

Climate Risks & Early Warning Systems (CREWS)

ICT* and ETR* for warning services - examples from West Africa



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

[WSIS Action Line C7, e-environment](#)

Monday, 27 July 2020, 13:00 – 14:00 GVA time

link to this presentation :

https://bit.ly/ICT_ETR_CREWS

*

ICT - Information and Communication Technologies

ETR - Education and Training



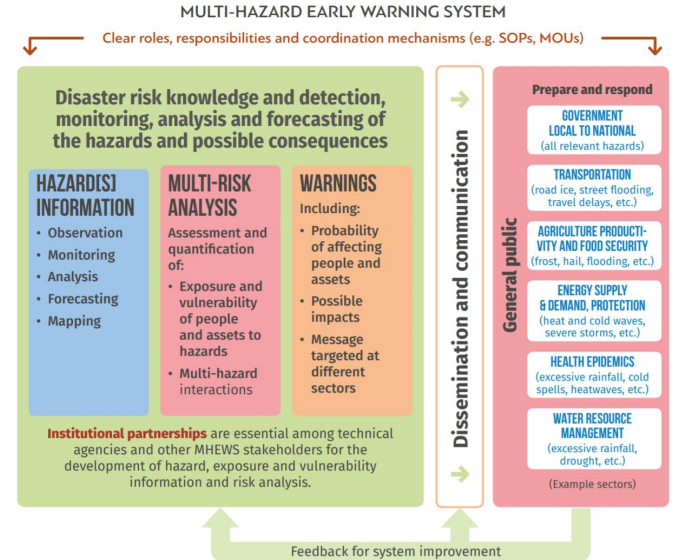
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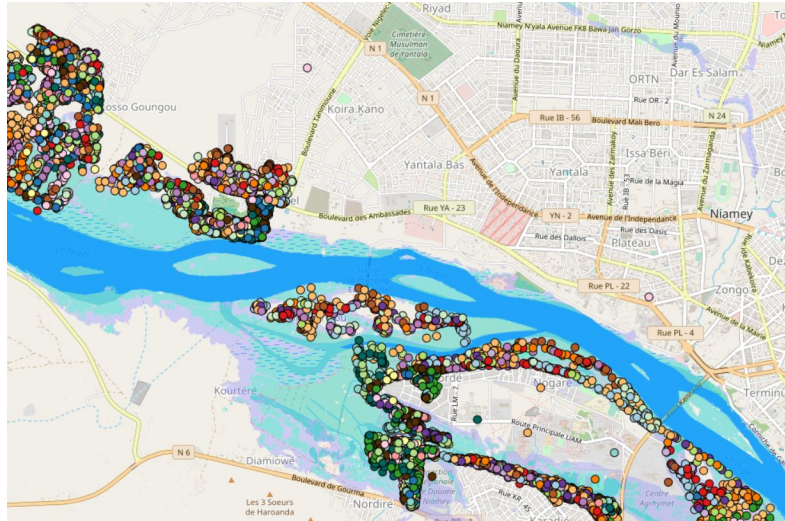
Climate Risks & Early Warning Systems (CREWS)



The CREWS partnership “supports LDCs and SIDS to significantly increase their capacity to generate and communicate effective, impact-based, multi-hazard, gender-informed warnings to protect lives, livelihoods, and assets”.



Example 1 - Flood early warning in Niger

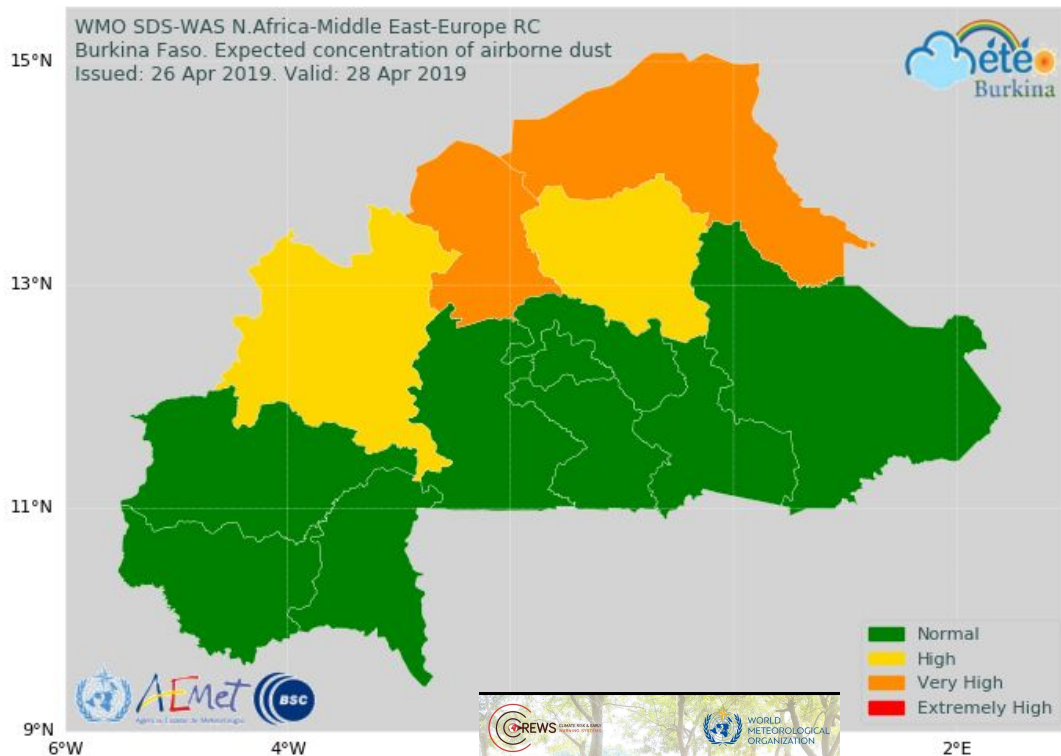


RESULTS: flood model

- + flood warning operating procedures
- + equipped civil protection services
- + trained professionals (meteo, hydro, firemen)
- + trained communities (600 women leaders)

- 20 young investigators, 15,000 locations surveyed: coordinates, type of building, number of people in the household, type of crops, description of drainage and sewage, etc...
- Open data available on OpenStreetMap
- Warning : color codes by flood-prone zones, emergency response and evacuation schemes

Example 2 - Sand and Dust Storm Warning Advisories in Burkina Faso



[click to see video](#)



Table 2 Models contributing to the WMO SDS-WAS ensemble prediction

Model	Institution	Domain
BSC-DREAMBb	Barcelona Supercomputing Center	Regional
CAMS	European Center for Medium-range Weather Forecast	Global
DREAMAB-NMME-MACC	Republic Hydrometeorological Service of Serbia	Regional
NMMB/BSC-Dust	Barcelona Supercomputing Center	Regional
Met UM	UK Met Office	Global
GEOS-5	US National Aeronautics and space Administration	Global
NGAC	US National Centers for Environmental Prediction	Global
WMA RegCM4	Egyptian Meteorological Authority	Regional
DREAMABOL	Italian National Research Council	Regional
WRF-Chem	National Observatory of Athens	Regional
SILAM	Finnish Meteorological Institute	Regional
LOTOS-EUROS	Netherlands Organisation for Applied scientific Research	Regional

Cf

<https://sds-was.aemet.es/forecast-products/burkina-faso-warning-advisory-system>

Example 3 - Severe Weather and Flash Flood Forecasting in Western Africa

Demonstration phase since 1st Jan 2019

Global producing centers:

- Météo-France ([ARPEGE](#), [AROME](#) + MISVA briefings)
- UK Met Office [unified model](#) (4 km)
- DWD ([ICON](#), [COSMO](#))
- ECCC Canada [GPDS](#)
- NOAA NCEP [GFS](#) (28 km)
- AEMET / BSC ([SDS WAS](#))

Regional centers:

- ANACIM (severe weather)
- AGRHYMET (climate & hydrology)
- NiMet (NWP)
- Maroc-Météo (NWP)
- ACMAD (regional coordination)



MÉTÉO
FRANCE

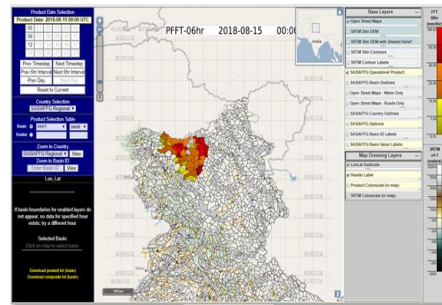
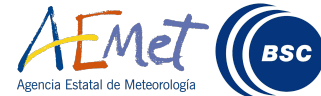


Deutscher Wetterdienst
Wetter und Klima aus einer Hand



Environnement Canada
Environment Canada

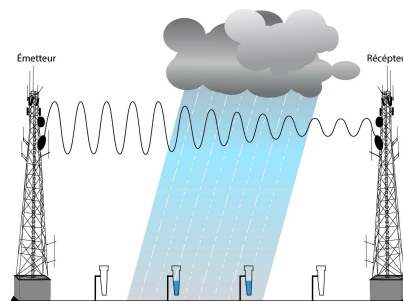
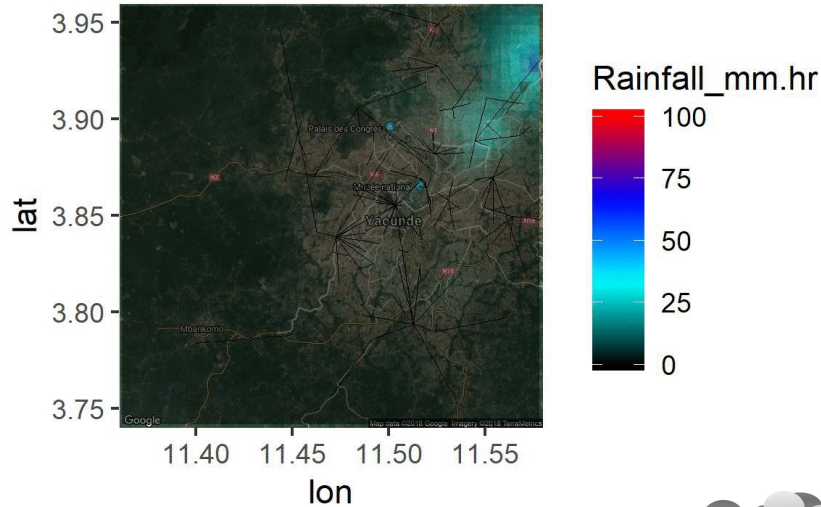
Canada



see [SWFDP](#) and [FFGS](#)
components of the CREWS
West Africa project

Example 4 - Cell phone signal attenuation as a proxy for rainfall

Rainfall rate at 2018-09-27 16:00:00 GMT



Cf [raincell presentation](#)

Key messages

A WMO Factbook

Early warning systems saves millions of lives

Each warning system (EWS) saves at least 100 lives per year. From 2000 to 2010, EWSs saved an estimated 1.5 million lives. The total number of lives saved by EWSs is estimated to be 1.5 million lives. The total number of lives saved by EWSs is estimated to be 1.5 million lives. The total number of lives saved by EWSs is estimated to be 1.5 million lives.

Figure 1: Lives of EWS and systems have been saved.

Box 1: Globally and regionally coordinated Tropical Cyclone System

The Tropical Cyclone Programme facilitates the WMO globally coordinated system of National Meteorological Services to support the national EWS for tropical cyclones. The Regional Meteorological Co-ordination Centre provides tropical cyclone forecasts and advice in support of EWS operational activities. The Programme is supported by the regional operations, working together from the WMO, which can integrate and coordinate warning systems, especially in remote areas.

1- Multi-hazard early warning systems (MHEWS) save lives

ITU Committed to connecting the world

Environment: Multi-Hazard Early Warning Systems and Role of ICT

REMOTE PARTICIPATION

2- ICT is an integral component of warning systems

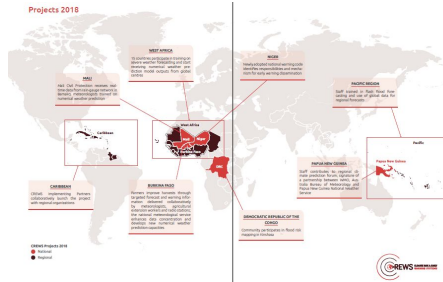
INTERNATIONAL TELECOMMUNICATIONS UNION

ITU-T X.1303 (2008/1)

SERIES X: DATA NETWORKS, OPEN SYSTEM COMMUNICATIONS AND SECURITY

Common alerting protocol (CAP 1.1)

ITU-T Recommendation X.1303



3- CREWS prioritizes resources in most climate-sensitive LDCs and SIDS



4- Education and training ensure appropriate uptake and sustainability of investments in ICT & MHEWS

Table 1: Key Messages (Summary, Messages, Messages, Messages)

Message	Key Message	Summary	Messages	Messages	Messages
1
2
3
4
5

CREWS COORDINATION DOCUMENT ON RELEVANT EARLY WARNING SYSTEMS AND EFFICIENCY



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**World Meteorological Organization
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Thank You !