

# Incorporating the perspective of user evaluation into the creation of a new early warning system.

## | SMN- ARGENTINA



MPP. Julia Chasco ([ichasco@smn.gov.ar](mailto:ichasco@smn.gov.ar))  
Head of Meteorology and Society (SMN-AR)  
HIW/WWRP- Evaluation TT member  
SERA/WWRP - Co.Chair



**si hay Alerta,**  
estate alerta

# Incorporating the perspective of user evaluation into the creation of a new early warning system.

## → BEFORE

- 1) Identification of vulnerabilities of an EWS from a user's perspective

## → DURING

- 1) work with users in conceptualizing warning levels.
- 2) work with users in consultation of warning thresholds
- 3) work with users on the appropriation and understanding of warning icons from inclusive perspective

## → BEFORE LAUNCH

- 1) decision makers and their knowledge before the EWS implementation

## → AFTER THE IMPLEMENTATION: **what now?**

**Methodology:** give the same regional warning in flat text to each participant and ask them to draw the warning according to their interpretation on a map of the country.

2/11/2015 AI\_2015-11-09 22:00:00.txt

AVISO de alerta N°: 5  
09/11/2015 22:00 HS

**Issue Time**

ZONA DE COBERTURA:  
EXTREMO NORTE DE LA PROVINCIA DE BUENOS AIRES. CORDOBA. CORRIENTES. ENTRE RIOS. NORTE DE SAN LUIS. SANTA FE. SANTIAGO DEL ESTERO. ESTE DE CHACO. ESTE DE FORMOSA. ESTE DE LA RIOJA. MISSIONES.

**Area involved**

FENOMENO:  
PROBABLES TORMENTAS FUERTES

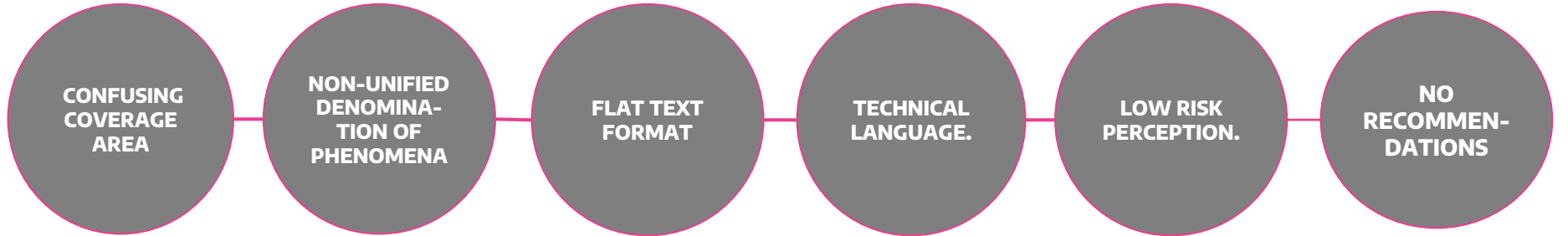
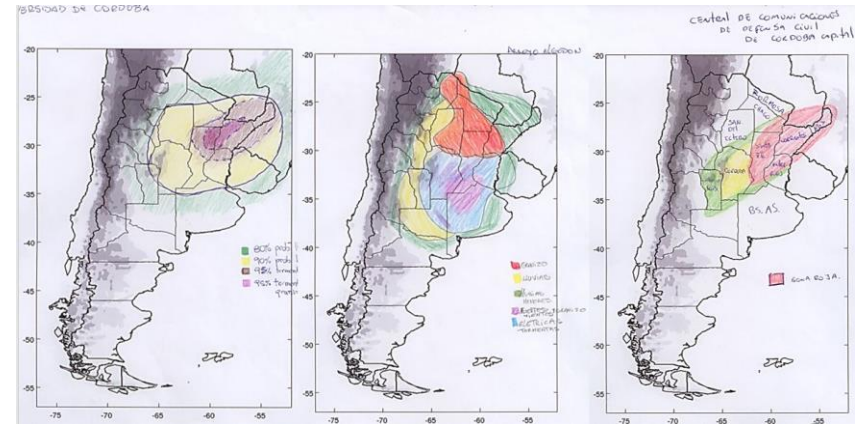
**Phenomenon**

SITUACION:  
SOBRE EL AREA DE COBERTURA SE DESARROLLAN AREAS DE LLUVIAS Y TORMENTAS AISLADAS DE VARIADA INTENSIDAD QUE SE ESTAN INTENSIFICANDO. SE PREVE QUE ALGUNAS DE ESTAS TORMENTAS PUEDEN SER LOCALMENTE FUERTES O SEVERAS, SIENDO LAS DE MAYOR INTENSIDAD LAS PREVISTAS SOBRE EL CENTRO Y NORTE DE SANTA FE, NORTE DE ENTRE RIOS, CORRIENTES, ESTE DE CHACO, ESTE DE FORMOSA Y MISSIONES. SE PREVE QUE ESTAS TORMENTAS PUEDAN ESTAR ACOMPAÑADAS DE FUERTE ACTIVIDAD ELECTRICA, ABUNDANTE CAIDA DE AGUA EN CORTOS PERIODOS, RAFAGAS INTENSAS Y CAIDA DE GRANIZO. SE DETERMINA EL CESE DE ALERTA PARA EL SUR DE SAN LUIS

**Situation details**

ESTE INFORME SE ACTUALIZARA A LAS: 04:00 HORAS

**Validity Period**



**DURING** work with users in consultation of warning thresholds

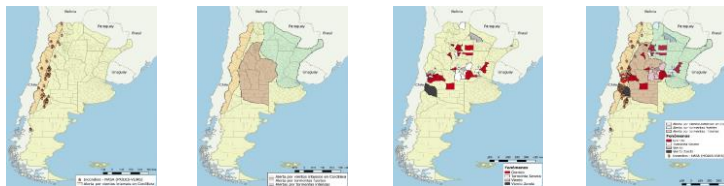
how do you orient the thresholds of an EWS to what users need if you cannot yet make impact based warnings?



The conventional meteorological observer and the decision-maker had to answer this question together and by consensus about all kinds of phenomena.

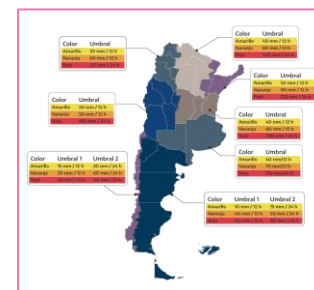
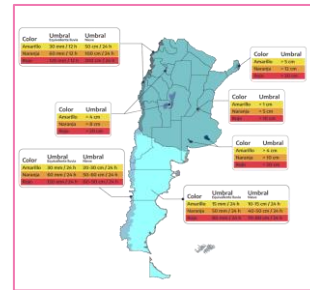
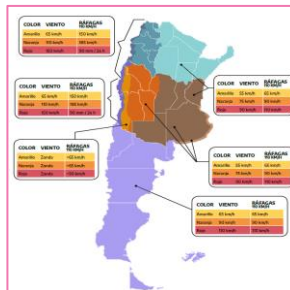
*“From how many kilometers per hour the wind begins to be a problem for the usual development of your city?”*

**+ Climate threshold**



Impact data collected from various unofficial sources for contrasting

**+ Collection, registry and systematization of the experience of operational forecasters for contrasting climate thresholds.**



## → DURING | work with users in conceptualizing warning levels.

*“CHOOSE THE WARNING LEVEL DEFINITION THAT YOU UNDERSTAND THE MOST AND THAT WOULD MOTIVATE YOU TO MAKE A DECISION.”*



GREEN	YELLOW	ORANGE	RED
<b>ALL IS CALM</b> - Phenomena involving risks are not expected	<b>BE INFORMED</b> - Possible phenomena with the capacity to damage and risk of momentary interruption of daily activities	<b>GET READY</b> - Weather phenomena are expected to be dangerous to society, life, property and the environment	<b>FOLLOW OFFICIAL INSTRUCTIONS</b> - Exceptional weather events with the potential to cause emergencies or disasters are expected

Do you think it is important that the warnings are accompanied by information on what to do in case of severe events??

**98.6%  
YES!**

→ **RECOMMENDATIONS**

do you consider that you have enough information about what to do in case of a severe weather event?

Indicate how you feel about the word "red warning" when it is associated with a weather phenomenon, for example: "There is a red warning for severe winds".

In case of a weather warning, what is your priority?

What do you interpret about the following sentence: "There is an 80% chance of rain"?

What do you understand by the following sentence: "There is a low probability of strong winds"?

Through which means you get informed about the weather?

Through which means do you access the information of the National Meteorological Service?

## **SURVEY!**

**18 QUESTIONS  
RELATED TO WHAT  
PEOPLE EXPECT  
FROM AN EWS**

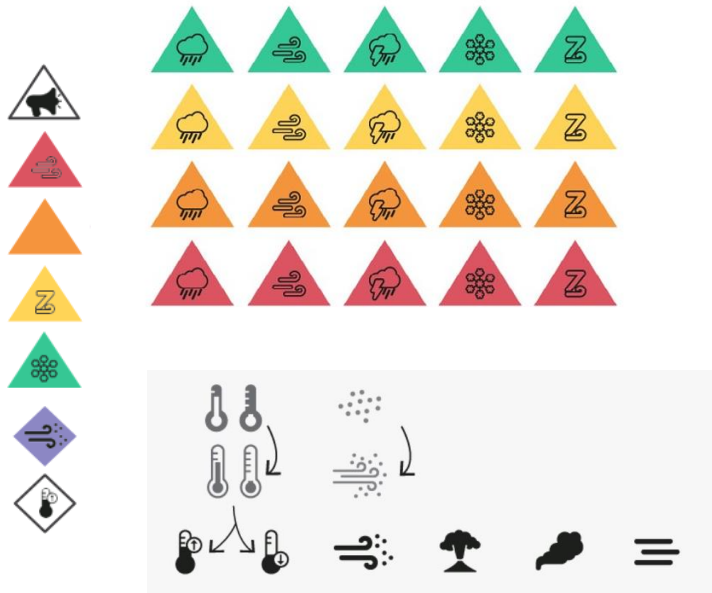
**Discretionary  
sampling**

- Citizens
- DRR users
- MetService personnel (with met background and no met background)

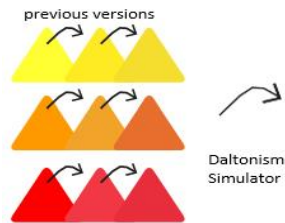
**We have also asked other relevant questions that allow us to understand the expectations about the information and the access to it.**

# DURING| work with users on the appropriation and understanding of warning icons from inclusive perspective

## TESTING SYSTEM ICONS



The collection and testing of information shows that it is beneficial to use familiar symbols and languages, such as road signs, to distinguish warnings with a triangle shape and warnings with a rhombus shape



Daltonism Simulator



Working with the National Disability Agency on the accessibility of the system in its web version was a great learning experience on Early Warning Systems and disabilities. In the future it is necessary to continue learning about inclusive developments so that weather warnings are more effective across the population.

# BEFORE IMPLEMENTATION | decision makers and their knowledge before the EWS implementation

**IMPLEMENTATION OF TRAININGS FOR DECISION MAKERS PRIOR TO THE OFFICIAL LAUNCH**



EWS Handbook for Decision Makers

+ 13 workshops  
+ 1000 people  
2 month

**National Disaster Management System**

**21 provincial emergency agencies**

**National Parks Officers**

**Scientific organizations that monitor other types of hazards influenced by meteorological events**

**Local governments with expressed interests in climate change adaptation through national networks**

**Defense personnel involved in the coordination of emergency response**

**Argentine Red Cross and its volunteers**

**others**

**Government water management authorities**

- **Understand how users use the new EWS**
- **Accompany the appropriation of the EWS.**
- **Exploitation of non-operational communication channels.**
- **Work on event reports according to warning levels for annual threshold adjustments.**



# how does the EWS look like?

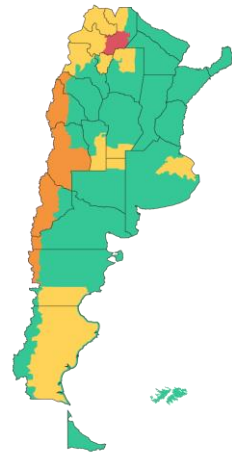


RED  
FOLLOW OFFICIAL INSTRUCTIONS

ORANGE  
GET READY

YELLOW  
BE INFORMED

GREEN  
ALL IS CALM



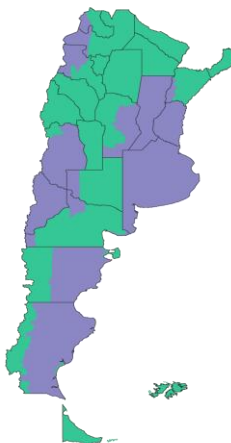
**WARNING**

24 h



VIOLET  
ACTIVE ADVISORY

GREEN  
ALL IS CALM



**ADVISORY**

48 h

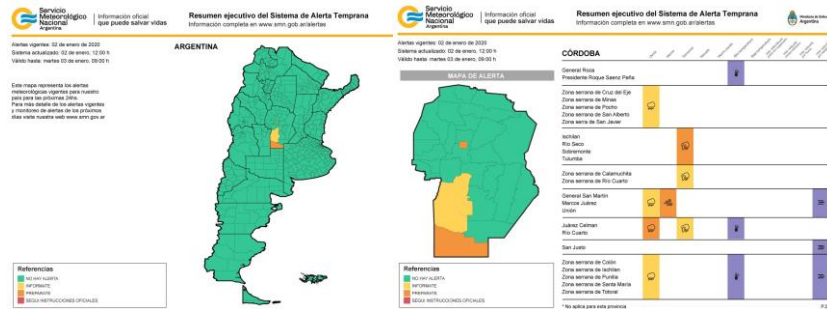
## Common Alerting Protocol (CAP)

+

short term storm forecast (radar based information)

+

Cold-Heat wave & Health warning system



## SPECIAL PRODUCT FOR EMERGENCY AGENCIES

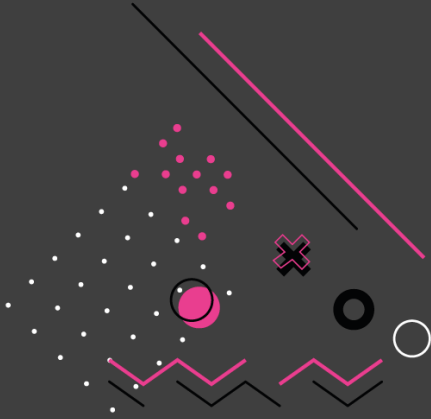
- **REACH:** 44 million inhabitants
- **AREA:** 2.78 million KM2 (100% of continental Argentina)
- **IMPLEMENTATION WORK TEAM:** 100 people
- **ESTIMATED TIME OF WORK:** 4 years
- About 1000 trained decision makers from all over the country.



- › Once you start working with users to update a service, it is not an “end user” anymore. The user is everywhere in your creative process.
- › Build lasting relations. Generate the engagement by being there. Sustaining links over a long period of time increases confidence in the participation of co-creation processes.
- › Work with social scientists.
- › Don't work interdisciplinary, work transdisciplinary.
- › Share your questions with other DRR agencies, they might have the same questions that you have. Work together.
- › Don't go back. Once you start working with users, you may want to apply these techniques in every weather or climate service improvement. And they will be better services.
- › Be patient and constant. Progress takes years.

## HIGHLIGHTS & RECOMMENDATIONS

**“I remember that in the middle of 2016 I participated in one of the first joint meetings of NMS and the civil defense of the Lujan river basin, where a great part of these things were presented as projects, others as news, etc. and now we can see that the information you asked for will be real improvements for daily use, strengthening the decision making process in the country, highlighting the importance of all their work. Thank you”**



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Head of Meteorology and Society (SMN-AR)  
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[jchasco@smn.gov.ar](mailto:jchasco@smn.gov.ar)