



**Agència Catalana
de l'Aigua**

Reinforcing civil protection capabilities into multi-hazard risk assessment under climate change (RECIPE)

**What are the risk management operational
needs in a climate change context?**

Water catalan agency (ACA)

Water Resources Management

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Subjects

Brief introduction ACA field of work and important natural hazards to be faced

ACA experience in climate change influence risk management with respect to new hazard occurrences and dynamics

Kinds of operational needs in terms of civil protection have ACA to cope with these expected risk scenarios

Territory and competencies

Complete 16.000 km²
Partial 16.000 km²
32.000 km²

M. 1 Àmbit territorial de la demarcació del DCFC



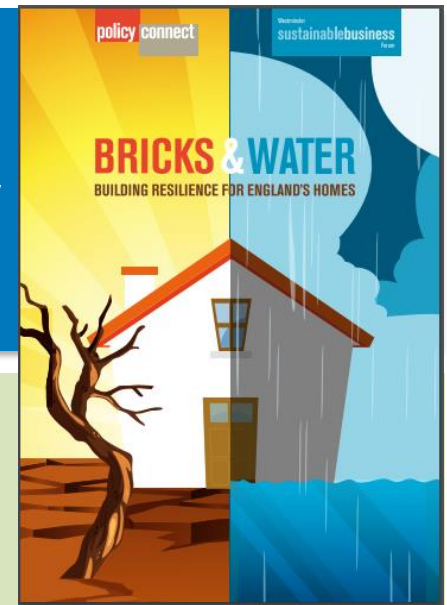
Shortly introduction ACA field of work and important natural hazards to be faced

Floods, flash floods and debris flow

Droughts

Loss of water resources

- ✓ Increase of forest biomass
- ✓ Less rain
- ✓ Water quality degradation: cyanobacteria



Brief introduction ACA field of work and important natural hazards to cope with

Floods

Society and river risk

More exposure:

- ✓ Increased use of river spaces
- ✓ Loss of awareness of vulnerability
- ✓ After a flood people want to forget
- ✓ Recover normality
- ✓ Flash flood and local Debris flood are increasing

Manresa s'apropa al riu i redescobreix el parc del Cardener com a nou espai per al lleure

La primera Festa del Riu reuneix un nombrós públic familiar que gaudeix de les propostes culturals al voltant de la llera



Sallent estrenarà dos espais en renovació a l'aire lliure coincidint amb la festa major

Una competició de canoes mostrarà aquest matí les millors fetes a la llera del riu



SOCIAL ASPECTS & INSURANCE COMPENSATION CONSORTIUM

Floods

Activities and cities
do not want to work to be prepared

“Risk 0” culture



Flood negation of risk:

Flood Plans and Early Warning System are considered as an
extra cost for the activity

The knowledge that an activity is in a flood prone area
makes the activity less attractive for tourists: Sun & beaches.

WHAT WE HAVE AND WHAT WE DO NOT HAVE

Floods

Preparatory actions

La crecuda del riu fa suspendre les canoes de la Festa Major de Sallent



La Mercè descubre el parque del Besòs



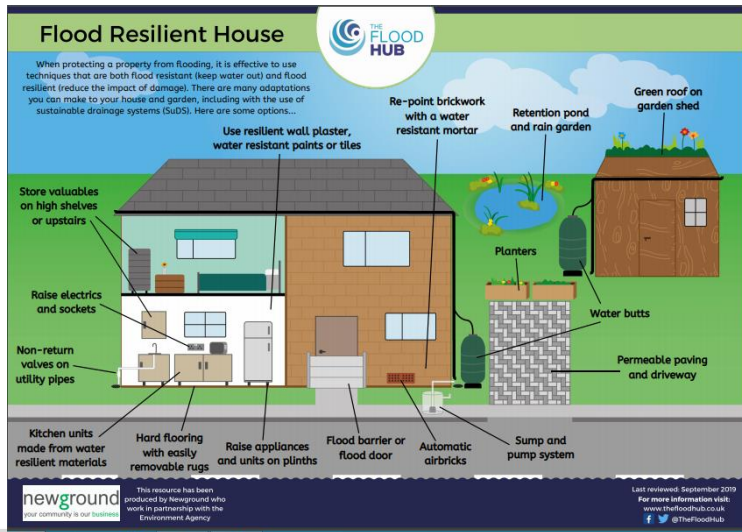
22.000 persones a les activitats
de la Llera del Besòs

WHAT WE HAVE AND WHAT WE DO NOT HAVE

Floods

Preparatory actions

The screenshot shows the homepage of 'THE FLOOD HUB'. The navigation bar includes 'About Us', 'News & Events', 'Your Local Area', and 'Knowledge Hub'. A central banner reads 'Supporting our communities to manage flood and coastal risk across the North West'. Below this is a red bar with a warning triangle icon, the text 'AM I AT RISK?', and a 'LEARN MORE' button. A circular image on the right shows a 'Flood' warning sign.



Preparedness vs. Solidarity after damages

WATER FRAMEWORK DIRECTIVE vs FLOOD DIRECTIVE

Floods

Flooding prone area, Riparian forest, Historical heritage



Clean water, clean river channel. Old protection flooding thresholds are designed without riparian forest, and with smaller flow associated to a return period

WHAT WE CAN EXPECT

Floods

▶
INCREASE OF RAIN INTENSITY
from FLASH FLOOD to DEBRIS FLOW

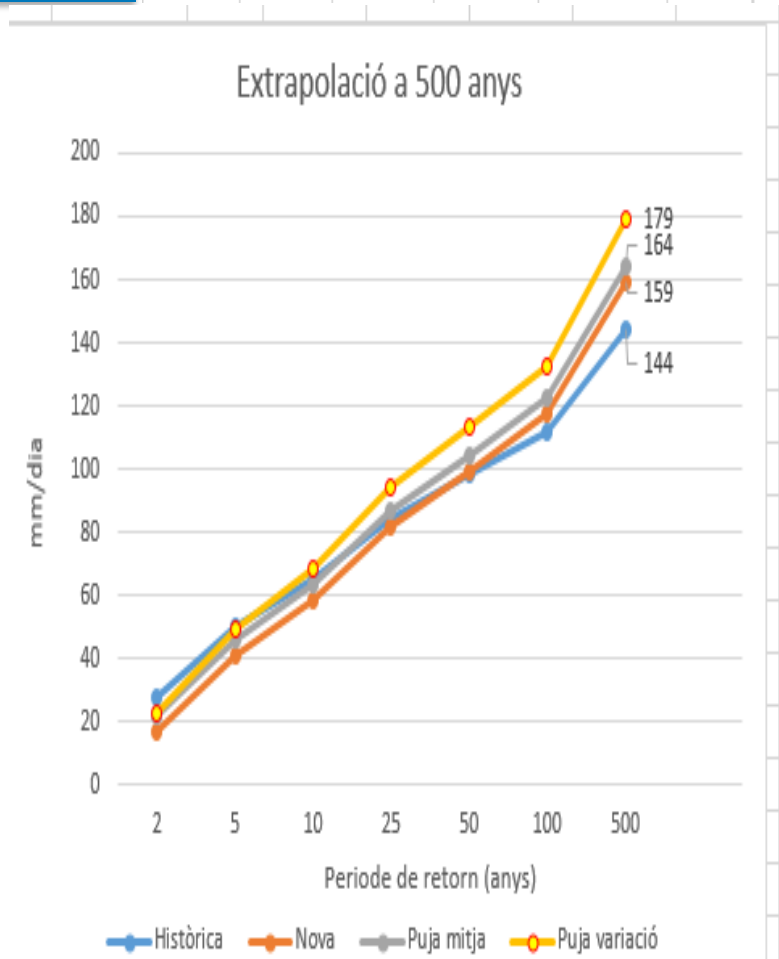
Promig	20	20	25	25 mm/dia
desviació	20	20	20	22 mm/dia



Figura 6.- Estació d'aforament EA 29 C ubicada en el Riu Francolí. Vista de l'escala limnimètrica.



Figura 7.- Riuada de 9 i 10 d'octubre de 1994 passant per sobre del pont de Cal Cisquet on es troba situada l'EA29C



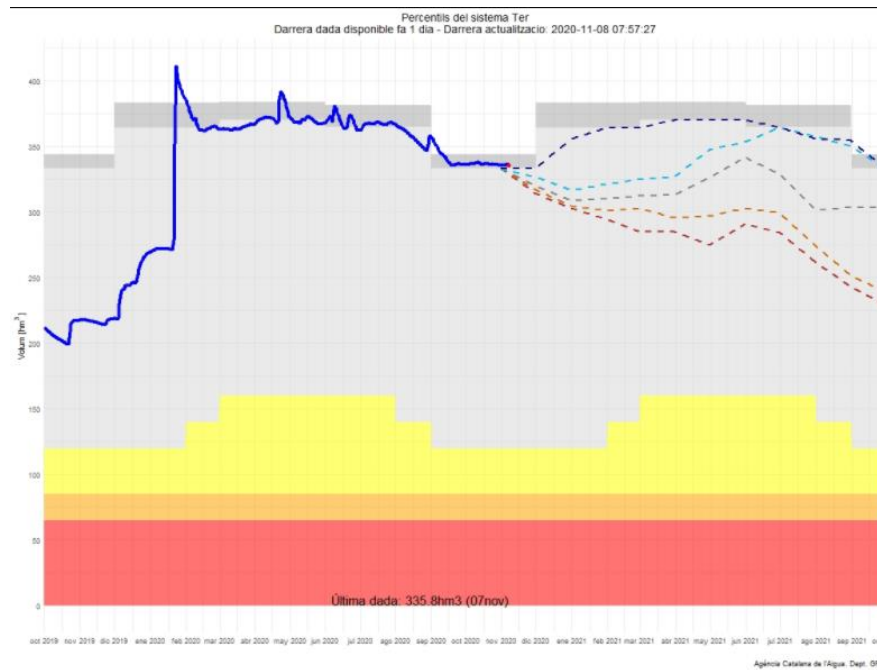
What means a Debris Flow in a riparian forest?



If the intensity of flood increases with time, it also increases the flooding prone area

What protection criteria should be applied?

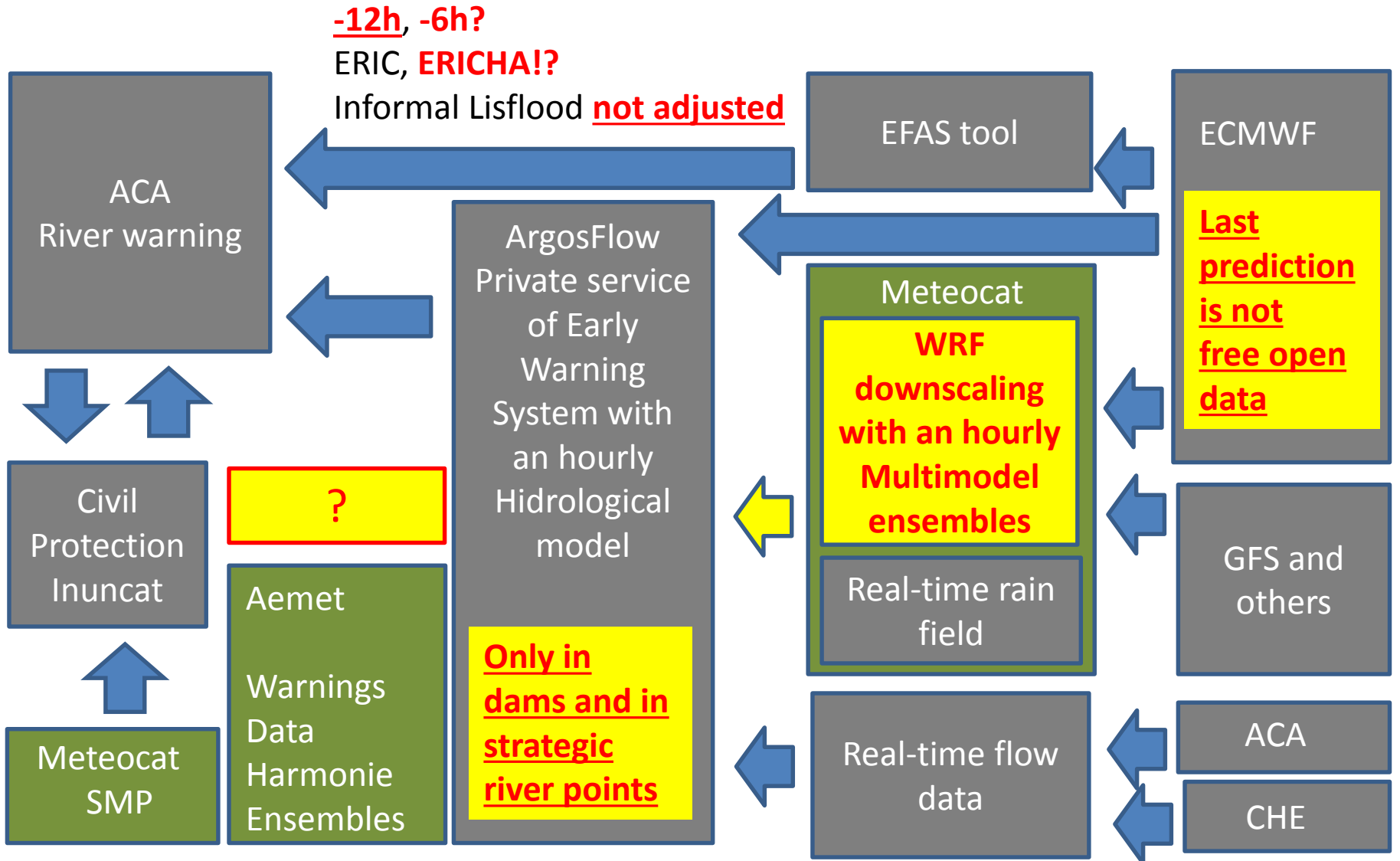
Reservation of dam free volumes of water for flood management



Can dams ensure security against big floods?
More free volume, less water resource warranty

Flash flood prediction

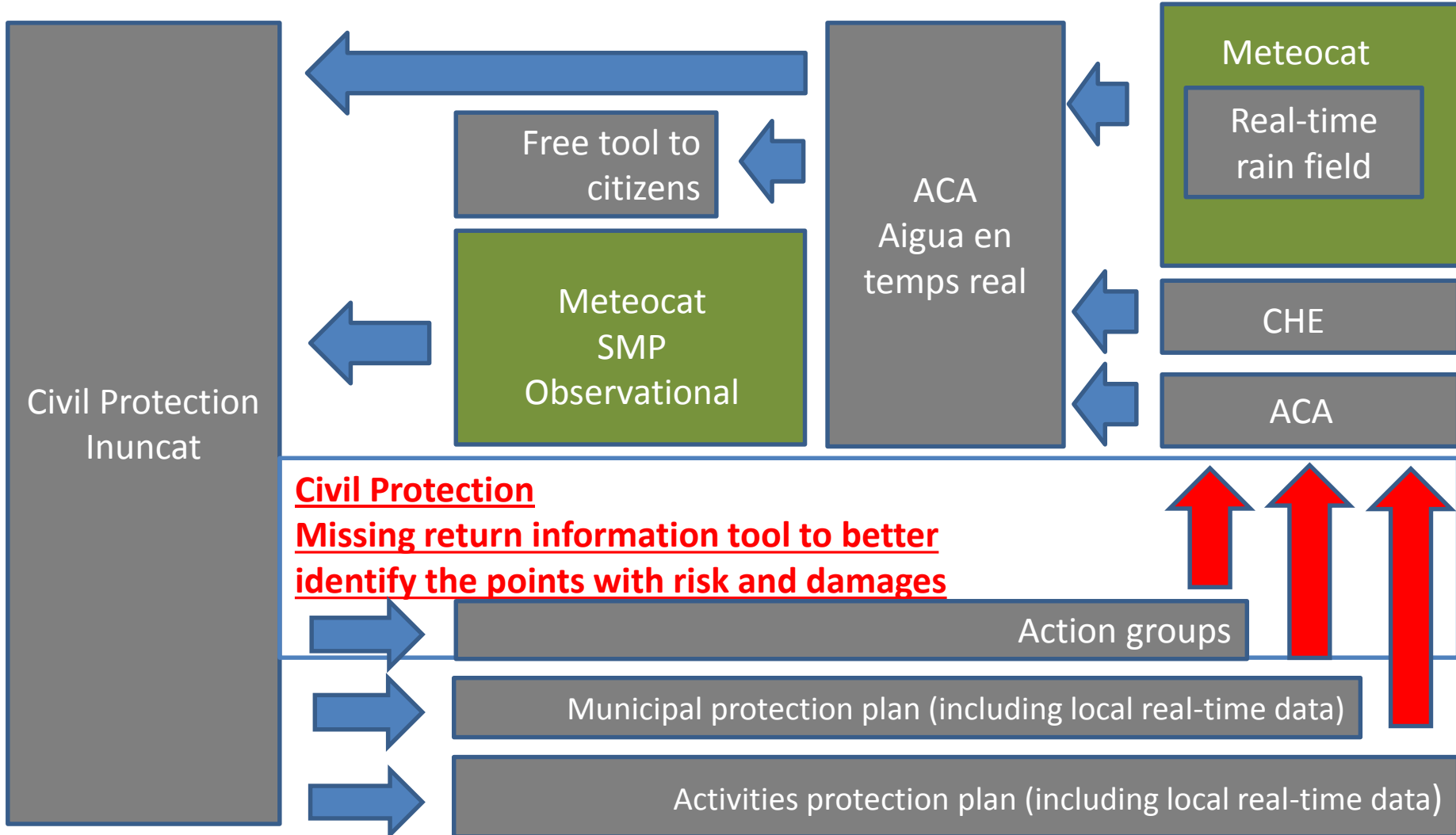
Floods



Flood monitoring

Floods

<http://aca-web.gencat.cat/aetr/vishid>



Reflection. Why not focusing in people?

Floods

Open app for people

Where are you?

GPS

What are you doing?

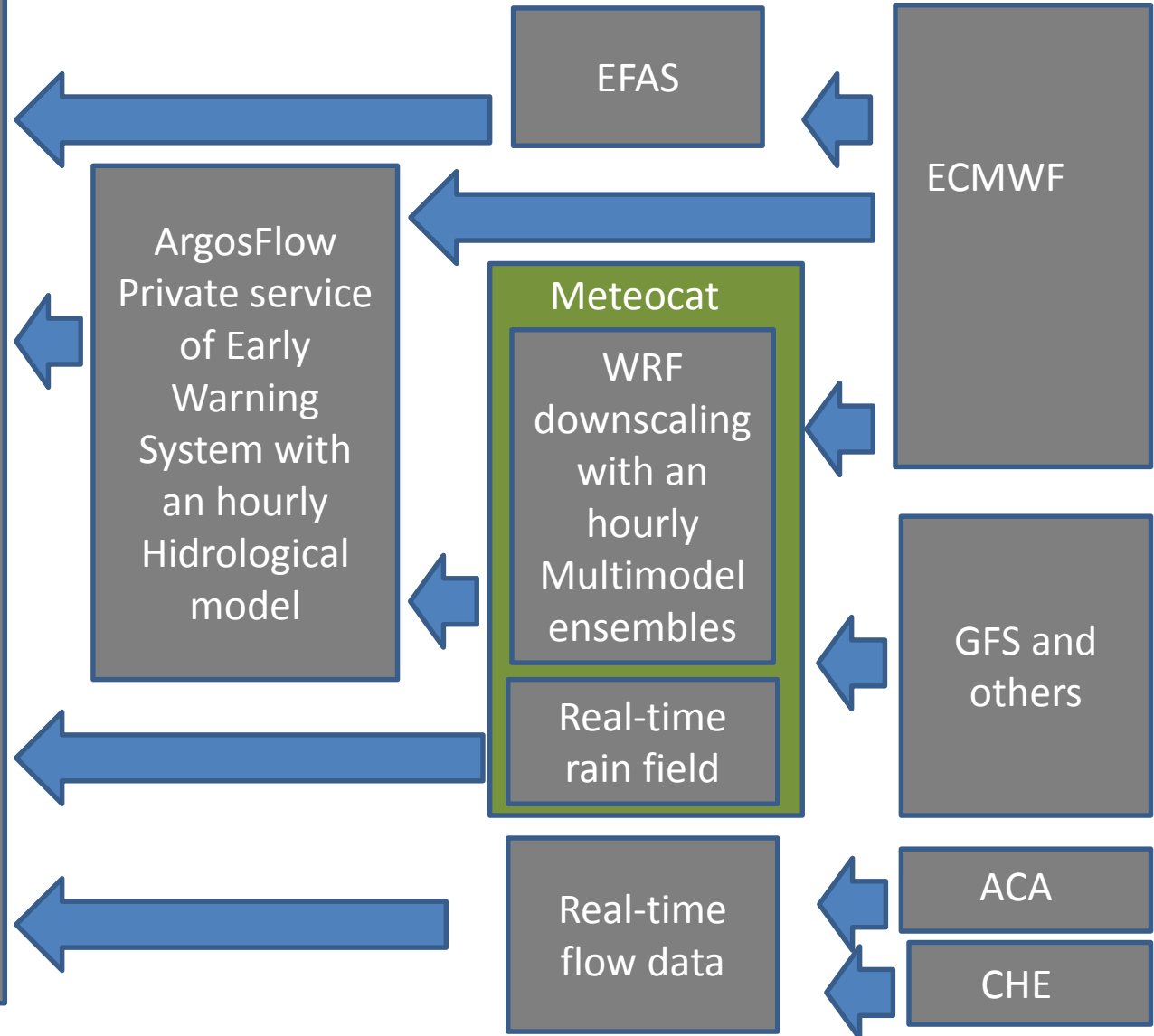
Confidential form

What is happening?

Confidential form

Could you send a
photograph or a video?

Your risk level is ...
and it could affect you
in ... hours





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Thanks for your attention

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