

# OBSCAPE

ENVIRONMENTAL OBSERVATIONS



ENVIRONMENTAL OBSERVATIONS

DELIVERING PREMIUM ENVIRONMENTAL  
TECHNOLOGY AND INSTRUMENTATION



RAIN  
GAUGE



TIME-LAPSE  
CAMERA



WEATHER  
STATION



WATER  
QUALITY



LEVEL  
GAUGE



WAVE  
DROID



GPS  
DRIFTER



WATER  
QUALITY BUOY

# COASTAL & OFFSHORE APPLICATIONS

- Obscape Buoy
- Obscape PTM
- PTM
- Core Modules
- Data Portal
- Clients
- Offshore and Coastal Sectors
- Offshore and Coastal Applications and Past Work
- Case Studies
- In Conclusion

[WWW.OBSCAPE.COM](http://WWW.OBSCAPE.COM)

# OBSCAPE B.V

Engineering  
High Quality,  
Easy-to-use,  
Robust and Wireless  
Real-Time Monitoring  
Solutions to Suit All  
Budgets and  
Environments  
Worldwide



# WAVE BUOY

Ocean wave measurements are an indispensable part of any MetOcean project. The Obscape Wave Buoy is based on recent advances in sensor and data technology, ensuring a light-weight, flexible, reliable and affordable wave buoy.

## KEY FEATURES

- AFFORDABLE OPERATIONAL COSTS
- COMPACT & LIGHT WEIGHT
- EASY TO DEPLOY & SERVICE
- BULK WAVE PARAMETERS
- DIRECTIONAL WAVE SPECTRUM
- GPS POSITION & WATCH CIRCLE

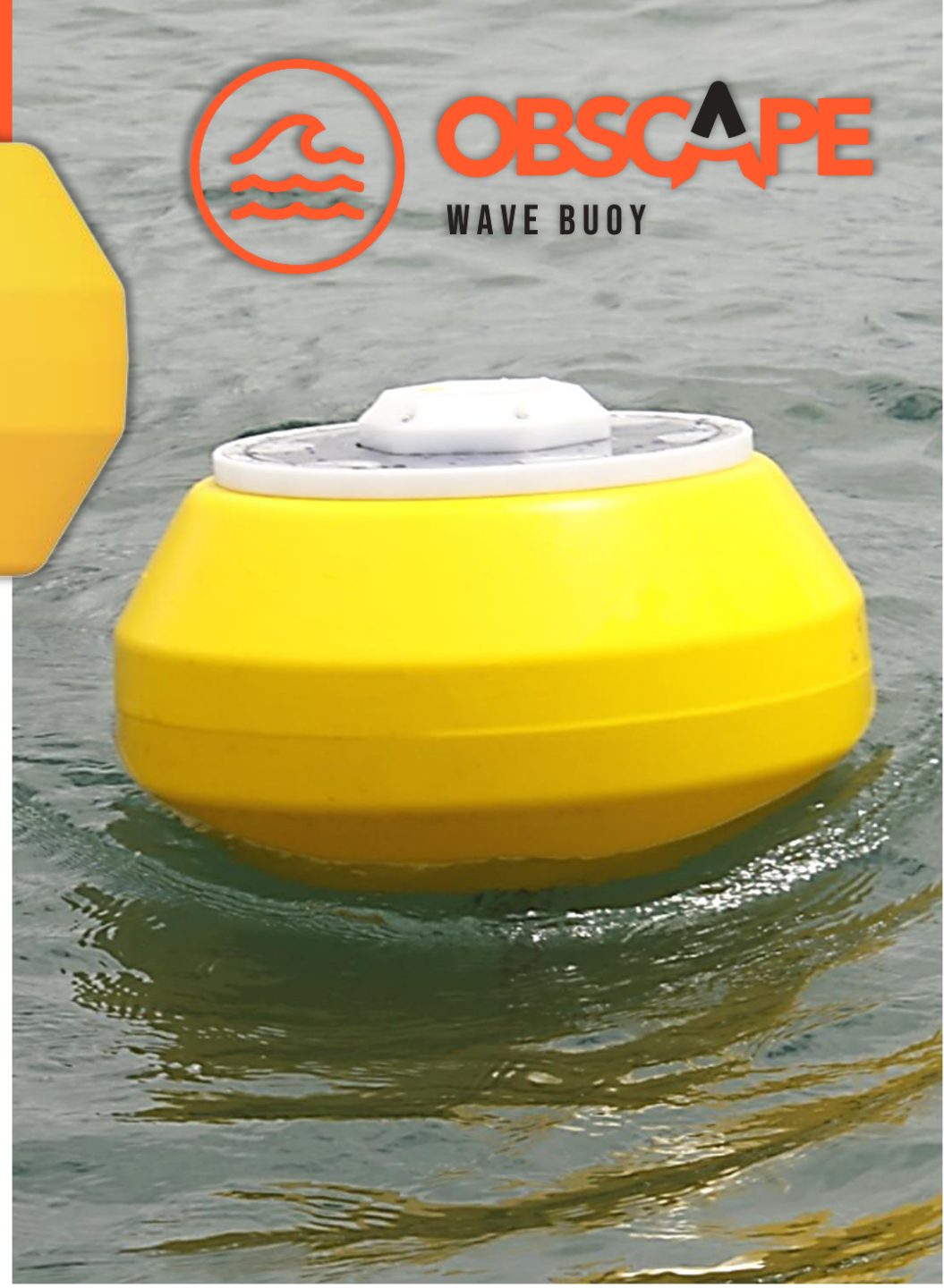


Coming soon

**OBSCAPE**  
WATER QUALITY BUOY



**OBSCAPE**  
WAVE BUOY



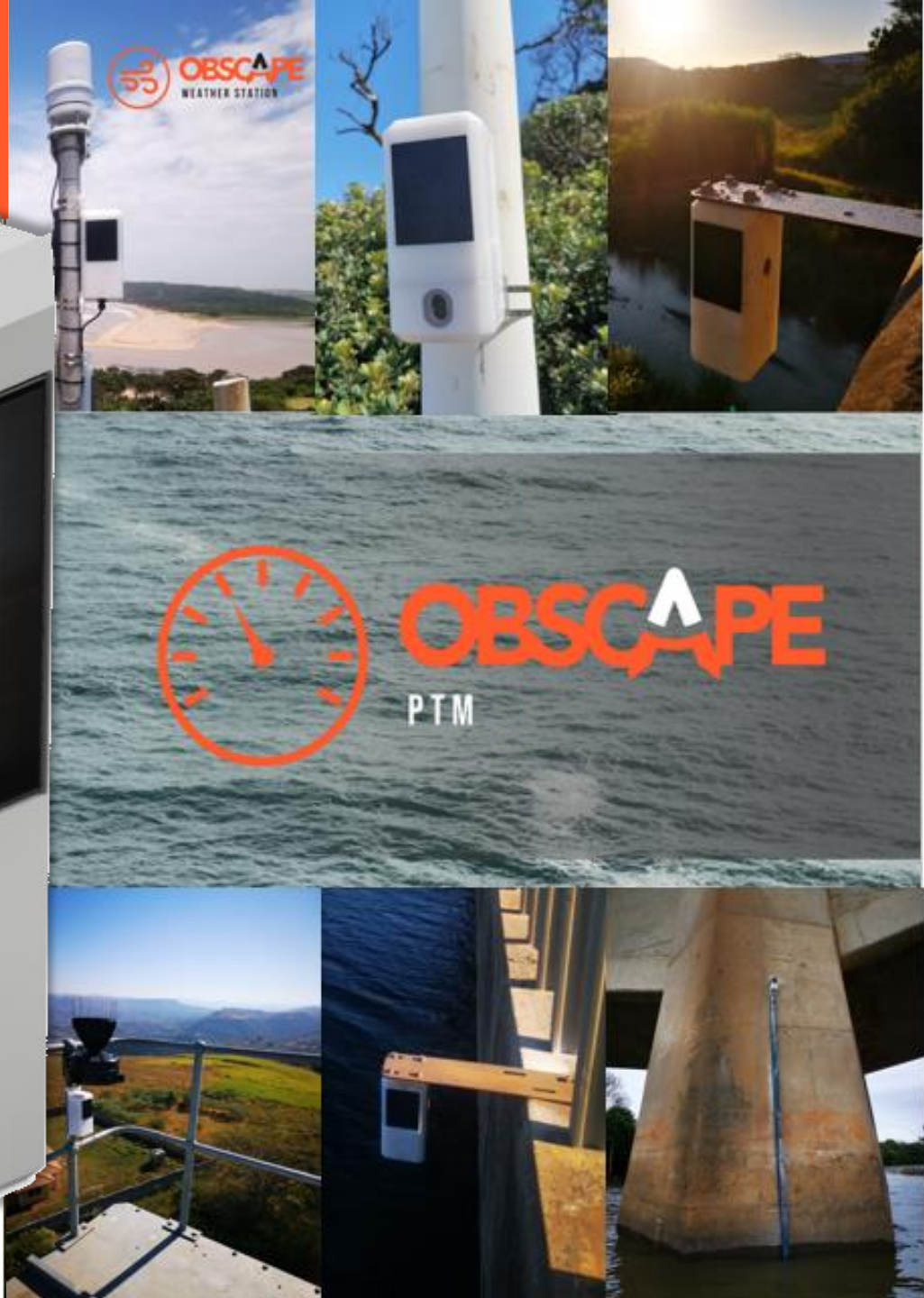


# The Power and Telemetry Module

Obscape's Power & Telemetry Module (PTM) is a highly convenient all-in-1 datalogger. Its built-in solar panels and cellular modem will turn any 3rd party sensor of your choice into a plug-and-play real-time monitoring solution. With its wireless nature and rugged housing, the PTM was designed to function in both urban and remote environments.

## KEY FEATURES

- VERSATILE DATA PORTAL INCLUDED
- SOLAR-POWERED
- COMPLETELY WIRELESS
- VARIETY OF SENSOR MOUNTING OPTIONS



# LEVEL GAUGE

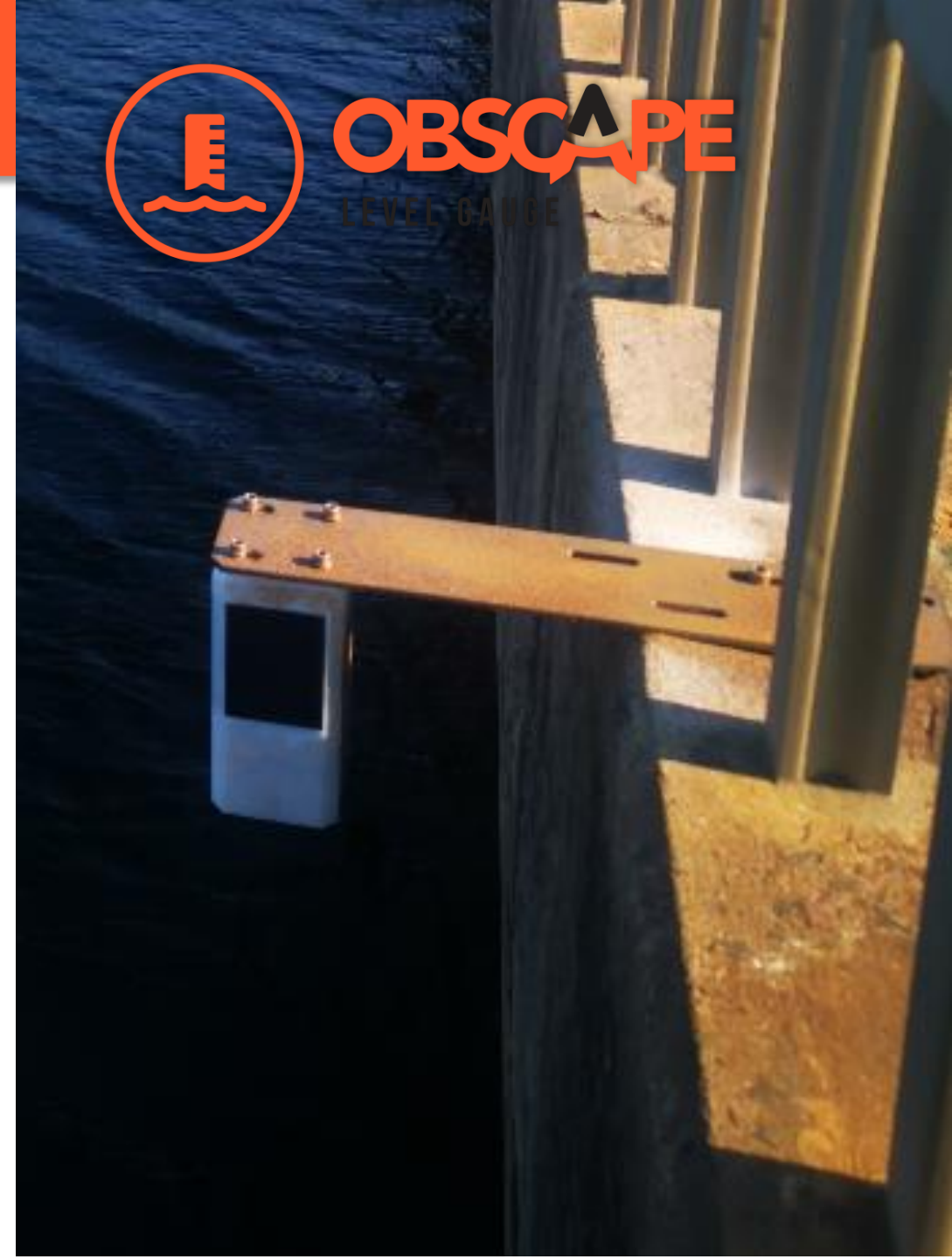
Obscape's Level Gauge delivers real-time water level measurements which give you the capability to monitor natural or man-made water systems.

## KEY FEATURES:

- *INTEGRATED* LOGGER
- *INTEGRATED* TELEMETRY
- *INTEGRATED* POWER
- *INTEGRATED* SENSOR
- COMPLETELY WIRELESS
- REAL-TIME DATA
- SOLAR POWERED



**OBSCAPE**  
LEVEL GAUGE





# TIME LAPSE CAMERA

Obscape's Time-Lapse Camera is a robust, fully wireless solution that delivers time-lapse images to your desktop in real-time. It allows you to have a look at your area of interest remotely.

## KEY FEATURES

- INTEGRATED LOGGER
- INTEGRATED TELEMTRY
- INTEGRATED POWER
- INTEGRATED 5MP RESOLUTION
- COMPLETELY WIRELESS
- REAL-TIME DATA

DOWN FACING CAMERA AVAILABLE

IDEAL RESOLUTION  
FOR VIEWING TIME  
LAPSE CAMERA  
IMAGES ON MOST  
ELECTRONIC DEVICES



**OBSCAPE**  
TIME-LAPSE CAMERA



# WEATHER STATION

Obscape's Weather Station is a robust and user-friendly device which combines Obscape's Power and Telemetry Module with an industry-standard weather sensor

Our Weather Station provides a wide range of weather measurements, including:

- *AIR TEMPERATURE AND PRESSURE,*
- *WIND SPEED AND DIRECTION,*
- *RELATIVE HUMIDITY*
- *SOLAR RADIATION*
- *LIGHTNING*
- *RAINFALL*

## KEY FEATURES

- COMPREHENSIVE WEATHER DATA
- COMPLETELY WIRELESS
- REAL-TIME DATA
- SOLAR POWERED





# RAIN GAUGE

Obscape's Rain Gauge delivers real-time rainfall measurements. Its industry-standard rain collector is connected to Obscape's Power and Telemetry Module to create a completely wireless real-time rain gauge.

## KEY FEATURES

- ACCURATE RAINFALL INTENSITY MEASUREMENTS
- INDUSTRY-STANDARD RAIN COLLECTOR
- 0.2 MM RESOLUTION
- COMPLETELY WIRELESS
- ROBUST DESIGN



**OBSCAPE**  
RAIN GAUGE



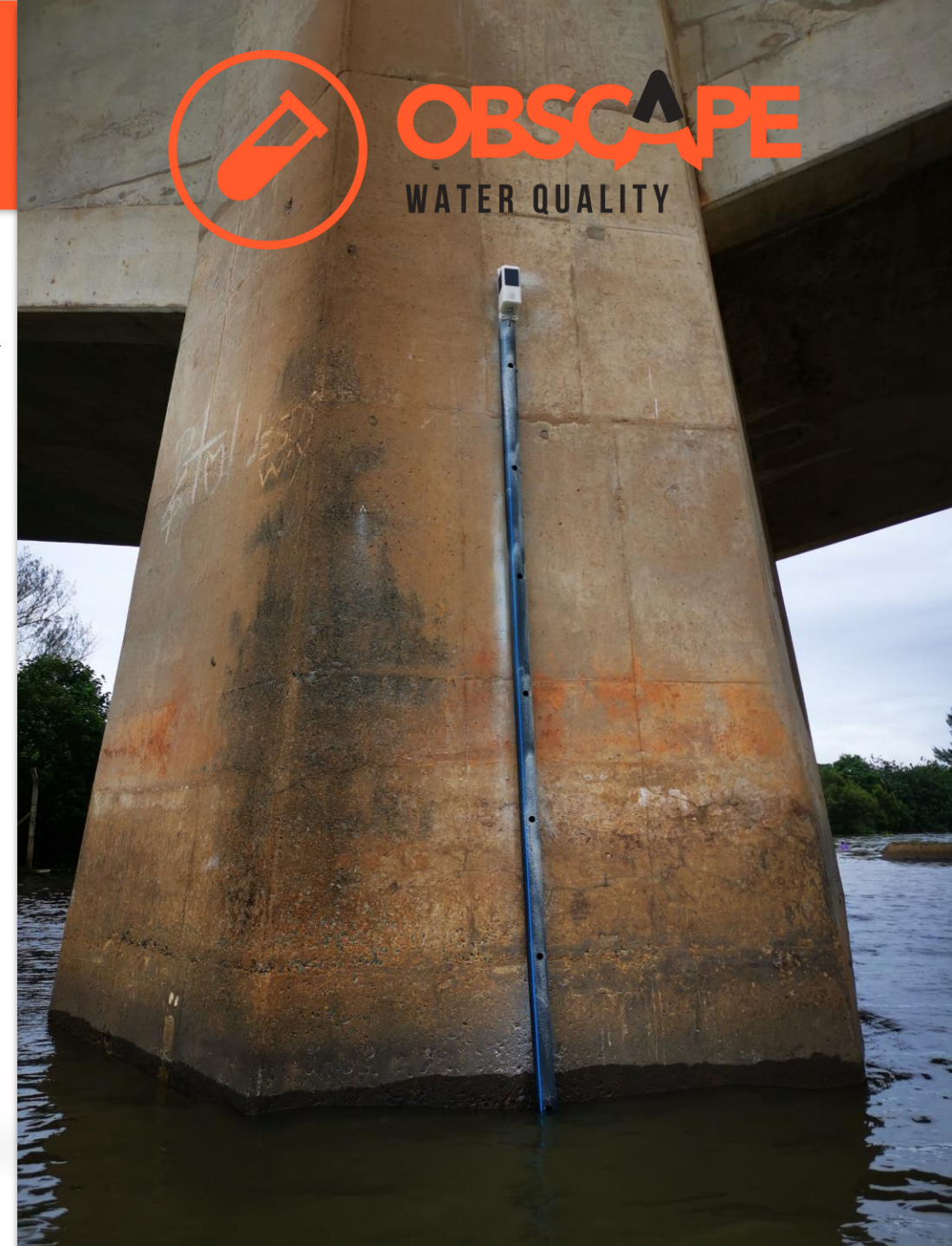


# WATER QUALITY STATION

Whether you are monitoring aquatic habitats, estuarine hydrodynamics or salt intrusion, the Obscape CT Station will suit your needs.

## KEY FEATURES

- ACCURATE CONDUCTIVITY, TEMPERATURE AND SALINITY
- TOROIDAL SENSOR MINIMISES BIO-FOULING
- COMPLETELY WIRELESS
- REAL-TIME DATA
- SOLAR POWERED
- GSM TELEMETRY (3G)
- MULTIPLE MOUNTING OPTIONS
- VERSATILE DATA PORTAL INCLUDED

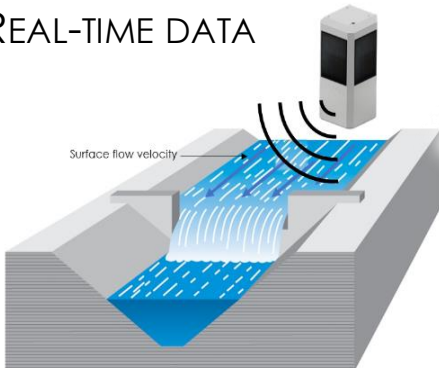


# FLOW GAUGE

The Flow Gauge is suitable for application in natural as well as man-made water systems. Whether you are interested in measuring river flow, outfall discharge or channel runoff, the Obscape Flow Gauge will suit your needs.

## KEY FEATURES

- ACCURATE SURFACE FLOW VELOCITY DATA
- RADAR TECHNOLOGY
- NO UNDERWATER COMPONENTS
- COMPLETELY WIRELESS
- REAL-TIME DATA



COMING  
SOON



**OBSCAPE**  
FLOW GAUGE







WAVEBUOY



LEVEL  
GAUGE



TIME-LAPSE  
CAMERA

CORE  
PRODUCTS



WATER  
QUALITY BUOY



WEATHER  
STATION



RAIN  
GAUGE

COMING SOON

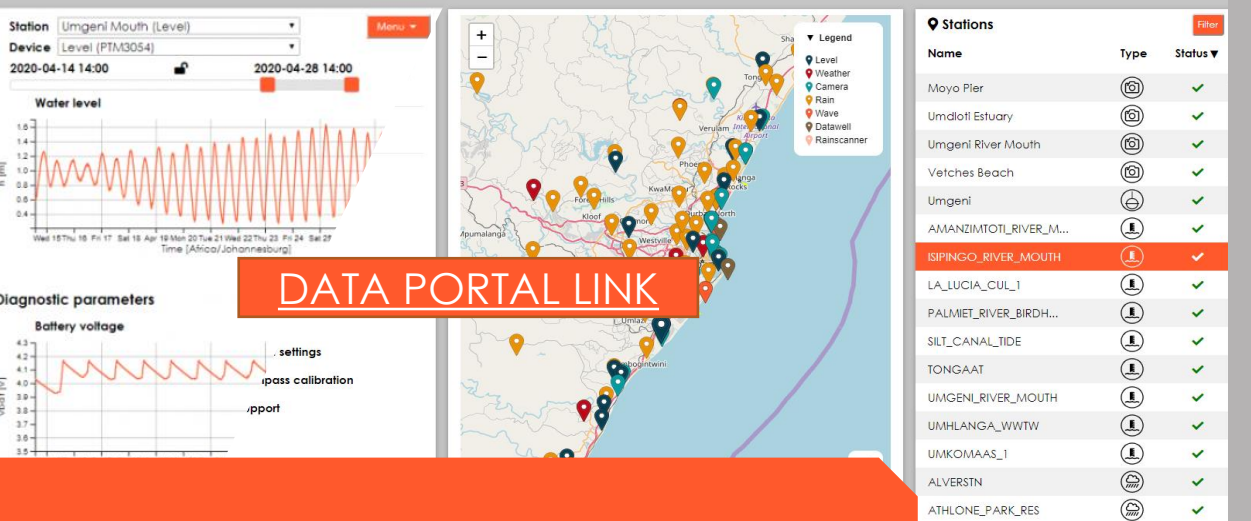


WATER  
QUALITY



FLOW  
GAUGE





DATA PORTAL LINK

# DATA PORTAL

- Real-time data & Monitoring alerts
- Report generation & Integral data management
- Data forwarding & Maintenance log
- White labelling



[Click on the Icon to learn more about our Core Products](#)

CONTOURGLOBAL



DEME

Dredging, Environmental & Marine Engineering



Caledonian MacBrayne

VASTINT



MARINE  
CONTRACTORS



SIEMENS

THE OCEAN  
CLEANUP

Deltares



Delft University of Technology

PAST WORK



Boskalis



provincie  
ZUID HOLLAND

Van Oord



Marine ingenuity



UNIRI



Jan De Nul  
GROUP



PORT of BURGAS



Oregon State  
University

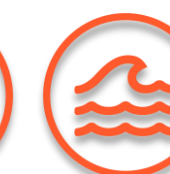


INCORPORATING



Hydro- & Oceanographic Consultancy

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Helping people to care for our ocean





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WATER  
QUALITY BUOY

# Coastal & Offshore Applications and Past Work

Obscape's WaveBuoy and remote telemetry monitoring systems have been designed and proven to meet the demand of high accuracy operation and 24/7 real-time data reporting on extreme coastal and offshore environments.

Metoccean conditions (winds, waves and climate) constantly shape our coastline & affect open sea conditions. By utilising remote powered telemetry devices to monitor ports, nautical operations and offshore construction can be conducted. This enables increased safety and productivity, while also providing more accurate reporting for coastal and offshore ecosystems.

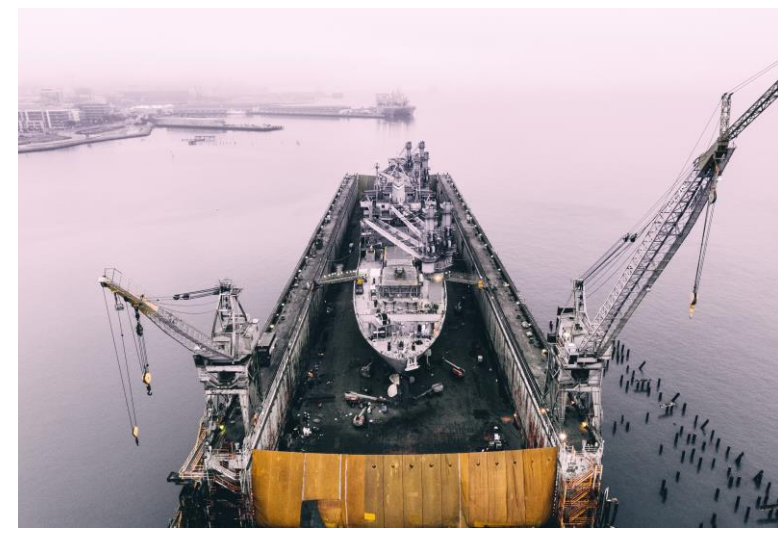
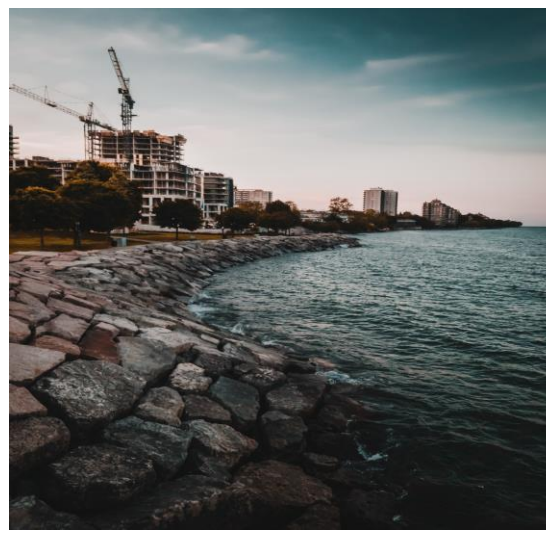
The ability to report on hydrological and atmospheric criteria has become essential, therefore monitoring and reporting in real time on these dynamic characteristics is vital.



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# Coastal & Offshore Sector

- Dredging & Trenching
- Offshore Power Generation
- Coastline & Marine based Construction
- Ports & Nautical
- Marine & Estuarine Ecosystems



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# Offshore Power Generation



Depolyment of Obscape WaveBouys & Data Portal to monitor & measure Water Quality, Tides, Waves & Turbidity for safe Dredging & Trenching operation & environmental conditions.

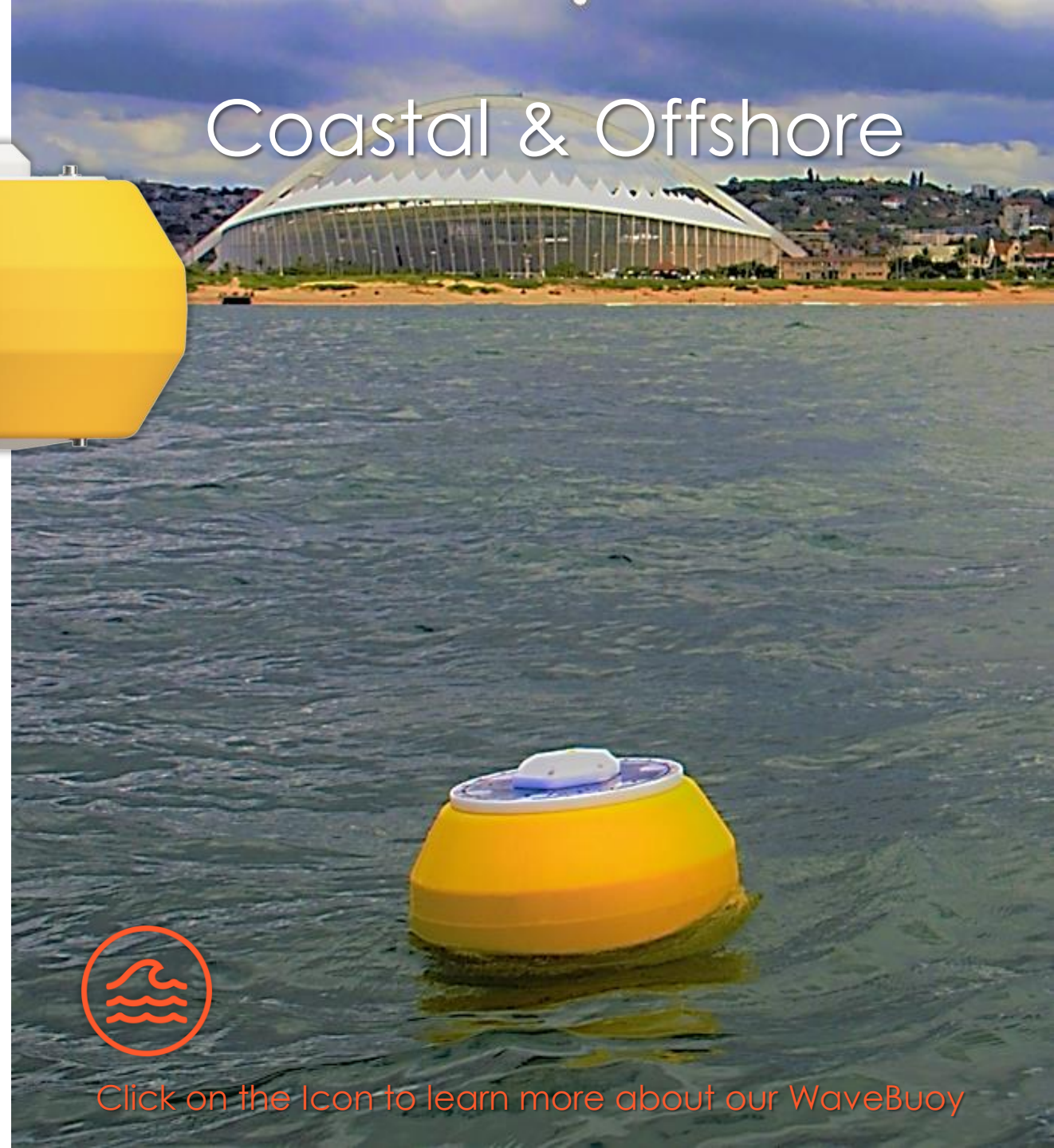
## Examples of our clients within this field:

A West African government has commissioned our client; a well established Belgian dredging company; to monitor wave conditions off West Africa with more than 10 OBSCAPE WaveDroid buoys to determine workability at their coastal nourishment project site.

## Coastal & Offshore



[Click on the Icon to learn more about our WaveBuoy](#)



# Offshore Power Generation

Installed Offshore wind capacity is predicted to expand rapidly worldwide. Offshore wind speed data collected from sources from our wave buoys will report data from remote sensing satellites & can be assessed for viability of offshore wind farm location & turbine placement.

In addition Offshore Wind Farms, Oil Rigs & FPSO Real Time Environment Monitoring; are used to assess conditions prior to crew safe deployment.

## Application Example:

Offshore Wind Farm Wave Buoy depolyment, FPSO & Oil Rig Monitoring of Subsea mooring-lines and bottom-mounted frames

## Examples of our clients within this field:

Our client, a prominent Swedish company; monitors wave conditions at a windfarm in the Gulf of Bothnia, Finland, to determine safe working conditions for their vessel-based maintenance operations.

## Coastal & Offshore



[Click on the Icon to learn more about our WaveBuoy](#)





# Coastline Marine Construction

To assist you withstanding the forces of nature; data reporting from Obscape Devices & Dataportal can confirm tide levels, waves and wind which assists in the design construction of Marine & Coastline structures.

In addition, these Marine & Coastline structures are often constructed with the help of ships, Most of these operations can only be performed if the waves, water level and wind stay within acceptable limits. With the Obscape WaveDroid workability conditions can be monitored with measurement systems in order to manage the construction process.

## Application Example:

Time Lapse Camera, Tide Gauge & monitor for safe Platform installation, decommissioning and subsea pipeline.

## Examples of our clients within this field:

A Dutch marine surveying company measures the wave climate at the Eemsdijk in The Netherlands with 6 WaveDroid buoys to determine design conditions for a dike reinforcement. The project was commissioned by the Dutch government (Waterschap Noorderzijlvest).

# Coastal & Offshore



[Click on the Icon to learn more about our WaveBuoy](#)





# Ports & Nautical

Obscape assists with the monitoring & reporting of Man Made Enclosed Water Areas, Harbours, Moles, Breakwaters, Quays, Dry Docks, Floating Docks, Naval Bases, Berths & Terminals.

Through our powerful web portal, we provide a robust easy to use platform to access, monitor and manipulate weather information at a high resolution domain for port operations.

## Application Example:

Port Operations & Monitoring .

## Examples of our clients within this field:

Our SOE Client, based on the East Coast of Southern Africa required Obscape to develop innovative Cotre Product Solutions to advise port operators, on metweather area conditions for safe and profitable operation. Our economical PTM solution allows additional device deployment for a better informed decision of the areas of interest which increase safety and efficiency of marine operations in the port in real time, with threshold alerts and alarms.

# Coastal & Offshore



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# Marine & Estuarine

Obscape reports on Estuarine habitats where the saline waters of the ocean meet with fresh water from streams and rivers, which are usually very productive because of the accumulation of nutrients from fresh water runoff. These zones are breeding habitat for a variety of species.

## Application Example:

Water Quality, Tide Level & Time Lapse Monitoring of Estuaries, Lagoons & Beaches for Environmental Agencies & Government Authorities to gauge; the health of Ecosystems & Sediment Coastal Erosion.

## Examples of our clients within this field:

Obscape was commissioned by a Government Authority to monitor water quality to analyse the chemical, physical and biological properties of the water as indicators of the health of the aquatic environment of the ecosystem. Because of the rich biodiversity, unique ecosystems and natural beauty occurring in a relatively small area; water quality is vital to ensure a rich & healthy species diversity and ongoing speciation.

# Coastal & Offshore



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WAVE  
DROID



GPS  
DRIFTER



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QUALITY BUOY

CASE STUDIES  
REFERRALS  
Validations  
Projects



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# COASTAL & OFFSHORE INSTALLATION



## Case Study

Over 150 Devices deployed in the field off the East Coast of South Africa for a Local Government Agency

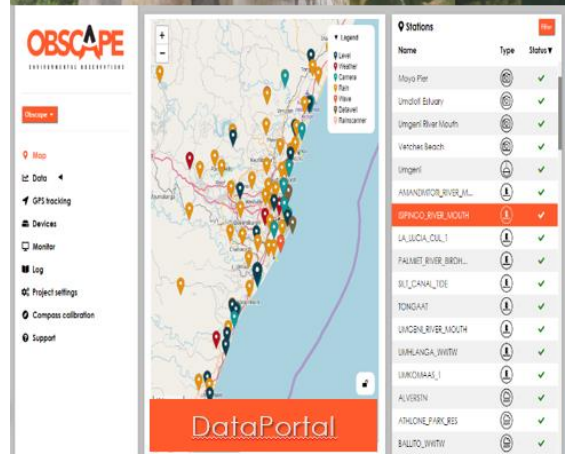
- TideGauges
- Level Gauges
- RainGauges
- WeatherStations
- TimeLapse Cameras
- Water Quality
- Wave Buoys
- Flow Gauges
- Weather Stations



RainGauge



WaveBuoy



DataPortal



RainGauge





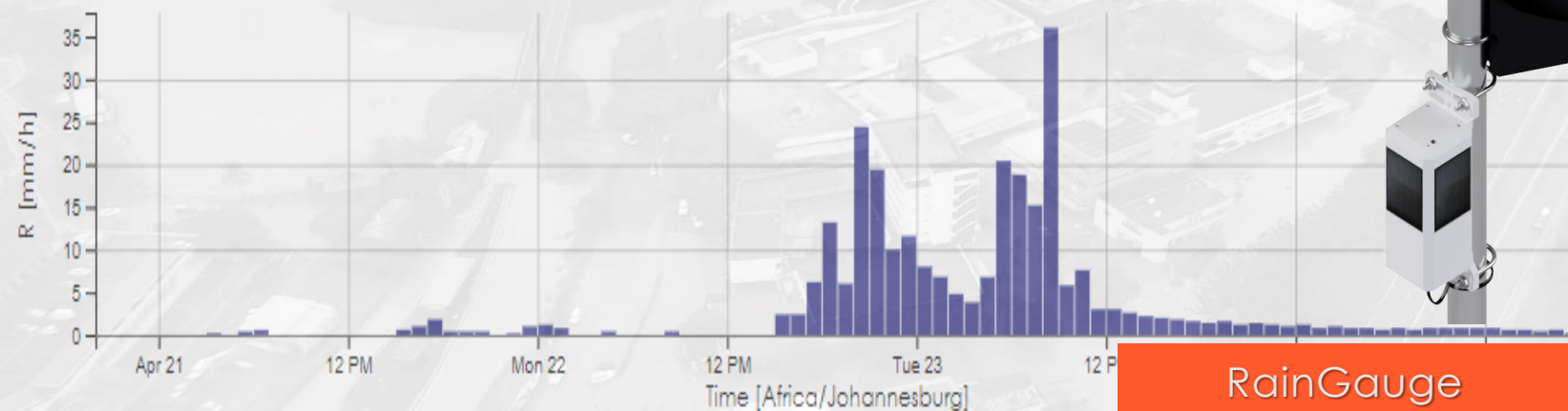
# Obscape TimeLapse, RainGauge & Water LevelGauge. Real Time Estuary Breach

2019-04-20 20:35

2019-04-24 17:22

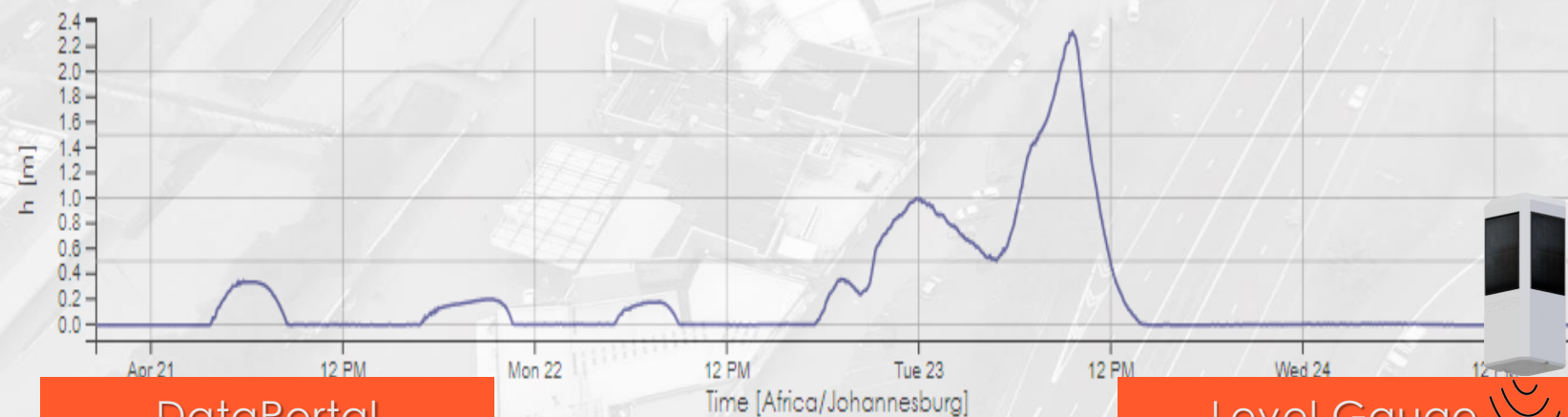
DataPortal

X Amanzimtoti Parks Dept - Rain: Rainfall intensity



RainGauge

X Amanzimtoti River Mouth - Level: Water level

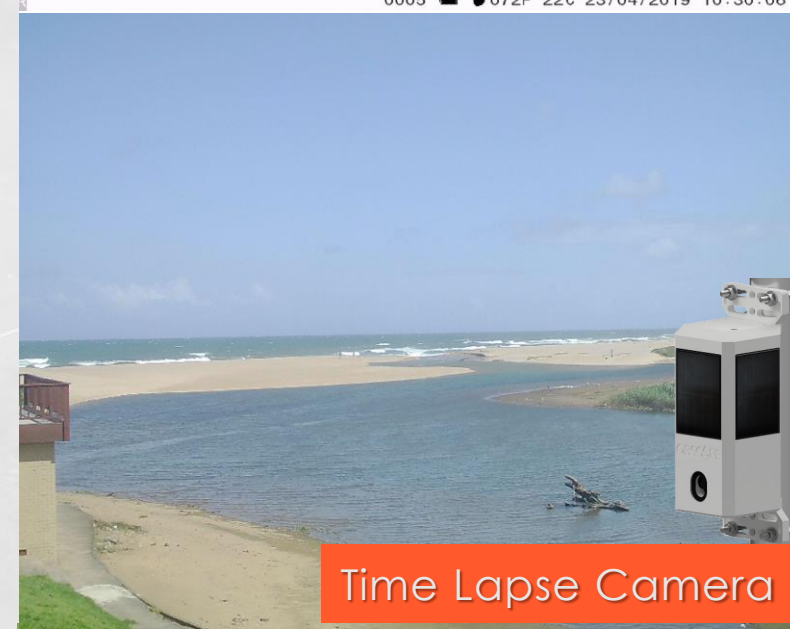


DataPortal

Level Gauge



Time Lapse Camera



Time Lapse Camera



# Level Gauge validation



In September 2020, a radar-based Obscape Level Gauge was deployed inside the Simon's Town harbour in South Africa. It was installed next to a validation instrument, being an OTT radar-based water level sensor. Over November 2020, water levels returned by the two devices were compared.

After inspection of the raw data comparison (Figure 1), it was found that water levels reported by the Obscape Level Gauge have a bias of 1.6 cm compared to the validation instrument. As this is most likely the result of inaccuracy in the vertical reference level of the devices rather than inaccuracy in the distances measured by the devices, it was decided to subtract the bias from the raw Obscape Level Gauge data in order to arrive at a cleaner comparison of the two datasets.

Both datasets contain short-term fluctuations as a result of wind-driven surface waves entering the harbour. Therefore, the two datasets were low-pass filtered with a Butterworth filter that had a cut-off period of 30 minutes. Finally, the OTT dataset was interpolated to the timestamps of the Obscape dataset to allow for calculation of error statistics (Table 1).

Error statistics of the shifted and filtered datasets reveal a root-mean-squared error of 1.4 cm between the two devices. It is thought that the largest portion of this remaining difference can be explained by the limited averaging period of both devices, which might be insufficient to average out the effect of wind-driver surface waves completely. The Obscape Level Gauge has a sampling rate of 5 Hz and uses an averaging period of 40 seconds to determine the water level. The averaging period of the OTT radar sensor amounts 20 seconds.

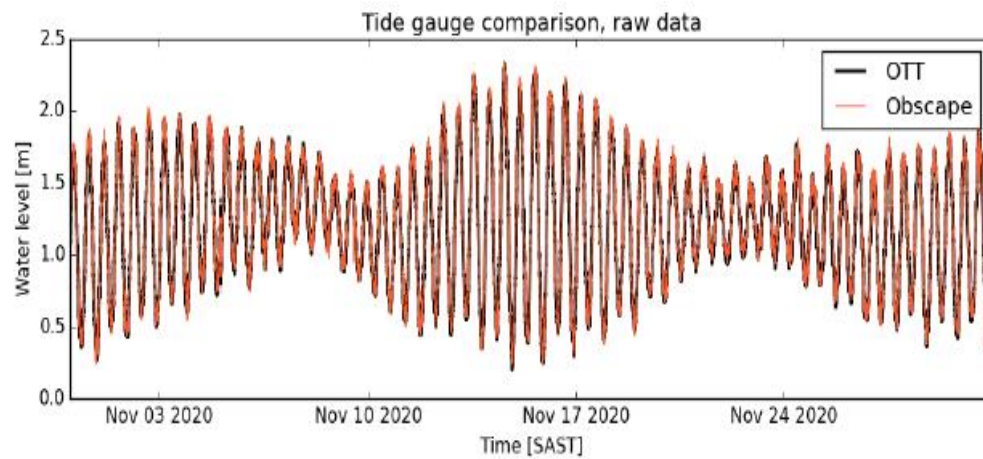


Figure 1: comparison of raw water levels

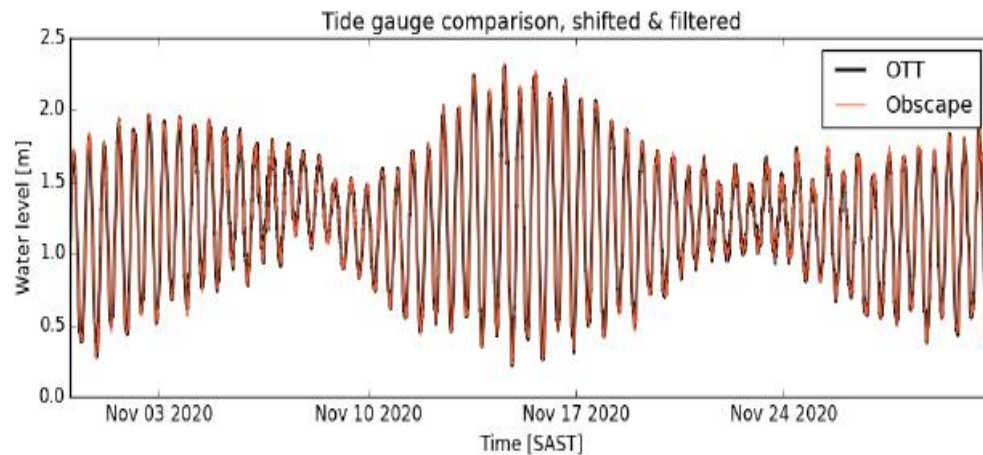


Figure 2: Comparison of shifted, filtered and interpolated water levels

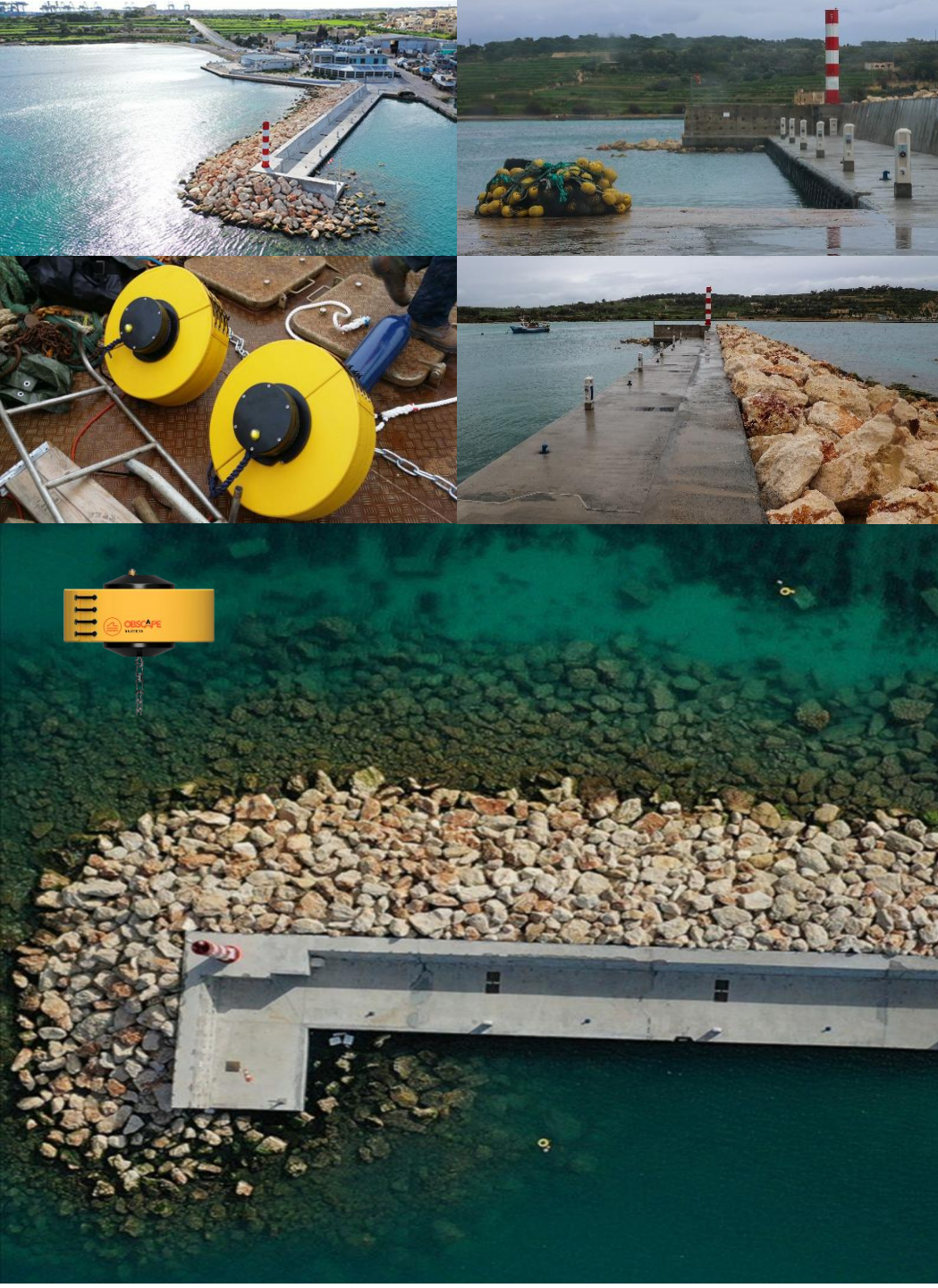
Table 1: Error statistics

	Raw	Shifted & filtered
Bias	1.6 cm	0.0 cm
Root-mean-squared error	3.1 cm	1.8 cm
Mean absolute error	2.4 cm	1.4 cm





# Qrejten Breakwater Project



The protection of Marsaxlokk fishing port in Malta is now possible with the construction of the Qrejten Breakwater and the deployment of coastal monitoring systems.

For many years, Marsaxlokk fishers have been calling for a new breakwater and offshore monitoring to protect and observe the inner harbour area including rough seas and storm events to prevent damages to their anchored vessels & shore-based equipment.

The solution was to construct a breakwater to prevent high waves entering the harbour, monitoring offshore conditions, and reducing the impact on Marsaxlokk port: operations, buildings and business operations in addition to the promenade, one of Malta's principal tourism zones.

Obscape had the great privilege of supplying two Wave Droids for monitoring the new Breakwater. The Obscape Wave Droid which along with our latest launched Wave Buoy, use real time wave measurement and directional data to make better informed decisions for our clients' coastlines.

Reference articles:

1. <https://www.independent.com.mt/articles/2021-01-28/local-news/Infrastructure-Malta-completes-Qrejten-Breakwater-Project-6736230547>
2. <https://www.infrastructuremalta.com/news/infrastructure-malta-completes-qrejten-breakwater-project>



# BVS Case study on Obscape equipment

Boyan Savov, B.V.S. Consult Ltd. Varna, Bulgaria

Our relationship with the founders of Obscape dates back over 15 years. During this time we have appreciated the innovative design and reliability, and at the same time the low operation costs for monitoring marine and coastal environments.

We are proud we were able to test and deploy their devices.

We learned a lot in the course of this collaboration, we feel dedicated to share our opinion and experience this with others.

Wave Droids were successfully deployed and operated by B.V.S. Consult in the last 4 years. Some of the experiences are illustrated below.

## ACAJUTLA, EL SALVADOR (15.05-31.12.2016)

B.V.S. Consult Ltd. worked on a soil investigation for a new LNG terminal at Acajutla, El Salvador. It was a very challenging project because of the ocean conditions. The work was undertaken on a small jack-up pontoon with limitations for maneuvering and jacking, including a wave height up to 1m. Given the weather circumstances, these limitations had a critical impact on the working conditions. Having real-time wave data was therefore of utmost importance. This is how we experienced the benefits of the Wave Droid on our first use. The Wave Droid's data allowed us to confirm a real time stand-by status due to a wave height greater than the set limitation. On the other hand, we were also able to monitor & confirm ideal operating ocean conditions, which significantly reduced the risk for the barge and the crew



Figure 1 The Wave Droid deployed at Acajutla, El Salvador

## BURGAS, BULGARIA (05.05.- 31.07.2016):

In 2017 B.V.S. Consult was appointed as the Consultant Engineer for the building of a new terminal at Port Burgas. Because of the configuration of the coastal area (bay area, breakwaters, etc.) we decided to deploy a wave droid for a specific time period to correlate the forecast with the real measurements of wave parameters. By doing this, it was proven that the wave forecast provided gave reliable data which served the project to the end of its execution. On Figure 5 correlation between forecast and measured is presented.

Comparison wave height (HS), average wave period (Tavg) and mean wave direction (Dir)

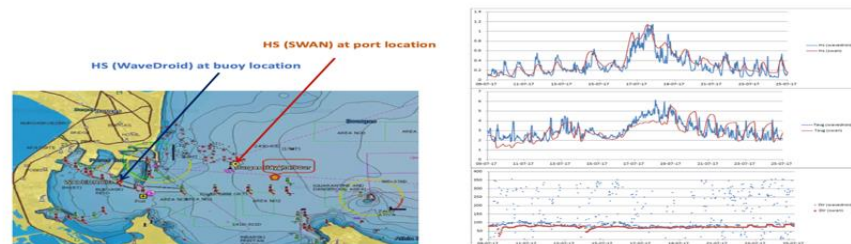


Figure 2 Wave Droid Data versus Wave Forecast for Port Burgas Area

## VARNA, BULGARIA (26.06.2019- ONGOING):

The Oceanographic station HERMES BG1 was deployed on June 26th 2019 on the western coast of the Black Sea, near the Bulgarian city of Varna located just offshore from Saint Constantine and Helena beach at a depth of 22 m approximately.

The northern edge of the Varna Bay location was chosen because from this particular angle the station is exposed to the most wave activity.

The station was in operation over a course of 12 months (including winter season) & proved its reliability and easy service.

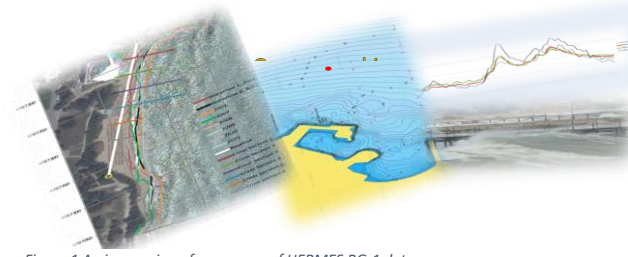


Figure 1 An impression of some uses of HERMES BG-1 data

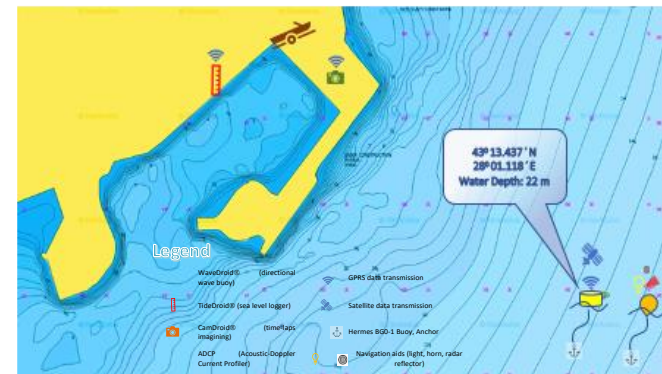
Some of the station's main components:

Obscape Wave Droid- real-time directional wave buoy;

Obscape Tide Droid - real-time tidal gauge based on radar facing down;

Obscape time-lapse camera for real-time visual monitoring of the area.

The wave data set was obtained in real time or downloaded via the ObsCape Data Portal.



The Obscape WaveDroid BlockIII, is a premium buoy model. It served the needs of the project as expected. With its robust design and easy operation, WaveDroid BlockIII made life easy.

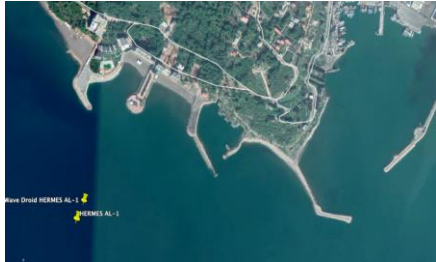
Alongside the objectives of the HERMES Project, another immediate use of the wave data was undertaken to study wave penetration in a marina under construction. The advantage of having real-time wave data allowed us to simultaneously measure the wave inside the marina with a small portable wave logger. This way we could verify the results of the HARES simulation for the current incident wave pattern.

# Case Study

SHIJNJIN, ALBANIA (20.12.2019- ONGOING):

B.V.S. Consult Ltd. was contracted by Albanian Company to assemble and deploy an oceanographic station similar to the one we installed near Varna. This deployment also included the use of our larger HERMES AL-1 buoy

About 60 m onshore from the big Hermes buoy, we deployed the Obscape Wave Droid Block III



Locations of buoys: 900 m offshore, depth of 21 m



The deployment of the Wave Droid from the deck of a fishing vessel

The deployment in Albania was undertaken during the buildup of a storm and wave heights were already 4 m. Twelve hours later, the maximum wave height reached 10 m and this was the first good test for the installed equipment.

Interreg  
Balkan-Mediterranean  
HERMES

BVSCONSU...

Project: Hermes

Map

Data

Station data

Combined data

Data overview

GPS tracking

Devices

Monitor

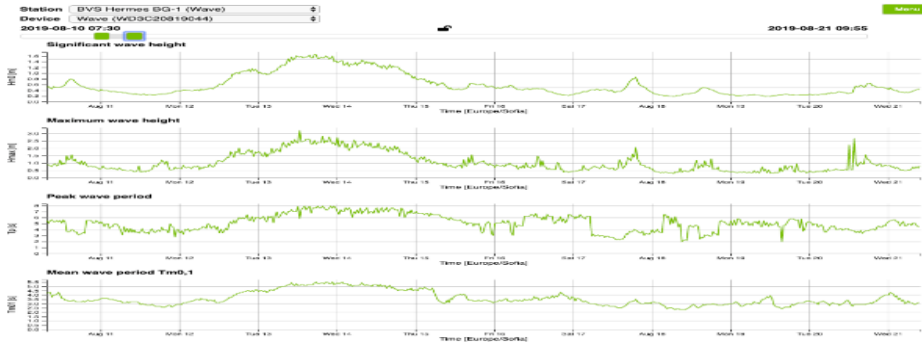
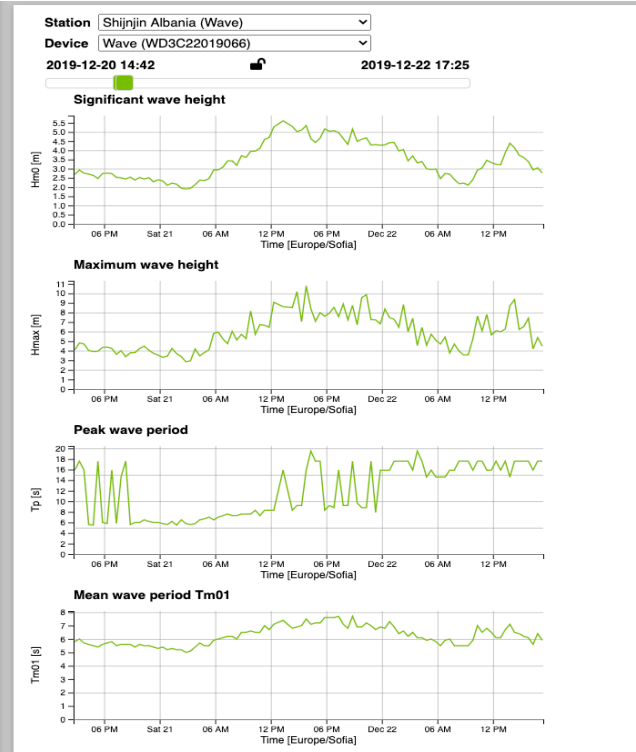
Log

Project settings

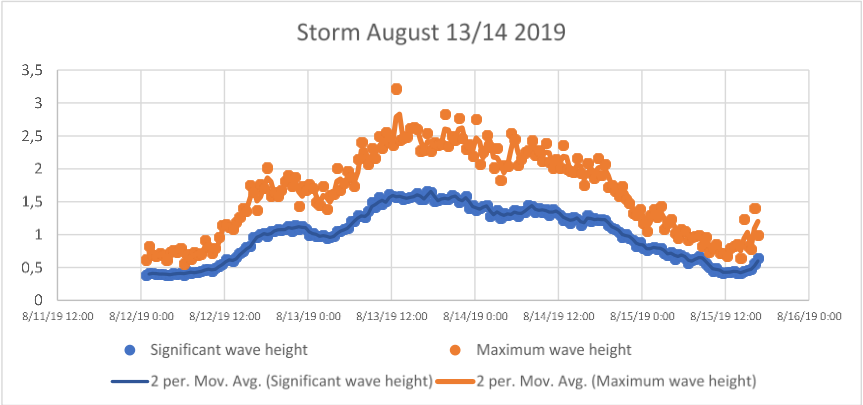
Satellite communication

Compass calibration

Support



Wave record 11-21 August, 2019



In the course of one-year measurements, three storms events were recorded with a maximum wave height of 5 meters at the storms peaks. Pictures taken during one of these storms are presented below.



Example- storm recorded on 23-26 March from the ObsCape Data Portal



## OBSCAPE TIDE DROID & WATER LEVEL GAUGE:

The Obscape Tide Droid, was installed at the Varna Oceanographic station, as shown on figure below ( left side).

It worked well. Occasionally we had to replace the battery pack, but this was mainly due to the short sampling interval. When a longer interval of around 2 hours was selected, the battery life span was much longer.

This unit has been replaced at Varna Oceanographic station and we have now installed the new Obscape Water Level Gauge (on the right side of figure 18 and the newest version of the Obscape Tide Droid) in its place. We really enjoy working with the new Obscape Water Level Gauge because it is a very compact device, with no external parts or wires, & all electronics & sensors parts placed in a single strong acetal housing. In addition because The device is using much less power, Three solar panels easily re-charge the battery. It is also very easy to install and operate the bscape Water Level.



*Our first Obscape Tide Droid (left) and the latest generation Obscape Water Level(right)*

# Key benefits to customer

- Telemetry connection
- Solar-powered – wireless
- Real-time Alerts & Data Forwarding
- 3<sup>rd</sup> party sensor interface
- Secure & Free to Use Data Portal
- Affordable Devices
- Robust & Durable
- Low maintenance for remote deployments



Click on the Icon to learn more about our Core Products







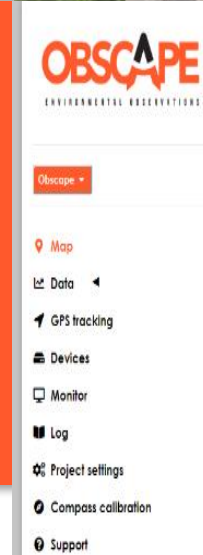
RainGauge



WaveBuoy

# Full Turnkey

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DataPortal

Stations			Filter
Name	Type	Status	
Maya Pier		✓	
Umdloti Estuary		✓	
Umgenti River Mouth		✓	
Vetches Beach		✓	
Umgenti		✓	
AMANZIMOTI_RIVER_M...		✓	
ISPINGCO_RIVER_MOUTH		✓	
LA_LUCIA_CUL_1		✓	
PALMIET_RIVER_BIRDH...		✓	
SILT_CANAL_TIDE		✓	
TONGAAT		✓	
UMGENI_RIVER_MOUTH		✓	
UMHLANGA_WWTV		✓	
UMKOMAAS_1		✓	
ALVERSTIN		✓	
ATHLONE_PARK_RES		✓	
BALLITO_WWTV		✓	



RainGauge

# OBSCAPE

ENVIRONMENTAL OBSERVATIONS