



ClimSA
INTEGRATED CLIMATE SERVICES AND RELATED APPLICATIONS PROGRAM
Partnership for Development of Climate, Environment
and Weather Services funded by the European Union



Financé par
l'Union européenne

Joint Second Intra-ACP Climate Services and Related Applications (ClimSA) Forum and the First Space for Early Warning in Africa (SEWA) Forum from 23 to 27 June 2025 in Windhoek, Namibia.

“ Accelerating Access to Climate and Weather Services for Resilient African Economies and Communities ”

Towards the implementation of an early warning system for flood risk reduction in the City of Douala

Presented by:

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Climate challenges in Douala

Rains

Increase in the frequency and intensity, especially during the months of June to October.



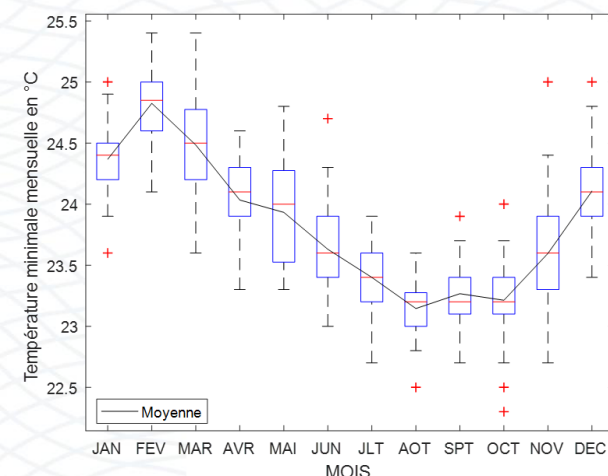
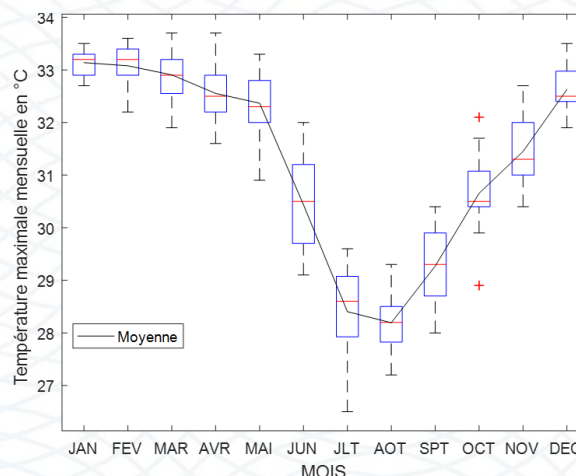
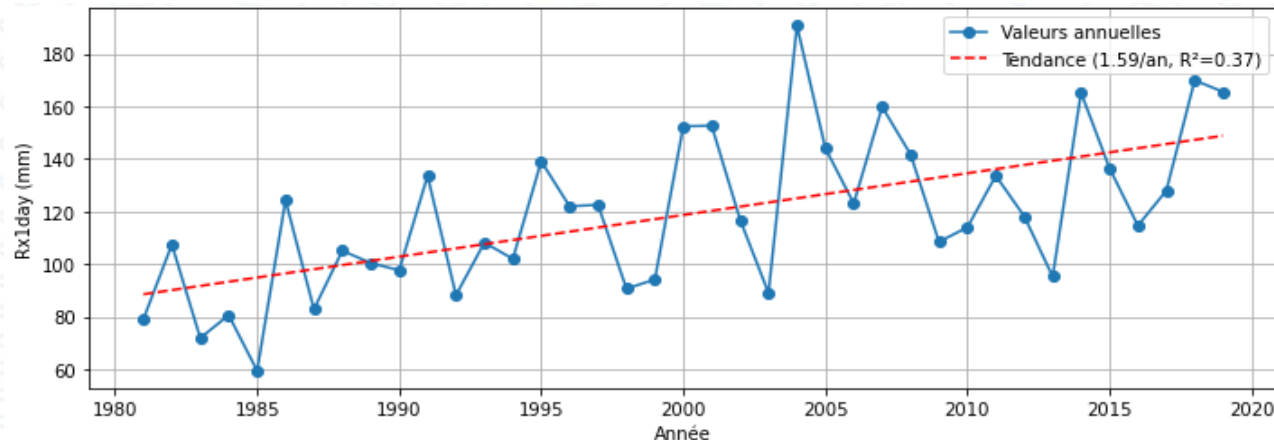
Temperatures

A warming trend, with a 0.8°C increase in maximum temperatures between 2011 and 2020



Winds

An upsurge in the strong winds that accompany the intense rains.





What local response to a global problem ?

- Construction of a **40km network of gutter** ;
- Implementation of a **network of 15 measuring stations in the Tongo Bassa watershed for the constitution of a database** to enable the modelling and mapping of flood hazards, including:
 - **09 hydrological stations;**
 - **05 rainfall stations;**
 - **01 synoptic weather station**
 - **01 Online Data Hosting Platform**
- Launching of an **Interdisciplinary Research Program on Climate and Urban Environment** for the grant of 05 theses and 05 Master's degrees.
- Realization of the **state of knowledge and available data on Climate Change in the City of Douala** ;





What lesson has been learned?

Setting up an observation network is not sufficient to reduce the risk

Climate data

Increase in the intensity and frequency of extreme rainfall (events greater than 50 mm/day)

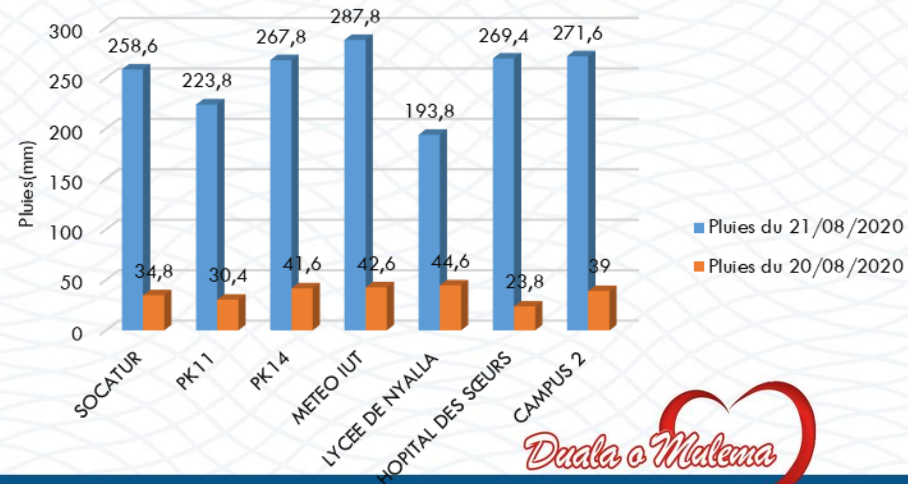


Induced hazard

Increase in the frequency of flooding (a flood of 2.81m at a return time of 2 years)



RAINS FROM AUGUST 20 TO 21, 2020 IN TONGO BASSA





What solution ?



Signing of a collaboration agreement with the Directorate of National Meteorology



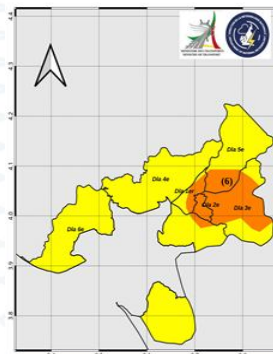
Direction de la
météorologie
Nationale



ALERT

Bulletin
d'alerte

SAP



Maire de la
Ville

Préfet du
Wouri



Active le Plan
ORSEC



Active le
Plan Communal

Lorsque le Maire ne peut
plus maîtriser la situation ou
lorsqu'il s'abstient de
prendre les mesures
nécessaires, le Préfet prend
la direction des opérations.

Retour
d'expérience et
apprentissage,
prévention et
préparation

Commission
Communale
de Crise

Réponse opérationnelle

- Sapeurs pompiers
- Croix rouge
- Police nationale
- SAMU
- Polices municipales
- OSC et volontaires

Secours d'urgence,
soutien logistique et humanitaire,
sécurité aux Personnes et biens
sinistrés

Relèvement

Retour
d'expérience et
apprentissage,
prévention et
préparation

- Technical support for the upgrading of the measurement network in Tongo'a Bassa
- Data sharing for improved access to climate services
- Special alert bulletins issued twice a week & monthly

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What next ?

- Financial and technical support agreement between the AIMF and the Douala City Council for the **Project “Strengthening emergency preparedness in the City of Douala”**
- Signed on May 24, 2024
- The aim is to **improve the city's resilience by strengthening emergency preparedness, response and recovery capacities.**

Amount: US\$30,000 over a one-year term



CONVENTION FINANCIERE ET D'ASSISTANCE A MAITRISE D'OUVRAGE

Programme de renforcement de la préparation aux situations
d'urgence à Douala, Cameroun

Entre :

La Communauté Urbaine de Douala, dont le siège est situé à l'Hôtel de Ville, 279 rue Victoria, B.P. 43 DOUALA (Cameroun, représentée par Dr. Roger Victor MBASSA NDINE, son Maire, ci-après désigné : « la Communauté Urbaine »

Et

L'Association Internationale des Maires et responsables des capitales et métropoles partiellement ou entièrement Francophones (AIMF), dont le siège est au 9 rue des Halles, Paris 1^{er}, représentée par le Secrétaire permanent, M. Pierre BAILLET en vertu de l'article 19 des statuts de l'association.

Il est convenu les dispositions suivantes :

A Paris, le 27/05/2024

A Douala, le

Pour l'AIMF

Pour la Communauté Urbaine de Douala

Le Secrétaire permanent

Le Maire

Pierre Baillet
ASSOCIATION INTERNATIONALE
DES MAIRES ET RESPONSABLES
FRANCOPHONES (AIMF)
à rue des Halles - 75001 PARIS
Tél : 01 40 39 06 05
FAX : 01 40 39 06 05

Dr. Roger Victor MBASSA NDINE
Dr. Roger Victor MBASSA NDINE



What next ?

Diagnosis of the response capacity "Response Capacity Index" (RCI) to emergency situations

Councils	Overall Score (RCI)	Level	Weaknesses	Points to improve	Relatively good points
Douala 1 ^{er}	1,59	Weak	- Risk forecast (1.52) - Risk Management Knowledge (1.23)	- Resources (1.83) - Emergency Services (1.77)	- Emergency Services (1.77)
Douala 2 ^{ème}	-	-	No rating yet		
Douala 3 ^{ème}	1,48	Weak	- Resources (1,22) - Risk forecast (1.34)	- Emergency Services (1.73) - Knowledge (1.62)	- Knowledge (1.62)
Douala 4 ^{ème}	1,64	Weak	- Risk forecast (1.31) - Knowledge (1.54)	- Resources (1.78)	- Emergency Services (1.92)
Douala 5 ^{ème}	1,75	Medium	- Risk forecast (1,66) - Ressources (1,67)	- Knowledge (1.77)	- Emergency Services (1.92)

Weak : 1 – 1,66 **Medium** : 1,67 – 2,33 **High** : 2,34 – 3





What next ?

Implementation of a Community Early Warning System for flood risk

Assessing the return period of major floods

Return period	Estimated water level (m)	Annual probability (%)
2 years	2,81 m	50%
5 years	3,66 m	20%
10 years	4,23 m	10%
20 years	4,77 m	5%
50 years	5,48 m	2%
100 years	6,00 m	1%

- Estimated flood levels were incorporated into Digital Elevation Modem to identify flood zones.
- A map of flooding surfaces is carried out according to the following return periods :

- **Green Alert:** Frequent Flooding (2 to 5 years) → Monitoring
- **Orange alert:** ten-year flood (10 to 20 years) → alert
- **Red alert:** fifty-year or hundred-year flood (50 to 100 years) → possible evacuation





- **Assist in decision-making on disaster risk reduction and urban planning.**



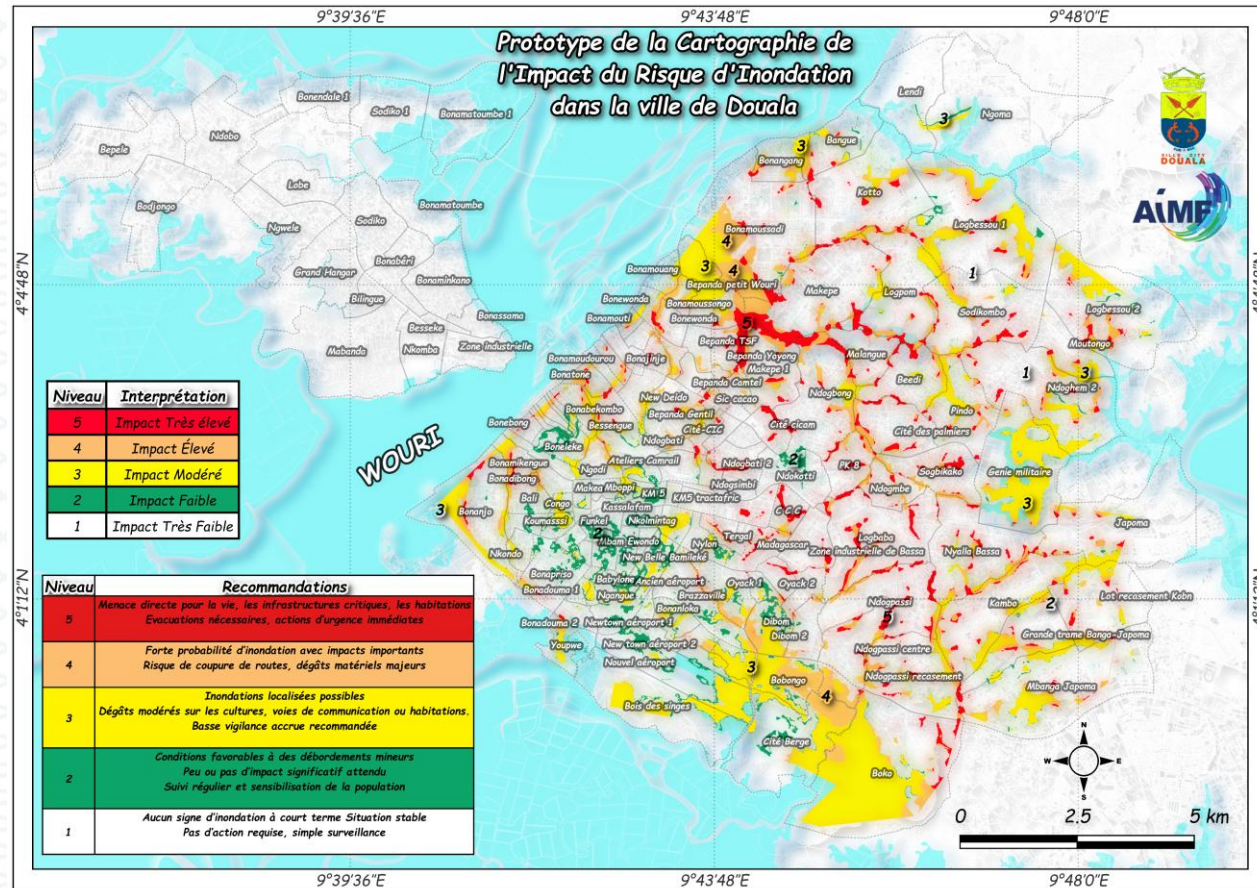
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What next ?

Moving towards impact-based forecasting

- Enable the City to assess the potential effects of climate events on infrastructure, property and people.





THANK YOU FOR YOUR KIND ATTENTION



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