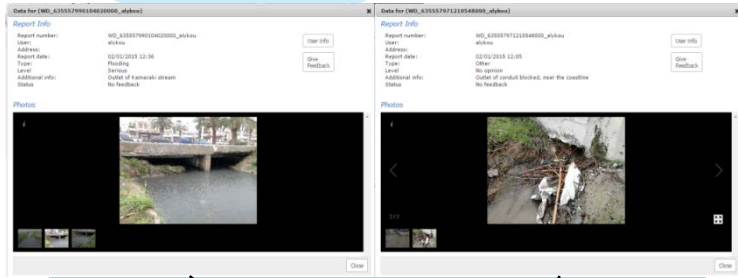
Imagery ©2015, CNES / Astrium, OneSat, Spot Image, DigitalGlobe, European Space Imaging, Landsat | Terms of Use | Report a problem | Leaflet

10m of 39M

Viewing Scenarios & their results



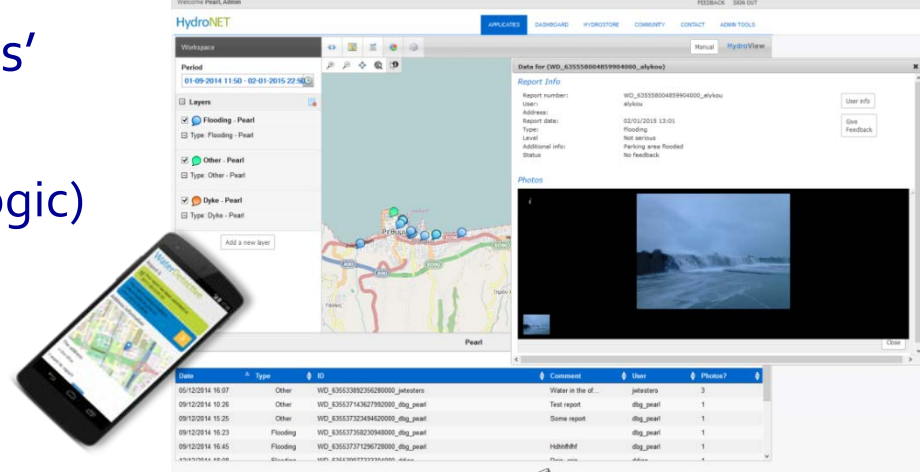
PEARL WebLP integrated with citizens' reporting flood event app "Water Detective" (developed by Hydrologic)



Flood reports created and submitted by citizens using the app



Rerouting of reports to responsible authorities based on content

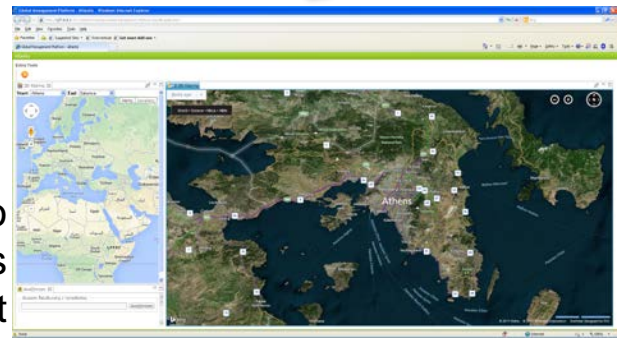


HR's WD portal



PostgreSQL/PostGIS

Web based front end of Satways platform



Viewing selected report

Details of submitted report provided by end users

Open photograph with single “click”

3rd photograph

Observations

Date	Level	User
2014-12-31 12:53:00.0	Not serious	alykou
2014-12-31 13:22:00.0	Not serious	alykou
2014-12-31 14:39:00.0	Not serious	alykou
2014-12-31 15:00:00.0	Not serious	alykou
2014-12-31 15:04:00.0	Not serious	alykou
2014-12-31 15:08:00.0	Not serious	alykou
2014-12-31 15:11:00.0	Not serious	alykou
2014-12-31 15:15:00.0	Serious	alykou
2014-12-31 16:38:00.0	Serious	alykou
2014-12-31 16:48:00.0	Serious	alykou
2014-12-31 17:05:00.0	Serious	alykou
2014-12-31 20:03:00.0	Serious	alykou
2015-01-02 13:35:00.0	No opinion	alykou
2015-01-02 14:02:00.0	No opinion	alykou
2015-01-02 14:05:00.0	No opinion	alykou
2015-01-02 14:16:00.0	Serious	alykou
2015-01-02 14:24:00.0	Serious	alykou
2015-01-02 14:36:00.0	Serious	alykou
2015-01-02 14:53:00.0	Serious	alykou
2015-01-02 14:58:00.0	Serious	alykou
2015-01-02 15:01:00.0	Not serious	alykou
2015-01-02 15:05:00.0	Serious	alykou
2015-01-28 13:44:00.0	Not serious	talos

Observation Details

Report Information

Report Number: WD_6355579694571080.0

User: alykou

Address:


Report Date: 2015-01-02 14:02:00.0

Type:

Level: No opinion

Additional Info: Outlet of conduit near the coastline

Status:



Details of submitted report provided by end users

3rd photograph

The PEARL knowledge base platform

for resilience measures and strategies,
and on the integration of PEARL results into the planning and policy making processes

International Water Week,
Amsterdam, the Netherlands, 2-6 November 2015

Presenter: Christos Makropoulos,
Assistant Professor, NTUA