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GMES and Africa : Contribution towards Africa's Blue Economy development

David KIRUGARA



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Outline

- Blue Economy definition, productive sectors and issues*
- Relevance of BE towards Agenda 2063*
- GMES and Africa*
- The Marine and Coastal Resource Service*
- IUU challenge*
- EO interventions to this challenge*
- Conclusion*



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Blue Economy

.... “marine-based economic development based on sustainable use of oceans and its resources”

...also seas, lakes, rivers, ponds and groundwater



“The next frontier for the global economy is the ocean”

Healthy oceans support climate change mitigation

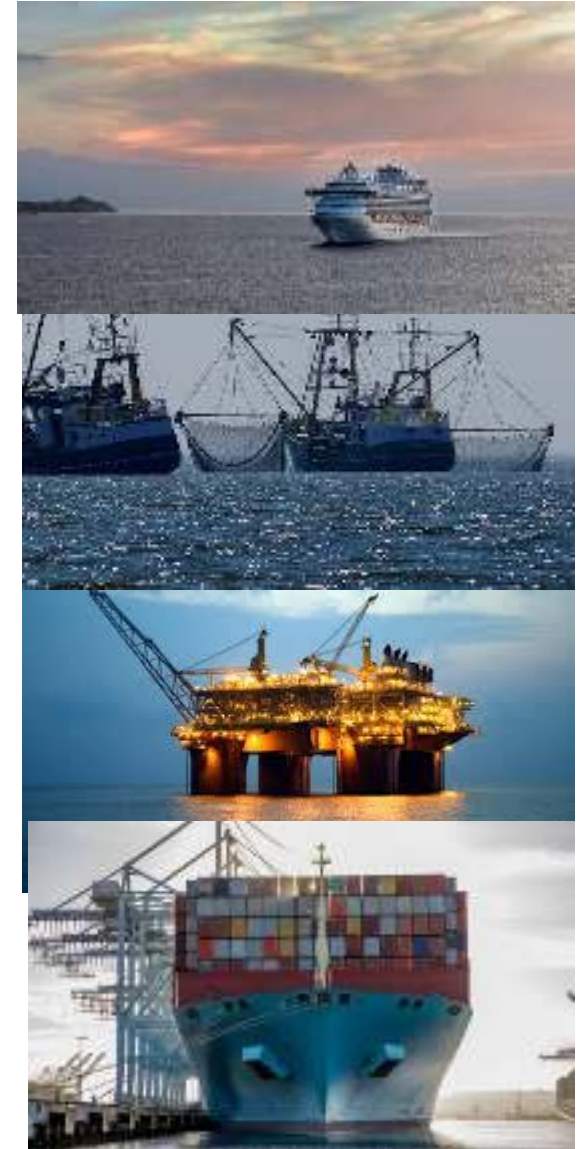


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Africa's Perspective

- ❑ *Sub-Sahara Maritime industry ~ \$1 trillion /yr*
- ❑ *38 coastal states plus island states*
- ❑ *200 million people derive nutrition*
- ❑ *Employs ~ 7.1 m fishers (2.7 m in marine and 3.4 m in inland fisheries and 1 m in aquaculture)*





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The Flipside

- IUU ~ 2 Billion in W. Africa*
- Piracy, armed robbery*
- Trafficking*
- Pollution*
- Habitat destruction*
- Sea level rise*

... an opportunity to align government, economic thinking and biology in a coordinated action





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Emerging BE issues

Attention should be given to:

- Risks and uncertainties surrounding their future development*
- Innovations required in science and technology***
- Investment needs*
- Environmental implications for planning and regulation*
- Impact on ocean ecosystems*
- Policy options most suited to boost their long-term prospects*





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Relevance of BE to Agenda 2063

*Fisheries, Oil,
Bioprospecting*

Sea transport

*Transboundary conflicts
Piracy and IUUs*

*Outer space as the
driver of
technology*

07/05/2019



AGENDA 2063 The Africa We Want

Aspiration 1

A prosperous Africa based on inclusive growth and sustainable development

Aspiration 2

An integrated continent, politically united and based on the ideals of Pan Africanism and the vision of Africa's Renaissance

Aspiration 3

An Africa of good governance, democracy, respect for human rights, justice and the rule of law

Aspiration 4

A peaceful and secure Africa

Aspiration 5

An Africa with a strong cultural identity, common heritage, values and ethics

Aspiration 6

An Africa where development is people-driven, unleashing the potential of its women and youth

Aspiration 7

Africa as a strong, united and influential global player and partner



Accerelating Africa's Blue Growth



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... continuity

- An Earth Observation system designed to response to manage the environment*
- New paradigm shift on sustainability*
- Build on free and open access to Copernicus data*

PUMA
2001-2006

AMESD
2007-2013

MESA
2013-2017

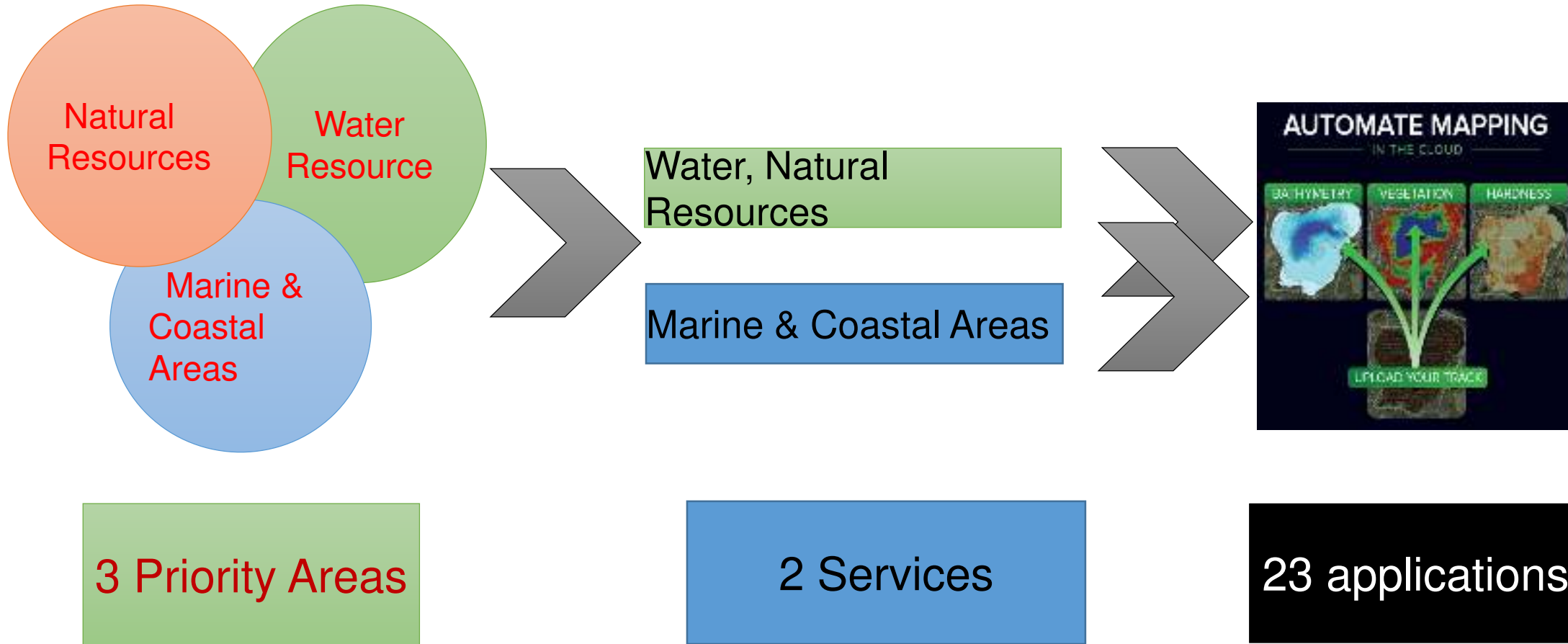
GMES &
Africa
Phase 1
2017-2020



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The Services





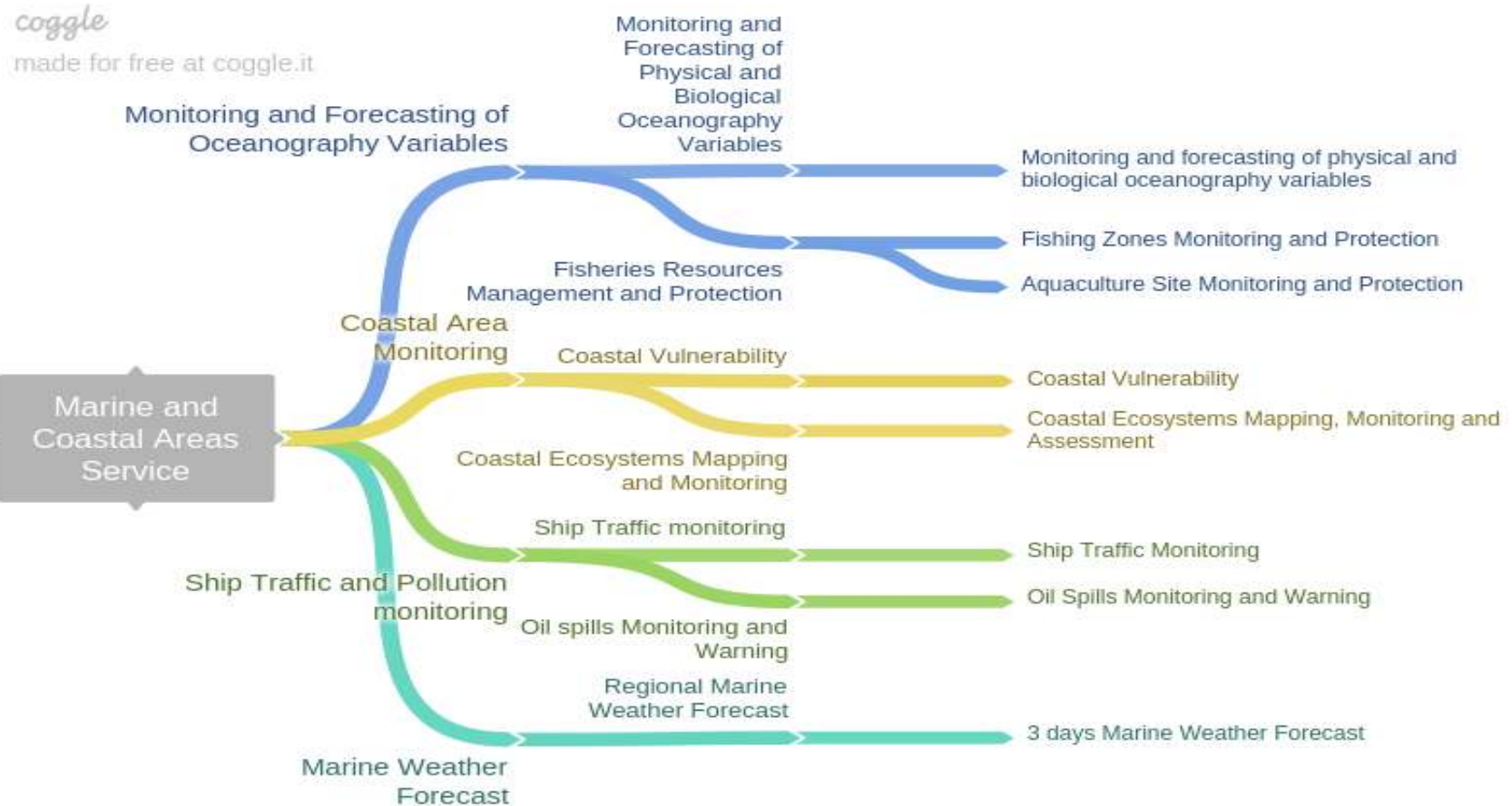
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The Applications

Why Earth Observation?

- Assessment**
 - Monitoring**
 - Forecasting**
- Maritime wealth and assets*



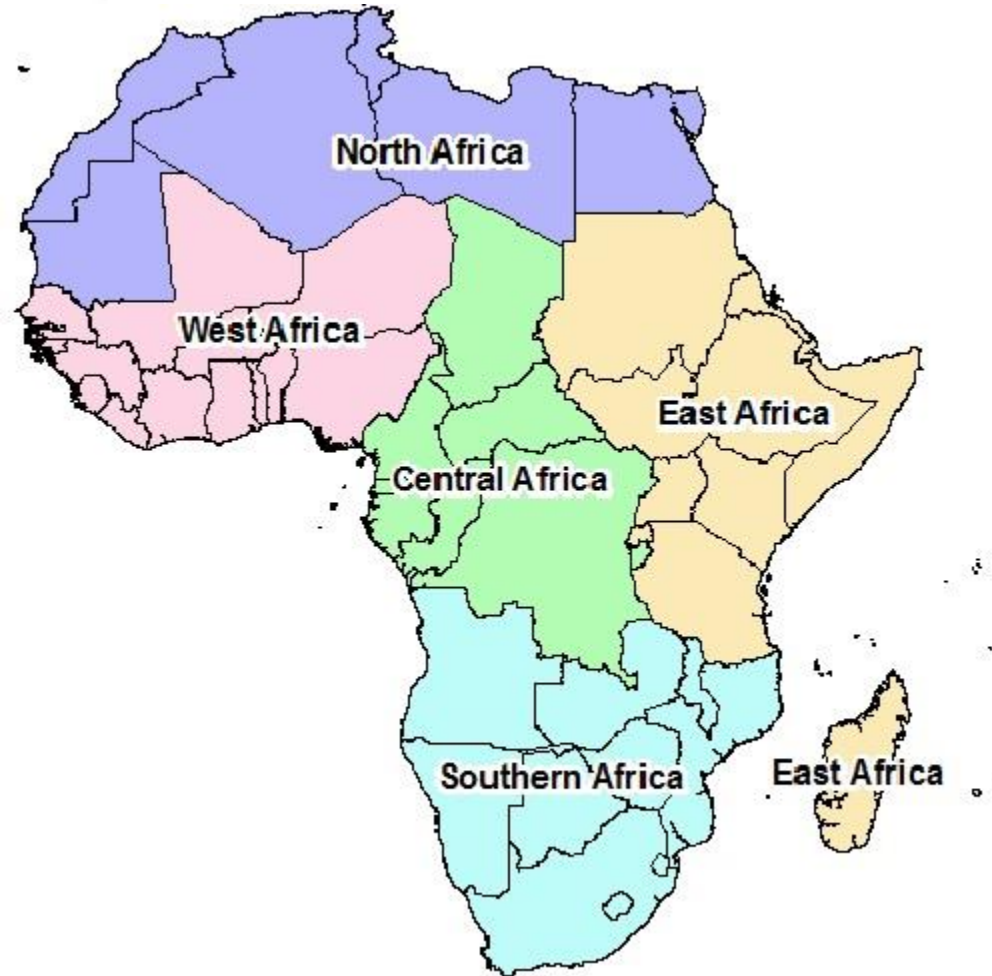


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Distribution

- ❑ *Continental, with inaugural entry of Northern Africa*
- ❑ *Some key areas under investigation:*
 - ❑ *Fisheries resources*
 - ❑ *Maritime Safety.*
 - ❑ *Sensitive ecosystems*





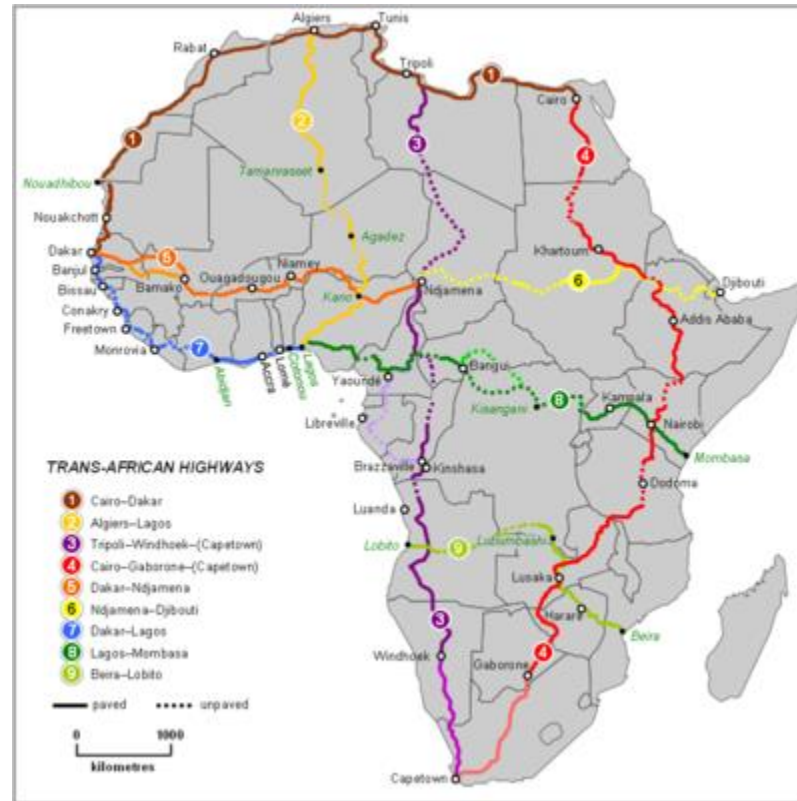
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Opportunity Cost for IUU's

*\$ 2,000,000,000 /year
worth of infrastructure
development?*

- Trans-African
Highway network is
56,683 km assuming
half is already paved.*
- So we need 30,000
Km of roads including
maintenance*



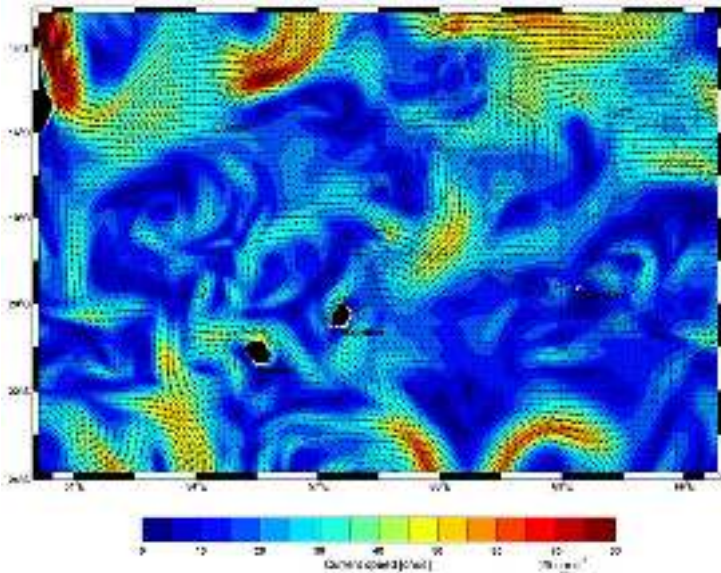
- Cost of paving 1 km
of road ~ \$ 500,000*
- Total Cost would be
\$1,500,000,000,
enough to pave all
the roads*
- We can use the
change to build
Schools, Hospitals*



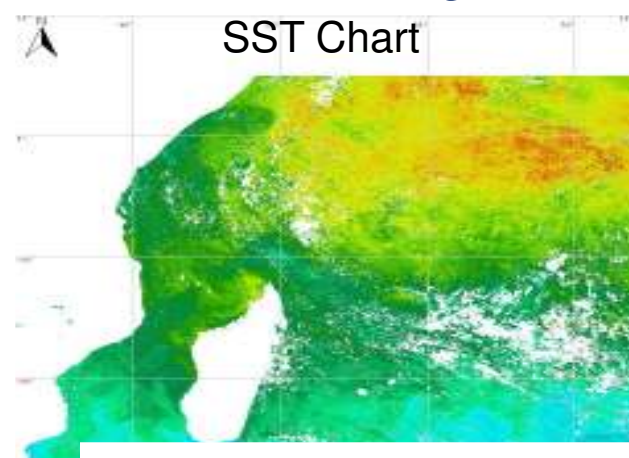
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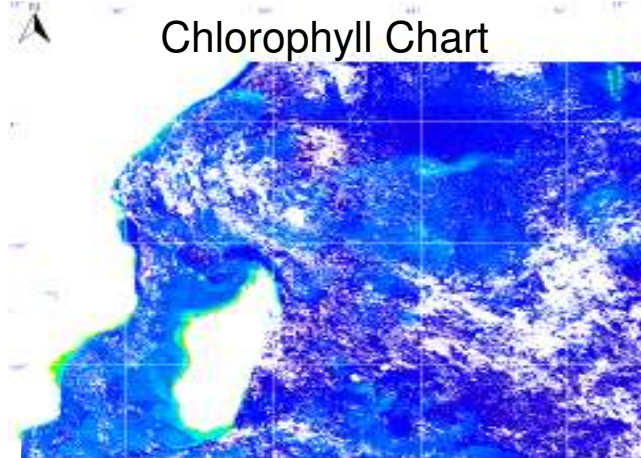
MESA MOI Project



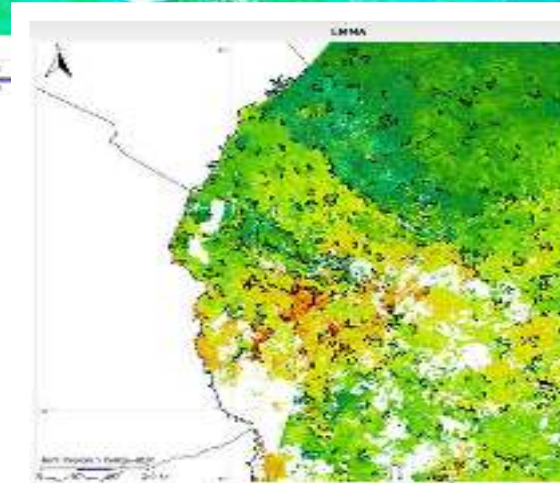
Ocean Current



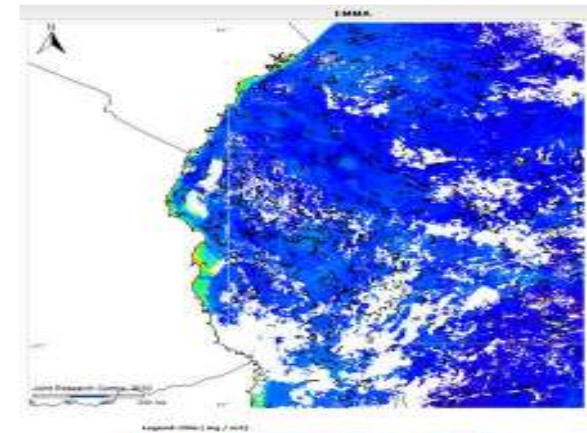
SST Chart



Chlorophyll Chart



SST fronts



**SST fronts over laid on
chl-a**

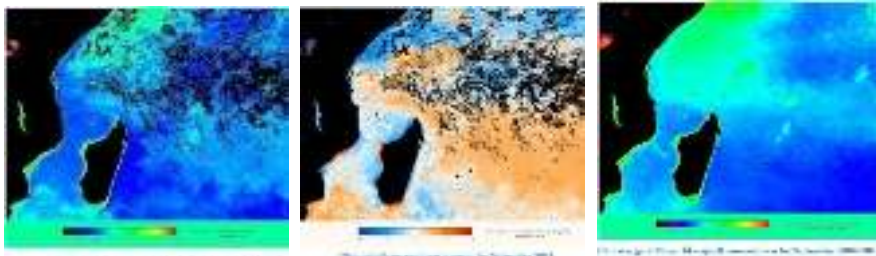
Mauritius Oceanography Institute



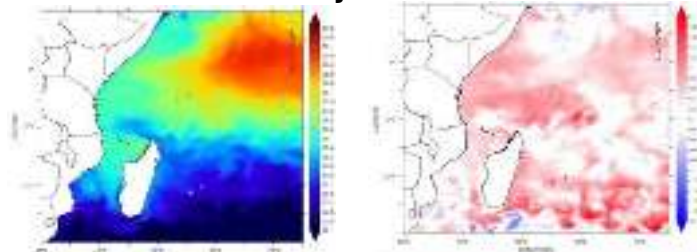
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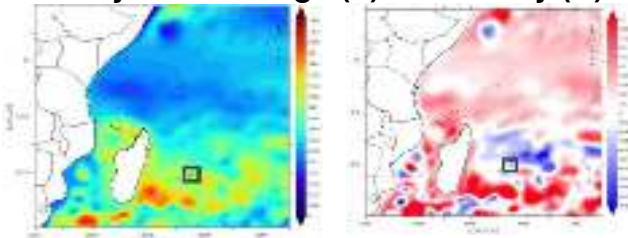
MESA MOI Project, cont..



Monthly Chl-a data



Monthly SST average (L) & anomaly (R)



Monthly SSH average (L) & anomaly (R)

MAURITIUS OCEANOGRAPHY INSTITUTE

MONTHLY OCEANOGRAPHY BULLETIN

South West Indian Ocean
July 2016

Highlights

Sea Surface Temperature

- SST lower than normal in the South West Indian Ocean
- Positive SST anomaly observed in the western part of the basin
- Negative SST anomaly observed in the region of Mauritius, Reunion and around Reunion Island

Chlorophyll-a Concentration

- Low Chl-a concentration in the SWIO waters
- Potential influence on primary production
- Positive chl-a anomaly influencing the waters of Mauritius and Madagascar
- High chl-a concentration resulting in an increase in primary productivity and fish catch

Sea Surface Height

- SSH close to normal in most parts of the SWIO waters except around Comoros and Madagascar
- Occurrence of cyclonic and anti cyclonic eddies in the SWIO region

Project Website: <http://moi.gomr.org/moi/>

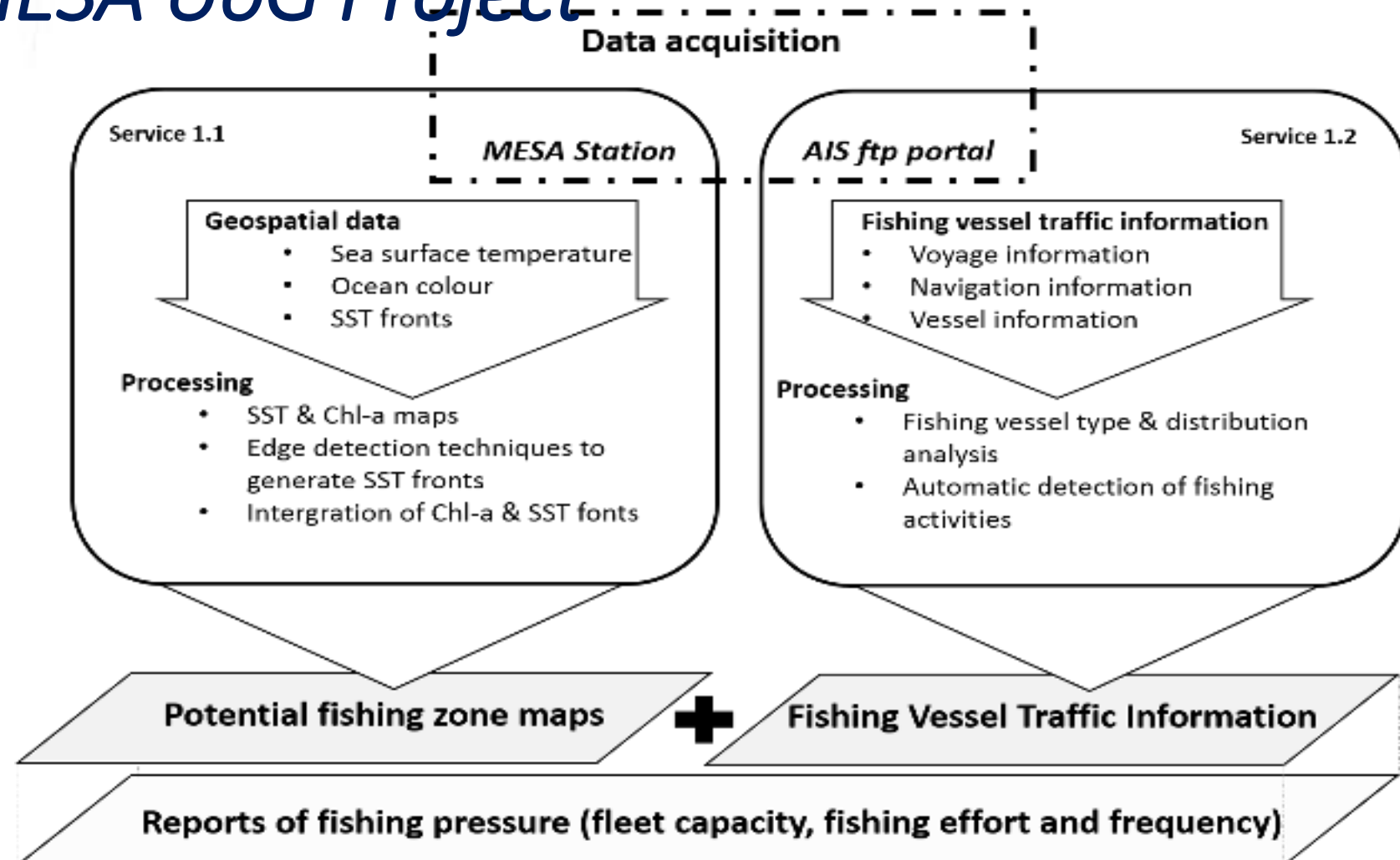


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MESA UoG Project

- Information on fishing grounds & vessel activities
- Opportunity to monitor illegal activities
- Providing input for decision making & enforcement actions





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MESA UoG Project

UG-MESA/PHYS-BULL/201607/024

**ECOWAS Coastal & Marine Resources Management Centre
University of Ghana**

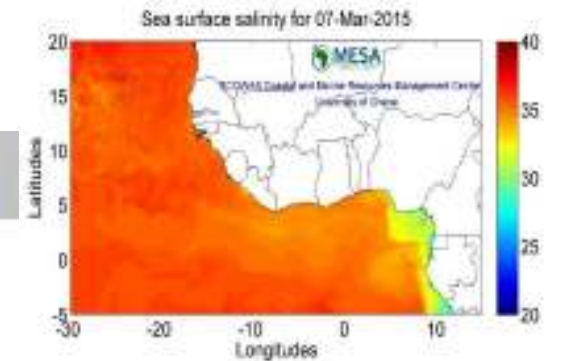
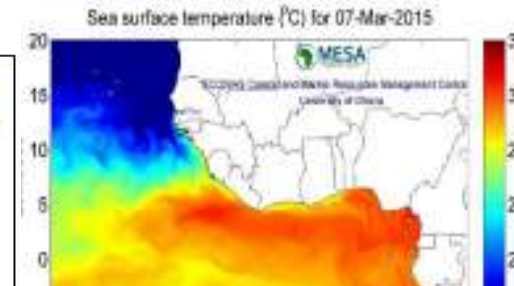
MONTHLY PHYSICAL OCEANOGRAPHY BULLETIN

Eastern Tropical Atlantic

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Sea surface winds observed within the West African sub-region (July 2016)



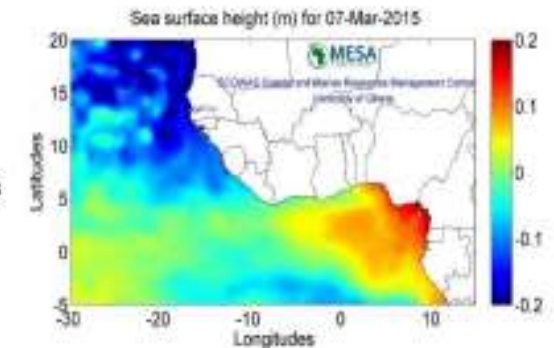
SMS Service
Forecasting ocean weather

Advance information on ocean weather on your mobile phone



1		→		Calm
2		→		Rough
3		→		Dangerous

To receive SMS on ocean conditions please contact **MESA** www.ug-mesa.org



Contact: The Director, ECOWAS Coastal & Marine Resources Management Centre, University of Ghana
P. O. Box LG-99, Legon, Ghana. Email: info@ug-mesa.org; Website: www.ug-mesa.org



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Copernicus Marine service

- Coastal and Marine Environment,
- Maritime safety
- Marine resources
- Climate, seasonal and weather forecasting

<https://sentinels.copernicus.eu/web/sentinel/home>



Conclusions



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- ❑ Blue economy can accelerate Africa's Blue Growth in various productive sectors and offers vast opportunities for accelerated development***
- ❑ Statistical data needs to be integrated with Geospatial data in the fight against IUUs, that hinders blue growth***
- ❑ There has been a sustained effort from PUMA, AMESD and MESA to address IUU's, consolidation of success stories in GMES and Africa***
- ❑ Copernicus programme offers imagery and tools to tackle Africa's Maritime challenges***



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