

# EDERA Training Workshop

## Madrid, 7-8 May 2024

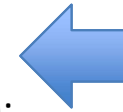
[sandra.correia@ipma.pt](mailto:sandra.correia@ipma.pt), [joao.rio@ipma.pt](mailto:joao.rio@ipma.pt), [manuel.lopes@ipma.pt](mailto:manuel.lopes@ipma.pt), [nuno.moreira@ipma.pt](mailto:nuno.moreira@ipma.pt)

**(Meteorology and Geophysical Departement, IPMA, I.P.)**

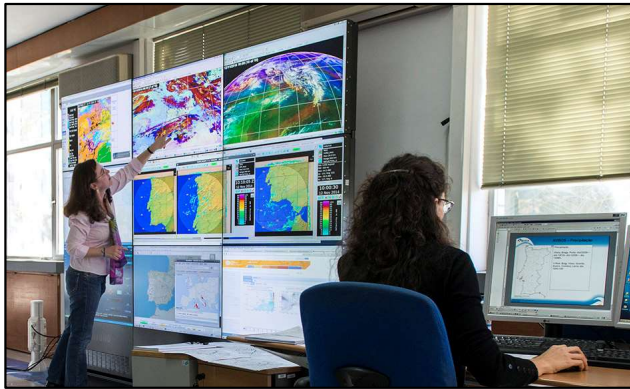


### Warnings:

- issued 3 days ahead;
- Issued by districts,
- 3 levels (green, yellow, red);
- “**impacts oriented**” » snow (under evaluation: precipitation and fog).
- **precipitation thresholds** »
  - 10-20 mm/1h or 30-40 mm/6h
  - 20-40 mm/1h or 40-60 mm/6h
  - > 40 mm/1h or > 60 mm/6h



- Portuguese Institute for the Ocean and Atmosphere (IPMA) is the **national authority for meteorology**;
- IPMA has therefore the responsibility to guarantee a **Weather Watch Service**;
- The weather watch service is put into practice through the national **Weather Warnings System** platform and cooperation with **MeteoAlarm**;
- Participation – **ARISTOTLE-eENHSP Project** (severe weather / forest fires);
- Partners – **European Flood Awareness System (EFAS)**.



**Daily Briefings  
National Civil Protection**



- 1) **Weather forecast » short term** (< 5 days), medium range (up to 10/15 days), extended range (up to 4/6 weeks) using as a base numerical models of weather forecast – ECMWF and AROME.
- 2) **Weather watch » nowcasting** (hours), using as means of observation: RADAR and lightning network, satellite imagery (EUMETSAT), soundings and meteorological weather stations.
- 3) **Action » communication** with the public (social media / social networks / webpage) and official entities (such as National Emergency and Civil Protection Authority – ANEPC).



**Issuance of Meteorological Warnings!**

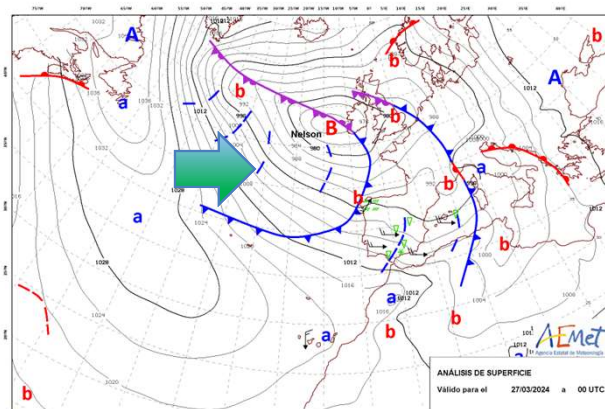




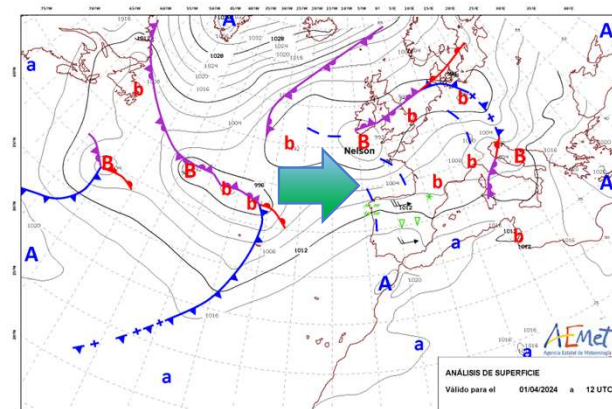
### PRODUCTS – Precipitation

Medium/Extended range, ENSEMBLE  
Total Accumulations (1h, 3h, 6h, 12h, 24h)  
Meteograms (10/15 days, with climate)  
Weekly Anomalies (2 weeks)  
Probabilities (EPS)  
EFI – Extreme Forecast Index

Determinist forecast:  
ECMWF (9 km) and AROME (2,5 km)

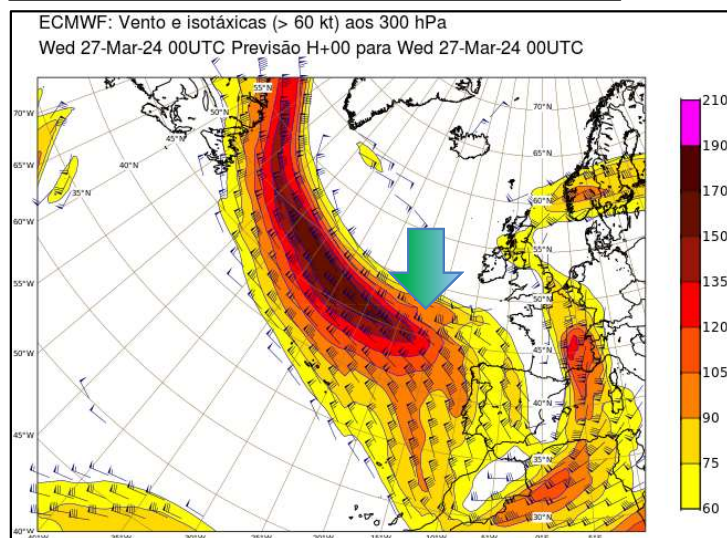


27/03/2024 (00UTC)



01/04/2024 (12UTC)

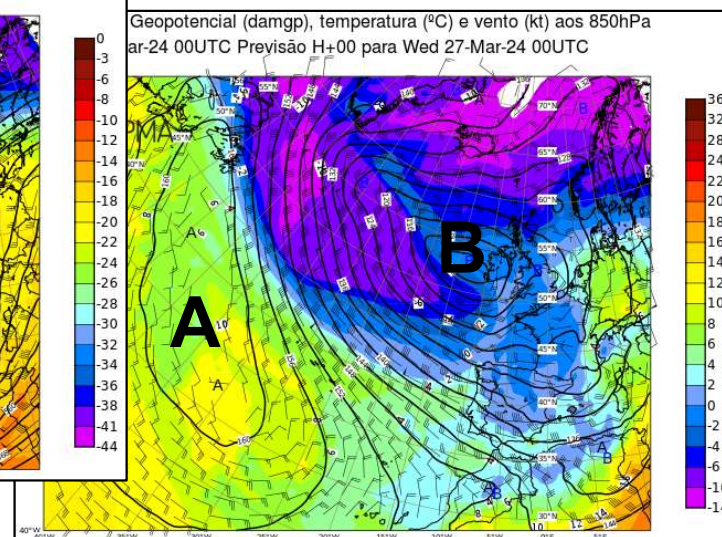
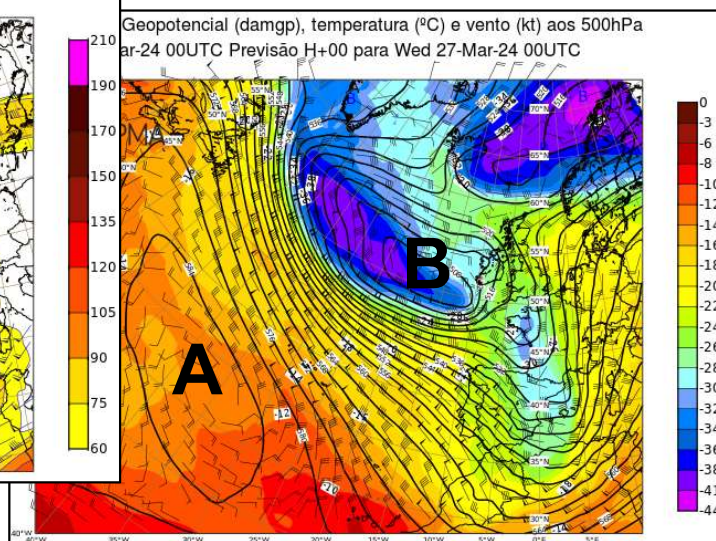
**Storm NELSON named by AEMET on 26th**



**27/03/2024 (00UTC):**

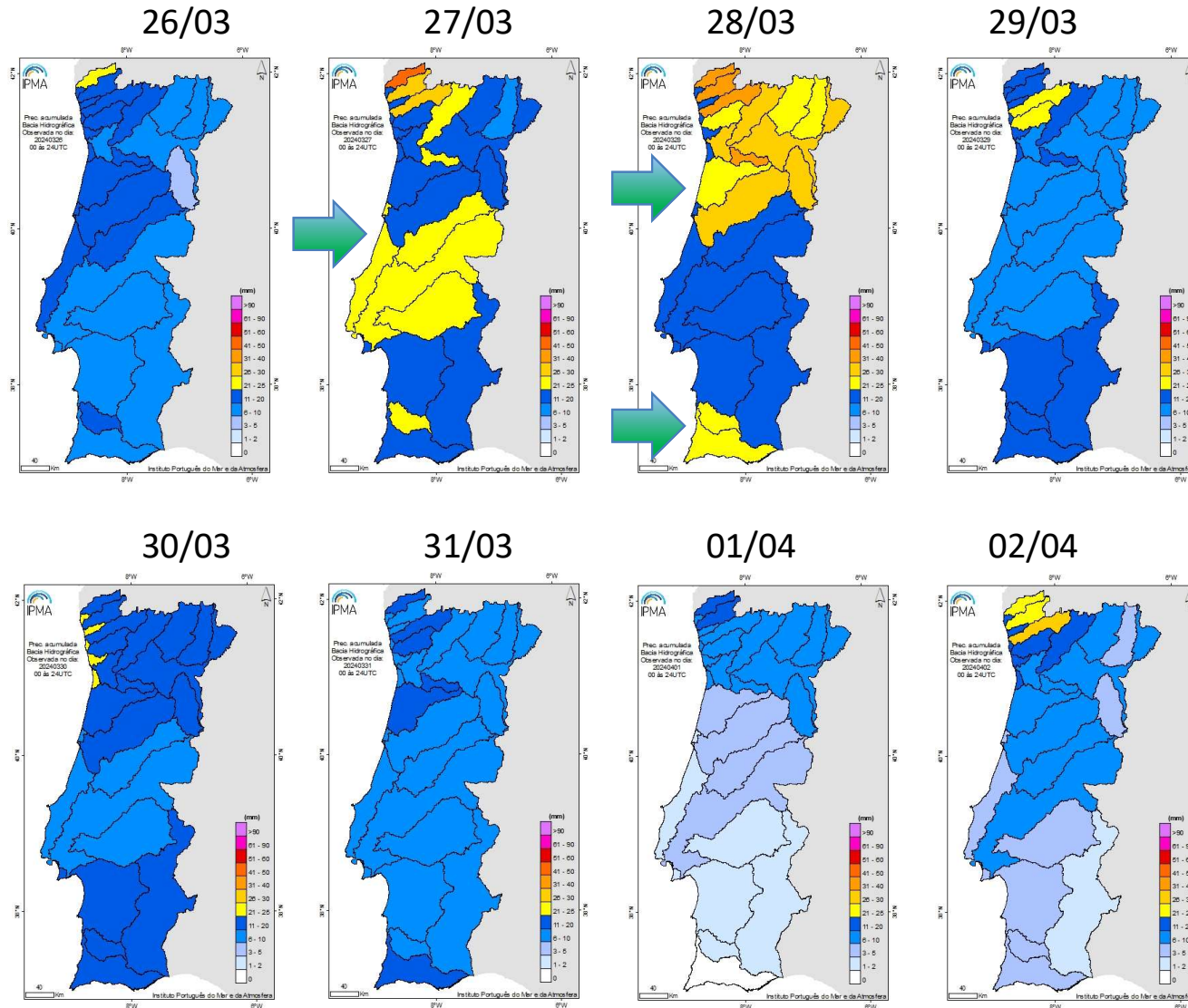
Jet stream

Geopotencial 500hPa / 850 hPa





### River Basin / Watershed:



### 27/03 Floods – Lisbon

OBSERVADOR

Assinar o Observador

#### Imagens. Mau tempo em Lisboa e Porto alaga ruas

No viaduto Duarte Pacheco, em Lisboa, várias viaturas ficaram retidas devido à chuva intensa, que está a alagar ruas no centro da capital portuguesa. No Porto, o vento forte derrubou algumas árvores.

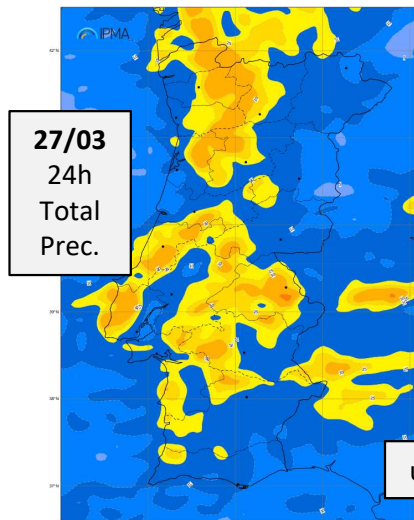


Diário de Notícias

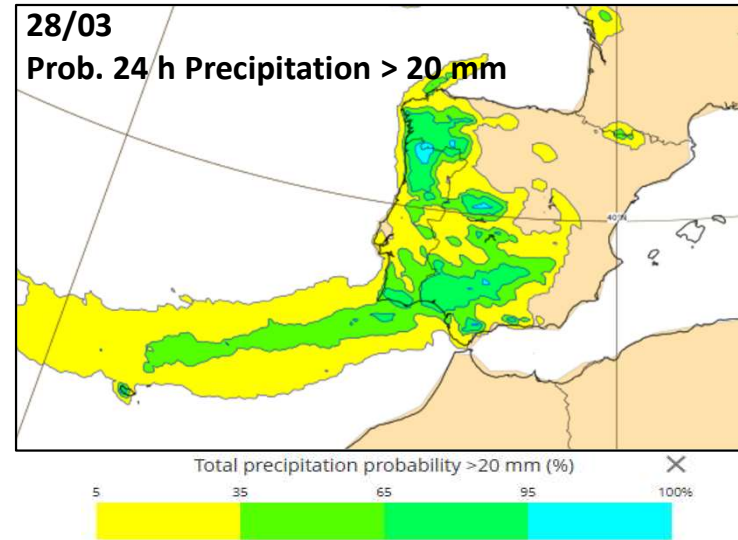
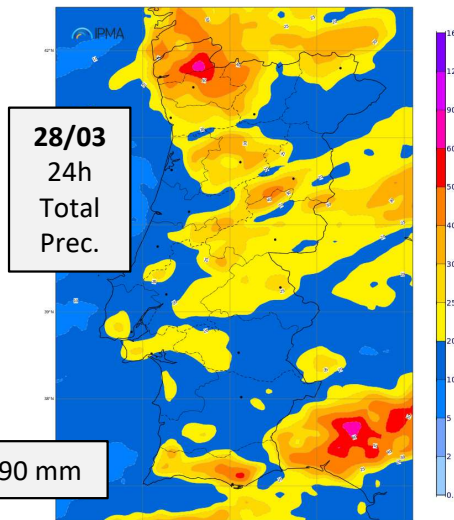
Política Sociedade Internacional Cultura Desporto



ECMWF: Precipitação total - líquida e sólida - acumulada em 24 horas (mm)  
Wed 27-Mar-24 00UTC Previsão H+24 para Thu 28-Mar-24 00UTC

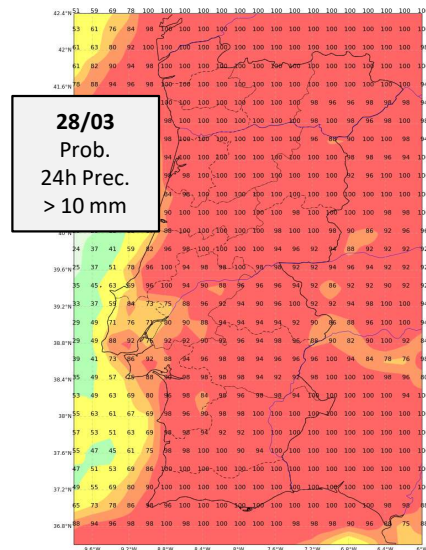


ECMWF: Precipitação total - líquida e sólida - acumulada em 24 horas (mm)  
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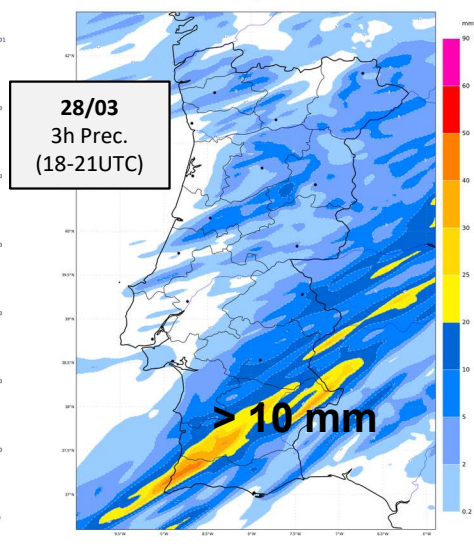


**28/03**  
Tornado (F1)  
Lisboa  
(Tejo river)  
Algarve (Silves)

FCST ENS ECMWF Variable: PROB TOTAL\_PRECIP >=10.0 [%] 24h  
Run: 2024032800 Step: 24 Valid/Period: 2024032800 - 2024032900

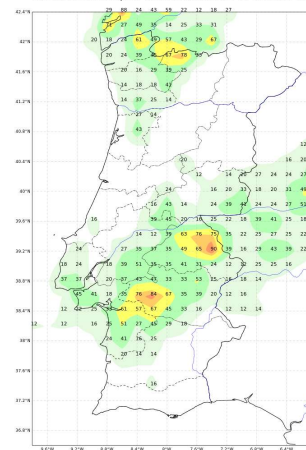


AROME: Precipitação total acumulada (mm) nas últimas 3 horas  
Thu 28 Mar 2024 00 UTC Previsão H+21 para Thu 28 Mar 2024 21 UTC

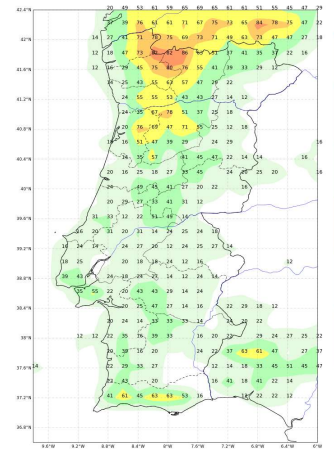


**27/03 and 28/03**  
Prob. 3h Precipitation > 6 mm

FCST ENS ECMWF Variable: PROB TOTAL\_PRECIP >=6.0 [%] 3h  
Run: 2024032700 Step: 15 Valid/Period: 2024032712 - 2024032715



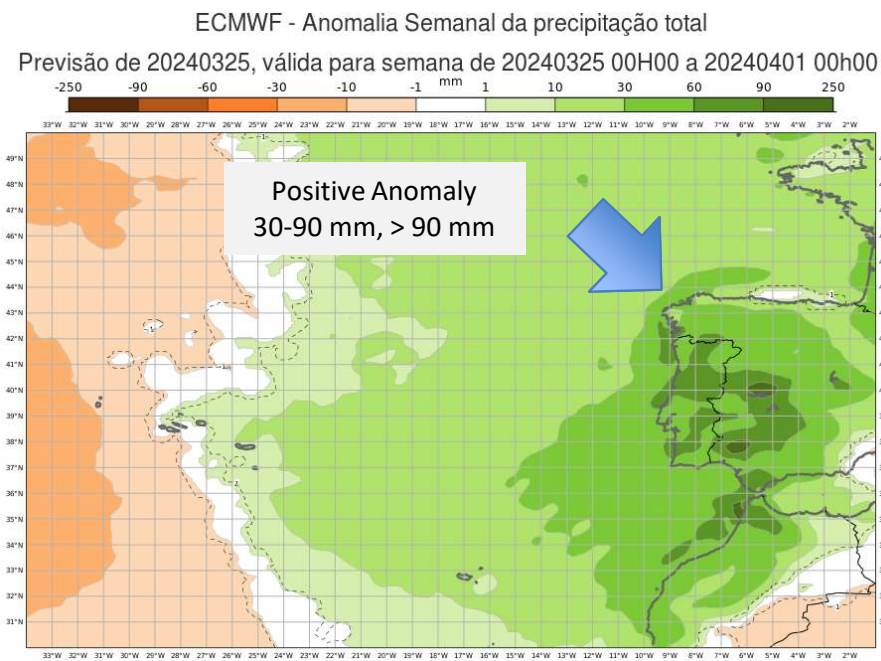
FCST ENS ECMWF Variable: PROB TOTAL\_PRECIP >=6.0 [%] 3h  
Run: 2024032700 Step: 39 Valid/Period: 2024032812 - 2024032815





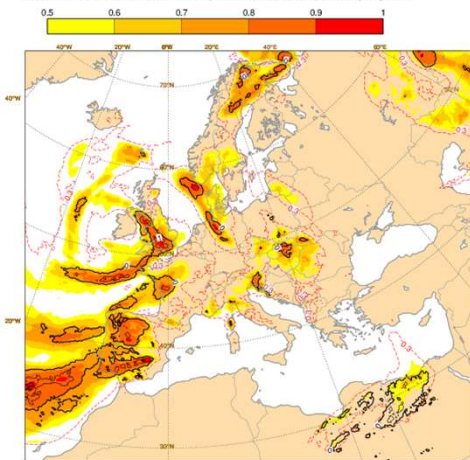
### Total Precipitation – Weekly Anomalies

( week: 25/03 to 01/04 )

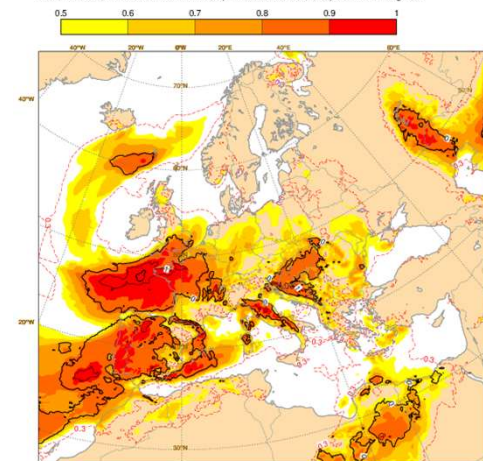


### 28/03 – EFI (Extreme Forecast Index) ( Precipitation / Wind Gust )

Thu 28 Mar 2024 00UTC @ECMWF t+0-24h VT: Thu 28 Mar 2024 00UTC - Fri 29 Mar 2024 00UTC  
Extreme forecast index and Shift of Tails (black contours 0,1,2,5,8) for total precipitation

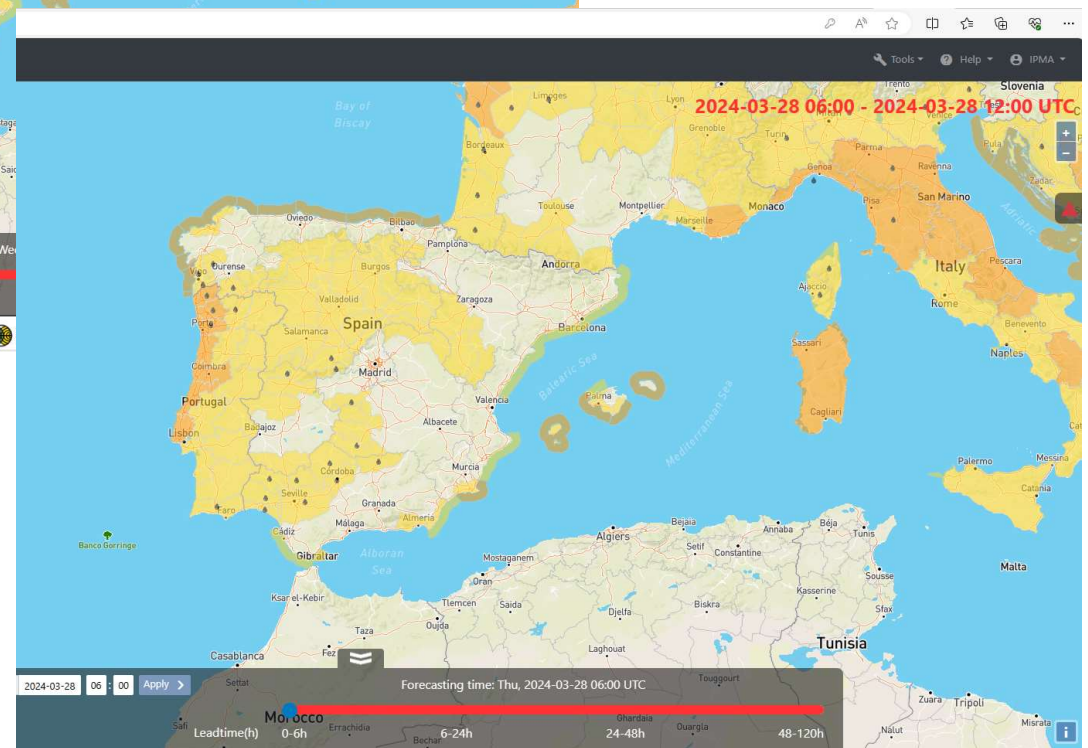
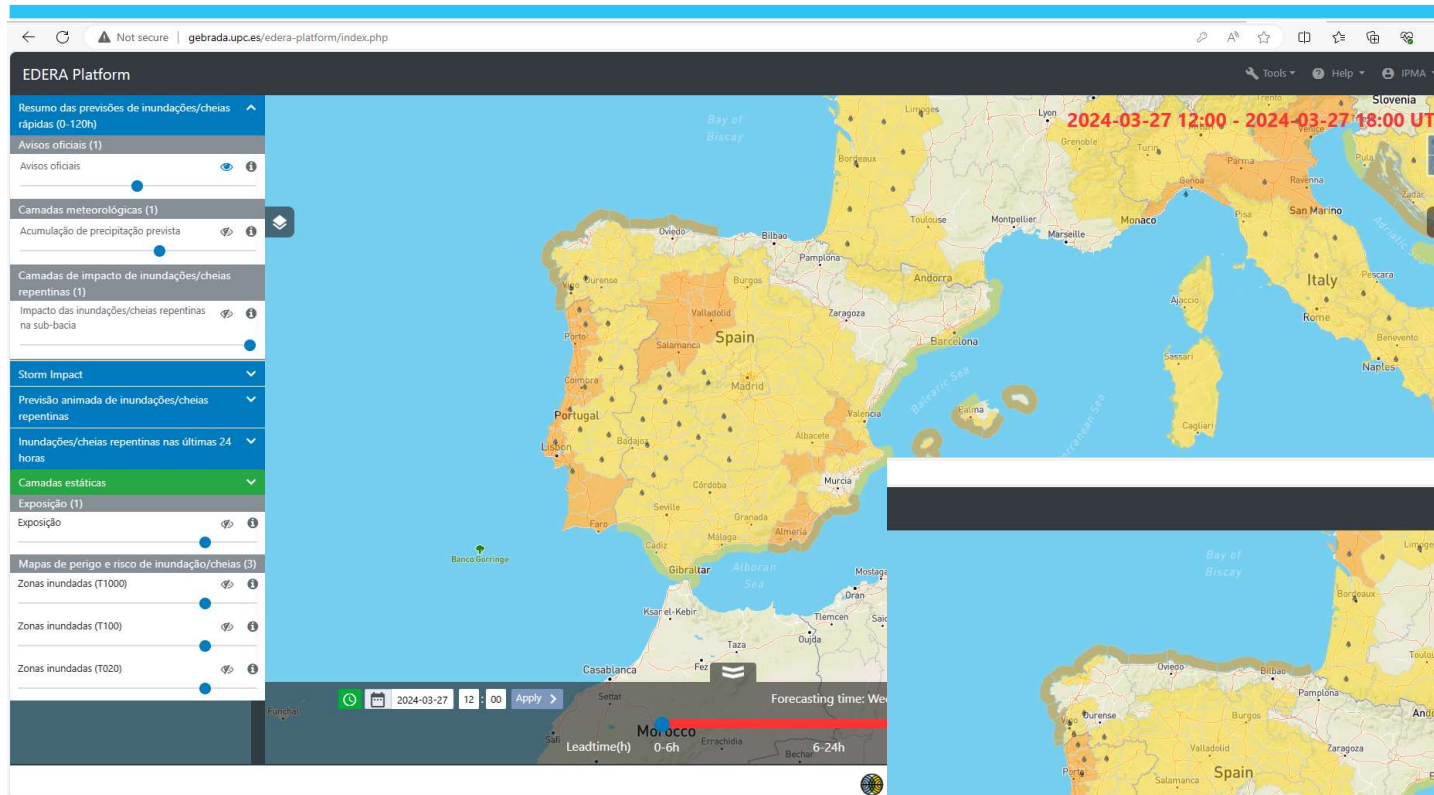


Thu 28 Mar 2024 00UTC @ECMWF t+0-24h VT: Thu 28 Mar 2024 00UTC - Fri 29 Mar 2024 00UTC  
Extreme forecast index and Shift of Tails (black contours 0,1,2,5,8) for 10m wind gusts

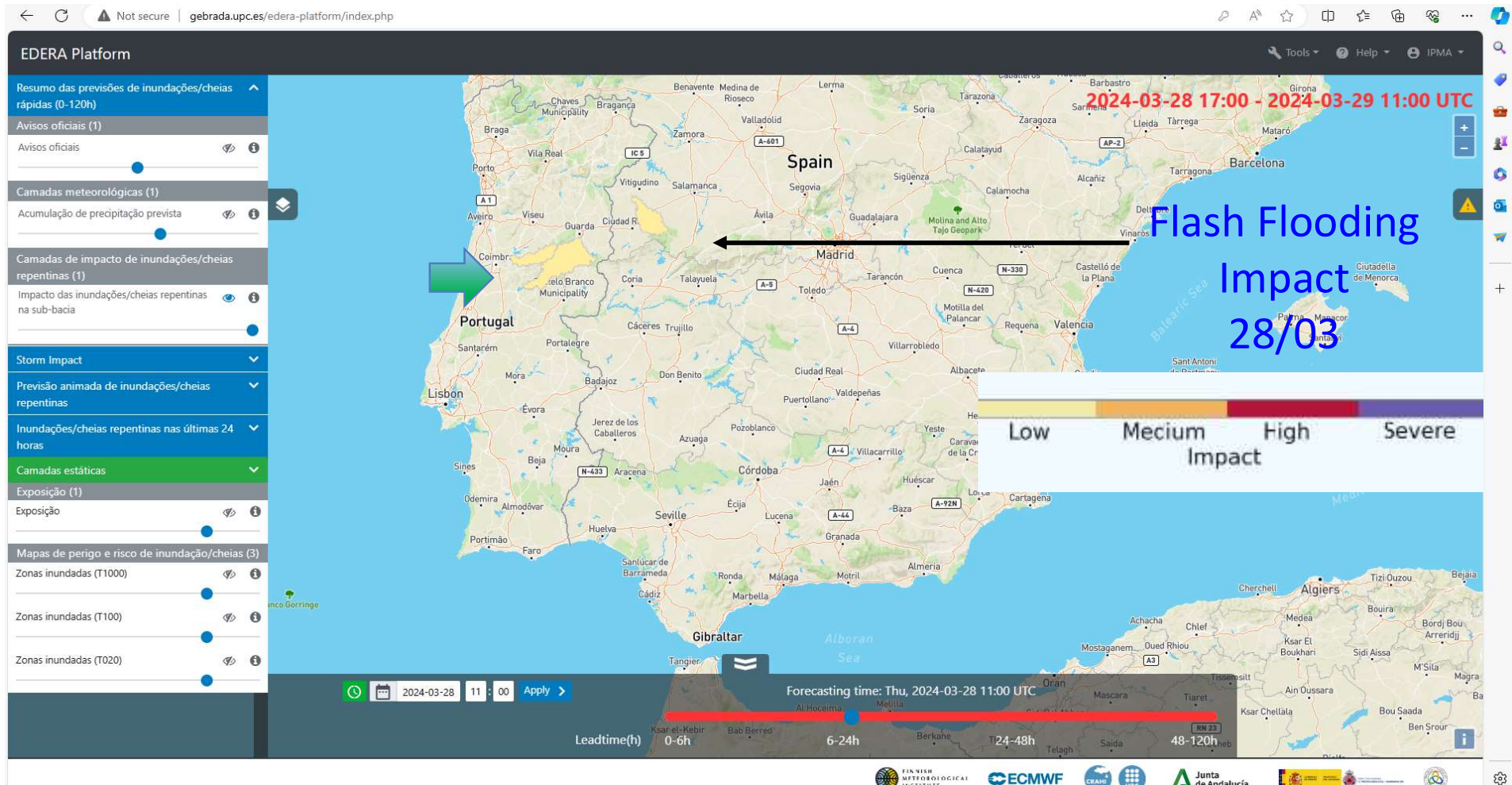


### IPMA's Official Precipitation Warnings

27/03 and 28/03

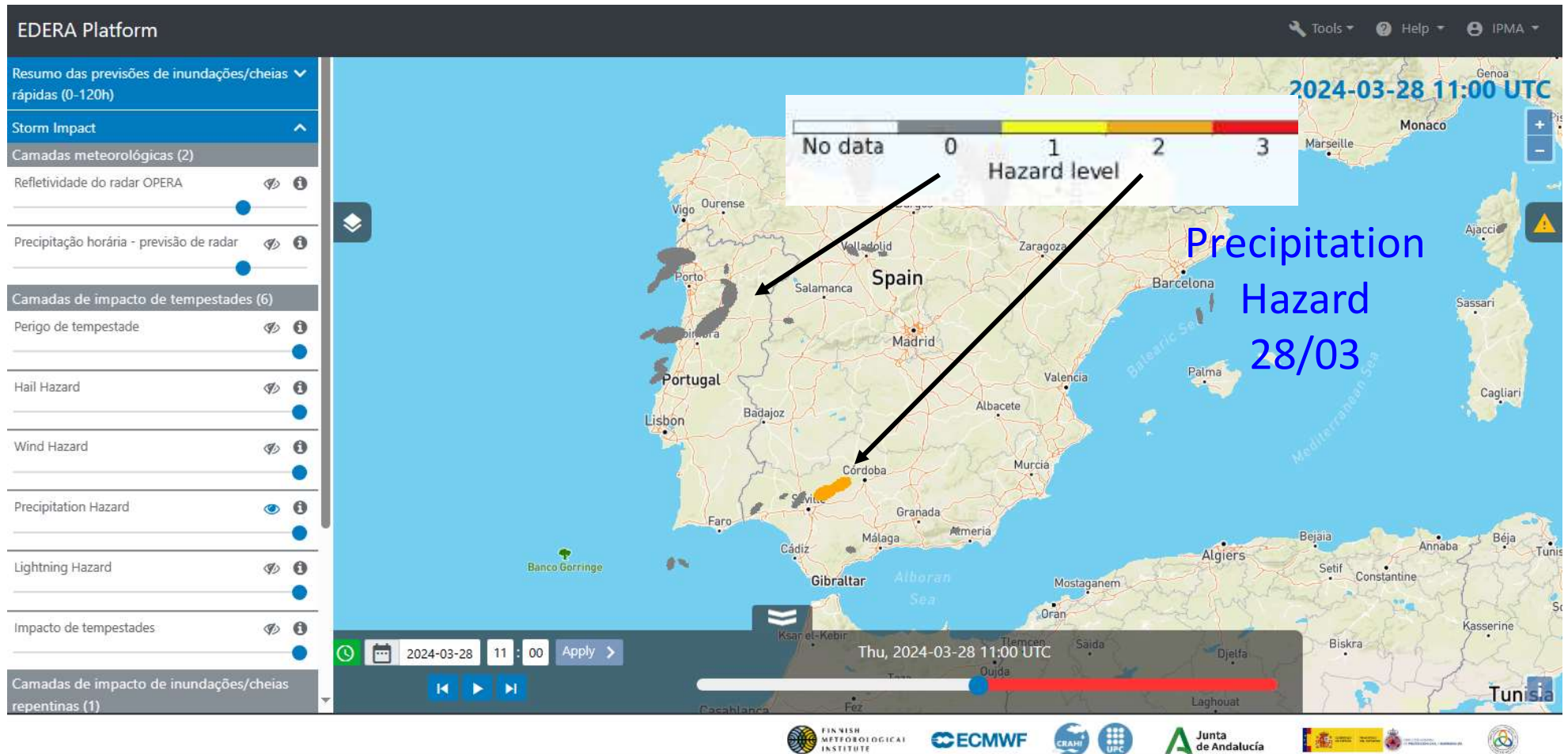






EFAS Flood Notification for Spain

River: Jarama	27/03/2024, 10:59
River: Guadiana	27/03/2024, 06:36
River: Henares	27/03/2024, 06:36
River: Tago	26/03/2024, 10:29
River: Tagus/Tago/Tejo	26/03/2024, 10:28





- Recent case (27-28 March 2024) identified with preliminar analysis
- Further check on how EDERA products build on existing ECMWF products
- Future actions may also include detailing impacts (occurences) on both side of the border and compare to forecasts/products

Thank you for your attention!