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Office for Outer Space Affairs



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# **Pilot Project: Strengthening Early Warning Systems for Floods in Nigeria using Space Technologies**





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## **Aim:**

**Incorporate the use of “impact-based forecasts” in flood early warning systems in Nigeria, Ghana, Guatemala and Pakistan combining:**

- **Forecasts of potential floods generated by GLOFAS;**
- **Flood modelling corresponding to those forecasts;**
- **Historic data on impacts of floods.**





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# GLOFAS:

Global Flood  
Awareness System of  
the Copernicus  
Programme

Generates forecasts of  
floods in 3 levels  
associated with  
periods of return:

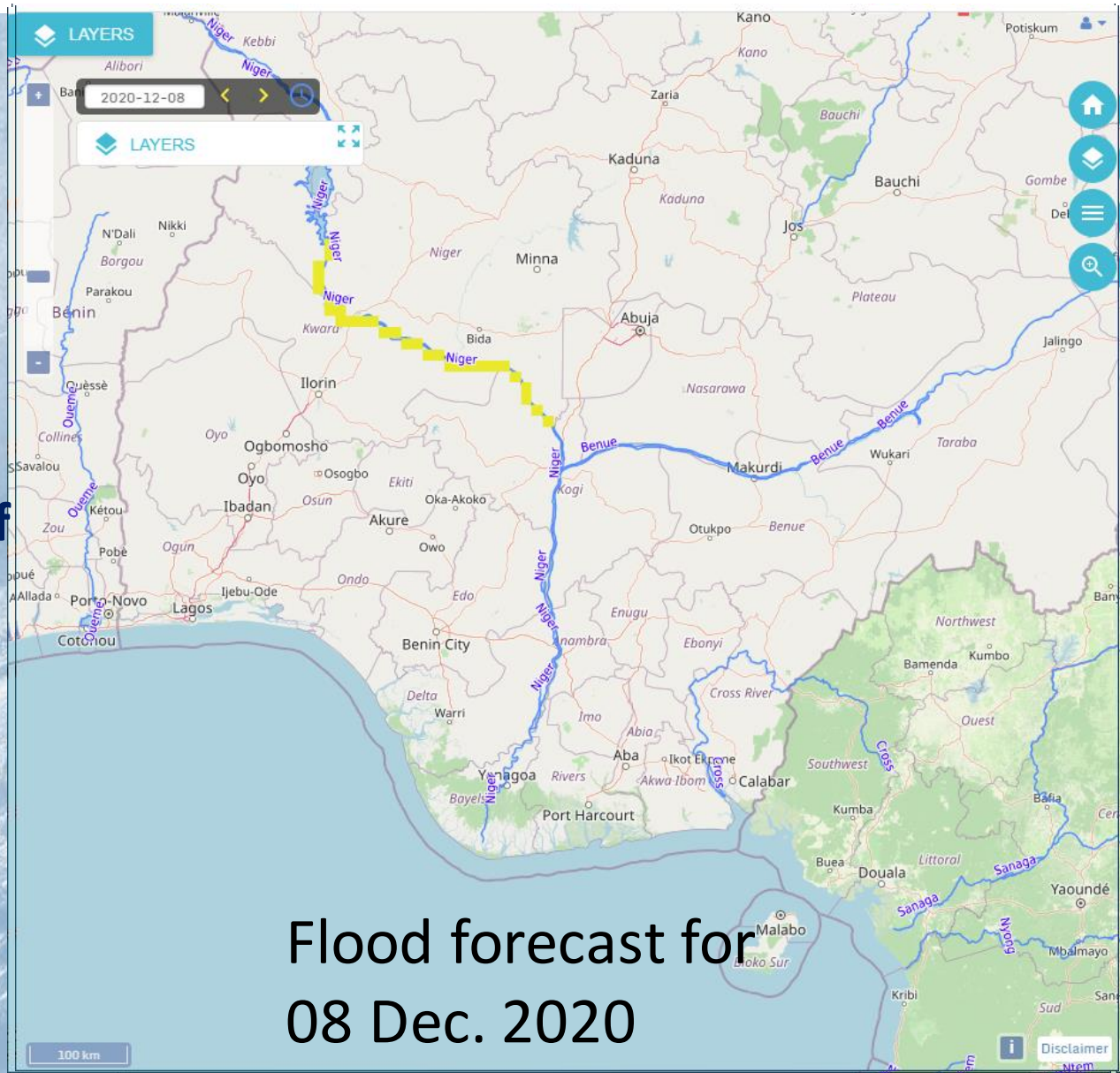
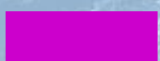
2 to 5 years



5 to 20 years



More than  
20 years



Flood forecast for  
08 Dec. 2020





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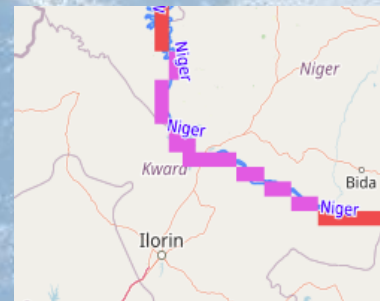
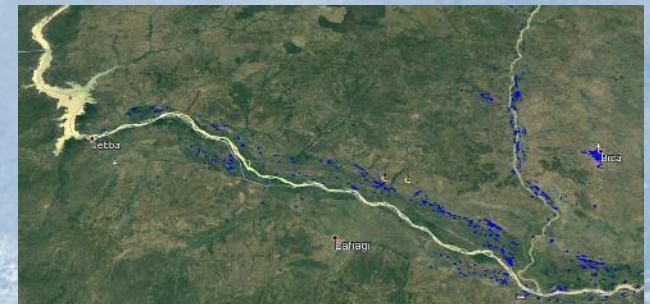
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# NIHSA:

Carries our hydrological modelling to map the potential extent of floods related to the 3 levels of floods in specific segments of rivers in Nigeria.

GLOFAS forecast: **Hydrological modelling**

Potential geographical extent of flood in specific segment of a river







# NEMA:

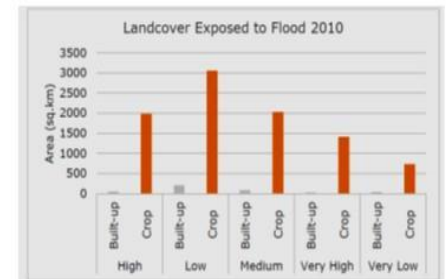
Uses historic information on impacts of previous floods, linking them to the 3 levels to develop scenarios of potential impacts in communities and other sectors of development.



Compilation of data on historic impacts of floods aligned with period of return or geographical extent of historic floods

scenarios of potential impacts

SCENARIO OF POTENTIAL IMPACT IN MUNICIPAL DISTRICTS				
District	Number of inhabitants	level of impact		
		Low	Moderate	High
DISTRICT A	30.158	10.645	3.038	16.475
DISTRICT B	3.897	2.102	1.031	764
DISTRICT C	15.473	8.420	2.781	4.272
DISTRICT D	12.891	6.162	4.934	1.795
DISTRICT E	7.977	5.427	1.068	1.482
DISTRICT F	6.399	2.869	724	2.806
DISTRICT G	10.195	5.509	1.642	3.044
DISTRICT H	1.961	881	123	957
DISTRICT I	14.523	7.912	5.023	1.588







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## Next Steps:

- **NASRDA, NEMA and NIHSA establish a pilot area in the Niger or Benue rivers to develop the procedure;**
- **NIHSA to develop maps of potential extent of floods according to the outputs from GLOFAS in that pilot area;**
- **NEMA classifies historic information of impacts of floods according to the 3 categories for the pilot area.**
- **Standard Operating Procedures are developed to generate “impact-based forecasts” and are introduced into the operating procedures of existing flood early warning systems.**
- **Tabletop simulations are carried out to identify potential gaps or critical issues that need to be corrected.**
- **Awareness raising efforts are carried out to present the new procedures.**





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**Thank you for  
your attention**