

Managing Coastal and Marine Resources in Africa: Climate Change Priorities for African SIDS

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- Paris Agreement and its implications for Africa
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- Summary and conclusion

Background and perspective: Climate change as a development problem

Distribution of Disasters Caused by Natural Hazards & Impacts



Global (1980 to 2007): 90 % of events, 70 % of casualties, 78 % of economic losses were caused by climate hazards and conditions (*International disaster database*)

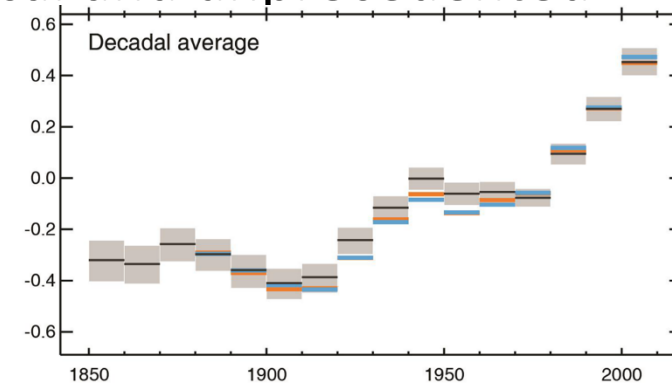
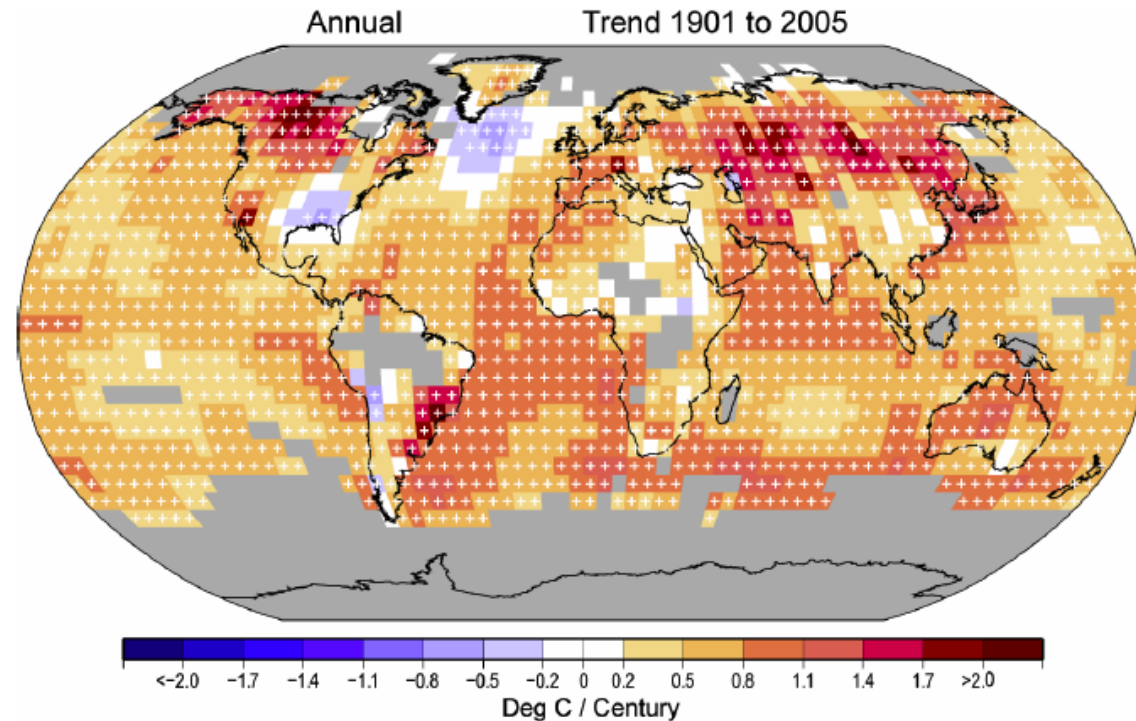
Africa (1980 to 2007): A striking statistics of 96 % of events, 99 % of casualties, 50 % of economic losses (*International disaster database*)

Cabo Verde Reported Disasters (1900 – 2014)

- Total death - 85286
- Total affected - 89169
- Death due to drought – 85000
- Frequency
 - Drought 50%
 - Flood – 16.7 %
 - Volcano – 33.3%

Observed change in the climate system:

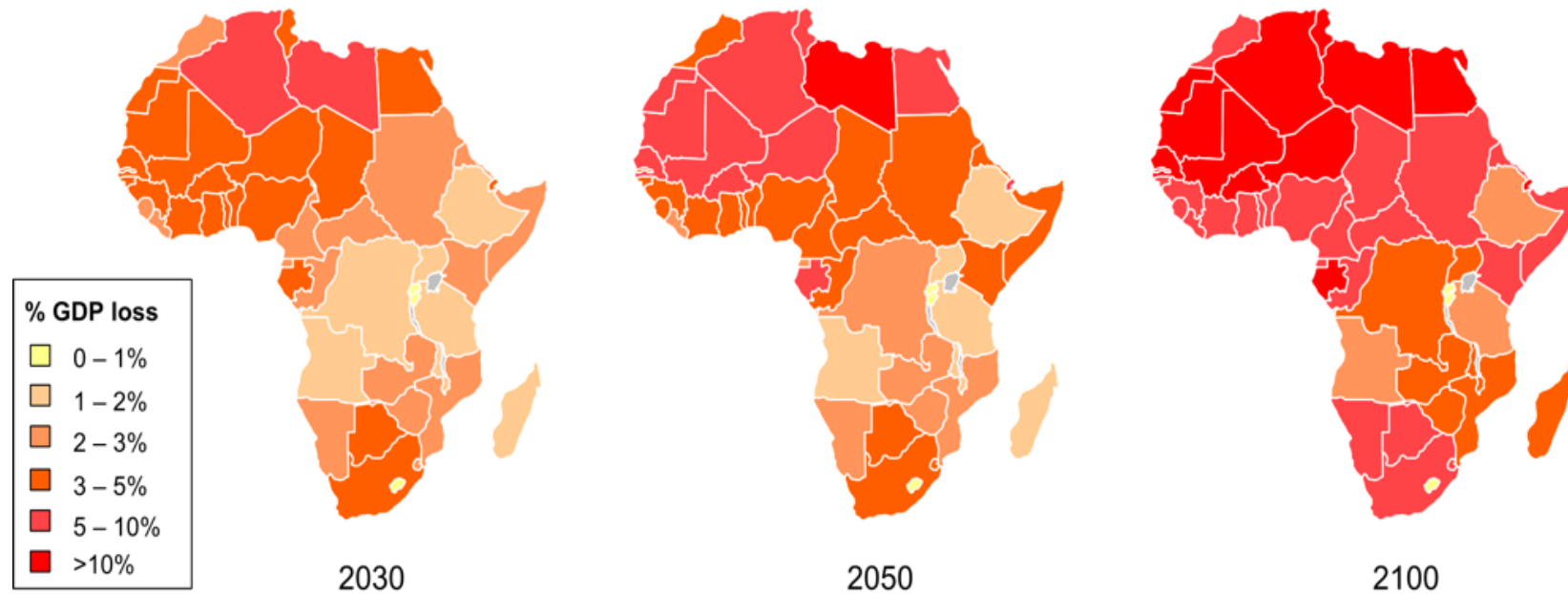
Recent warming of the planet is unequivocal and unprecedented



The Earth surface temperature has been successively warmer in the last three decades than in any previous decade since 1850

The planet is about 1°C warmer than it was in 1860, but there are substantial geographic differences in the rate of warming

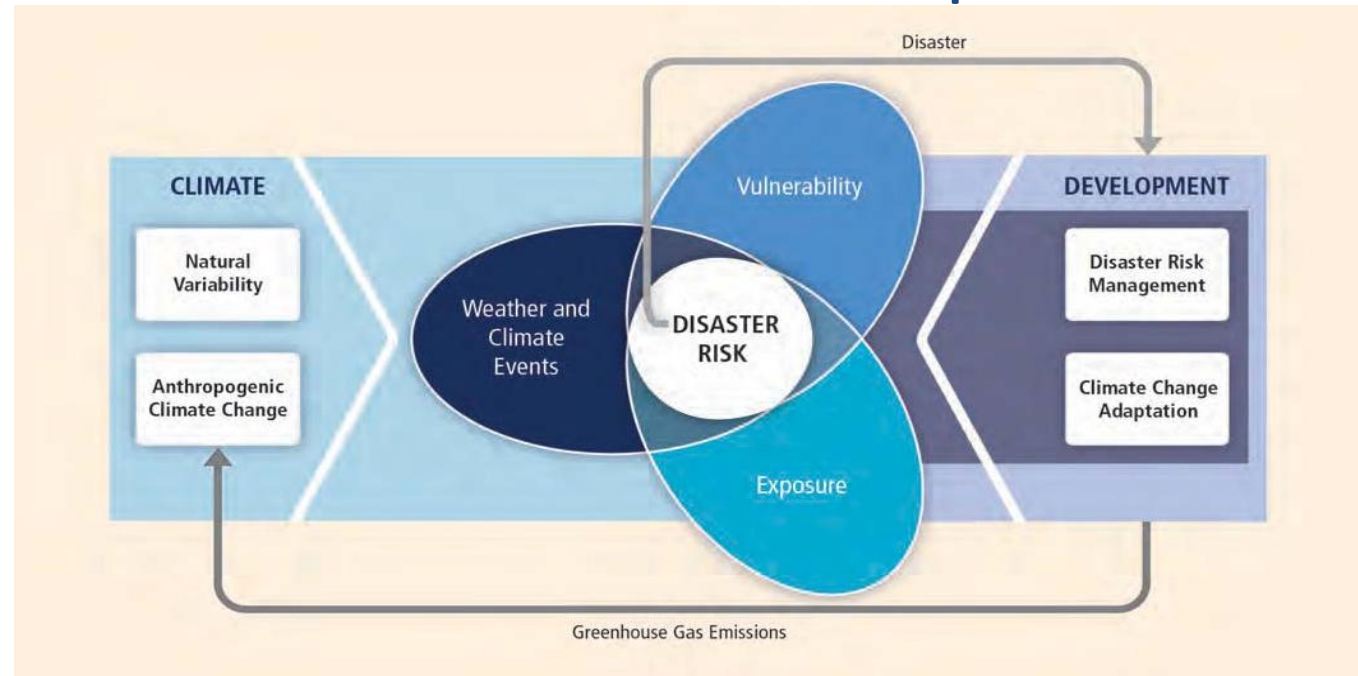
Economic Cost of Climate Change on Range of Decision Timelines



- Economic Cost of climate change could be significant and will grow over time
- Regional variations could also be significant

Source: FUND - UNEP AdaptCost and EC ClimateCost projects

Climate Variability and Change, Disaster Risk and Sustainable Development

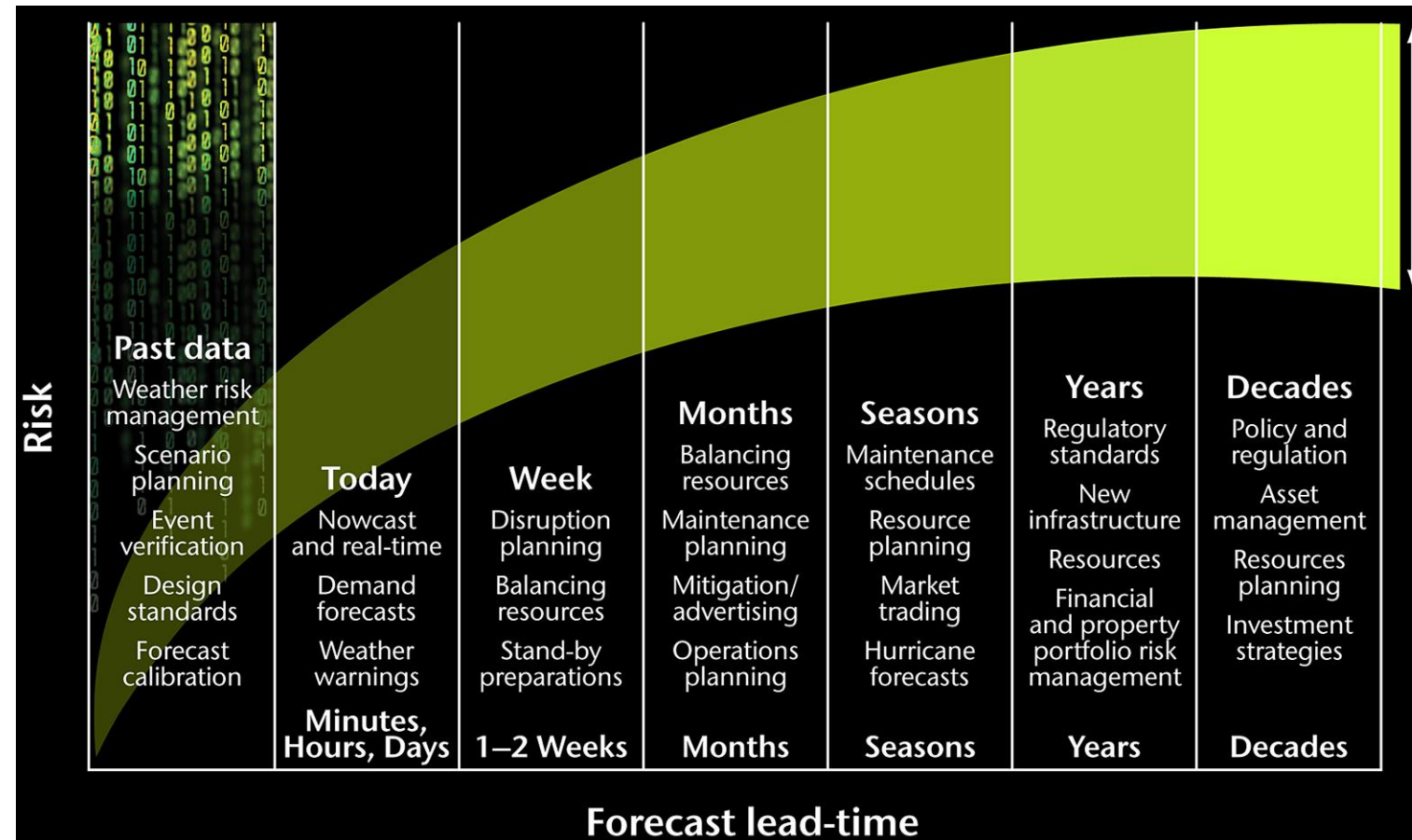


Source (IPCC SREX, 2013)

Managing Disaster Risk:

- Informed decision making based on robust science, early warning and response (climate information services)
- Low emission climate resilient development strategies

Managing climate risks for sustainable development



Paris Agreement and its implications for Africa

African Common Position

- Commitment to the founding principles of Kyoto
 - Common but differentiated responsibilities (CBDR)
 - Parity between adaptation and mitigation
 - Global responsibility for adaptation
 - Commitment to keeping warming between 1.5 and 2 degrees
 - Adequate Means of Implementation (Finance, Technology & Capacity Building)
 - Operationalization of the Warsaw Mechanism (Loss & Damage)
- African Group of Negotiators (AGN) is calling for
 - “Comprehensive agreement”



Outcome of the COP21 Paris Agreement

Mitigation: reducing emissions

- long-term goal of keeping the increase in global average temperature to **well below 2°C** above pre-industrial levels;
- aim to limit the increase to **1.5°C**, since this would significantly reduce risks and the impacts of climate.

Adaptation

- strengthen societies' ability to **deal with the impacts** of climate change;
- provide continued and enhanced international **support** for adaptation **to developing countries**.

Loss and damage

- importance of averting, minimizing and addressing **loss and damage**;
- acknowledges the need to **cooperate** and enhance the **understanding, action and support** in different areas such as early warning systems, emergency preparedness and risk insurance.

Transparency and global stocktaking

- come together every 5 years to **set more ambitious targets** as required by science;
- **report** to each other and the public on how well they are doing to implement their targets;
- track progress towards the long-term goal through a robust **transparency and accountability** system'



African SIDS Priority Needs from the UNECA Consultative Workshop, April 2015



Country Priorities – Cabo Verde

Country	Expressed Needs	Immediate	Medium-term	Long-term
Cape Verde	<ol style="list-style-type: none">1. Training and capacity building to enhance climate information services2. Support – including the provision of equipment – the collection and management of data3. Technical support for the implementation of the renewable energy strategy4. Support for the establishment and operation of a regional climate observation centre to serve Lusophone and West African countries5. Support for the implementation of projects focused on fisheries6. Support for renewable energy to support agriculture (desalination, pumping and irrigation)7. Support for the development of an early warning system	2, 3, 4, 6	1, 2, 5	1, 7

Country Priorities – Comoros

	Expressed Needs	Immediate	Medium-term	Long-term
	<ol style="list-style-type: none">1. Equipment and software to enhance the ability to provide climate information services2. Training and capacity building on collection of data, monitoring and forecasting including specific capacity building for hydrological work3. Support for the development of a centralized database to house climate-relevant data for all sectors and from all three islands4. Technical support to develop a national climate change strategy with the aim of enhancing cross-sectoral data and facilitating data sharing and identifying priority activities5. Technical support to develop and implement a waste management strategy6. Developing a protocol for data sharing at the regional level7. Platform for sharing of experiences on marine protected areas	1,2,4	2,5,6	7



Country Priorities – Guinea Bissau

	Expressed Needs	Immediate	Medium-term	Long-term
	<ol style="list-style-type: none"> 1. Support to ensure equipment in place is working and additional equipment needed to ensure that data can be collected and stored in a centralized database (also support on data dissemination) 2. Training and technical capacity building 3. Assessment of hydrological and meteorological data network 4. Technical support for the development of a regional climate model that could inform the design of early warning systems 5. Technical support to develop a system to monitor sea level rise, salinization, rainfall and other variables 6. Technical support to develop methodology for risk and vulnerability assessments with the aim of identifying policy entry points for assessing and addressing loss and damage 7. Research to enhance understanding of loss and damage (both current and future) on the islands 8. Technical support to help strengthen coordination with other ministries/agencies 9. Technical support to develop national climate change strategy 10. Strengthening of human resources and support to operationalize early warning systems 11. Support for developing a mechanism on the protection/conservation of biodiversity (and financing) 12. Support for mangrove management 13. Support/technical support to address waste management and transport 14. Support on fisheries, green economy and tourism 15. Support for mapping of marine resources 16. Support for the development of a Renewable Energy strategy 	1,2,4	2,5,6	7





Country Priorities – Mauritius

	Expressed Needs	Immediate	Medium-term	Long-term
	<ol style="list-style-type: none"> 1. Regional climate observation centre under the auspices of the Indian Ocean Commission (IOC) to enhance capacity of all SIDS in the region 2. Improved quantity and quality of data and information about climate change, especially on floods and slow onset processes 3. Mapping exercises and socio-economic assessments to better understand how key sectors and segments of the population will be affected by climate change 4. Support to develop and implement pilots activities on risk management approaches, specifically to address loss and damage 5. Support for the implementation of a low carbon development strategy 6. Technical support/support on biodiversity measures, especially to address invasive species 7. Support for integrated water resources management – modelling for sustainable watershed management 8. Support for integrated coastal zone management 9. Multi-hazards assessment tools/capability for assessing L&D 10. Establishment of hydro-climatic and marine observational networks for monitoring extreme weather, climate, storm surge and marine ecosystems 	1, 2, 3, 5, 7, 8, 9	4,6	10



Country Priorities – Sao Tome and Principe

	Expressed Needs	I	M	L
	<ol style="list-style-type: none">1. Technical and capacity building support at all levels including maintenance and technical2. Enhance met services - including the creation of a database with all climate information - and hydrological services3. Upscale coastal adaptation project to other coastal communities4. Incorporate future climate trends into the design of infrastructure5. Technical support for enhanced coordination of government agencies and other agencies and organizations working on climate change6. Support to develop a national climate change strategy7. Support to develop a climate change contingency fund8. Technical support to develop a renewable energy strategy9. Support to implement waste management and water residue strategy and enhance waste management	1,2,4	2,5,6	7



Country Priorities – Seychelles

	Expressed Needs	I	M	L
1.	Equipment including additional hydro-met monitoring stations	1,	4, 7,	5, 6,
2.	Training and capacity building for Seychellois meteorologists	2,	9, 10	11,
3.	Training and capacity building on data collection, analysis and management; research	3, 8		12,
4.	Training for technicians and calibration of instruments			13,
5.	Knowledge management to share best practices on the blue economy			14,
6.	Support to establish a climate observation centre			15
7.	Support for buoys to collect oceanographic data			
8.	Data sharing agreements at national level.			
9.	Acquisition of high resolution remote sensing data			
10.	Training on processing radar data (disaster related and not Met related)			
11.	To advance our understanding of climate change, its impacts and appropriate responses			
12.	To put in place measures to adapt, build resilience and minimize our vulnerability to the impacts of climate change			
13.	To achieve sustainable energy security through reduction of greenhouse gas emissions			
14.	To mainstream climate change considerations into national policies, strategies and plans			
15.	To build capacity and social empowerment at all levels to adequately respond to climate change			

Expressed Needs		I	M	L
1.	Data sharing protocol to be established under the guidance of IOC for the region	1, 3,	2, 9,	4
2.	Linkages with other regional centres (data) and projects with (IOC)	5,	17,	
3.	Operationalize the climate change information centre in Mauritius (and that it serves the needs of all SIDS in the region and includes support for the identification of a common set of parameters for African SIDS)	10,	18	
4.	Need to look at develop downscaled models (1 to 5 km) consistent with the context of the SIDS to understand impacts	11,		
5.	Need to develop platform/make use of existing platforms for sharing of information, best practices (integration with point 3)	12,		
6.	Need to think further about data sharing, difficulties relate to developing common metrics amongst countries given varying contexts (integration with point 1)	14,		
7.	Need to look at on-going initiatives on data sharing (integration with point 1)	15,		
8.	Need to make use of existing calibration centres on the continent	16,		
9.	Technical support to undertake mapping of existing data, resources and organizations in the region	19		
10.	Establish/institutionalize a youth initiative/umbrella body in the African SIDS to re-group organizations, share best practices.			
11.	Technical support to look at grid stability (as part of renewable energy strategies, specifically for smart cities) in the SIDS			
12.	Establish linkages with universities and research institutions to increase capacity (integration with point 2)			
13.	Need to look at water management/water availability in the context of the SAMOA Pathway			
14.	Support for the development of blue economic framework for the SIDS			
15.	Support on the management of blue economy resources such as fisheries and establishing linkages between sectors on the sustainable use of resources			
16.	Platform for sharing of experiences on marine protected areas			
17.	Need to take national specificities into account in sub-regional commissions and other bodies (need to include regional bodies issues that are specific to SIDS)			



	Expressed Needs	I	M	L
1.	Support for the regional climate centre that has been established in Cabo Verde (CIICLAA)	1, 2,	4, 7,	5, 6,
2.	Need to look at develop downscaled models (1 to 5 km) consistent with the context of the SIDS to understand impacts	3, 8	9, 10	11,
3.	Need to develop platform/make use of existing platforms for sharing of information, best practices, etc.			12,
4.	Need to think further about data sharing, difficulties relate to developing common metrics amongst countries given varying contexts			13,
5.	Need to look at on-going initiatives on data sharing			14,
6.	Need to make use of existing calibration centres on the continent			15
7.	Technical support to undertake mapping of existing data, resources and organizations in the region			
8.	Establish/institutionalize a youth initiative/umbrella body in the African SIDS to re-group organizations, share best practices, etc.			
9.	Technical support to look at grid stability (as part of renewable energy strategies, specifically for smart cities) in the African SIDS			
10.	Establish linkages with universities and research institutions to increase capacity			
11.	Need to look at water management/water availability in the context of the SAMOA Pathway			
12.	Refer to a blue economic framework on both marine and freshwater resources on the continent			
13.	Support on the management of blue economy resources such as fisheries and establishing linkages between sectors on the sustainable use of resources			
14.	Platform for sharing of experiences on marine protected areas			
15.	Need to take national specificities into account in sub-regional commissions and other bodies (need to include regional bodies issues that are specific to SIDS)			



UNECA's Technical Support and Services to African SIDS



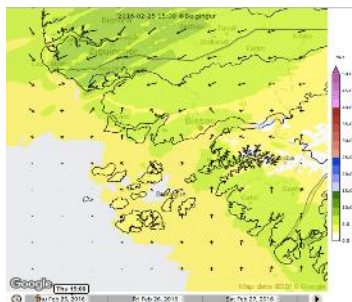
Africa Pavilion at COP21

- ClimDev-Africa partners collaborated to host the Africa pavilion at COP 21
- At least 80 events, including launches of major climate initiatives, round table discussions, panel discussions and presentations were held over a 10 day period
- The pavilion hosted many meetings of the African negotiators as the negotiation processes unfolded
- The pavilion also became the central meeting point for the different African interest groups participating in the COP

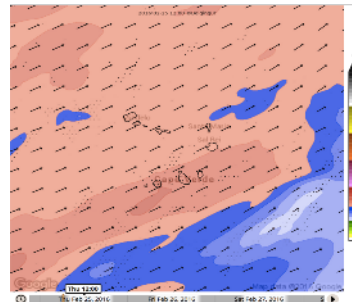


New Operational Numerical Weather Prediction and Early Warning System for African Small Island Developing States (SIDS)

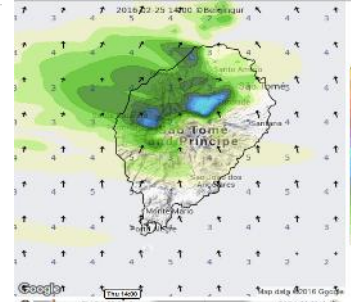
- **New High resolution 1 km** Operational Numerical Weather Prediction and Early Warning System
- Current systems are at **resolutions of 50km to 150km** and unable to predict fine **scale extremes**
- This is the **first time** such a system has been widely deployed across African SIDS and will revolutionize weather forecasting
- African SIDS will now be able to generate **robust climate products and services** to meet their unique needs at the **appropriate scales**



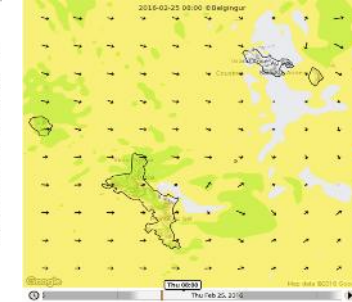
Guinea-Bissau



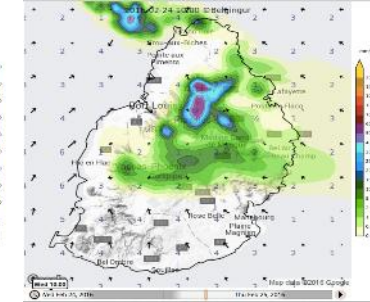
Cabo Verde



Sao Tome & Principe

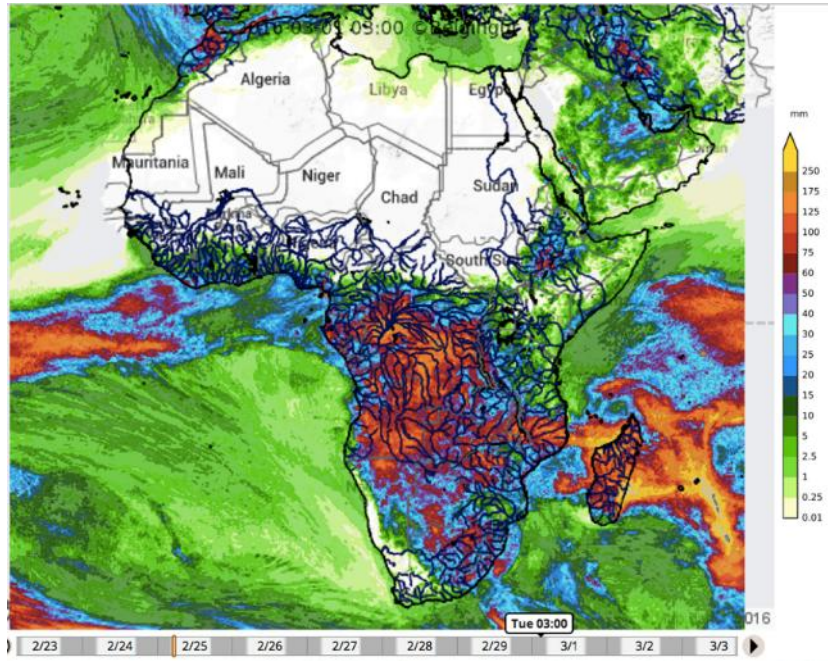


Seychelles



Mauritius

New Continent-wide High Resolution Operational Numerical Weather Prediction and Early Warning System



Accumulated precipitation from the High Resolution 9 Km African Continental Operational Numerical Weather Prediction and Early Warning System.

- Scaling up of the SIDS model
- The **first time** such a high resolution system has been widely deployed across Africa
- Initial results show very impressive results and further testing on-going at the RCCs (ICPAC, ACMAD, AGRHYMET and SADC-CSC)
- Envisaged to significantly improve the generation and delivery of weather / climate products and services (e.g. disaster management, health and agriculture)

Workshops on Use of ClimDev-Africa Numerical Weather Prediction and Early Warning System

- Standard workshop themes:
 - Comprehensive technology needs assessment in African SIDS and mainland countries to facilitate deployment of system
 - Establishment of community of practice and research themes for further enquiry
- Atlantic Ocean SIDS Workshop - Benchmarking of model performance based on forecasting of Hurricane Fred and associated storm surge
- Indian Ocean SIDS Workshop - Benchmarking of model performance based on forecasting of Indian Ocean extremes and associated storm surge



Conclusion

- Climate change is a major threat to Africa's sustainable development
- The progressive agreement at COP 21 in Paris provided opportunity for:
 - The adoption of binding climate change agreement
 - Strong commitment to keep temperature well below 2 °C
 - Recognised importance of adaptation
 - Commitment for additional and adequate finance

