



National Oceanography Centre NATURAL ENVIRONMENT RESEARCH COUNCIL



# CRISe – Coastal Risk Information Service

# **UKSA International Partnership Programme**





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## **C-RISe: Service Objectives**

- Provide information to help local stakeholders reduce the social & economic impact of coastal inundation & variable weather patterns.
- Access to information on sea level rise, wind speed & wave heights derived from satellite altimetry & validated with in-situ data.
- Deliver information through a web portal, and support local partners using the data.
- Develop case studies to demonstrate /evaluate use in different application areas

# **C-RISe: Products**

#### What Products / Information are proposed for CRISe ?

- Satellite-derived data on sea level, wind speed and wave heights, together with statistics derived from these data, and from local tide gauge data.
- Validation against local data sources and analyses of regional, seasonal and inter-annual variability.
- Delivered through a regional geo-spatial information tool: CSIR's OCIMS (Oceans and Coasts Information Management System)

Parameter	Description	Time Coverage	Satellites
Total Water Level Envelope, significant wave height, surface radar backscatter	Along track data from the NOC coastal processor	2002-2016	Jason-1, Jason-2, Jason-3
Significant Wave Height and Wind Speed Climatologies	Monthly, 1° x 1° gridded climatologies, sourced from Globwave	1992-2014	ERS-1, ERS-2, Envisat, Topex, Jason-1, 2,3
Significant Wave Height, wind speed	Near Real Time along track data	Daily updated	Jason-2,
Wind speed and wind direction	Near Real Time data across scatterometer swath (25km resolution)	Daily updated	Metop/ ASCAT-A

### **Application to C-RISe**



# **Wave Climate Statistics**



• Seasonal / inter-annual variability.

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- Joint wave height / wave period, and wave height wind speed distributions / analyses.
- Needed for design: How high do I need to build my platform?
- For Operational Planning: What is the chance of experiencing sig wave height > 2m in October where I want to work?



Advances in Ocean Wave Measurement Conference, Royal Institution, London 21st Oct. 2015

### **Application to C-RISe**



#### **Tide Gauge Data**

Country	Location	PSMSL	UHSLC	IOC SLMF (High frequency)
		Monthly &	Hourly and	start date
		annual means	daily means	
Tanzania	Mtwara			<mark>2009</mark>
	Zanzibar	1984-2014	1984-2015	2006
Comores	Comores			<mark>2010</mark>
Mayotte	Dzaoudzi	2008-2015	2008-2016	2008
Madagascar	Toamasina			<mark>2010</mark>
	Nosy-Be	<mark>1958-1972</mark>		
Seychelles	Port La Rue		1977-2016	2007
Reunion	Pointe des Gallets	<mark>1975-2015</mark>	1982-2016	2008
Reunion	Sainte Marie			<mark>2013</mark>
Mauritius	Agalega			<mark>2009</mark>
	Port Louis	<mark>1942-2016*</mark>	1986-2016	2006
	Blue Bay			<mark>2009</mark>
	Rodrigues Island	1986-2015	1986-2016	2006
Mozambique	Pemba		2007-2013	
	Inhambe		2007-2014	
	Mozambique Island	<mark>1963-1967</mark>		
	Maputo	<mark>1961-2001*</mark>		
S Africa	Saldanha		1973-2016	
	Marlon Island		2007-2016	2007
	Richards Bay	1977-2015*	1977-2016	
	Durban	1971-2015	1970-2016	
	East London	1967-2015*	1965-2016	
	Port Elizabeth	1978-2015	1973-2016	
	Knysna	<mark>1960-2015</mark>	1966-2016	
	Mossel Bay	<mark>1958-2015</mark>	1966-2016	
	Hermanus	<mark>1958-1964</mark>		
	Cape Town (Granger Bay)	1967-2015	1967-2016	
	Salamander	<mark>1979-1994</mark>		
S Africa	Simons Town	<mark>1957-2015</mark>	1959-2016	2007
	Port Nolloth	<mark>1956-2015</mark>	1958-2016	

## **C-RISe Use Cases**

- Use Cases will provide the basis for practical implementation and the Monitoring and Evaluation of the CRISe service in each partner country – testing the usefulness and benefits of the service in real life application
- The Use Cases are now being revised following the input received during discussions with regional partners in February 2017

### **C-RISe Specification – What we need to know**

- Any other satellite products wanted?
- How will these data be made available TO the CRISe portal?
- How will these data be made available FROM the CRISe portal TO the users?
- What in-situ data (also models) can be made available?
  - Location, period, frequency, parameters
  - Just for validation, or more widely available through C-RISe?
- Validation approach:
  - against co-located in situ data, models, statistical validations
- Regional analysis:
  - annual trends, seasonal characteristics, inter-annual variability
- Any specific additional needs for individual use cases?
- Do we need to redefine use cases, or suggest additional use cases?