

# EDERA MONITORING OF FLOOD EPISODES OCTOBER AND NOVEMBER 2024 IN THE REGION OF MURCIA

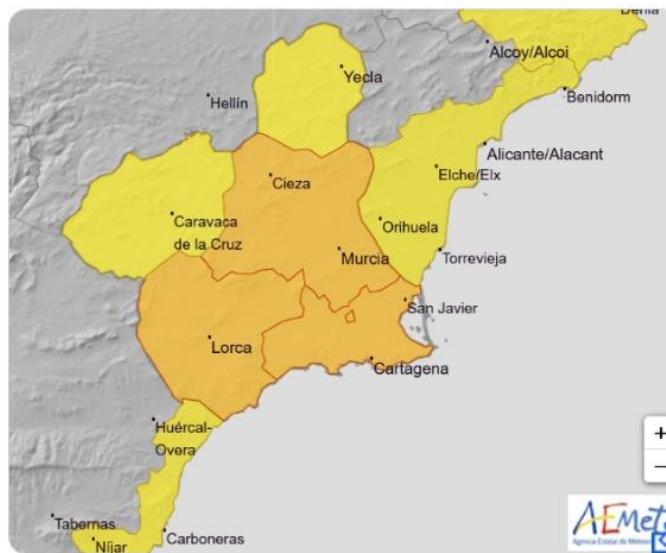
*M Fernanda Arbáizar Barrios  
Head of the civil protection service of the Region of Murcia*

***EDERA Final workshop 22 november 2024***

# Meteorological Situation - Episode November 3, 2024

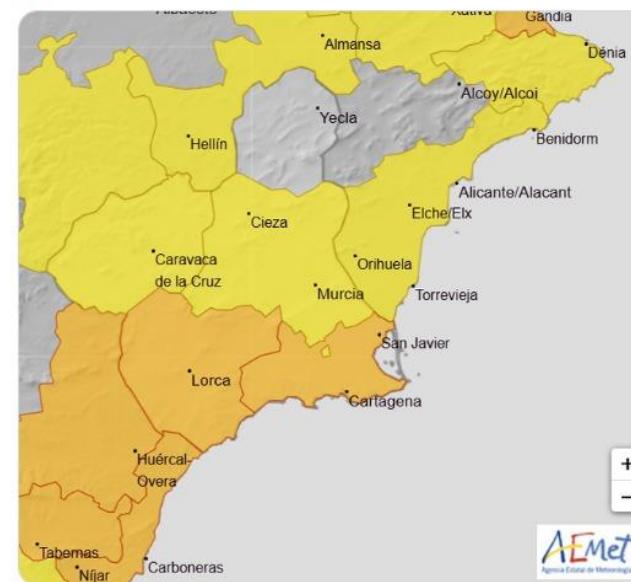
112 Región de Murcia  
@112rmurcia

Aviso nivel NARANJA de @AEMET\_Esp  
[noticias.112rmurcia.es/?Gkrxn](https://noticias.112rmurcia.es/?Gkrxn)



21,18 HORAS  
(2/11/2024)

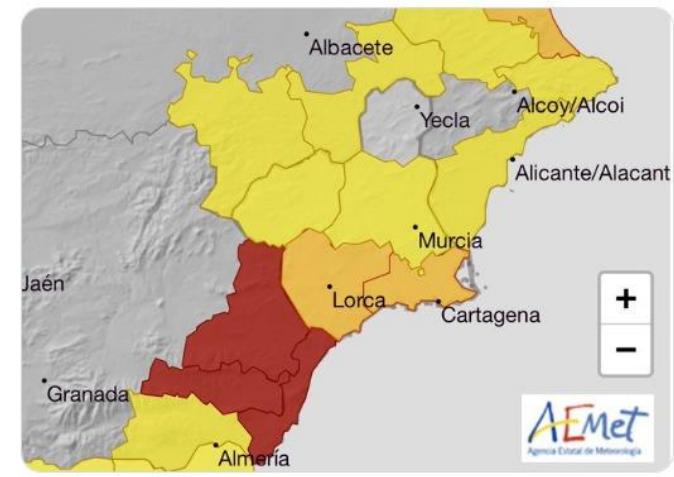
112 Región de Murcia @112rmurcia · 3 nov. 2024  
Actualización boletín @AEMET\_Esp  
[noticias.112rmurcia.es/?0ZSJk](https://noticias.112rmurcia.es/?0ZSJk)



08,20 HORAS  
(3/11/2024)

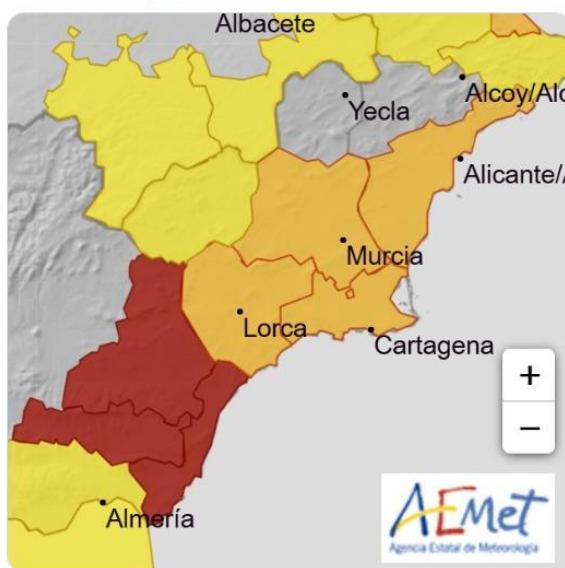
112 Región de Murcia @112rmurcia · 3 nov. 2024  
La @AEMET\_Esp ha emitido aviso de nivel rojo por lluvia (que puede llegar a los 120 litros en 12 horas) en comarcas de Almería limítrofes con la #RegióndeMurcia.

Mucha precaución si vives en poblaciones cercanas.



12,08 HORAS  
(3/11/2024)

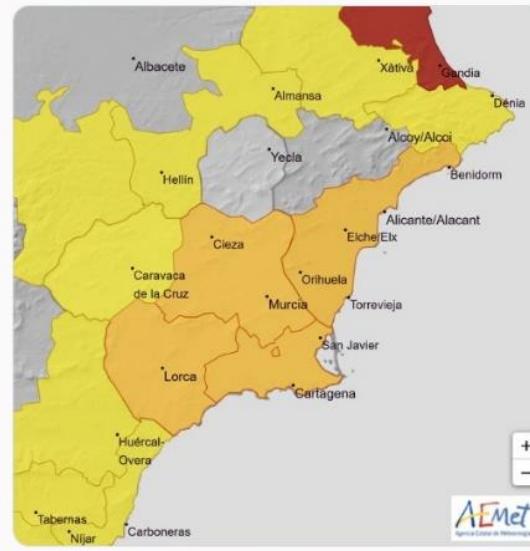
112 Región de Murcia @112rmurcia · 3 nov. 2024  
Actualización de @AEMET\_Esp para la #RegióndeMurcia  
Sube a nivel naranja la Vega del Segura.  
[aemet.es/eltiempo/pr...](https://aemet.es/eltiempo/pr...)



12,39 HORAS  
(3/11/2024)

112 Región de Murcia @112rmurcia · 3 nov. 2024  
La @AEMET\_Esp actualiza sus avisos y para la #RegióndeMurcia.

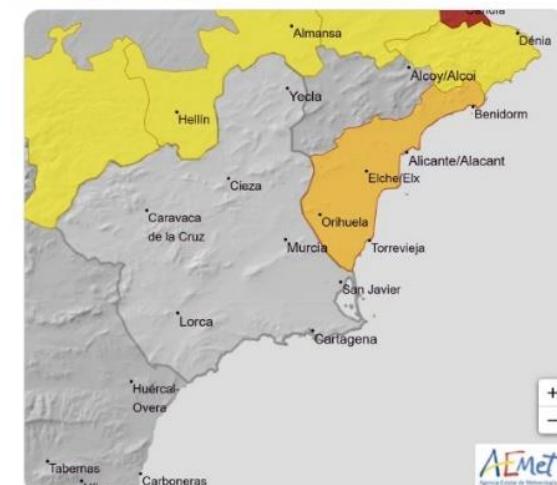
Precipitación en una hora entre 25 y 50 mm  
Acumulado en 12 horas de hasta 90 mm  
Posibilidad de tormentas  
[aemet.es/eltiempo/pr...](https://aemet.es/eltiempo/pr...)



16,43 HORAS  
(3/11/2024)

112 Región de Murcia @112rmurcia · 3 nov. 2024  
La @AEMET\_Esp actualiza boletín fenómenos para la #RegióndeMurcia.

EMITIDO A LAS 16:53 HORA OFICIAL DEL 03/11/2024. VÁLIDO HASTA LAS 00:00 HORA OFICIAL DEL 05/11/2024.  
SE CANCELAN LOS AVISOS NARANJAS ASÍ COMO LOS AMARILLOS PARA ESTE PERÍODO DE VALIDEZ  
[aemet.es/eltiempo/pr...](https://aemet.es/eltiempo/pr...)

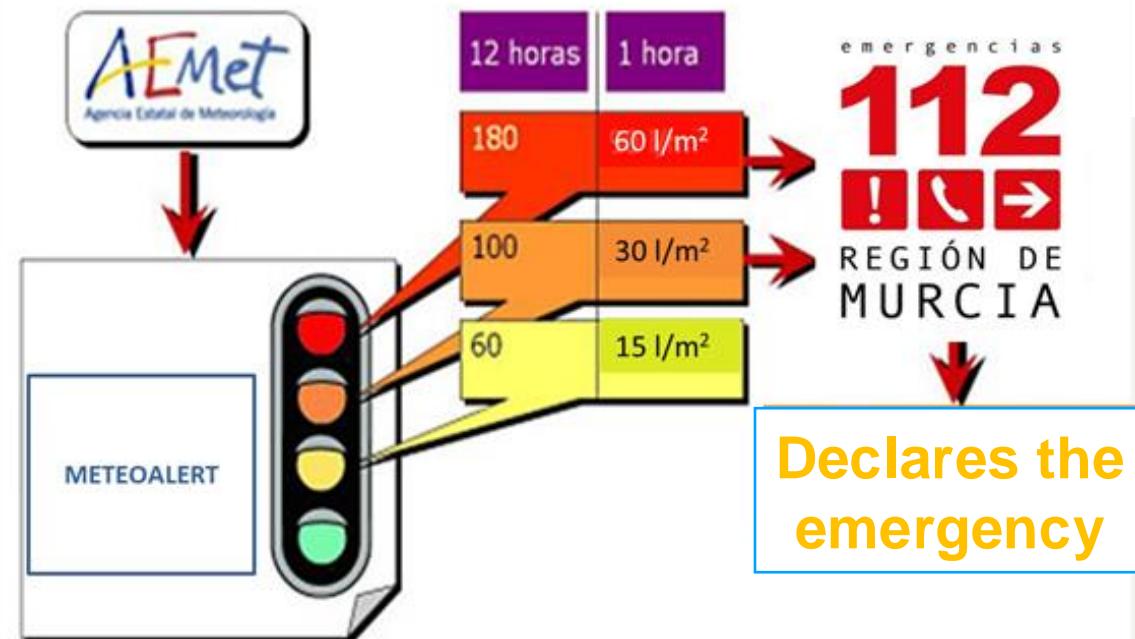


17,03 HORAS  
(3/11/2024)

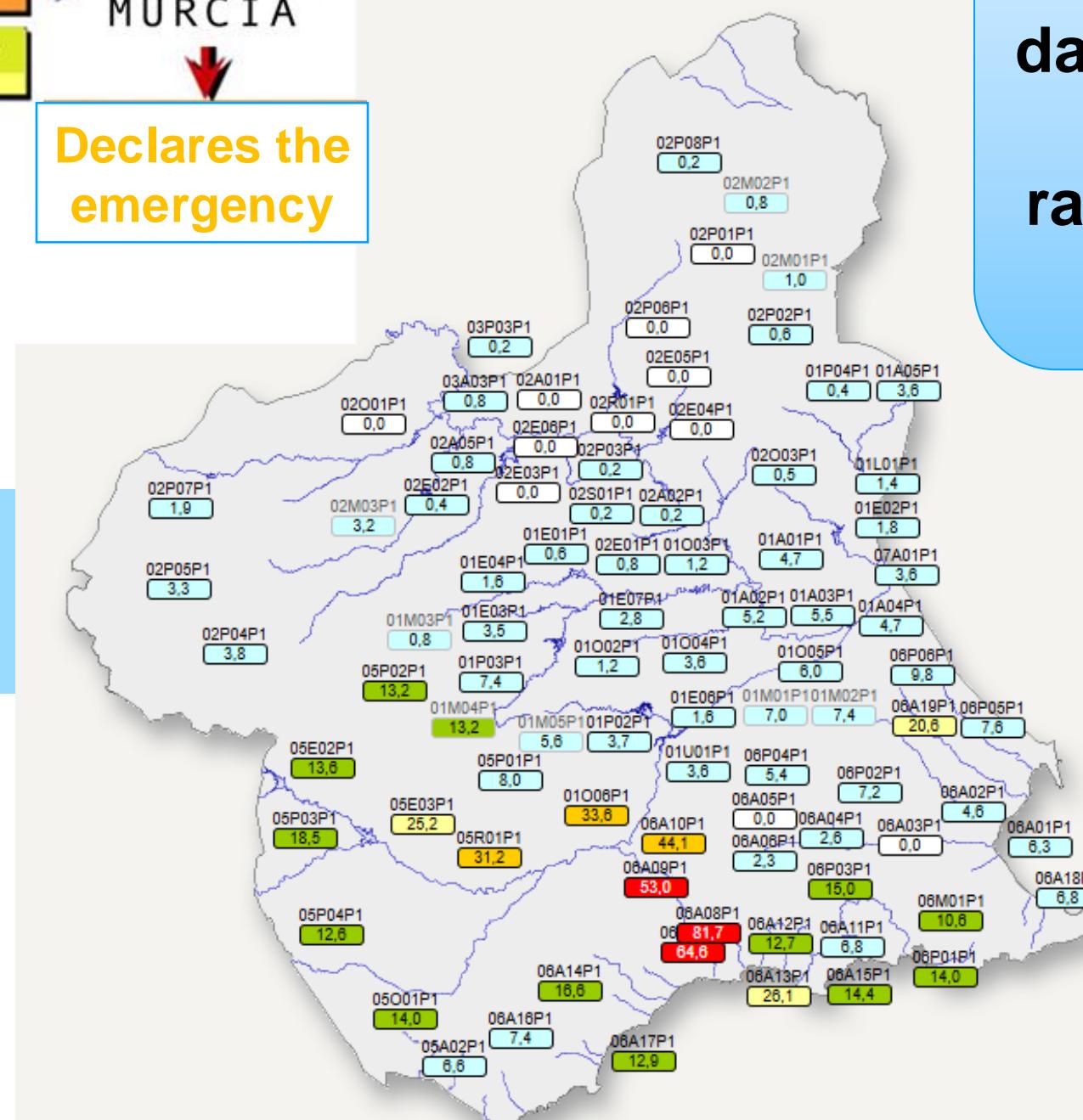
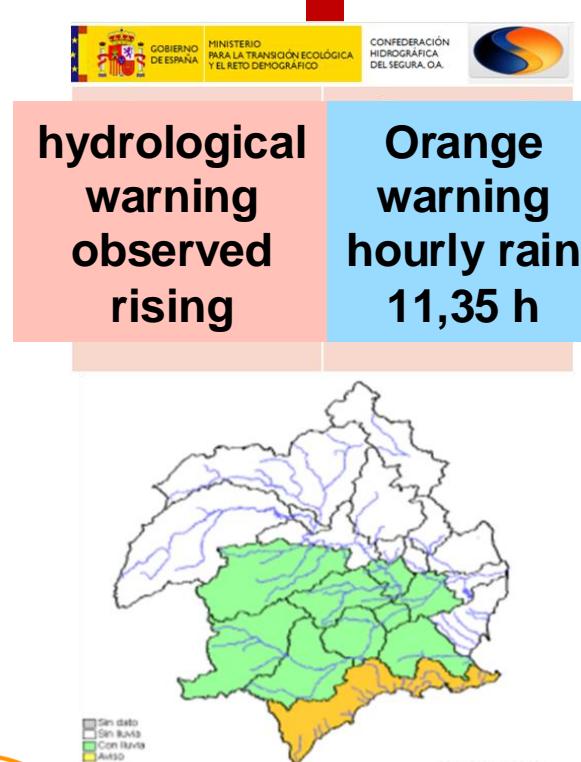


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CH SEGURA issues an orange OBSERVED warning at 11.35 a.m.



according to the data recorded by the CHS, the heavy rains are from 11:00 to 14:00.



# State basin management organization (CHS)

## Notifications Update (forecasting time: 2024-11-03 at 13:00 UTC)

This email provides you with the latest EDERA notifications related to your area. For more information you can access our [platform](#).

### Regions with new information:

The following regions have received new notifications.

- New level 2 notification for Granada.
- New level 2 notification for Murcia.

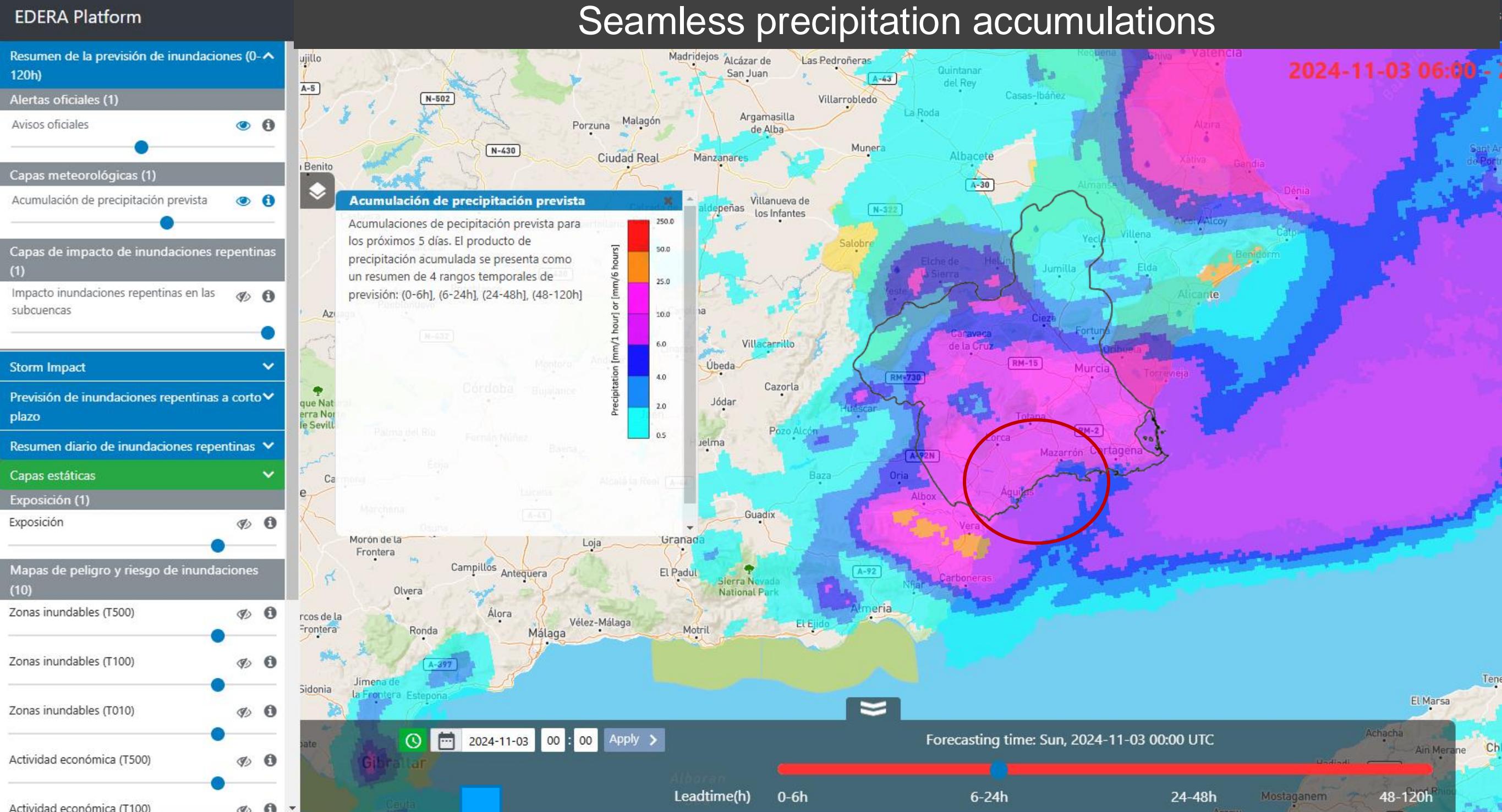
### Active notifications:

Detailed list of currently active notifications.

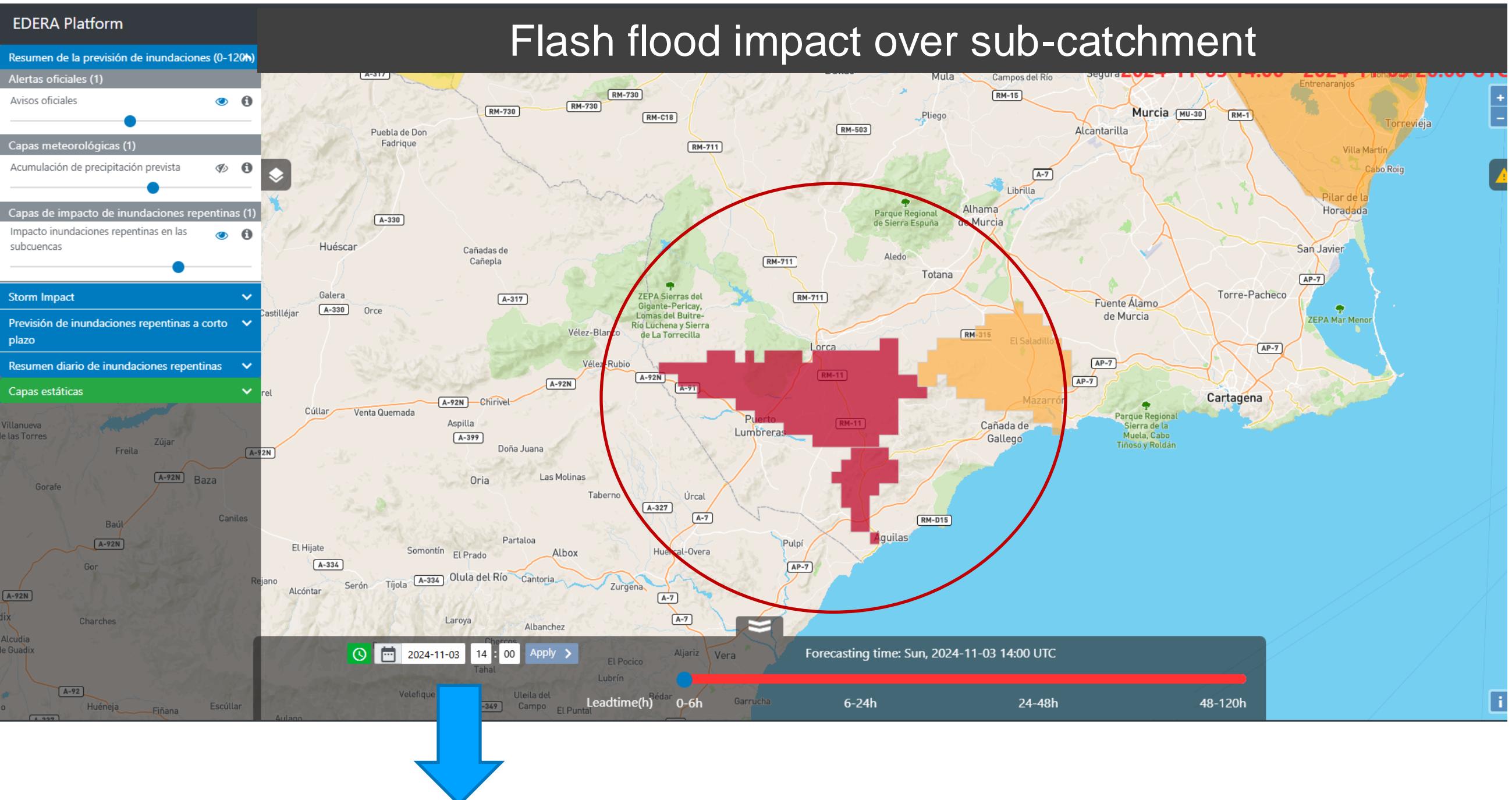
Type	Source	Area	Level	Start time	End time
Flood	Edera product notification (Flooded area)	Granada	2	2024-11-03 16:00 UTC	2024-11-03 17:00 UTC
Flood	Edera product notification (Flash flood impact)	Murcia	2	2024-11-03 16:00 UTC	2024-11-03 18:00 UTC
Flood	Edera product notification (Flooded area)	Murcia	2	2024-11-03 17:00 UTC	2024-11-03 20:00 UTC
Flood	Edera product notification (Flooded area)	Valencia/València	2	2024-11-03 19:00 UTC	2024-11-03 20:00 UTC

EDERA Team

# EDERA Flash flood forecast summary (0-120h)



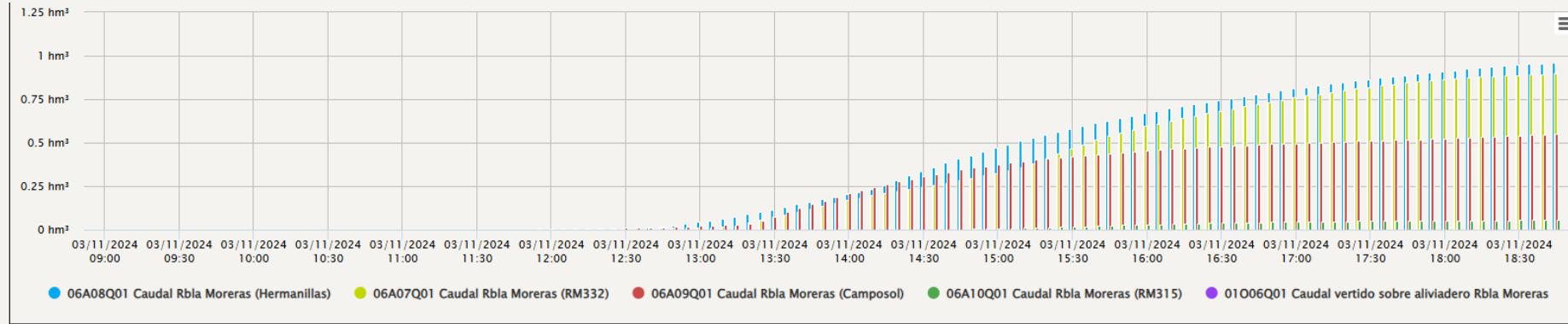
# EDERA Flash flood forecast summary (0-120h)



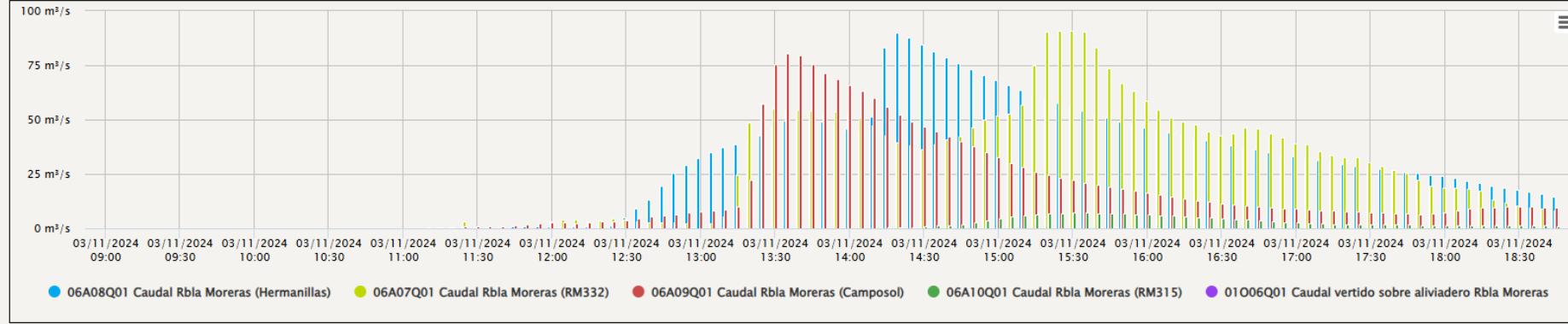
**Maximum Flash Flood Impact from 2 p.m. on 3 November to 9 a.m. on 4 November**

EVOLUCIÓN TEMPORAL DE SERIES DE DATOS. DATOS CINCOMINUTALES

Volumen Acumulado



Caudal Instantáneo

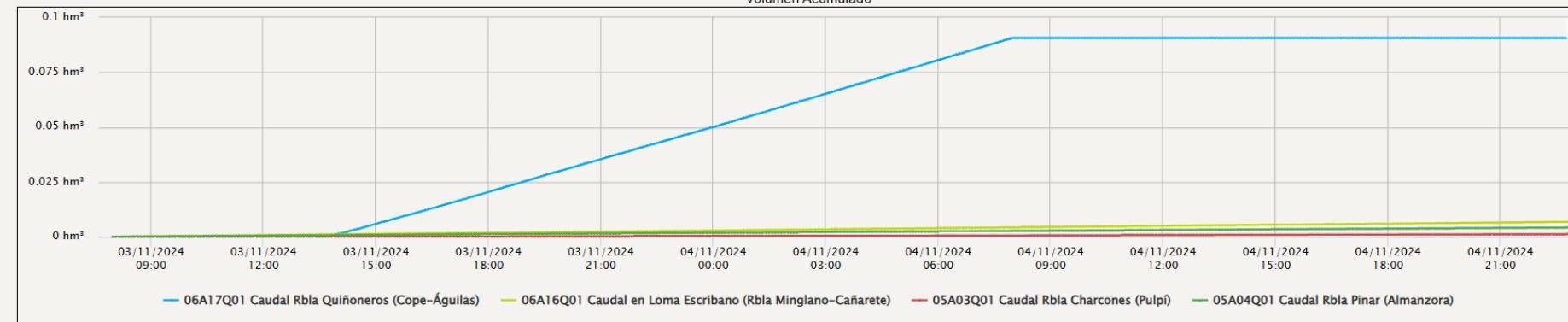


Intervalo de fechas solicitado: 03/11/2024 09:00 a 03/11/2024 18:45. Datos provisionales, filtrados no consolidados. Fecha de solicitud: 13/01/2025 18:47:37

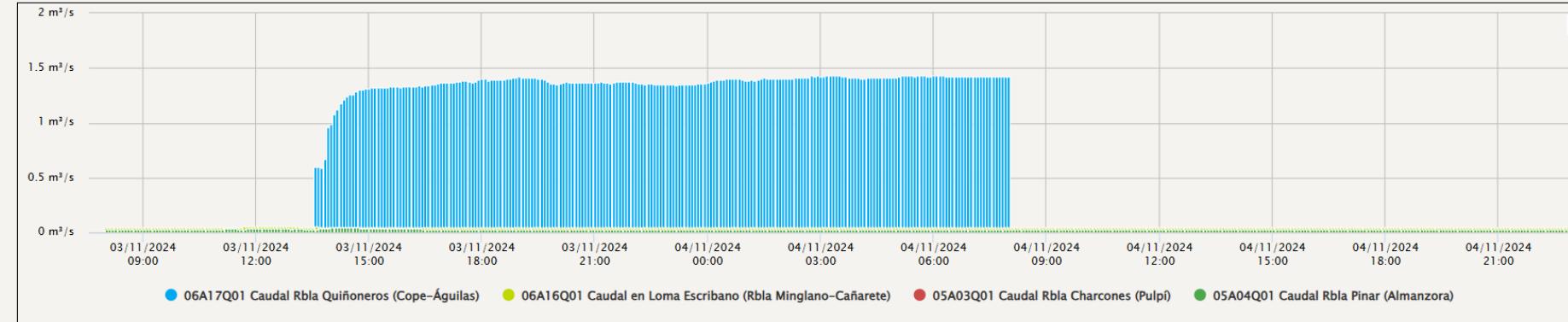


EVOLUCIÓN TEMPORAL DE SERIES DE DATOS. DATOS CINCOMINUTALES

Volumen Acumulado



Caudal Instantáneo



# EDERA Animated Flash Flood nowcasting

# 1h precipitation accumulation forecast.-Nowcasting radar

The map displays a variety of hazard layers across the region. A prominent red circle highlights a high-risk area for flooding in the Murcia region, specifically around the towns of Lorca, Cartagena, and Puerto Lumbreras. Other hazard layers shown include lightning risk (yellow/red), wind risk (orange), and various types of flooding (blue, green, purple). Major roads and rivers are also visible.

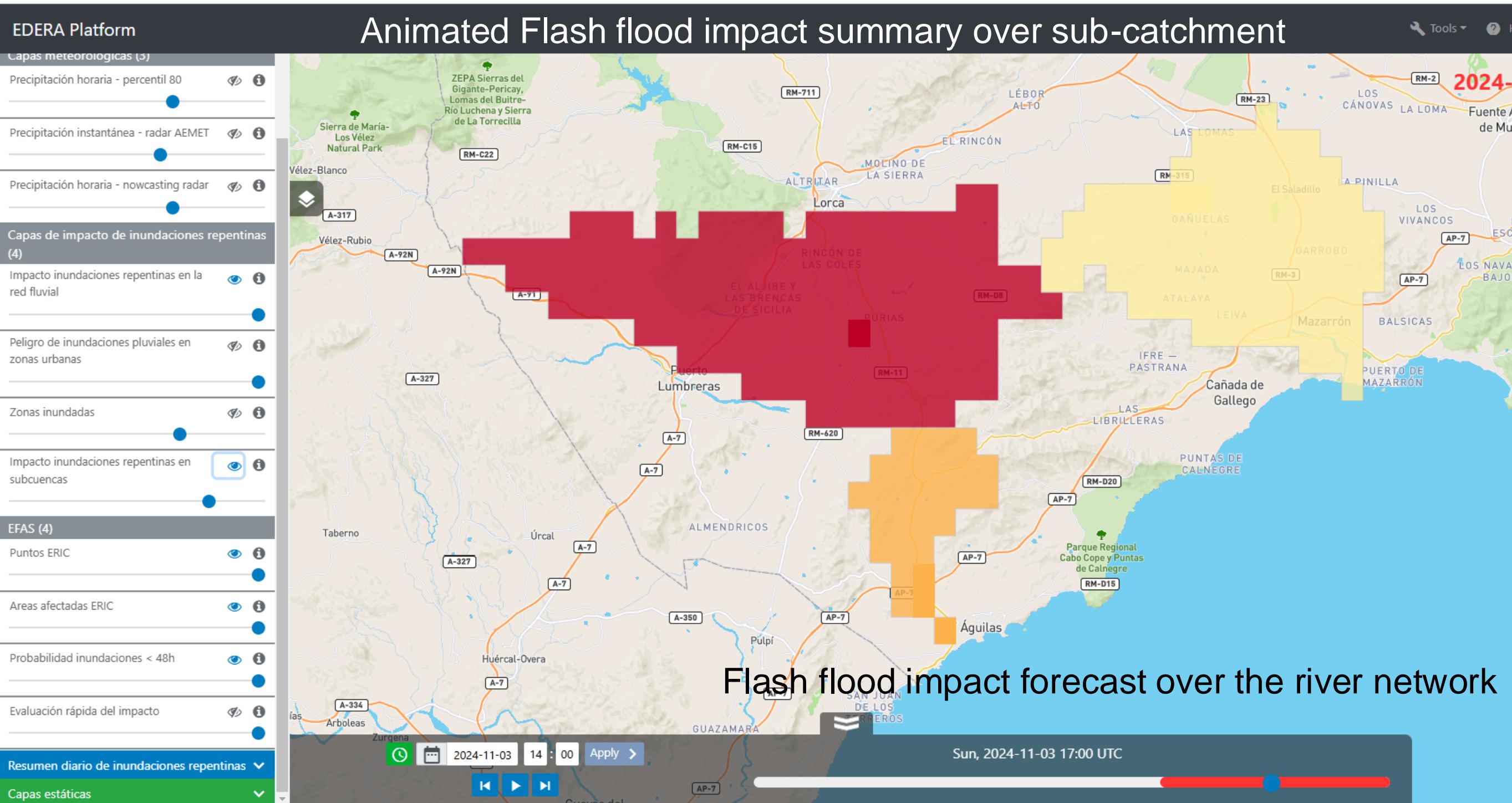
Map showing the following layers:

- Resumen de la previsión de inundaciones (0-120h)
- Storm Impact
- Capas meteorológicas (2)
- Reflectividad radar OPERA
- Precipitación horaria - nowcasting radar
- Capas de impacto de tormentas (6)
- Peligro tormentas
- Peligro granizo
- Peligro viento
- Peligro precipitación
- Peligro rayos
- Impacto tormentas
- Capas de impacto de inundaciones repentinas (1)
- Peligro de inundaciones pluviales en zonas urbanas
- Previsión de inundaciones repentinas a corto plazo
- Resumen diario de inundaciones repentinas
- Capas estáticas

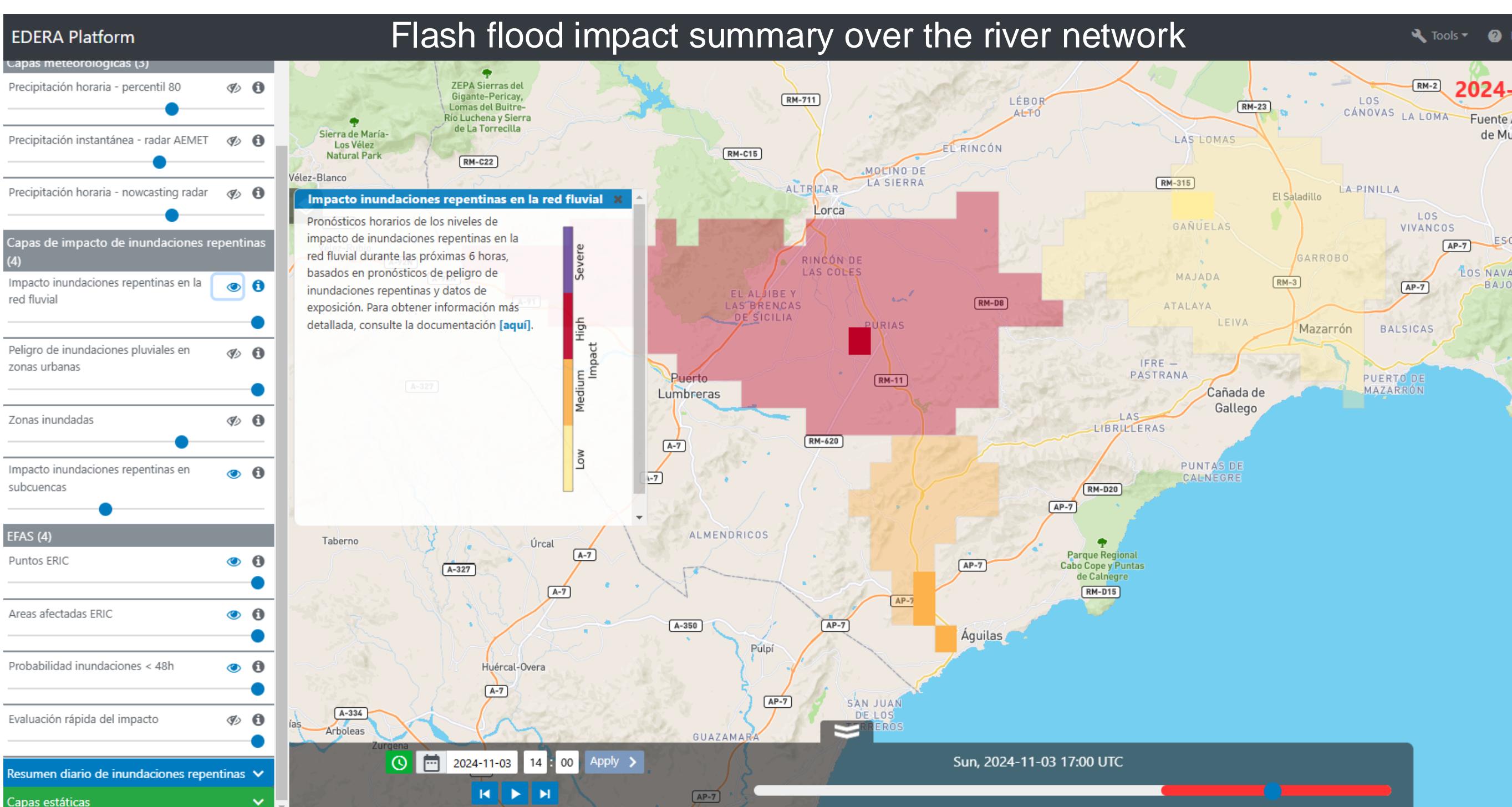
Map controls and status:

- Map orientation icon
- Time: 2024-11-03 11 : 00
- Apply button
- Map scale icon
- Navigation icons: back, forward, zoom
- Date: Sun, 2024-11-03 11:30 UTC

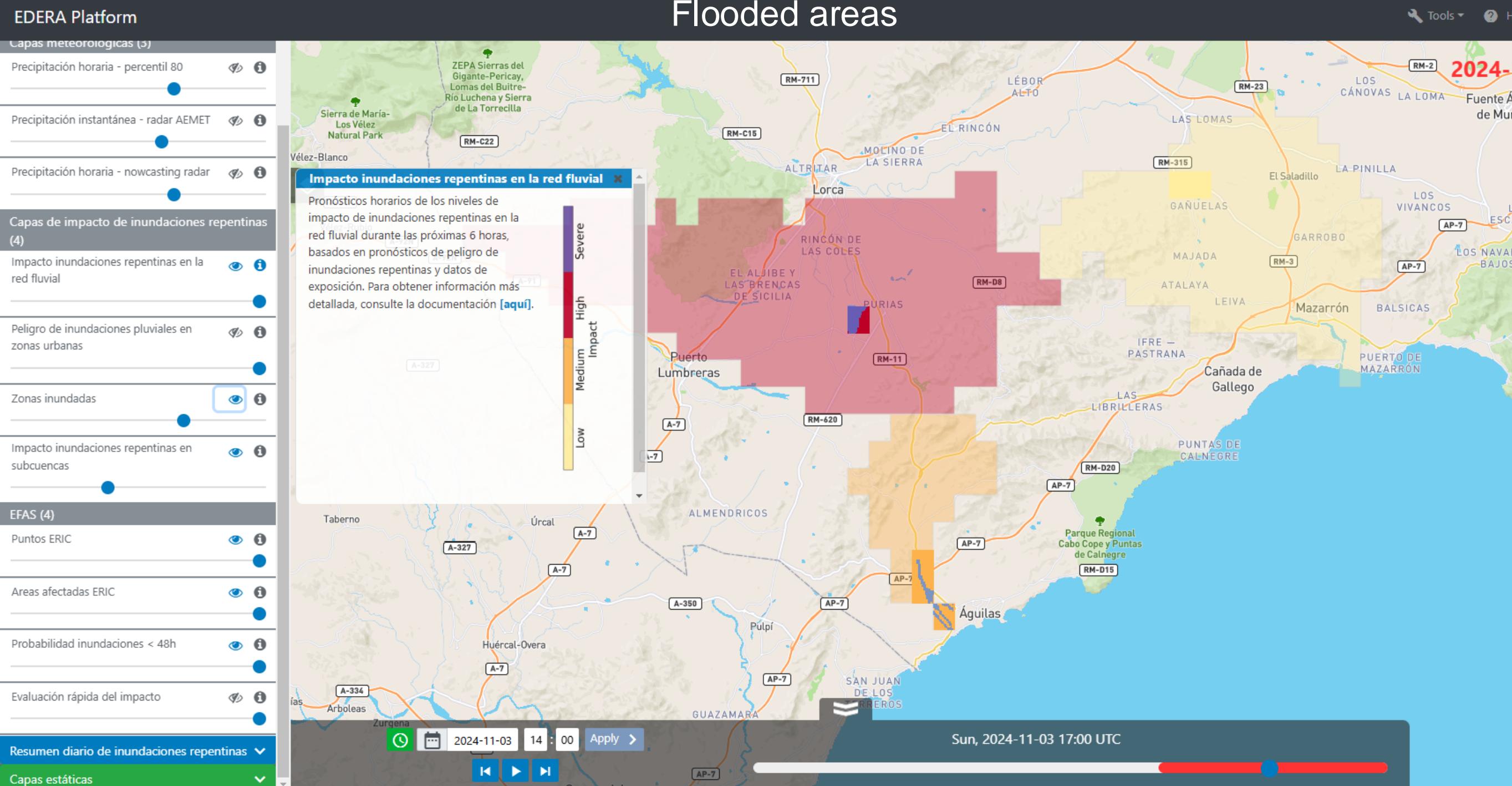
# EDERA Animated Flash Flood nowcasting



# EDERA Animated Flash Flood nowcasting



# EDERA Animated Flash Flood nowcasting



# EDERA Platform

**Capas meteorológicas (3)**

- Precipitación horaria - percentil 80
- Precipitación instantánea -
- Precipitación horaria - now

**Capas de impacto de inundación (4)**

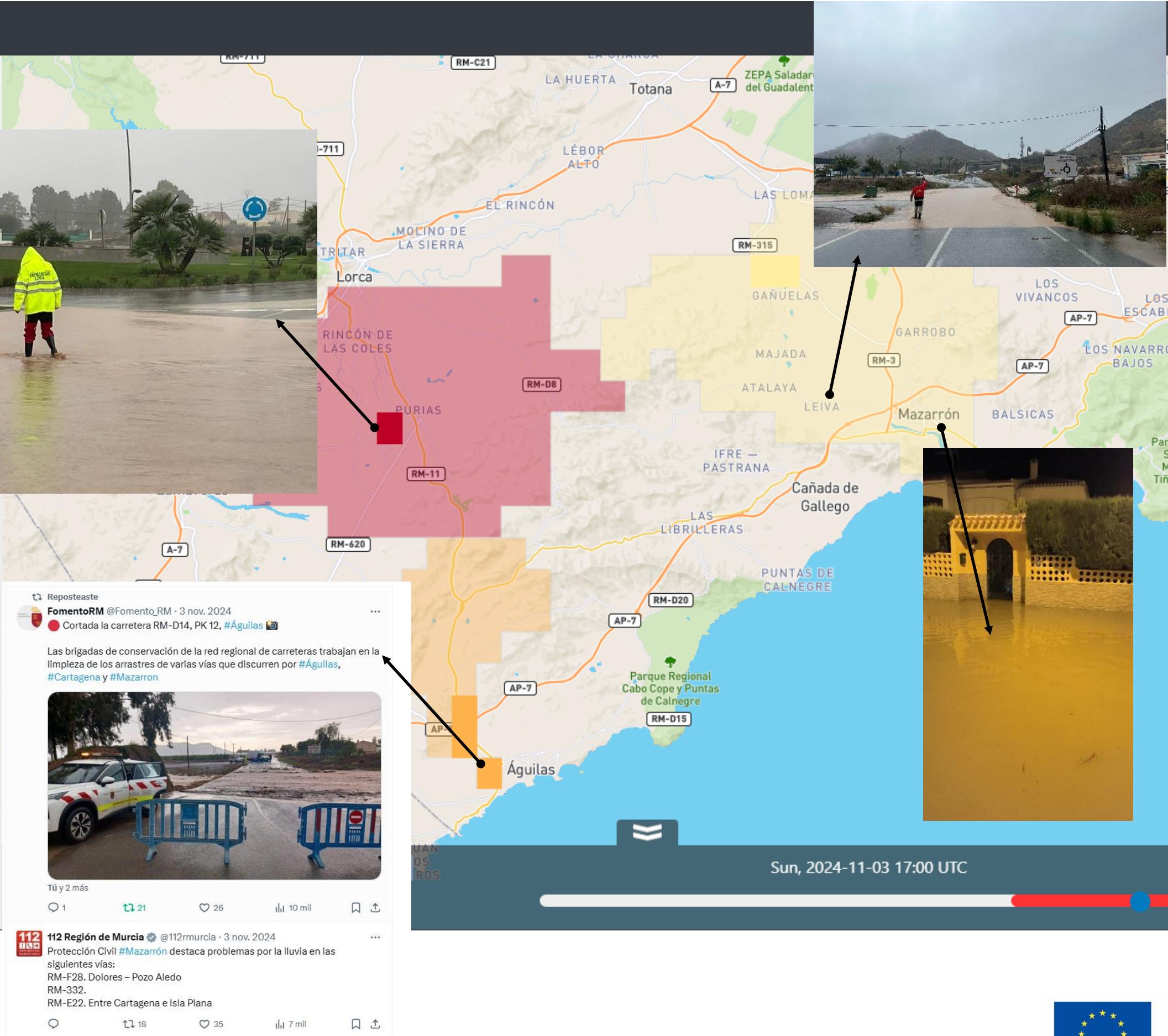
- Impacto inundaciones repetidas en red fluvial
- Peligro de inundaciones pluviales en zonas urbanas
- Zonas inundadas
- Impacto inundaciones repentinas en subcuenca

**EFAS (4)**

- Puntos ERIC
- Áreas afectadas ERIC
- Probabilidad inundaciones < 48h
- Evaluación rápida del impacto

**Resumen diario de inundaciones repentinas**

**Capas estáticas**



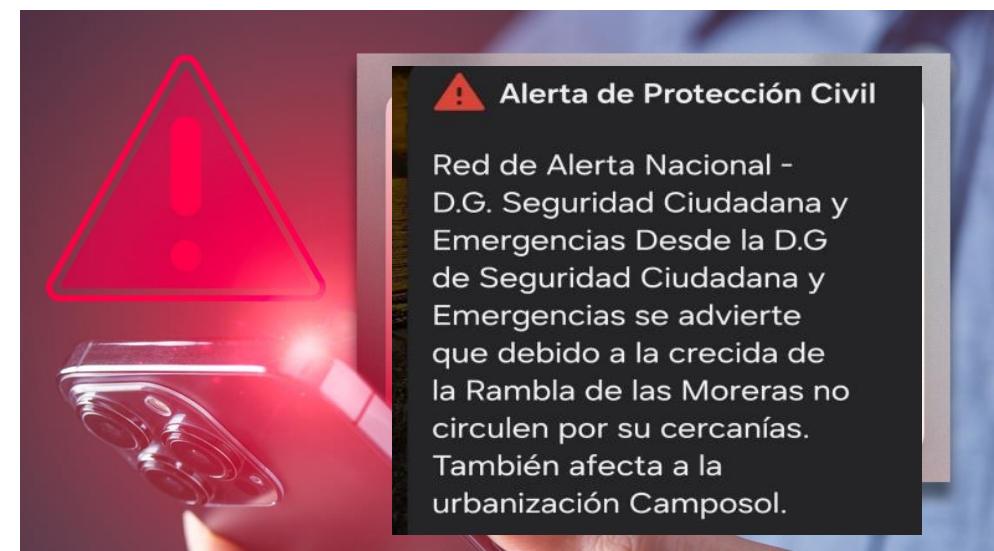
Sun, 2024-11-03 17:00 UTC



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# What happened in this heavy rainfall episode?

- 112 attended to 129 emergencies related to this episode of rain.
- The INUNMUR Plan was activated in the emergency phase.
- The ES-Alert early warning system for mobiles was activated at 14:15
- Several roads in the area were closed to traffic from 13:30 onwards.

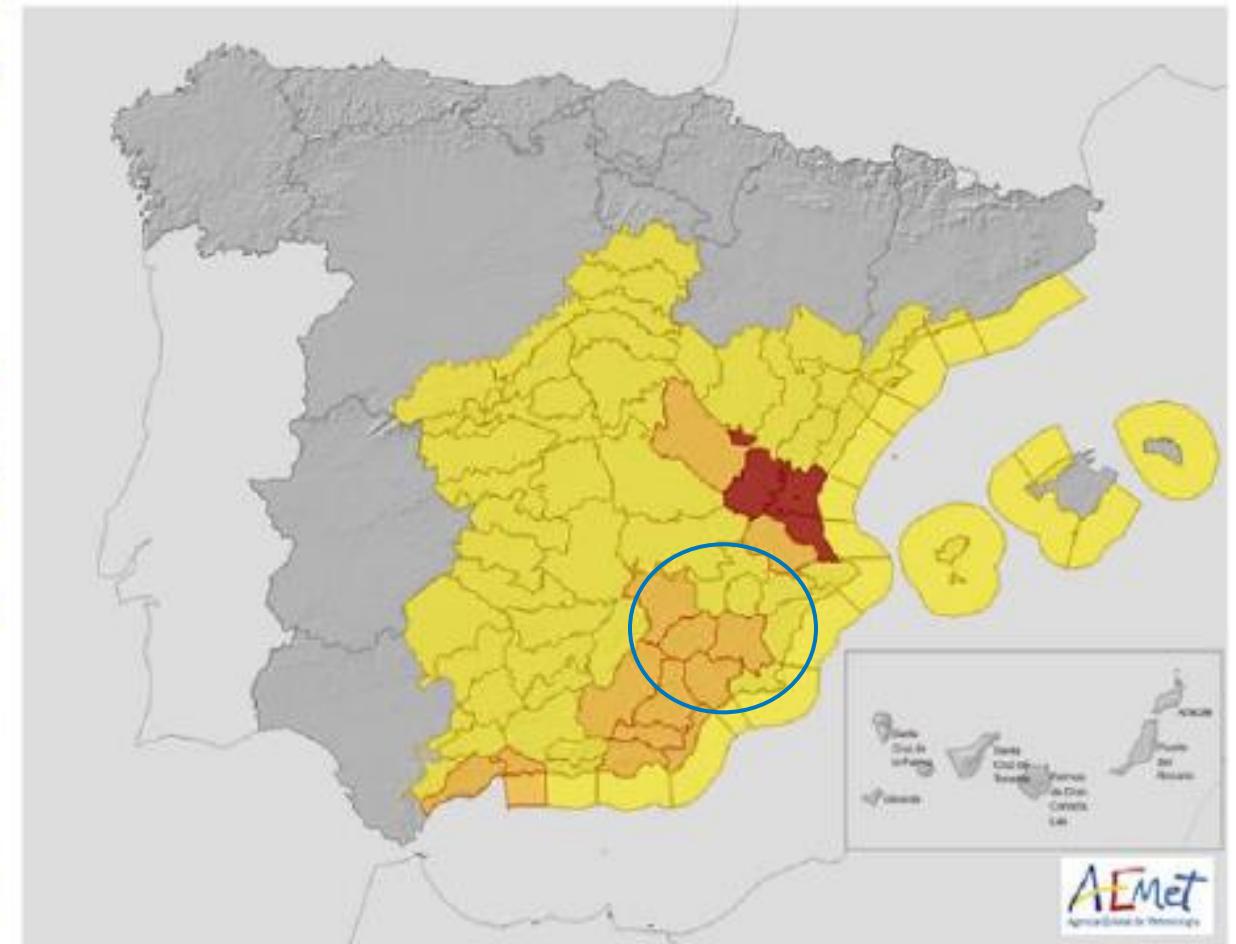
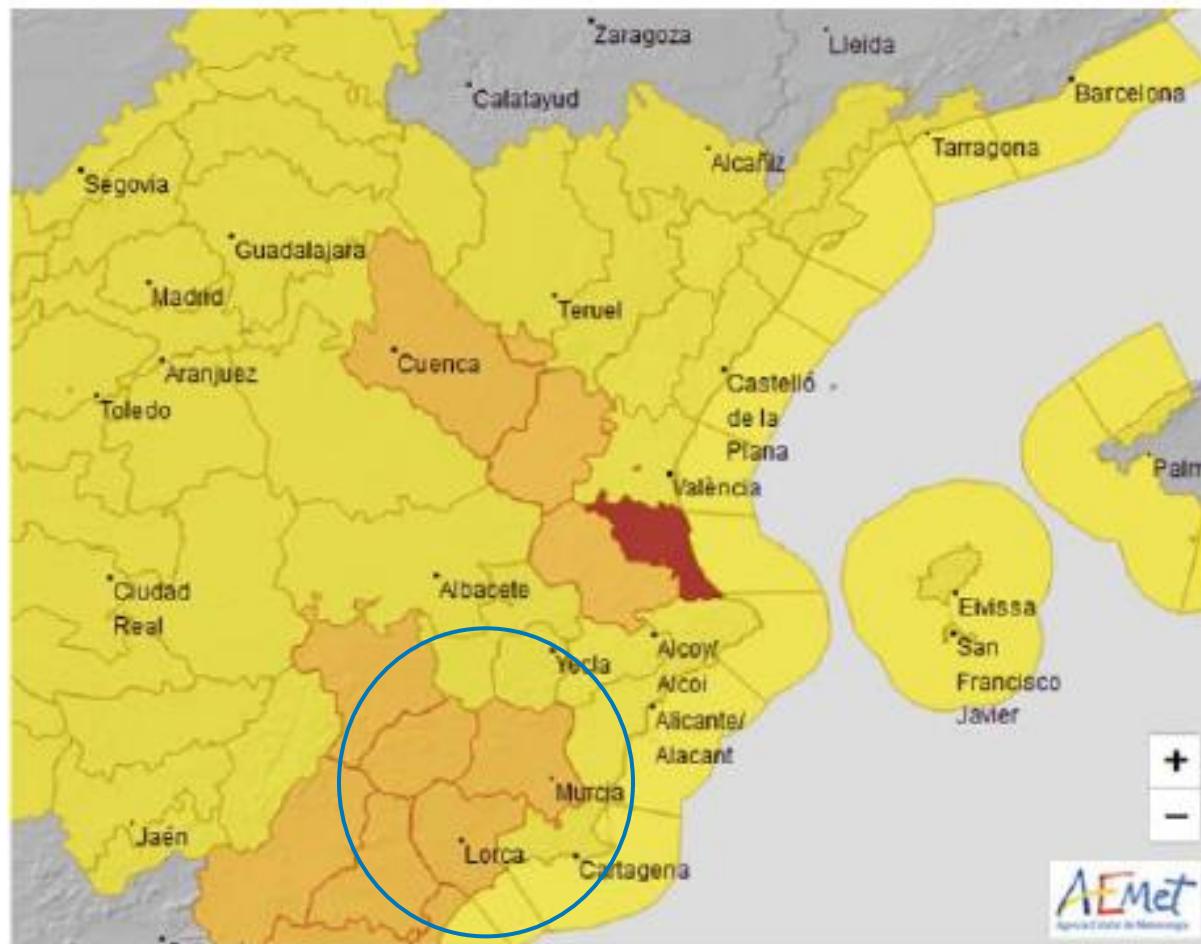


# CONCLUSIONS ON THE FOLLOW-UP OF THIS EPISODE WITH EDERA

- Flash floods in sub-catchment are fairly accurately detected, but their level of impact is not.
- Identification of short-term impacts on the river network, assessed on an hourly basis, doesn't coincide with the peak flood discharge period.

# Meteorological Situation - DANA Episode October 29, 2024

- **Phenomenon:** Isolated Depression at High Levels (DANA)
- **Regional Impact:** Significant flooding in vulnerable areas due to rapid water accumulation in river basins.
- **Recorded Precipitation:** Extreme values exceeding 180 mm/24 h in localized areas.



***Warnings scheduled to be in effect on Tuesday the 29th for the same day at 7:36 (left) and 9:41 (right)***

# EFAS FLOOD NOTIFICATION- DANA Episode October 29, 2024

## EFAS Informal Flood Notification

Country(ies): **Spain**

River(s): **Argos (Segura)**

Predicted start of event: **Tuesday, 29th of October 2024 - 12:00**

Earliest predicted peak: **Tuesday, 29th of October 2024 - 12:00**

Total probability to exceed a 5-year return period threshold: **69 %**

Total probability to exceed a 20-year return period threshold: **47 %**

Forecast date: **2024-10-26 00 UTC**

Comment: This [EFAS Flood Notification](#) is informal due small affected area.

**This is the only notification you will receive for this event!** Please follow the evolution of the event on [EFAS](#).

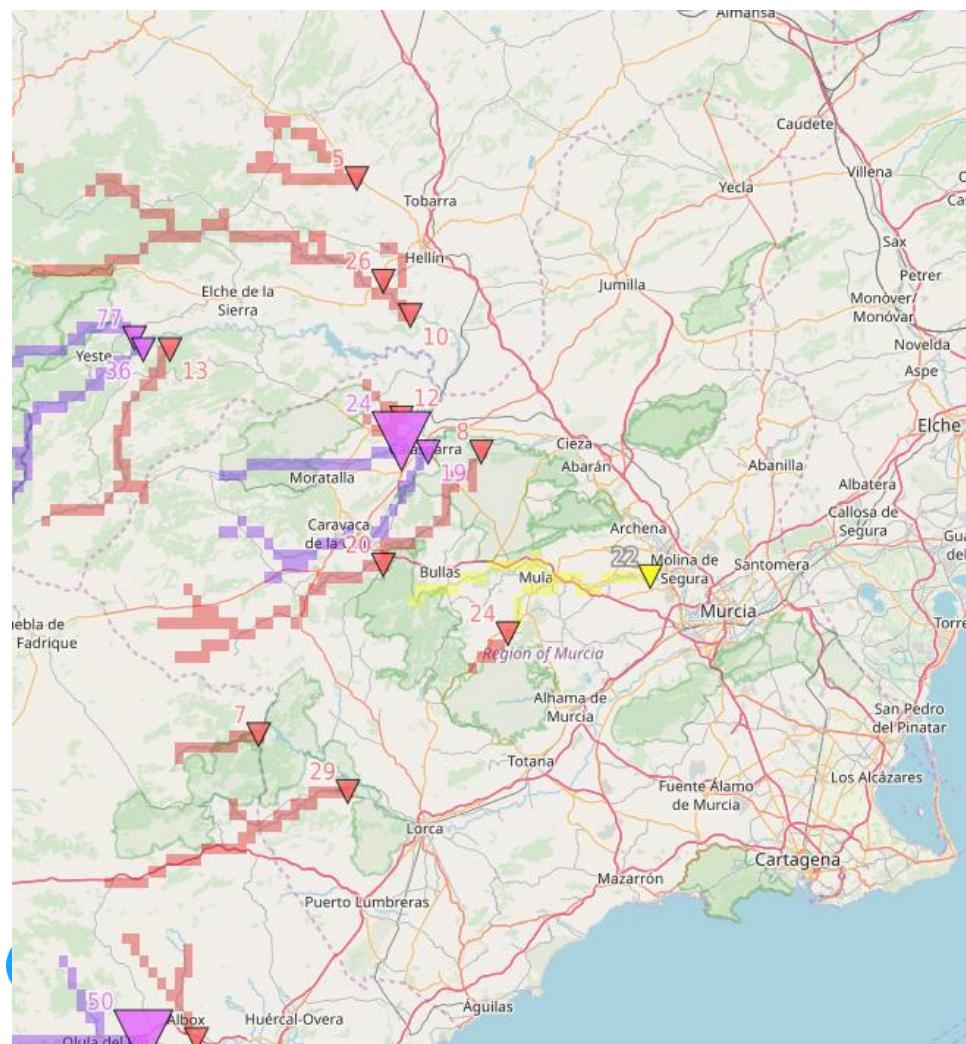
### EFAS FORECASTER ON DUTY

**Nynke Westra**

Rijkswaterstaat Water Management Center for the Netherlands

email: [info@efas.eu](mailto:info@efas.eu)

Note: An EFAS Informal Notification is valid for the upstream and downstream river stretch of the same name that exceeds the 40% total probability threshold shown in the flood probability layer in the same country.



## EFAS Flash Flood Notification\*

### NOTIFICATION DETAILS:

- Country(ies): **Spain**
- Administration Region(s): **Murcia**
- Likely start of event: **Tuesday, 29th of October 2024 - 12:00**
- Probability to exceed a 5-year flash flood return period threshold: **67 %**
- Probability to exceed a 20-year flash flood return period threshold: **52 %**

### ADDITIONAL INFORMATION:

- Forecast date: **2024-10-27 12 UTC**
- Affected area susceptible to landslides: Very High: 0 km<sup>2</sup>, High: 83 km<sup>2</sup>, Moderate: 23 km<sup>2</sup>
- Forecaster Comments: -

**This is the only notification you will receive for this event!** Please follow the evolution of the event on [EFAS](#).

More information about the EFAS flash flood notifications is available on the [EFAS wiki](#)

### EFAS FORECASTER ON DUTY

**Nynke Westra**

Rijkswaterstaat Water Management Center for the Netherlands

email: [info@efas.eu](mailto:info@efas.eu)

\* indicating a high probability of extreme precipitation and potential flash flooding

**LEAVE A FEEDBACK FOR THIS NOTIFICATION**

## Notifications Update (forecasting time: 2024-10-29 at 16:00 UTC)

This email provides you with the latest EDERA notifications related to your area. For more information you can access our [platform](#).

### Regions with new information:

The following regions have received new notifications.

- New level 3 notification for Albacete.
- New level 3 notification for Alicante/Alacant.
- New level 3 notification for Almería.
- New level 3 notification for Badajoz.
- New level 3 notification for Cádiz.
- New level 3 notification for Castellón/Castelló.
- New level 3 notification for Ciudad Real.
- New level 3 notification for Cuenca.
- New level 3 notification for Murcia.
- New level 3 notification for Sevilla.
- New level 3 notification for Toledo.
- New level 3 notification for Valencia/València.

Type	Source	Area	Level	Start time	End time
Flood	Edera product notification (Flash flood impact)	Murcia	3	2024-10-29 16:00 UTC	2024-10-30 01:00 UTC

# Activation of the Special Civil Protection Plan for Flood Risk (INUNMUR)

## October 28: Pre-Emergency Phase of INUNMUR

- **09:20 hours:** Activation of the Pre-Emergency Phase of the INUNMUR Plan
- **17:30 hours:** meeting held by the Director General of Public Safety and Emergencies with:
  - Director General of Educational Centers.
  - Director General of Social Services.
  - Mayors of the following municipalities :
    - Northwest Region: Moratalla, Caravaca, Cehegín, Calasparra, Bullas.
    - Guadalentín Valley: Lorca, Águilas, Puerto Lumbreras.



## Measures for October 29 in municipalities under orange alert:

Closure of:

- Educational centers.
- Day centers for the elderly.
- Early care centers.
- Centers for people with disabilities.

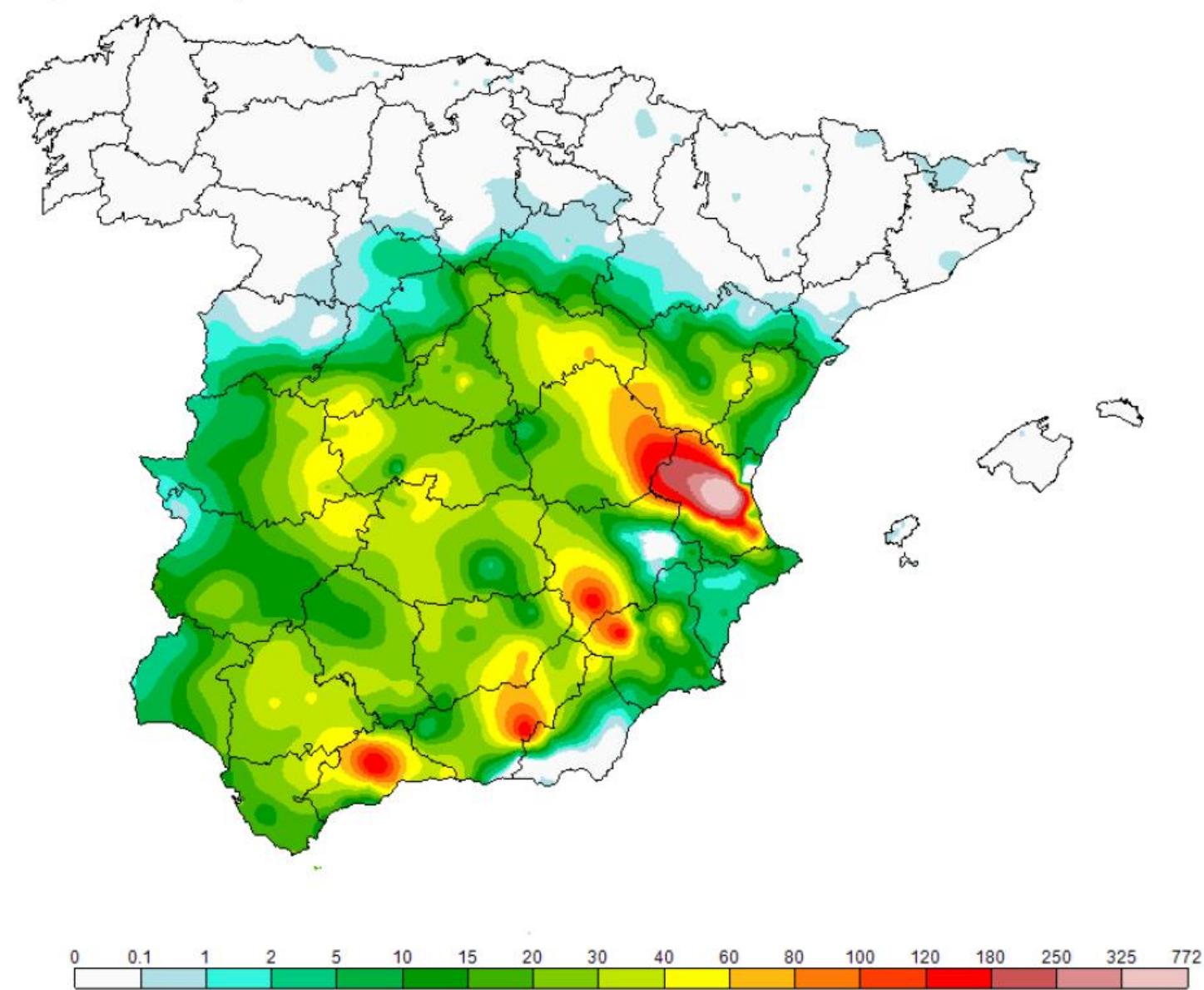


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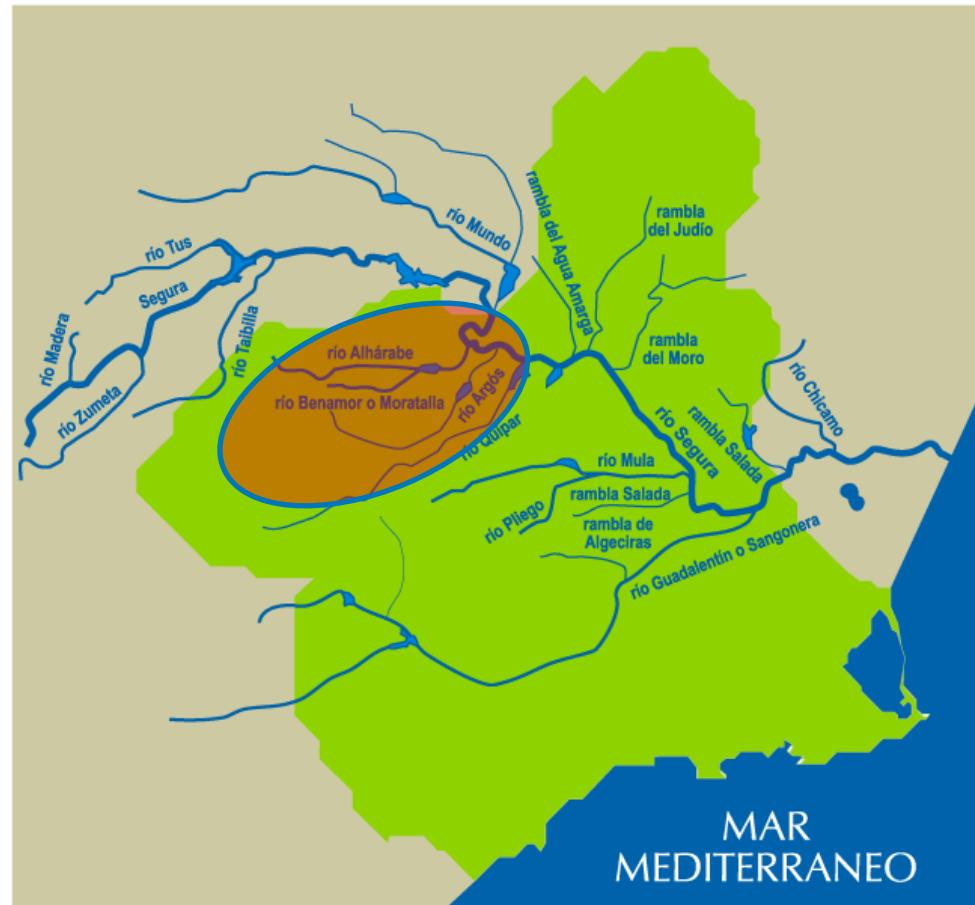
## Observed rainfall data

**Significant accumulated rainfall in large areas of Valencia, Albacete, Cuenca, Murcia, Almería, Granada, and Málaga.**

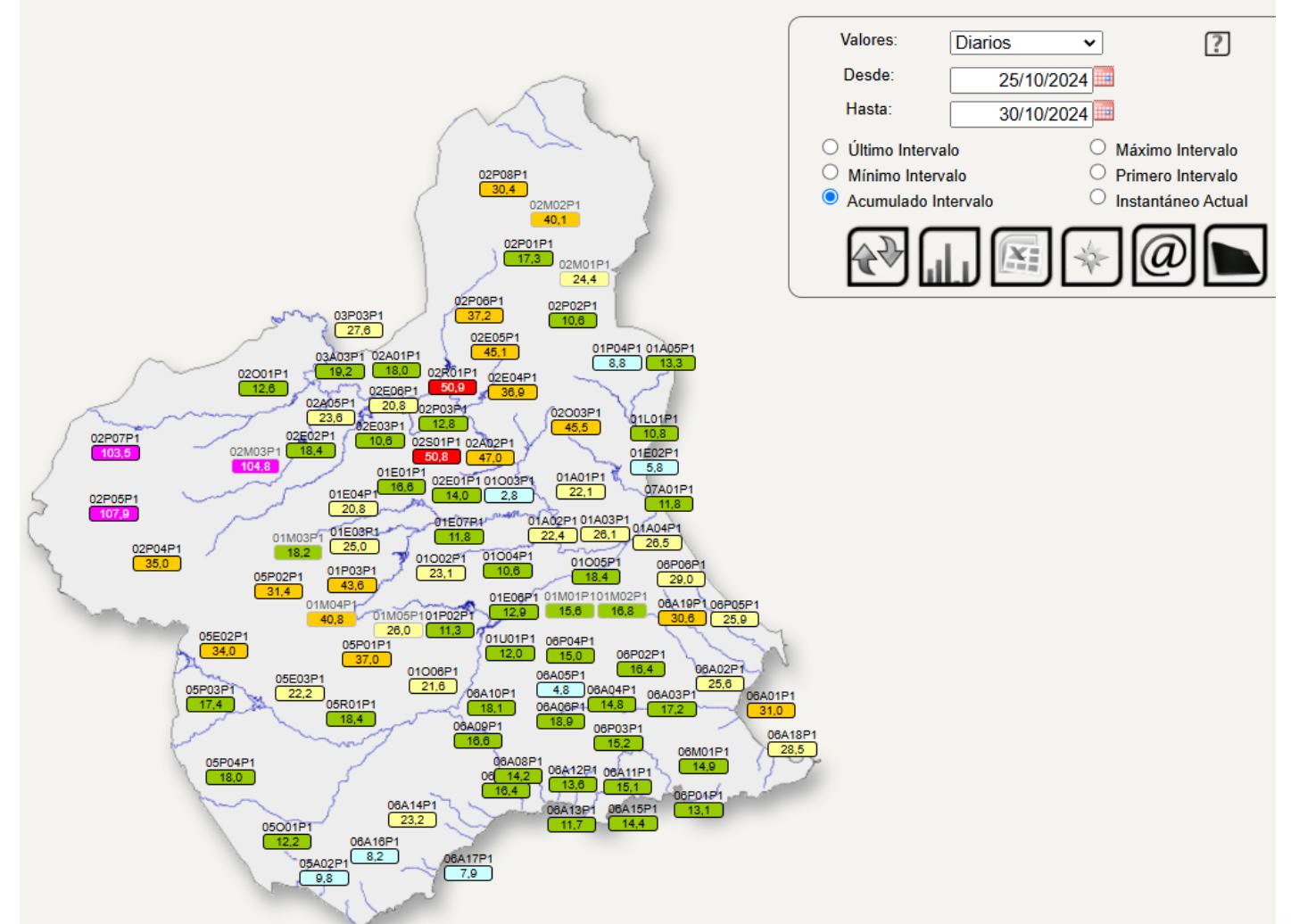
**Notable accumulations of 200-300 mm in Valencia, with a maximum of over 700 mm in Turís.**



## Observed rainfall data recorded by CHS from October 25th to 30th



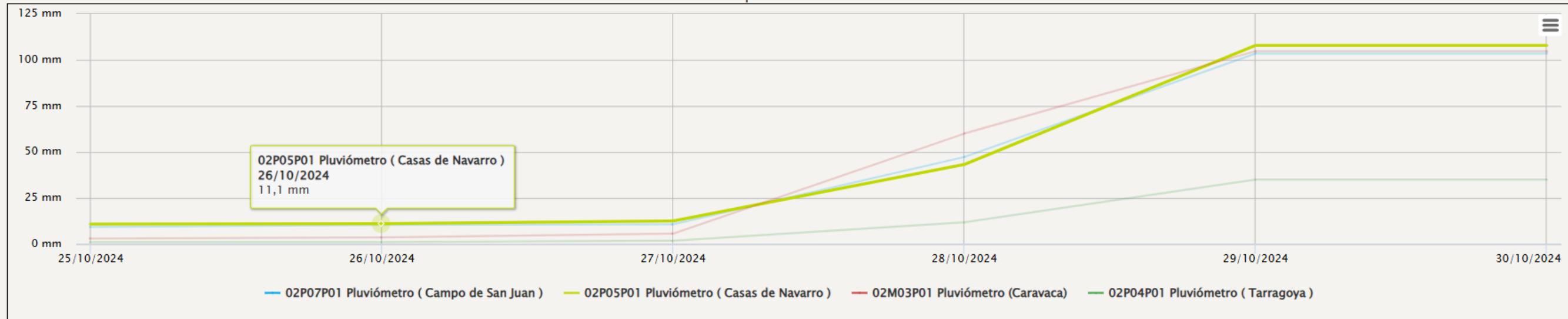
**Precipitación (mm). Provincia de Murcia. Datos DIARIOS. Acumulado del intervalo de 25/10/2024 a 30/10/2024**  
Datos provisionales, filtrados no consolidados. Fecha de la solicitud: 14/01/2025 15:08:13



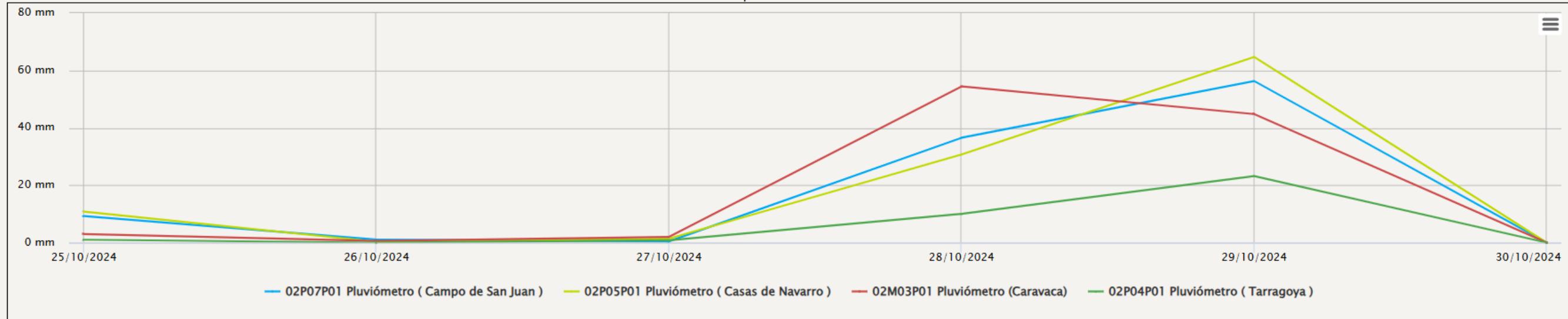


## EVOLUCIÓN TEMPORAL DE SERIES DE DATOS. DATOS DIARIOS

### Precipitación Acumulada



### Precipitación Instantánea



Intervalo de fechas solicitado: 25/10/2024 a 30/10/2024. Datos provisionales, filtrados no consolidados. Fecha de solicitud: 14/01/2025 18:23:23

# RIVER ARGOS



GOBIERNO  
DE ESPAÑA  
MINISTERIO  
PARA LA TRANSICIÓN ECOLÓGICA  
Y EL RETO DEMOGRÁFICO

CONFEDERACIÓN  
HIDROGRÁFICA  
DEL SEGURA, O.A.

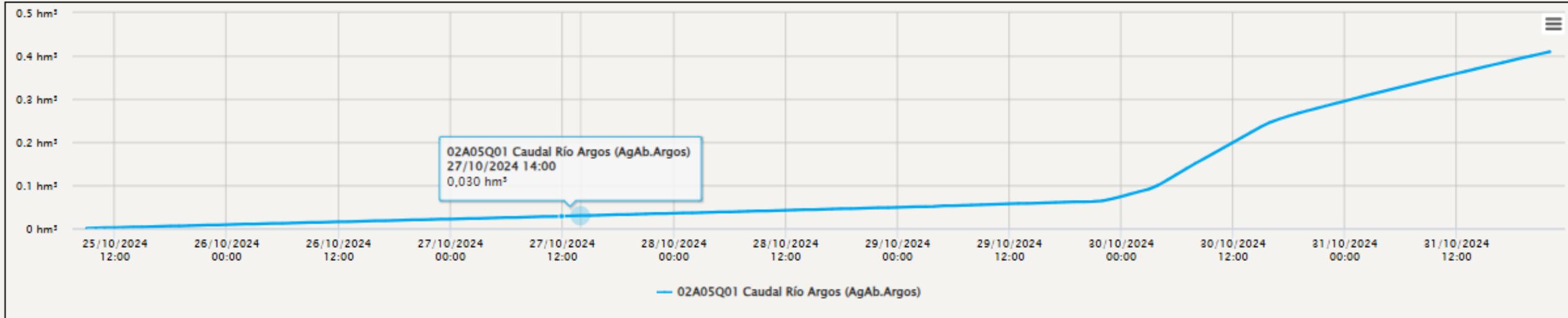


Gráficas

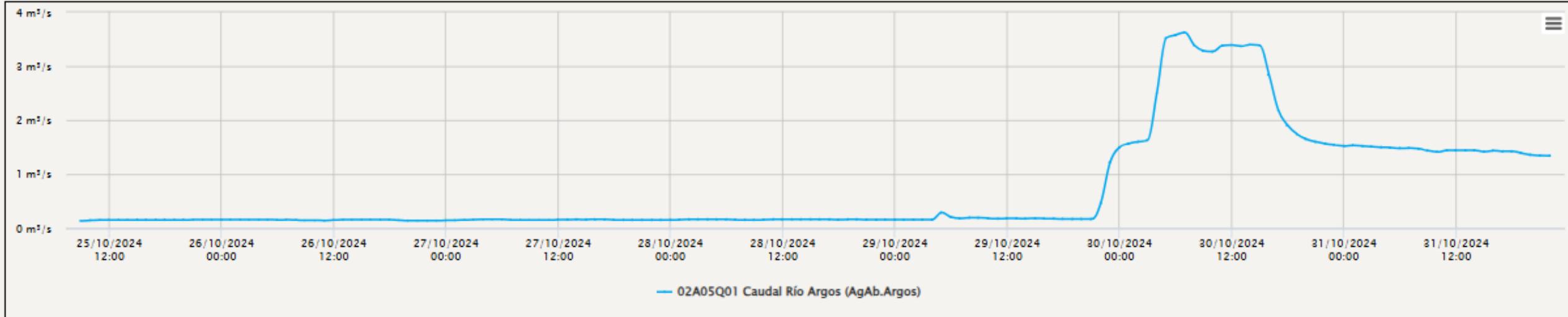


## EVOLUCIÓN TEMPORAL DE SERIES DE DATOS. DATOS HORARIOS

Volumen Acumulado



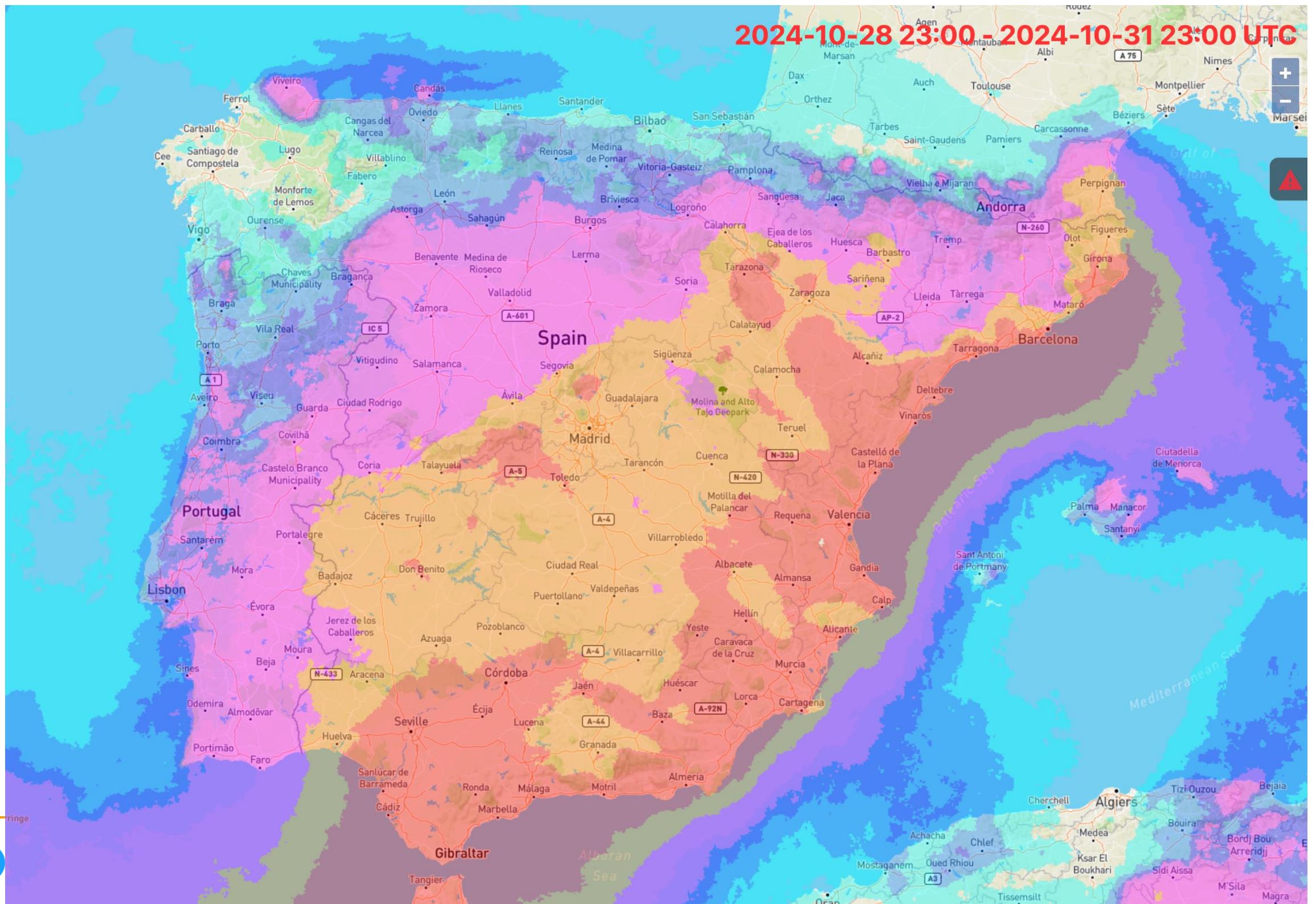
Caudal Instantáneo



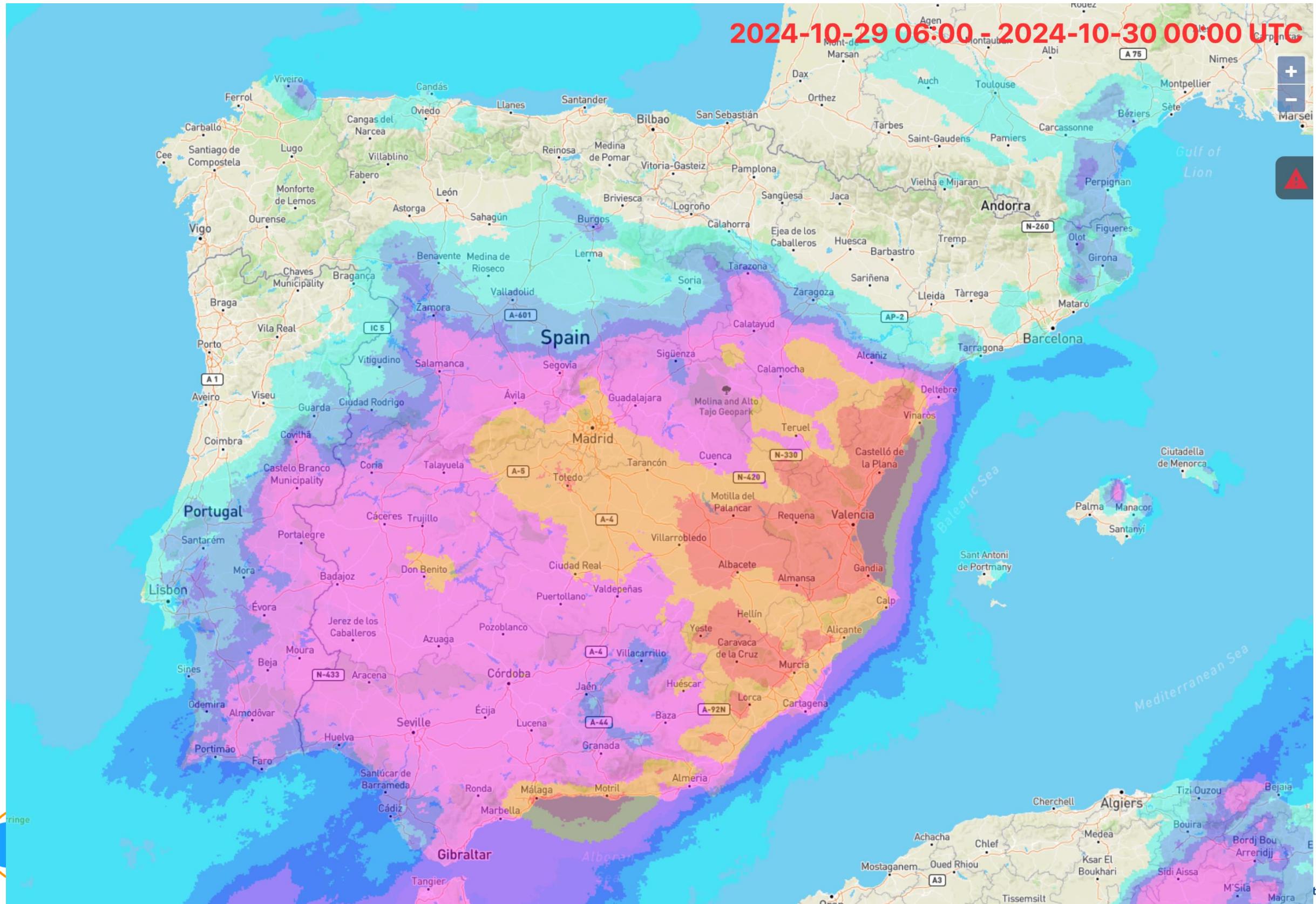
Intervalo de fechas solicitado: 25/10/2024 08:05 a 31/10/2024 22:45. Datos provisionales, filtrados no consolidados. Fecha de solicitud: 15/01/2025 22:59:00



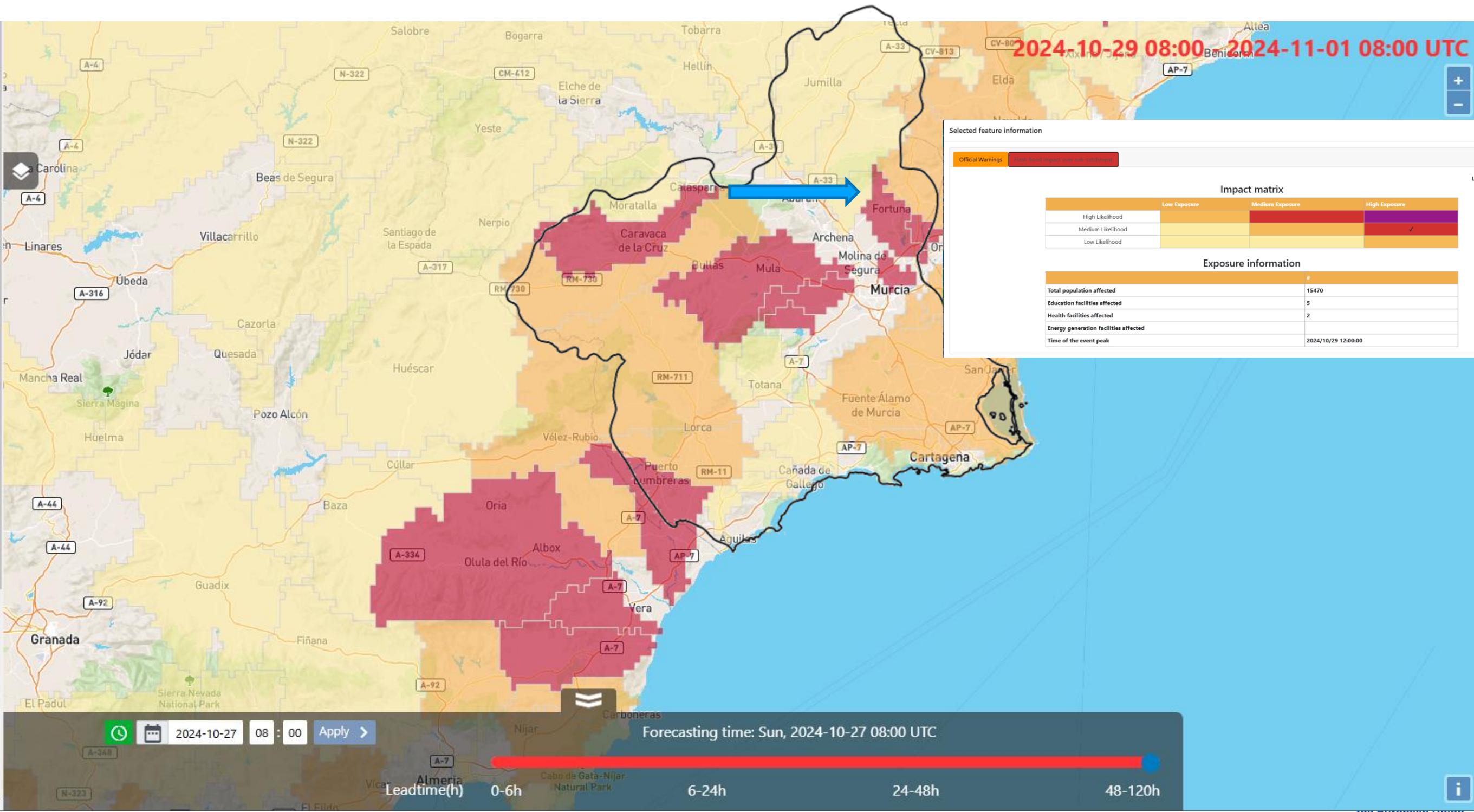
## Forecasted precipitation accumulation



## Forecasted precipitation accumulation

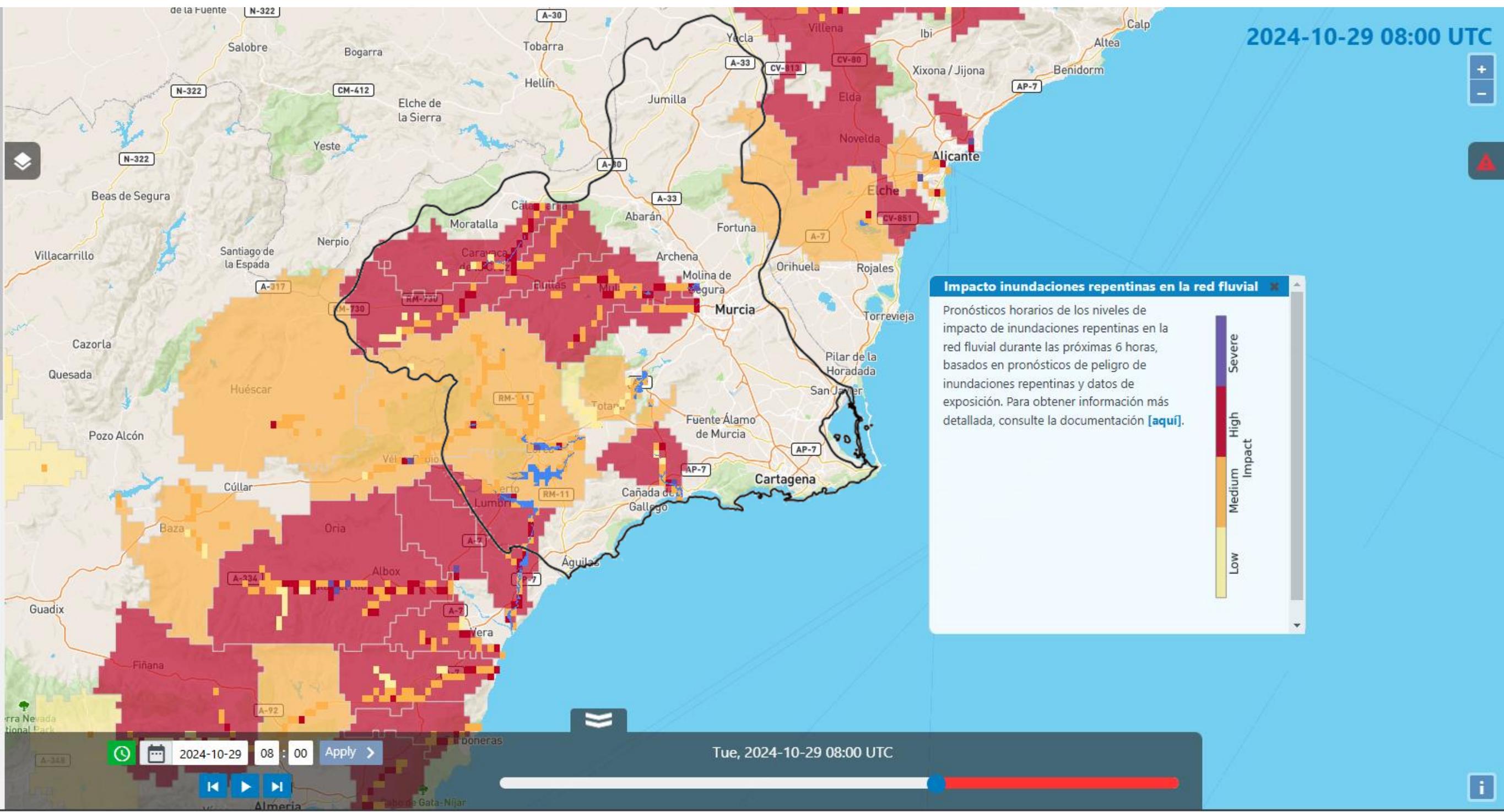


## Flash flood impact over sub-catchments



# EDERA PLATFORM.- Flash Flood Impact Layers

## Flash flood impact over sub-catchments- Flash flood impact over the river network and flooded areas





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European Union

## CONCLUSIONS ON THE FOLLOW-UP OF THIS EPISODE WITH EDERA

- Rainfall in the south of the Region of Murcia was overestimated.
- The sub-catchments identified with high levels of impact (red) in the Northwest were good, but the identification of sub-catchment with medium and high impact in the South of the Region was not.
- The identification of flooded areas in the Northwest basins was good.

1. It provides up to 120 hours' advance visibility of potentially affected areas, allowing emergency services to plan and take preventive action in good time.
2. It provides detailed forecasts of rainfall accumulation in different time windows, making it a valuable tool for risk management.
3. The accuracy of flash flood detection improves with the level of impact, allowing high intensity and severe events to be identified and assessed in advance.
4. The analysis of past events, using historical data stored in EDERA, is a valuable source of information for developing action protocols.

# Thank you