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Assessing vulnerabilities in a cross-border and multi-risk context

12 - nov - 2024, Jaime Ribalaygua Batalla, jrb@meteogrid.com

General information and consortium

- Starting date: **01/02/2024**
- Duration: **24 months**
- Call: **UCPM-2023-KAPP-PV**
- Topic: **Knowledge for Action in Prevention and Preparedness (PV_PP)**
- Estimated total cost: **898,149.44 €**
- Maximum EU contribution: **763,426.96 €**



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VALABRE
ÉTABLISSEMENT PUBLIC

Disaster Risk
Management

Background: VESPRA project

- VESPRA Project GA:101004896 (UCPM-2020-PP-AG)
- 2020-2023
- a protocol for the collection and standardization of vulnerable elements
- a collection system together with a geographical database
- the application of vulnerability models for different natural and human-induced hazards
- international training exercises to test results

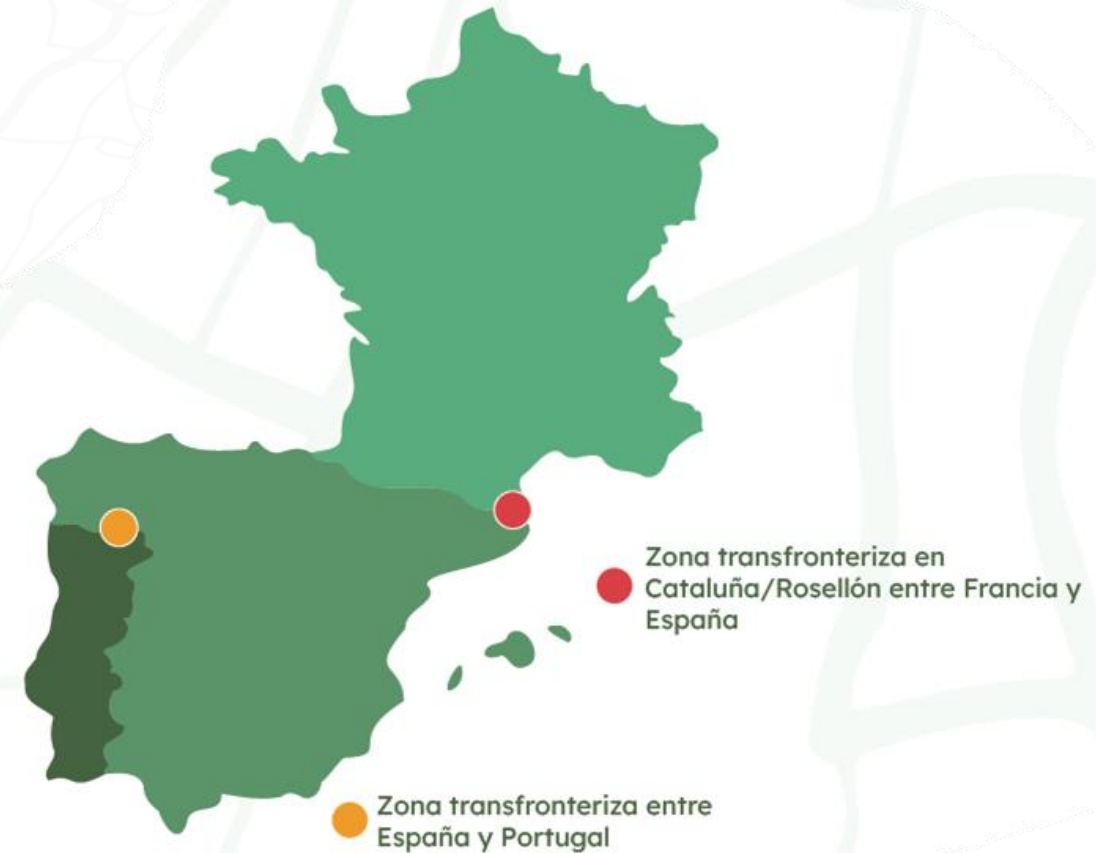


Results converted into operational services (Comunidad de Madrid, Región de Murcia)

Other applications: cooperation for development in Nicaragua, Climate Kic projects...

VERA Objectives

- **Develop and improve risk assessments** by incorporating **cross-risk effects**.
- Foster **better cross-border and ERCC cooperation**.
- Develop **new methodologies for vulnerability assessment** and integrate **multi-risk approaches**.
- **Improve communications and alerts** taking into account specific **population needs**.
- **Practical application and training** with DRM



VERA Pilot cases

- **Spain - France Border**

- Very mountainous area
- Critical infrastructures, tourism
- High environmental “quality”



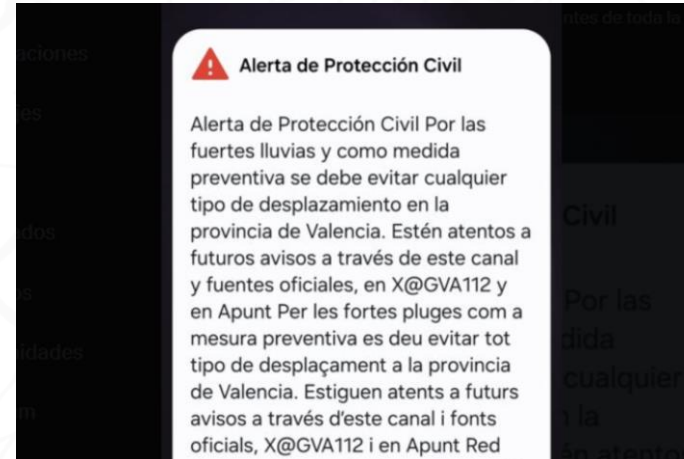
- **Spain - Portugal Border**

- Rural area, low population
- Traditional use of fire
- Agriculture and eucalyptus



Context: climate change and emergencies

- The **need for emergency planning tools** is crucial.
 - **Climate change increases our need** for adaptation planning.
- Making the most of **lessons learnt** from (increasingly frequent) catastrophic events
 - **Tools that would have provided valuable information** on the vulnerable elements affected.
 - **Warnings and alerts to the population** are of vital importance.
- **Cross-border scenarios** occur in **complex environments** with different approaches to vulnerability or different emergency protocols.



- Avisos
- > Listado
- Cambios pendientes
- > Listado

Referencias

Catastro

- Catastro

Espacios protegidos

- Espacios Naturales Protegidos

Límites

- Límites autonómicos
- Límites municipales

INUNMUR - fluvial

- T10
- T100
- T500

PELIGROSIDAD POR INUNDACION

FLUVIAL	MARINA
< 0.2 m	0 m
0.2 - 0.4 m	0 - 0.2 m
0.4 - 0.7 m	0.2 - 0.4 m
0.7 - 1.0 m	0.4 - 0.7 m
1.0 - 1.5 m	0.7 - 1.0 m
1.5 - 2.0 m	1.0 - 1.5 m
> 2.0 m	1.5 - 2.0 m
> 2.0 m	> 2.0 m

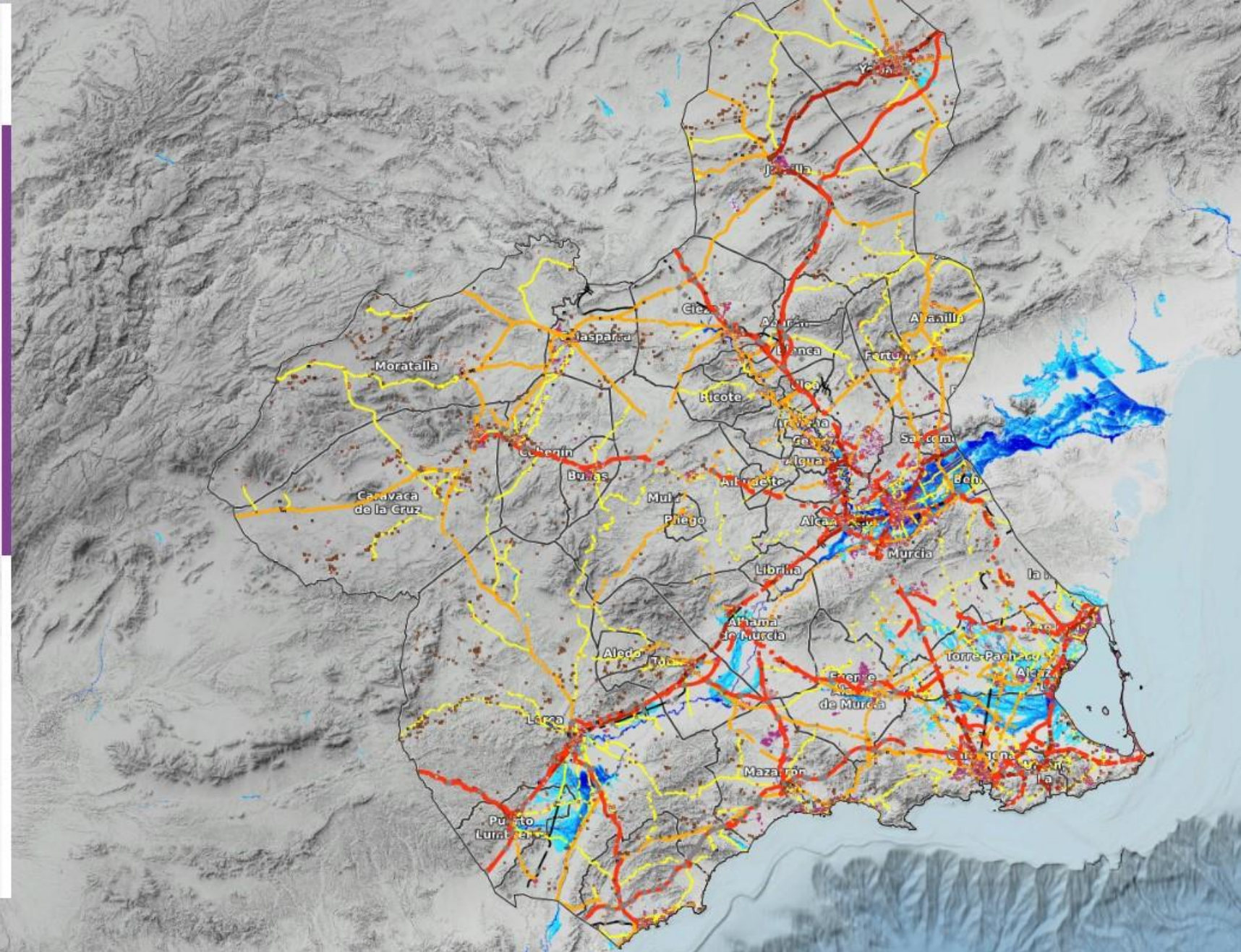
INUNMUR - marina

- T100
- T500

CONMAMUR

- Vulnerabilidad medioambiental

499921, 4290092
ETRS 89 UTM 30





- Avisos
- > Listado
- Cambios pendientes
- > Listado



Referencias

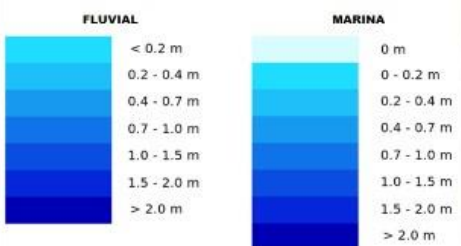
- Catastro
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PELIGROSIDAD POR INUNDACION



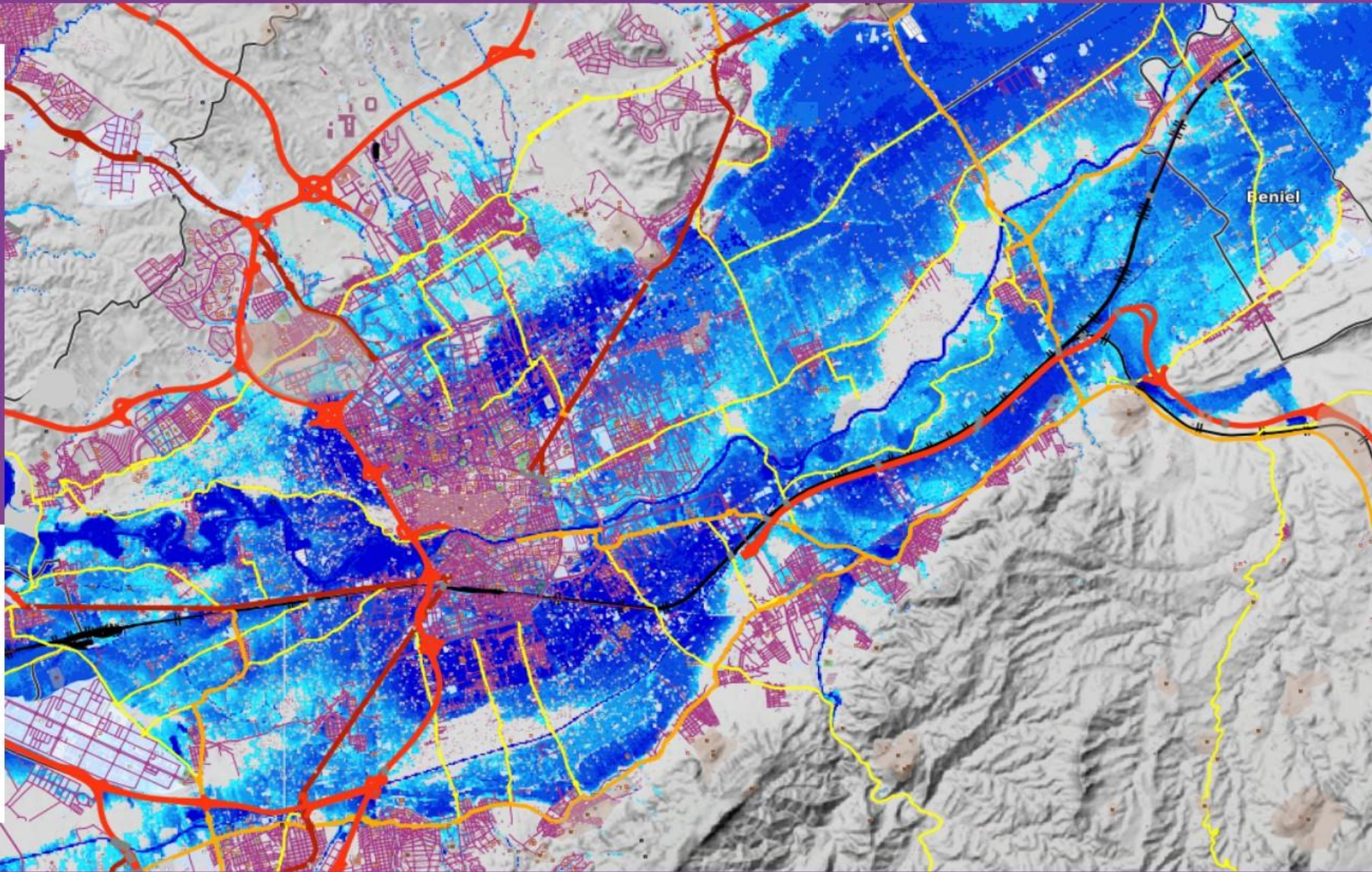
INUNMUR - marina

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CONMAMUR

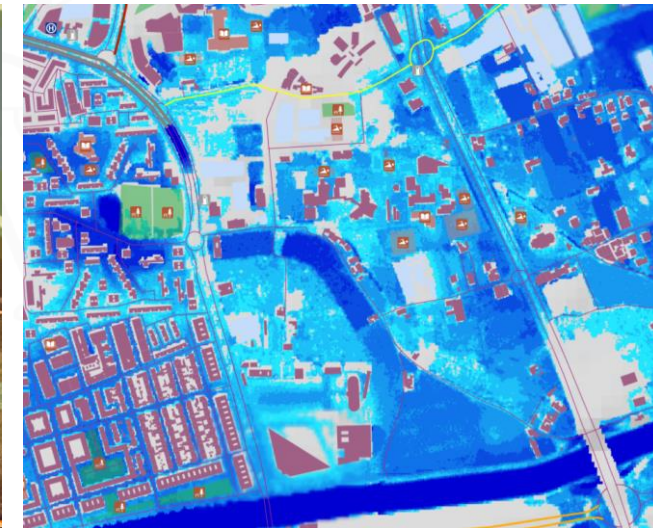
- Vulnerabilidad medioambiental

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VERA: Assessing vulnerabilities

- Tools for collecting **vulnerable elements** for various risks in a cross-border environment
 - Cataloguing and harmonizing information
 - Incorporating detailed information on the vulnerable elements
 - Processing people's information and needs
- Tools **to assess vulnerability**
 - Easy to use
 - Useful implementation in DRM tools and protocols
 - Dynamic adaptation (daily recalculation)



VERA: Platform

Nº de elementos expuestos	Tiempo de simulación																Total	
	10	40	90	100	170	180	190	200	210	220	230	240	270	290	330	450		470
Carreteras	1	1	4	1	2	2	4	1	1	4	2	2	2	1	1	1	2	32
Construcciones				2				1	2	2					1			8
Complejos hoteleros y albergues										1								1
Total	1	1	4	3	2	2	4	2	3	4	5	2	2	1	2	1	2	41

VERA: Multirisk context

New methodologies based on **artificial intelligence** and new **multi-risk approaches** will be developed

- Ability to assess the same element regarding several risks and determine a **multi-vulnerability**.
- Vulnerability relationships between the different elements that allows to identify **dependencies and cascade effects**, for example the characterization of buildings in relation to the access roads.
- Improvement in the study of the **population** (positioning in the emergency).

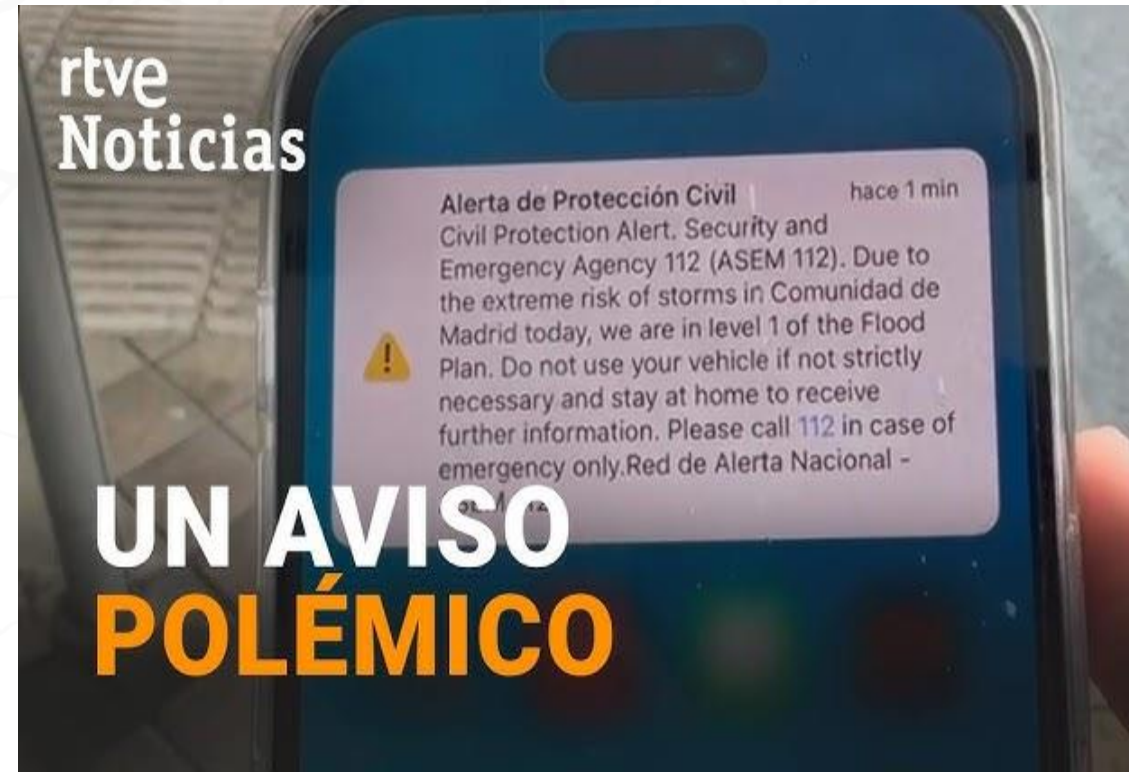


VERA: Communications and alerts

Communications and alerts will be developed taking into account the **specific needs of the population and risks.**

A lot of things to think of and to decide:

- Pre-alert and general information
- Alert and risk awareness
- Protocols
- Population response
- Education and training



Wish list

- **Extension to other areas and countries** (a catalogue of vulnerable elements was elaborated with this extension in mind, looking for standardization)
- **Extension to other hazards**
- **Integration into a European Service** (vulnerable elements collection is quite automated)
- **Continue to provide and improve operational services**, adapted to specific “local” needs (integrating real-time weather observations and forecasts)

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vera

VULNERABLE ELEMENTS AND RISK ASSESSMENT

Assessing vulnerabilities in a cross-border and multi-risk context

THANK YOU

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