

# Co-designing a Checklist for Analysing the EDERA Forecast Products

# Session Aim

**To start thinking about how to use the EDERA forecast products**

- Guided demonstration of the products for a case study
- Eventual output: A checklist which could explain to analysts how to use the EDERA forecast products...

# Are you already familiar with some of the EDERA products?

- Have you used any of the products in the TAMIR project?
- Have you used them since the TAMIR project?
- How have you used them?

Load next forecast

Load Forecast  
Date

Load next forecast

## Storm Impact products

<3 hours before  
**Storms & Pluvial Floods**

Storm Impacts –  
Load Storm Hazard

No — Does Storm Hazard show  
ellipses in area of interest?

Yes

Load Wind/Hail/  
Precip'/ Lightning  
hazard layers

Which hazards  
show ellipses in  
area of interest?

Load Storm Impact  
& Pluvial layers

Which areas are  
most at risk of  
impacts?

## Animated Flash Flood Nowcasting products

**River Flash Floods**

Load Flash flood  
forecast summary –  
sub-catchment layer

Are any sub-catchments  
highlighted? — No

Yes <6 hours before

Animated flash flood nowcasting

Load Precipitation  
nowcasting – how much  
rain is expected to fall?

Load Flash flood impact  
over river network & sub-  
catchment

Identify the areas  
& timing of  
flooding &  
Identify the  
severity level



# River floods Case Study: Pomar de Cinca 25<sup>th</sup> May 2023 from 15:00 UTC



# Workflow

- 06:00 UTC – Check Official warnings
  - Have any been issued, what time period do they cover?
  - Does Sub-catchment summary layer highlight anything during the same period
- From ~1-2 hours before expected arrival of event
  - Check the latest forecast each hour
  - River flash flooding > check Sub-catchment summary layer
    - If sub-catchments highlighted > check Animated Flash Flood Nowcasting
  - Urban flooding > check Storm Impacts layers
    - Check every 15 mins if a signal is shown



# 06:00 Check Official Warnings

EDERA Platform

Flash flood forecast summary (0-120h)

Official warnings (1)

Official warnings

Meteorological layer

Seamless precipitation

Flash flood impact

Flash flood impact over

Storm Impact

Animated flash flood

Flash flood past 24h

Static layers

Exposure (1)

Exposure

Flood hazard and risk

Flood Area (T1000)

Flood Area (T050)

Flood Area (T010)

Official Warnings

Flash flood impact over sub-catchment

Rain in Centro de Huesca

Time & Duration

From: 2023-05-25 17:00:00+00 UTC

To: 2023-05-25 19:59:59+00 UTC

Severe rain warning. Centro de Huesca

One-hour accumulated precipitation: 30 mm.

Be prepared. Take precautions and keep up to date with the latest weather forecast. Severe damages to people and properties may occur, especially to those vulnerable or in exposed areas.

2023-05-25 06 : 00

Apply

Forecasting time: Thu, 2023-05-25 06:00 UTC

Leadtime(h)

0-6h

6-24h

24-48h

48-120h

# 06:00 Check Sub-catchment Summary

EDERA Platform

Flash flood forecast summary (0-120h)

Official warnings (1)

Official warnings

Meteorological layers (1)

Seamless precipitation accumulation

Flash flood impact layers (1)

Flash flood impact over sub-catchment

Storm Impact

Animated flash flood nowcasting

Flash flood past 24-h summary

Static layers

Exposure (1)

Exposure

Flood hazard and risk maps (3)

Flood Area (T1000)

Flood Area (T050)

Flood Area (T010)

2023-05-25 12:00 - 2023-05-25 18:00

Official WarningsFlash flood impact over sub-catchment

Lat, Long

|                   | Low Exposure | Medium Exposure | High Exposure |
|-------------------|--------------|-----------------|---------------|
| High Likelihood   |              |                 |               |
| Medium Likelihood |              |                 |               |
| Low Likelihood    | ✓            |                 |               |

|                                       | #                   |
|---------------------------------------|---------------------|
| Total population affected             | 30                  |
| Education facilities affected         |                     |
| Health facilities affected            |                     |
| Energy generation facilities affected |                     |
| Time of the event peak                | 2023/05/25 18:00:00 |

2023-05-25 06 : 00Apply >

Forecasting time: Thu, 2023-05-25 06:00 UTC

Leadtime(h)0-6h6-24h24-48h48-120h





# 14:00 Weather system moves in... as shown by precipitation nowcasting

## EDERA Platform

Flash flood forecast summary (0-120h) ▼

Storm Impact ▼

Animated flash flood nowcasting ^

Official warnings (1)

Official warnings

Meteorological layers (2)

Hourly precipitation 80th percentile

Hourly precipitation - radar nowcasting

Flash flood impact layers (4)

Flash flood impact over the river network

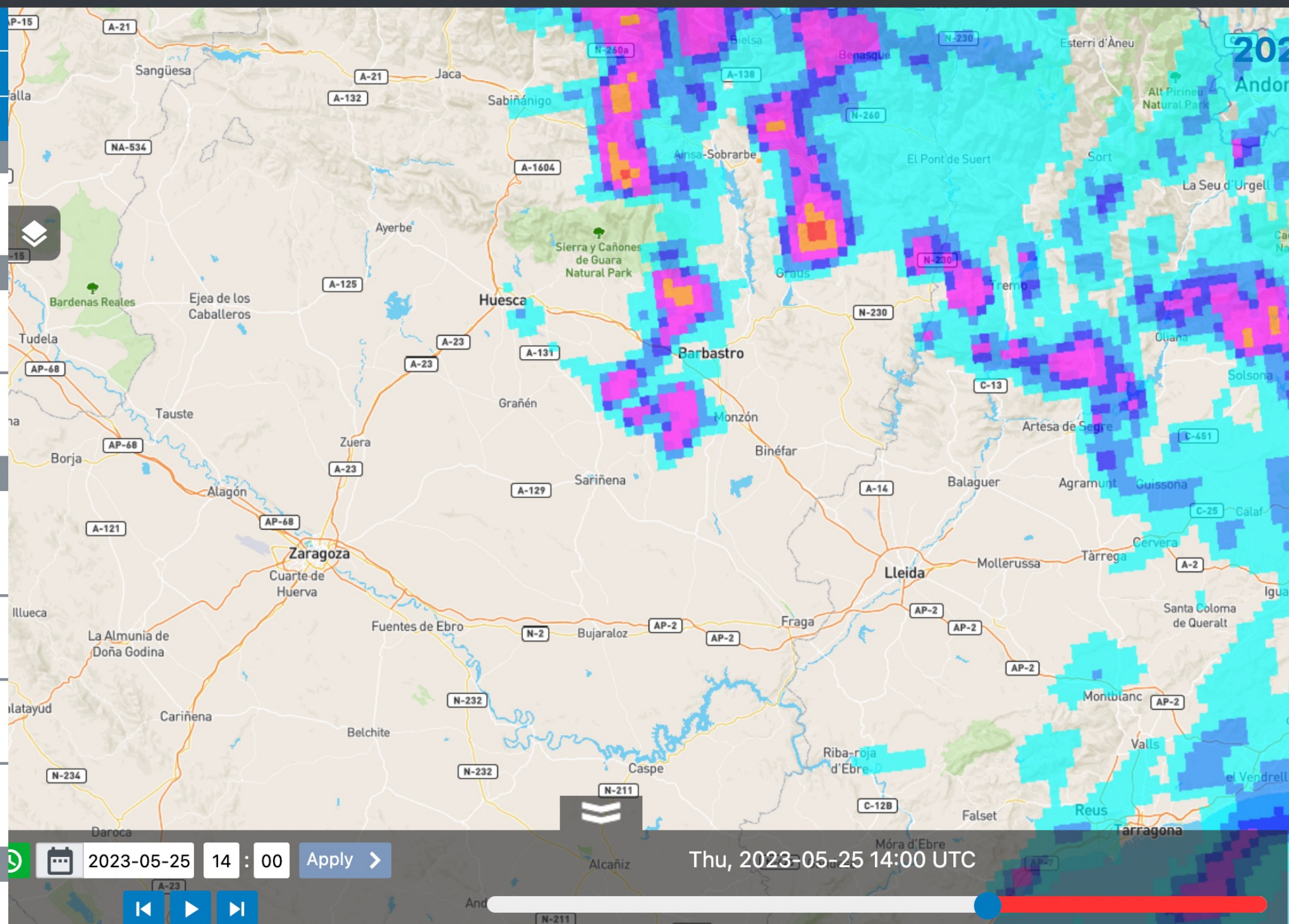
Pluvial flood hazard in urban areas

Flooded areas

Flash flood impact over sub-catchment

EFAS (4)

ERIC Points





# 14:00 Weather system moves in... check Flash flood impact forecast

## EDERA Platform

Flash flood forecast summary (0-120h) ▼

Storm Impact ▼

Animated flash flood nowcasting ▲

Official warnings (1)

Official warnings

Meteorological layers (2)

Hourly precipitation 80th percentile

Hourly precipitation - radar nowcasting

Flash flood impact layers (4)

Flash flood impact over the river network

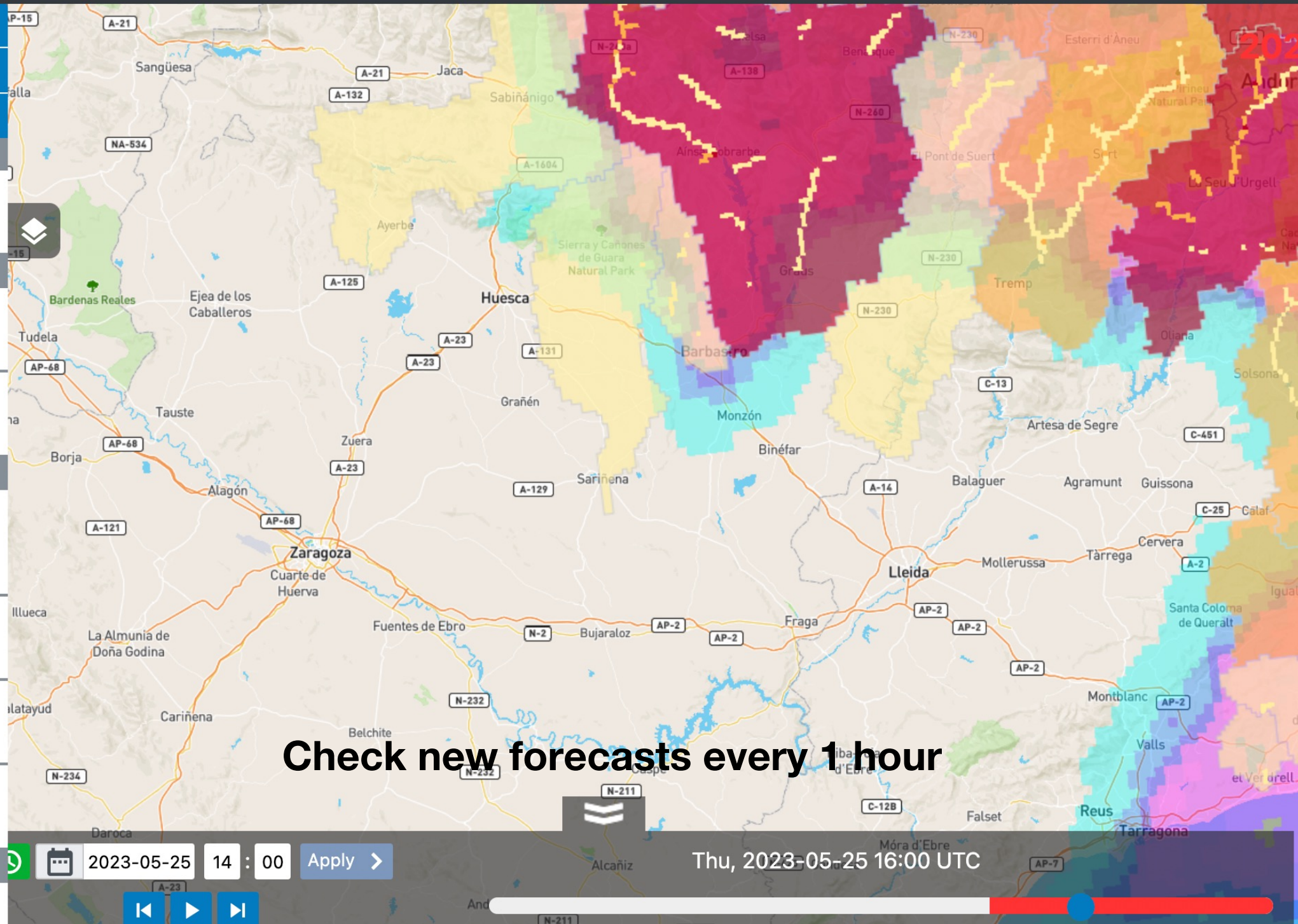
Pluvial flood hazard in urban areas

Flooded areas

Flash flood impact over sub-catchment

EFAS (4)

ERIC Points





# Urban Floods Case Study: Zaragoza, 6<sup>th</sup> July 2023



Hail



Flooding



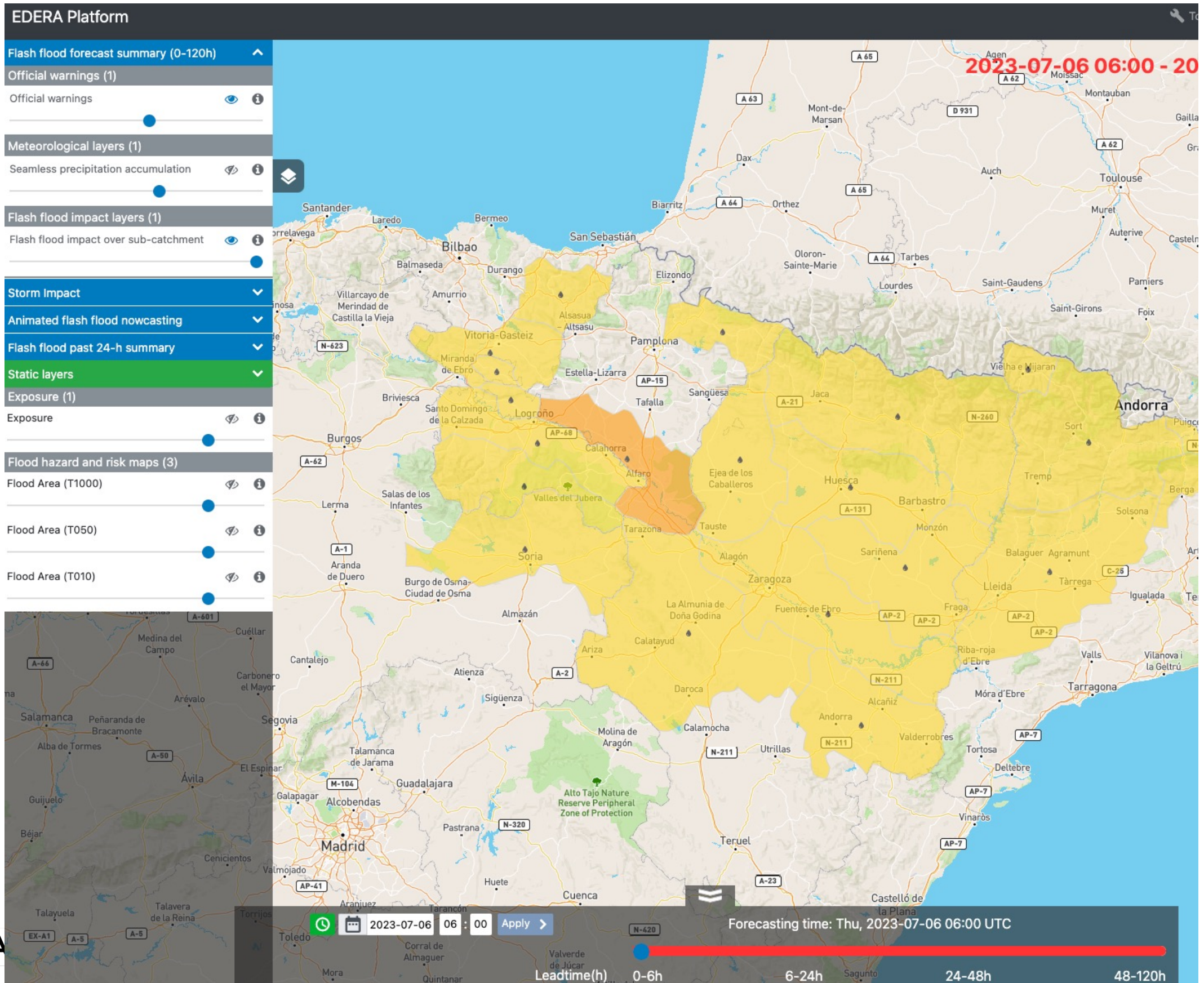
Heavy Rain

# Workflow

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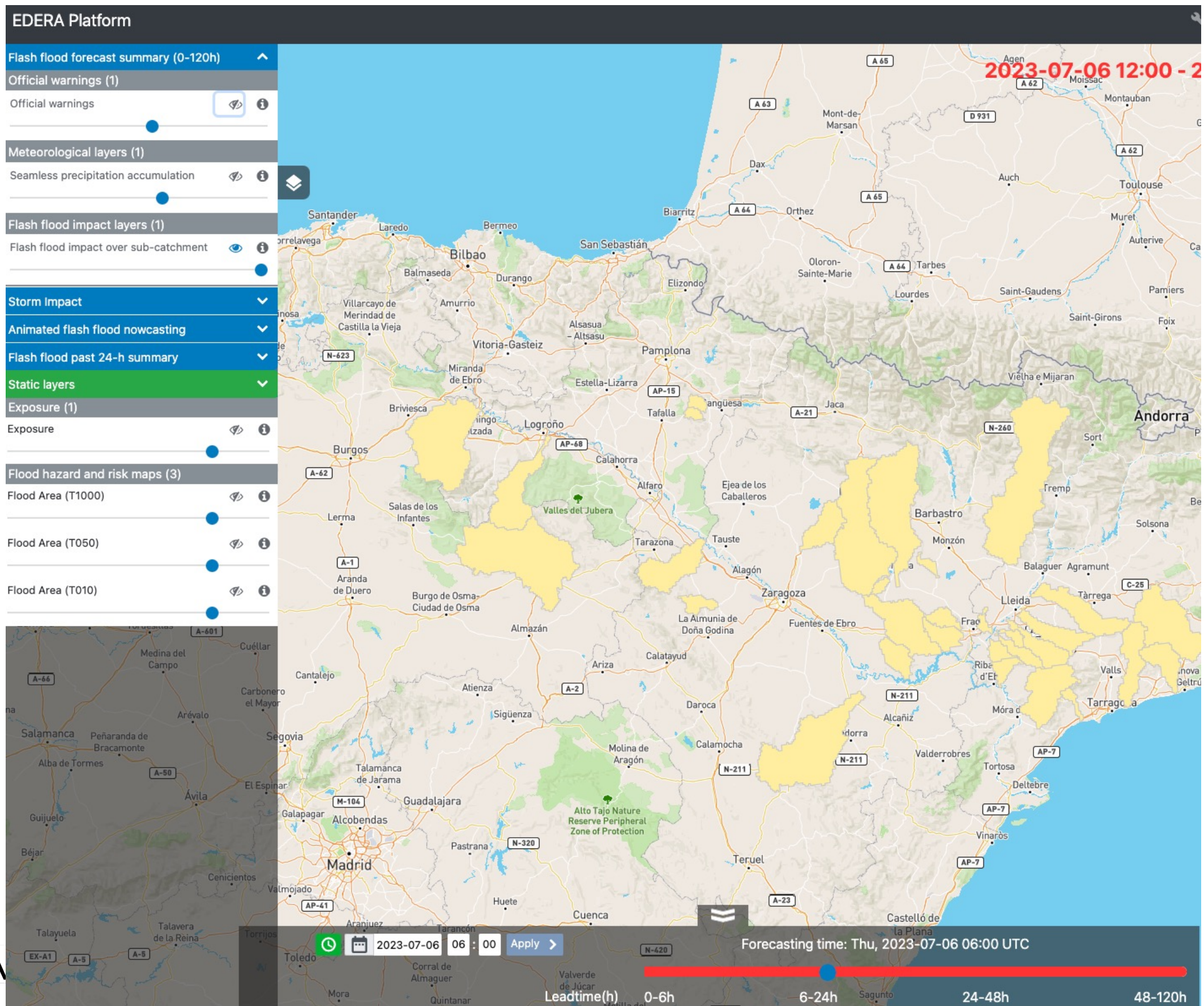


## 06:00 Check Official Warnings



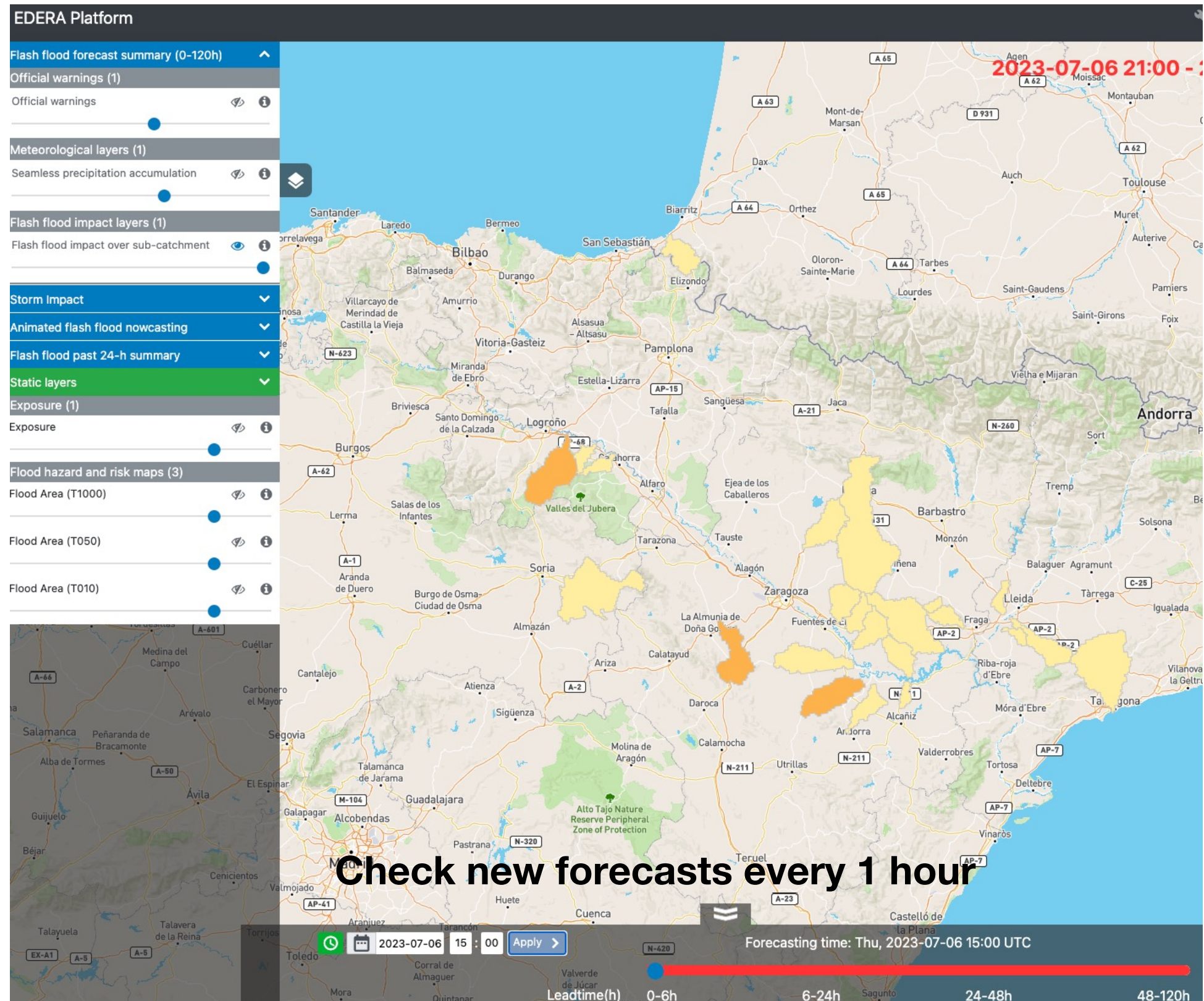


# 06:00 Check Sub-catchment Summary



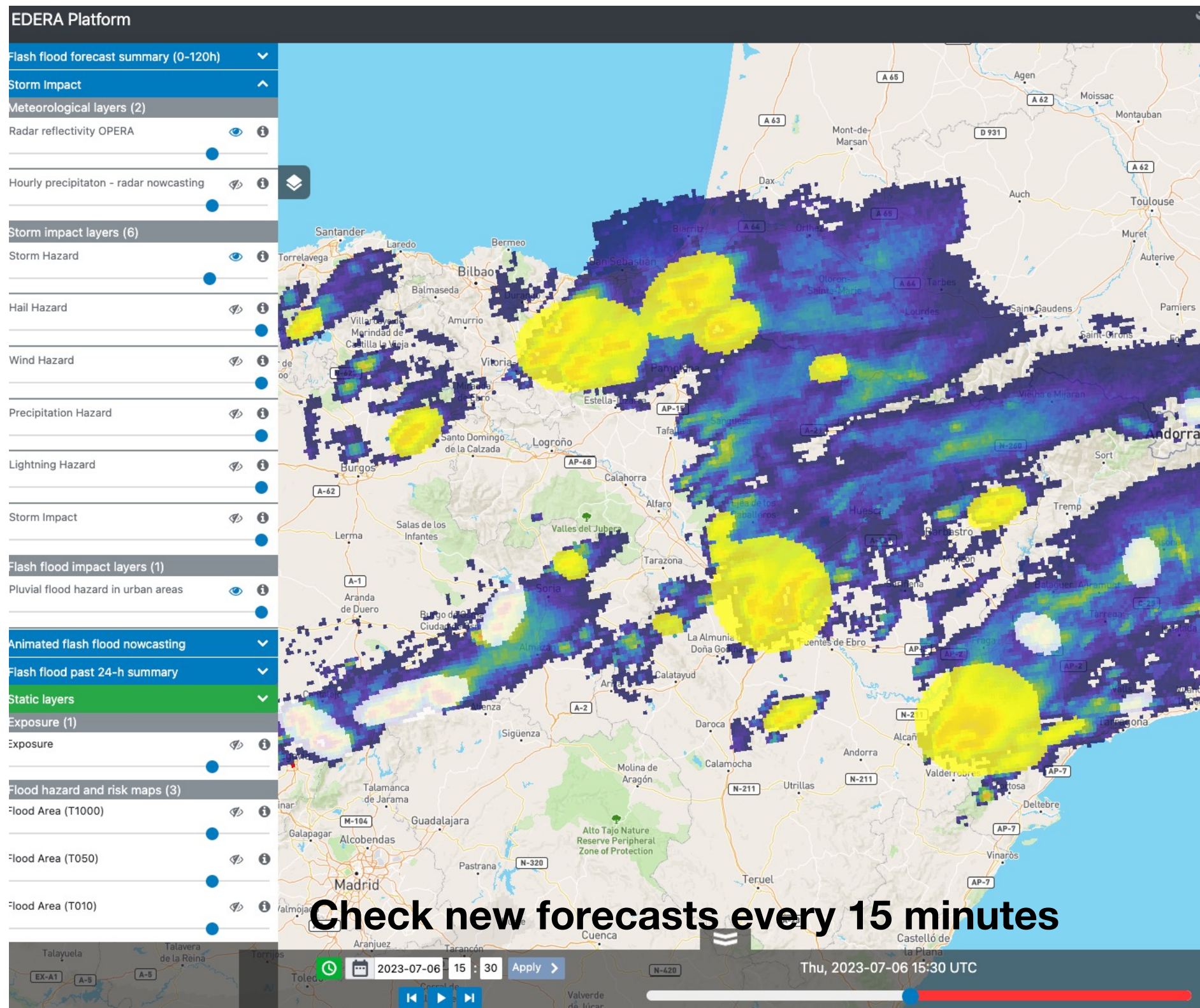


# 15:00 Weather System is moving in... check River Flash Flood Risk





# 15:00 Weather System is moving in... check Urban Flash Flood Risk





# Suggested Checklist

1. Check summary layers to get situation overview
2. If catchments highlighted at risk:
  - Analyse Animated flash flood nowcasting layers
3. Check storm impacts to assess risk of urban flooding
4. For additional contextual information
  - Analyse summary past 24h layers for antecedent conditions
  - Static layers to identify areas prone (and vulnerable) to flooding

Discussion: **Would it be useful to design a checklist to provide to your analysts?**

# Draft Checklist

| Steps |                        | EDERA Forecast Product(s)  | Actions   |
|-------|------------------------|--|---|
| 1.    | Forecast overview      | Flash flood summary <ul style="list-style-type: none"><li>Flash flood impact over sub-catchment</li><li>Seamless precipitation accumulation</li></ul>                | <ul style="list-style-type: none"><li>Select latest forecast date</li><li>Are any sub-catchments showing risk of flash flooding over next 0-6 hours in your area of interest?</li><li>Is any heavy rainfall expected in your area of interest over the next 0-6 hours?</li><li>If no = <b>no further action</b></li><li>If yes = <b>follow next steps</b></li></ul> |
| 2.    | River flash flood risk | Animated flash flood nowcasting: <ul style="list-style-type: none"><li>Flash flood impact over river network</li><li>Flash flood impact over sub-catchment</li></ul> | <ul style="list-style-type: none"><li>Use the time slider to view each hourly timestep</li><li>Identify the catchment(s) and timestep(s) when river flash flooding is possible</li></ul>  |
| 3.    | Urban flash flood risk | Storm Impact: <ul style="list-style-type: none"><li>Storm Impact EDERA</li><li>Hourly precipitation</li></ul>  | <ul style="list-style-type: none"><li>Use time slider to view each hourly timestep</li></ul>  |