



C-RISe Coastal Risk Information Service Training Course

Tools to Apply Satellite Data to Coastal Risk

8-12 October 2017

Centro de Informática da UEM (CIUEM)

Universidade Eduardo Mondlane, Campus Universitário Principal, Maputo

Introduction

Mozambique has significant coastal populations whose lives and economic security are vulnerable to the consequences of climate variability and change. The coast is highly exposed to storm surges, and coastal ecosystems are sensitive to climate change. Access to improved information on sea level, wave and wind extremes can inform efforts to protect coastal communities and safeguard economic activity. The information can also help to improve industrial and commercial competitiveness in the maritime sector.

This training course will focus on the application of C-RISe satellite data products, and satellite data more generally, to monitor and understand the changing nature of risk due to a changing marine climate. Applications include shipping safety, port developments, navigation and coastal erosion, coastal defence planning, fisheries, marine and coastal ecosystem management.

The course will be delivered through a mix of taught material, exercises, demonstrations and one-to-one discussions on the progress of the C-RISe Use Cases.

Course Content

(Timing to be confirmed, exact details may change)

Introduction

- Introduction to C-RISe, the C-RISe data products and Use Cases.
- Presentations by participants of their work and plans for using C-RISe data, including progress so far on Use Cases.

Surface currents from satellites

- Introduction to ocean currents, measurements of currents from altimetry.
- C-RISe currents data, analysis of time series, monthly maps
- Near Real Time data processing, fusion tables, use with google maps, direct access
- Use of netCDF, sub-sampling global data, plotting times series at a location, generating climatologies

Wave and Winds from Satellites

- Revision of previous lessons as necessary (plotting and analysis of climatological data)

Sea level and tides

- Validation of satellite sea level data against tide gauges
- Analyses of variability in sea level.
- Long Term Sea level change, projections and measurements
- Storm surges and sea level extremes

Using Bilko for combined analyses: Sea Surface Temperature, Ocean Colour, Habitat Mapping, sea level.

- Accessing and loading Sea Surface Temperature (SST) and Chlorophyl-A data from the Copernicus Marine Environment Monitoring Service (CMEMS).
- Sub-setting, processing and analysing SST and Chl-A data, generating time series for a given location, EOF analyses,
- Loading and processing altimeter sea level data
- Habitat mapping using high resolution data from Sentinel-2



Preparation

In order to get the best out of the course we ask participants to carry out some initial preparation in advance:

- Prepare a short presentation (in English) to introduce yourself and your scientific interests.
- If you are working on a C-RISe Case Study, prepare a short presentation and written report (using the template provided) on what you have done so far.
- We recommend that you bring your own laptop if possible. Please install python and Bilko before the training, according to the instructions provided on the project website (<http://www.satoc.eu/projects/c-rise/>).

About C-RISe

C-RISe is a 3-year project funded by the UK Space Agency through the International Partnership programme, working with local partners to deliver a Coastal Risk Information service to South Africa, Mozambique and Madagascar. In collaboration with local partners the project will provide access to information on sea level rise, storm surges, wind speed and wave heights derived from satellite altimetry and validated with local in-situ measurements.

Our ultimate aim is to provide a service that will allow decision-makers in government, industry and civil society to use this information to reduce the social and economic impact of coastal inundation and increasingly variable weather patterns.

For more information, see the C-RISe web site:

<http://www.satoc.eu/projects/c-rise/>

Acknowledgements

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